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**COGNITIVE GENRE PROTOTYPE MODELLING AND ITS
IMPLICATIONS FOR THE TEACHING OF ACADEMIC WRITING TO
LEARNERS OF ENGLISH AS A SECOND LANGUAGE**

**A thesis
submitted in fulfilment
of the requirements for the Degree
of
Doctor of Philosophy
by
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ABSTRACT

The overall aim of this research project is to identify and analyse recurring prototypical discourse patterns in academic writing in English in order to inform the teaching of writing for academic purposes to non English-speaking background (NESB) students.

Chapter 1 presents the motivation for the thesis, and outlines the aims, objectives, and research methods. Two concepts for the classification of discourse are proposed – *cognitive genre* and *social genre*. In relation to the former, four prototypes (termed *Rhetorical Types*), characteristic of written academic discourse, are identified.

Chapter 2 reviews a number of approaches to the categorisation of discourse, beginning with classical rhetoric, and tracing the progress of discourse-classification constructs over time, focusing primarily on cognitive rather than social genre.

Chapter 3 critically reviews recent pedagogic approaches to the classification of extended written discourse in terms of social genre. These focus, at a macro-level, on overall organisational structure and, at a micro-level, on linguistic features. It is concluded that any adequate construct for classifying extended written discourse also needs to involve cognitive frameworks that organise knowledge (*see Chapter 4*).

Chapter 4 reviews cognitive approaches to the classification of knowledge and seeks to establish the centrality of knowledge-organising prototypes and prototype-internal, procedural knowledge and to relate these to the cognitive organisation of written discourse.

Chapter 5 proposes a cognitive model for the organisation of procedural knowledge in written academic discourse in English. On the basis of this model, four types of cognitive genre (referred to here as *Rhetorical Types*) commonly drawn upon in the structuring of academic discourse are discussed. They are: *Report*, *Explanation*,

Recount, and *Discussion*. The relationship between the Rhetorical Type construct (as a cognitive genre) and the concept of social genre is also discussed.

Chapter 6 examines each aspect of the Rhetorical Type model proposed earlier (*see Chapter 5*) in terms of its occurrence in a corpus of academic texts and by reference to sample texts from the corpus.

Chapter 7 reports on two studies. The first involves examining samples of native-speaker and non-native-speaker writing in terms of the model proposed in Chapters 5 and 6. In the second, the model ratings of a small number of scripts (from the first study) are compared with grades assigned to the same scripts by two expert raters unfamiliar with the model.

Chapter 8 provides an overview of the research, and discusses its implications for the teaching and learning of English as a second language.

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² The analysed samples of Study 1 are included in the thesis as PDF files on the accompanying compact disk.

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CHAPTER ONE:

INTRODUCTION – RESEARCH QUESTIONS AND RESEARCH METHODS

1.0 Motivation for the research

This research arises out of a range of issues that I have found necessary to address when teaching academic writing to non-English-speaking background (NESB) students, particularly those preparing to study in English-medium tertiary institutions. My interest relates, in particular, to the needs of students from East Asian countries, many of whom experience difficulties in coping with the differences between the ways in which discourses are typically organised in their own languages and in English. For these students, the development of *discourse competence* based on an understanding of the procedural knowledge involved in discourse organisation can be critical (see Widdowson, 1983).

1.1 Introducing discourse competence

In a range of models put forward to describe the complex concept of *communicative competence*, discourse competence is included as an essential component. Canale (1983) defines discourse competence as “mastery of how to combine and interpret meanings and forms to achieve unified text in different modes by using (a) cohesion devices to relate forms and (b) coherence rules to organize meanings” (p. 339). In discussing a model relating to language assessment, Bachman (1990) includes within the domain of communicative

competence what he refers to as *textual competence*, involving both *cohesion* and *rhetorical organisation*:

Cohesion comprises ways of explicitly marking semantic relationships such as reference, substitution, ellipsis, conjunction and lexical cohesion, as well as conventions such as those governing the ordering of old and new information in discourse. Rhetorical organisation pertains to the overall conceptual structure of a text, and is related to the *effect* of the text on the language user (Bachman, 1990, p. 88)

Celce-Murcia and Dörnyei (1995), in developing a communicative competence model for pedagogical purposes, also include discourse competence as one of the five components. Within the domain of discourse competence they include “*cohesion, deixis, coherence, generic structure and conversational structure* inherent to the turn-taking system in conversation” (1995, p. 13).

Discourse competence is also included as part of a broader category of *pragmatic competence* in the *Common European Framework of Reference for Languages* where it is stated that *discourse competence* is:

the ability of a user/learner to arrange sentences in sequence so as to produce coherent stretches of language. It includes knowledge of and ability to control the ordering of sentences in terms of:

- topic/focus;
- given/new;
- ‘natural sequence e.g. temporal . . .
- cause/effect (invertible) . . .

- ability to structure and manage discourse in terms of: thematic organisation; coherence and cohesion; logical ordering; style and register; ‘rhetorical effectiveness’ the *co-operative principle*’ (Grice 1975) (Council of Europe, 2001. p. 123).

Exercising discourse competence in relation to written academic English text includes writing and encoding as well as reading and understanding. This involves drawing on a range of knowledge types including:

- knowledge communicated through the discourse;
- organisational or procedural knowledge; and
- linguistic knowledge.

The last of these two may be located in terms of the conventional patterns of organisation or frameworks of texts considered appropriate by those members of the discourse community who are familiar with the type of communication involved (see Perelman and Obrechts-Tyteca, 1969; p. 99; Swales, 1990, p. 58). Each knowledge type, furthermore, also involves its own internal classificatory or organisational system. Thus, discourse competence involves, in the context of rhetorical purpose and social setting, the complex organisation of linguistically represented ideas.

The primary focus of this research is that procedural knowledge which native-speakers may employ in an *automatic* or *semi-conscious* way (Chafe, 1994, pp. 29, 110; McLaughlin, 1990, p. 114) to create extended discourse in relation to a type of rhetorical purpose and a type of content knowledge.

Procedures . . . are used to match up and adjust schemata in the discourse process And it is this procedural ability which realizes schematic knowledge as communicative behaviour This concept covers a range of different activities which have been variously referred to as inference, practical reasoning, computing cross reference, negotiation of meaning, problem solving, and so on (Widdowson, 1983, pp. 40-41).

In *Chapter 5* (see *Figure 5.1*, p. 196), a model accommodating a range of relationships between procedural knowledge and content knowledge, and procedural knowledge and linguistic knowledge is proposed. Although the research reported here has implications for cognitive processing, it is the procedural knowledge that arises out of cognitive processes (rather than cognition itself) that is at the centre of this study.

1.2 An introductory note on terminology

Terms relating to the classification of written discourse (such as *genre*, *text* and *text-type*) are used in different ways in research literature associated with different historical traditions. For this reason, different readers may have different expectations in relation to the use of these terms. It is important, therefore, to outline how terms such as these are used in the context of this study. Using the term *genre* with reference to types of written texts, a distinction is made between two different types of genre: *social genres* and *cognitive genres*.

Social genres are similar in type to the category of *text genre* proposed by Pilegaard and Frantsen (1996), referring to socially recognised constructs

according to which whole texts are classified in terms of their overall social purpose. Thus, for example, personal letters, novels and academic articles are examples of different social genres, which are created to fulfil different types of socially recognised and understood purpose. Although a specific example of a particular social genre may exhibit features of a single *cognitive genre* (see below), it is more common for examples of social genres to exhibit features of more than one cognitive genre.

The term *cognitive genre* is used to refer to what Pilegaard and Frandsen (1996) label *text type*. As examples, they cite: “narrative, expository, descriptive, argumentative or instructional text types” (Pilegaard & Frandsen, 1996. p. 3). Cognitive genres can, therefore, be aligned with *macrofunctions* as described by the Council of Europe: *Common Framework of Reference. Macrofunctions* are: “categories for the functional use of spoken discourse or written text consisting of a (sometimes extended) sequence of sentences e.g. description, narration, commentary, exposition, exegesis, explanation, demonstration, instruction, argumentation, persuasion” (Council of Europe, 2001, p. 126)

The term cognitive genre is used here to refer to the overall cognitive orientation of a piece of writing in terms of its realisation of a particular rhetorical purpose, something that is reflected in the way in which information is internally organised and related. Fundamental to this is the role played by various types of relationship between propositions. Different types of rhetorical purpose (such as, to recount sequenced events, to explain a process, to argue a point of view) instantiate different cognitive genres. A particular example of a social genre (e.g. a personal

letter) may draw upon a range of different cognitive genres in relation to the different rhetorical purposes (e.g. presenting an argument; providing an explanation) that may characterise different sections of the overall message.

It is argued here that different rhetorical purposes are associated with different cognitive genres and, thus, with the engagement of different cognitive frameworks. Thus, for example, in presenting or interpreting a discursive argument (rhetorical purpose), language users will engage the cognitive framework appropriate to that rhetorical purpose, that is, a particular combination of causative and comparative/contrastive relationships (see *Discussion Rhetorical Type*, p. 13). It is argued that although these cognitive frameworks are available to all cultural groups and to all sub-groups within these cultural groups, different groups will have preferred ways of drawing upon them (see Bartlett, 1932, p. 132). Thus, for example, the Western academic tradition draws upon the cognitive framework associated with argumentative discourse in particular ways that, taken together, constitute a prototype for that variety of discourse - referred to here as a *Rhetorical Type*. Within the context of culture in which they are operating, writers may engage a range of different cognitive genres (realised by the associated Rhetorical Types) in relation to a range of different rhetorical purposes.

Thus, a Rhetorical Type is an example of a cognitive genre that is typically associated with a particular context of culture. In constructing or interpreting a particular instance of a social genre (e.g. a personal letter), a writer may draw

upon a range of Rhetorical Types (associated with particular cognitive genres) in order to realise a range of rhetorical purposes.

Whole texts realising different social genres (such as, for example, scientific reports), typically combine and frame a range of cognitive genres (represented by Rhetorical Types). In addition, different social genres are characterised by different framing features (such as, for example, an introductory salutation and greeting in the case of letters) as well as by different introductory and linking features (ways of introducing and linking different cognitive genres). However, some whole texts, such as, for example, instruction manuals, may be associated with a single cognitive genre by virtue of the fact that they have a single rhetorical purpose. It may be for this reason that there is considerable disagreement about terminology in the research literature. Thus, what is referred to here as *social genre* may be referred to in the research literature as either *genre* or *text-type*.

The primary focus of this research is on cognitive genres and, in particular, those realisations of cognitive genres - Rhetorical Types - which are characteristic of writing in English within the Western academic tradition. It is proposed here that introducing students of English from non-Western cultures to these Rhetorical Types will provide them with an appropriate basis from which to investigate the creative potential of cognitive genres. As Bakhtin (1986) notes, “genres must [first] be fully mastered to be used creatively” (p. 86). Furthermore, an understanding of cognitive genres is considered here to be fundamental to the investigation of social genres. Thus, students who have been introduced to those Rhetorical Types associated with the cognitive genres characteristic of academic

writing can go on to examine the features that are characteristic of those social genres which are associated with their particular choice of academic discipline.

The definitions and distinctions introduced in this section will be called upon in the thesis as necessary to explain and clarify any potential problems relating to terminology that may arise during the discussion of relevant research literature in the general area of rhetorical approaches to discourse.

1.3 Research questions and research methods

Underlying this research project are two research questions:

- What are the main types of cognitive genres that occur in academic writing and how are they structured as discourse?
- Is it possible to undertake research that will adequately test the effectiveness of the proposed discourse classification model?

The search for an answer to these questions involves five stages:

- a review of classificatory frameworks relating to academic discourse in relation, in particular, to the social genre/cognitive genre distinction (see *Chapters 2 and 3*);
- the establishment of the factors that need to be taken into account in formulating a discourse classification construct that is sufficiently powerful to allow for meaningful discrimination among cognitive genres and their culture-specific Rhetorical Types in academic English prose (see *Chapter 4*);

- the design of discourse classification model for academic prose (involving four Rhetorical Types) in terms of the factors established in *Chapters 2, 3 and 4* (see *Chapter 5*);
- examination of a small corpus of 20 academic articles for instances of the four Rhetorical Types and the detailed examination of one illustrative example of each Rhetorical Type (taken from the corpus) in terms of the features of the Rhetorical Type model (see *Chapter 6*)
- testing the Rhetorical Type construct by gathering empirical data from samples of writing by native-speaker and non native-speaker users of English and analysing these samples in terms of the proposed model and also in terms of independent global ratings by people judged to be experts in academic discourse (see *Chapter 7*).

1.4 The studies conducted

1.4.1 Study 1: Collection and analysis of writing samples

The aims of the first study are set out below:

Aim 1: To determine the extent to which the cognitive organisational features present in samples of writing conform to those identified in proposed prototype models of the four Rhetorical Types that are the focus of enquiry;

Aim 2: To determine whether, and to what extent, the cognitive organisational features (identified in the models) used by experienced writers of particular discourse types differ from those of inexperienced writers;

Aim 3: To determine whether, and to what extent, the cognitive organisational features used by inexperienced writers of particular discourse types differ in the case of native and non-native speakers of English.

For each of the Rhetorical Types under consideration, a writing task was designed. Members of three groups of writers (experienced native-speaker writers; less experienced native-speaker writers; less experienced non native-speaker writers) were asked to complete one or more of four tasks, each involving the production of samples of writing. Each of the writing samples was then analysed in terms of the related Rhetorical Type and the presence or absence of those cognitive organisational features associated with that Rhetorical Type in the proposed model.

1.4.2 Study 2: Assessing the effectiveness of the writing samples - expert ratings

In terms of extent of conformity with the features identified in the model, the writing samples relating to each of the four Rhetorical Types (and the four different tasks) were classified as being *highly prototypical*, *prototypical*, *less typical* and *not prototypical*. These writing samples were then randomly ordered and assigned to expert raters (academics involved on a daily basis in assessing academic writing). These raters, who had no knowledge of the model being tested, were then asked to rate each written response to the tasks in terms of effectiveness of task response, using the following four-point scale: *excellent*, *some very good features*, *a small number of very good features* and *poor*. The two types of rating were then compared in order to determine the extent to which the

judgements of expert raters correlated with the presence of those features identified within the model as being typical of samples of each of the four Rhetorical Types.

1.5 Rhetorical Types in academic discourse

Four Rhetorical Types are proposed as being prototypical realisations of cognitive genres in the context of English academic discourse. The cognitive discourse model for the four Rhetorical Types that are identified takes into account:

- the need to identify discourse categories as a basis for instruction in extended academic writing;
- the need to identify discourse categories that are not discipline-specific (cognitive rather than social genres) for use in the instruction of groups of students preparing for studies in a variety of disciplines;
- the need to accommodate the notion that human categorisation (including categorisation of discourse) is based on of *prototypes* or *family resemblances*, with more and less typical members of categories (Wittgenstein, 1951; Rosch, 1973, 1975, 1978; and Rosch & Mervis, 1975);
- the need to accommodate the notion that categorisation generally relates to intention (Barsalou, 1983; Murphy & Medin, 1985) and purpose - different types of “rhetorical problem need” (Bereiter & Scardamalia, 1987; Hinkel 2002);
- the need to take account of historical approaches to cognitive genre categorisation (Campbell, 1776/1963; Bain , 1871);

- the need to take account of more recent pedagogic taxonomies of cognitive genres, taxonomies that are motivated by different types of rhetorical or communicative purpose (Longacre, 1976; Macken et al, 1989; Derewianka, 1990; Knapp & Watkins, 1994; and [especially] Quinn, 1993); and,
- the need to accommodate those corpus-based studies of text types, which identify those text types most frequently associated with academic prose (Biber, 1988, 1989).

Biber (1988, 1989) identifies four *text-types* (as distinct from socially-recognised genres) as being typical of academic English prose. Although the same four are the focus of attention here, there is a fundamental difference between the approach adopted by Biber and the approach adopted here. Whereas Biber makes reference in describing what he refers to as text-types to linguistic and stylistic features, there is here no reference to stylistic features. Furthermore, only those linguistic features that can be directly related to cognitive orientation (arising out of rhetorical purpose) is considered here. Thus, although the engagement of particular cognitive genres (realised in terms of prototypical Rhetorical Types) is considered here to have implications for linguistic realisations, implications that need to be taken into account in any consideration of cognitive genres, these implications are not seen as extending to all aspects of the language of texts. Other aspects of linguistic choice are, it is argued here (see *Chapter 3*), more appropriately dealt with in the context of a consideration of social genres.

Thus, cognitive genre prototypes associated with particular contexts of culture are identified here as Rhetorical Types. Four Rhetorical Types, argued to be the most commonly occurring in academic discourse in English, are the focus of attention. These draw on the text type classifications of Biber (1989) and Quinn (1993). Each of these is described in terms of a model (see *Chapter 5*) whose main components are: *rhetorical focus*, *gestalt structure*, *overall discourse patterning* and *principal internal discourse patterning* (inter-propositional relations). A summary outline of each is shown in ***Table 1.1*** following.

Table 1.1: Outline of the Rhetorical Type Model

Report Rhetorical Type: Static Descriptive Presentation

| | |
|--|--|
| Rhetorical Focus | Presentation of data or information that is essentially non-sequential |
| Gestalt Structure | WHOLE PART structure, of which the PART has an UP DOWN structure |
| Overall Discourse Patterning | <i>Preview – Details</i> |
| Principal Internal Discourse Patterning | Amplification; Reason-Result, Grounds-Conclusion; Simple Contrast, Comparative Similarity, Concession-Contraexpectation, Condition-Consequence |

Explanation Rhetorical Type: Means-focused Presentation

| | |
|--|--|
| Rhetorical Focus | The presentation of information with the orientation on <i>means</i> . |
| Gestalt Structure | SOURCE PATH GOAL schema; LINK schema |
| Overall Discourse Patterning | <i>Preview – Details</i> |
| Principal Internal Discourse Patterning | Means-Purpose, Means-Result, Amplification, Concession-Contraexpectation |

Discussion Rhetorical Type: Choice / Outcome-focused Presentation

| | |
|--|--|
| Rhetorical Focus | Focus on the organisation of data in relation to (possible) outcomes/conclusions/choices |
| Gestalt Structure | CONTAINER schemata (more than one) |
| Overall Discourse Patterning | <i>Generalisation – Examples and Matching</i> |
| Principal Internal Discourse Patterning | Grounds-Conclusion, Reason-Result, Means-Purpose, Means-Result, Concession-Contraexpectation |

Recount Rhetorical Type: Sequential Presentation

| | |
|--|---|
| Rhetorical Focus | Presentation of data or information that is essentially sequential or chronological |
| Gestalt Structure | SOURCE PATH GOAL schema |
| Predominant Internal Discourse Patterning | <i>General – Particular</i> |
| Principal Internal Discourse Patterning | Means-Purpose, Means-Result, Amplification. Chronological Sequence, Grounds-Conclusion, Reason-Result |

1.6 Summary

A prototype-based system for classifying written academic discourse in English is proposed here. That system, which identifies and describes four primary, non subject-specific Rhetorical Types, relates to procedural knowledge. It is hoped that

this system can provide a rational basis for the development of an effective pedagogy relating to the academic discourse competence of NESB students.

Chapter 2 provides an historical overview of some Western approaches to discourse categorisation, focusing in particular indications of an emerging awareness of the distinction between social genre and cognitive genre.

CHAPTER 2:

LOCATING THE RESEARCH IN RELATION TO A CRITICAL REVIEW OF SOME LANDMARK PUBLICATIONS IN TRADITIONAL AND MODERN STUDIES OF RHETORIC

2.0 Locating the research within the rhetorical tradition

This chapter provides a brief historical overview of approaches to the classification of written and spoken discourse from the classical Greek and Roman periods to the end of the twentieth century. Particular attention is paid to the fact that most approaches to classification include both social and cognitive factors.

2.1 The Classical Period

The roots of the tradition of rhetorical investigation can be traced to ancient Greece where the term *rhetoric* was used with reference to the principles involved in training oral communicators. In the fifth century BC, peripatetic educators, known as *sophists*, included politics, grammar, etymology, history, physics, and mathematics in their teaching repertoire as well as rhetoric. However, many of them focused on teaching rhetoric to aspiring politicians, the emphasis being not on the search for truth, but on the ways in which oral arguments, however fallacious, could be constructed in order to persuade audiences. The term *sophist* had negative connotations at the time of Plato and Aristotle, being associated with the promotion of a type of rhetorical tuition that often involved faulty logic as well as elaborate ornamentation. However, both Plato and Aristotle were among

those who helped to redirect rhetorical tuition so that it became increasingly associated with intellectual discovery and the formulation and communication of sound arguments, becoming fundamental to education. (This review is based on the work of Herrick, 1997.)

Although by no means the first, Aristotle's *Rhetoric* is significant in that it attempts to establish precepts for future discourse. On the basis of an analysis of current practice, it lays down a clear set of directions identifying the communicative elements and the formal structuring of oratory. Aristotle defines rhetoric as "an ability in each particular case, to see the available means of persuasion" (Aristotle, trans. 1991, p. 36). This has also been translated as "the power of perceiving the available persuasives (*pisteis*)" (Aristotle, in Conley, 1990, p. 14) which "will vary according to the nature of the problem being addressed in a rhetorical situation" (Conley, 1990, p. 24). Constructing persuasive argument involved "(1) the claim being made by the orator; (2) the evidence cited in support of it [the claim] and (3) the *protasis* [premise] that links them together (Conley, 1990, p. 15).

In a sense, Aristotle's purpose can be said to have been the identification of the communicative elements as well as the organisational forms of certain idealised or prototypical types of discourse for use in public persuasion. Thus, rhetoric is classified at two levels. First, types of persuasion are grouped along with the different means employed by each to link claim and evidence in order to achieve different types of rhetorical purpose. This aspect of Aristotle's approach can be associated with what have been referred to here as *cognitive genre*. In addition,

Aristotle classifies whole discourses (types of persuasive speeches) according to their overall purpose and social setting. In this respect, there is a relationship between Aristotle's work and what are referred to here as *social genres*. Thus, in the writings of Aristotle, we can detect a tendency to the description and categorisation of discourse in both cognitive and social terms.

Two influential treatises which reflected the Roman approach to rhetoric and which influenced later medieval developments were Cicero's *De Inventione* and *De Oratore*. *De Inventione* is the first part of a five-part book on rhetoric. Here, Cicero defines rhetoric as a type of political science dealing with expressiveness or eloquence, claiming that it should involve philosophy and a wide knowledge of human behaviour. Relevant to what is referred to in this thesis as *social genre* is Cicero's identification of three types of speech: *forensic* (or legal), *deliberative* and *occasional*. He notes that a speech usually has a number of functional parts, including *exordium*, *narration*, *partition*, *confirmation*, *refutation*, *digression* and *peroration*. Relevant to what are referred to here as *cognitive genres* is Cicero's treatment of internal structuring of debate, which he terms *controversia*. Conley (1990) defines this as:

a dialogue in which practical or philosophical formulations are situated in divergent frames of reference, brought into conflict in debate, and tested for the respective claims of *probabilitas* [provability of a claim by means of argumentation]. *Controversia* requires that other sides of any question be heard thus creating the conditions necessary for arriving at decisions and negotiating differences (p. 37).

Cicero's work exerted considerable influence on rhetoric in the Middle Ages, his approach being referred to as *rhetorica prima* or *rhetorica vetus*.

2.1.1 Summary and implications for the study

Within classical rhetoric, we find two different approaches to the classification of discourse. One of these, in its emphasis on socially recognised or conventional patternings and overall discourse structure, can be related to what are referred to here as 'social genres'; the other, in its emphasis on the internal organisation of ideas, can be related to what are referred to here as 'cognitive genres'. Classical rhetoric was primarily concerned with oratory, the emphasis being on its potential to influence society through its psychological effects on listeners. The classical cultures produced no separate rhetorical rules for writing, and the application of rhetorical principles to both speaking and writing continued until the Middle Ages.

2.2 The Middle Ages

Saint Augustine (354 – 430) wrote *De Doctrina Christiana*, one of the most influential works on rhetoric of this period, between A.D. 396 and 426. This work can be seen as an attempt to provide Christian preaching with a firm foundation by applying to it the principles of Ciceronian rhetoric. In *De Doctrina Christiana*, Augustine urges a union of form (based on rhetorical principles) and content (based on Christian doctrine), noting in *Book 4* that oratory should be used to lead men to (Christian) truth rather than the achievement of political power. Following the Roman approach to instruction in rhetoric, he recommends that imitation of good models should precede attempts to incorporate individual inventiveness.

Through the Dark Ages and the early medieval period, a number of monastic encyclopaedists recorded versions of, and commentaries on, works of classical rhetoric¹. In the seventh century, Bishop Isidore of Seville (c. 570 – 636) proposed that an education in seven liberal arts (including grammar, rhetoric and dialectic) should precede a religious education. His proposal foreshadowed later developments in medieval schools and universities where what came to be known as the *trivium* (the literary, rhetorical and dialectical uses of language) was considered to be the foundation of the educational curriculum.

Throughout the Middle Ages, rhetorical studies appear to have focused on the social/rhetorical purposes of discourses (referred to here as *social genres*), the emphasis being on their overall organisation. One of the most influential works of the period was *De Institutione Clericorum* (A.D. 819). In this work, Rabanus Maurus, in giving advice to preachers, drew freely on the work of the classical rhetoricians, blending elements of their work with new approaches. This selective and pragmatic use of classical principles during the medieval period, called *rhetorica nova*, was applied to a wide range of written texts, including letters, legal documents (*ars dictaminis*), sermons (*ars praedicondi*) and verse (*ars poetriae*), and the fact that written discourses might be structured differently from spoken ones began to be taken into account.^{2,3,4} In addition to an emphasis on

¹ These included *Institutiones divinarum et secularum litterarum* by Cassiodorus (fifth century), and Boethius' commentary on the *Topica* of Cicero and his translation into Latin of the works of Plato and Aristotle (sixth century).

² A series of doctrines relating to formal letter writing – *ars dictaminis* - began with the monk, Alberic of Monte Cassino, who was the first to associate rhetoric with letter writing in his treatises *Dictaminum radii* (about 1087) and *Breviarum de dictaminis*. In these, he proposed standardised parts to a letter. In the early twelfth century, building on Alberic's approach, a number of writers at the University of Bologna in Northern Italy produced more detailed treatises on formal letters, and

overall discourse structuring, rhetoricians focused on style, often encouraging the use of formulaic language that included a range of figures of speech of different types. (This review is based on the work of Murphy, 1974.)

2.2.1 Summary and implications for the study

During the Middle Ages rhetorical principles were applied to written texts, such as poems, letters and sermons as well as to speeches and approaches to rhetorical analysis were broadened. There was an emphasis on the overall structuring of different types of discourse to achieve certain social purposes (social genres) as well as a concern that linguistic choices should be stylistically appropriate, often drawing, particularly in late medieval manuals on preaching, upon formulaic language, including a range of figures of speech.

2.3 The Renaissance

During the Renaissance, the rhetorical works of the Middle Ages were revisited in the light of classical rhetoric, the printing press allowing rediscovered classical

Bologna became the centre of the dictaminal movement. The Bolognese treatises, specifying the structure of letters, remained influential throughout Europe over the next 300 years.

³ In the first two decades of the thirteenth century, a new rhetoric for preaching in Christian churches appeared, with manuals giving guidance in the art of preaching - *Ars Praedicondi* - being published in several European countries. Two key writers of the doctrines of this new rhetoric were Alexander, Prior of Ashby, and Thomas Chabham of Salisbury Cathedral. Alexander wrote *De modo praedicondi* around the year 1200 in which he proposes that a sermon should have four parts: prologue, division, proof and conclusion. This four-part approach appears not dissimilar to the rhetoric of Aristotelian and Ciceronian rhetoric. The *Summa de arte praedicondi* of Thomas of Salisbury explains the structural divisions of a sermon in terms of: *prothema* (antetheme), *theme* (which includes scriptural references), *prosecutio* (detailed development of the elements of the theme) and *conclusio*. Another important writer of the time was Richard of Thetford, whose work *Ars dilitandi sermons* (c. 1250) sets down eight ways in which the content of a sermon may be amplified or developed. The principles of these early writers later became formalized into rules in the work of the Franciscan, Jean de la Rochelle, entitled *Ars conficiendi sermones*. He sets down a set of rules that direct the sermon writer in how to develop certain types of theme.

⁴ For poetry, (*Ars Poetriae*), the *Doctrinale* (1199) of Alexander of Villedieu deals with syntax, etymology, quantity, accent, tropes and figures. In the *Ars Poetriae*, what was new was the proposal that poems are written in certain styles and are of particular kinds or genres.

works⁵ to be widely disseminated. In the sixteenth century, logic, which had been the primary subject of study, was replaced by grammar and rhetoric, including the study of classical writers. Rhetoric was also a key element in the education provided by grammar schools, many of which were established at this time⁶. Pupils began by focusing on the grammar and syntax of written Latin texts in their reading. In their own speaking and writing, they were taught to imitate models, using different styles for different purposes and adhering to formulae, such as, for example, the common five-part sectioning of speeches⁷. In addition, they were expected to be familiar with a variety of *figures* and *tropes*.

During this period, there was considerable emphasis on letters, written speeches,⁸ poetry⁹ and sermons¹⁰ as social products (social genres). (This review is based on the work of Howell, 1956).

⁵ These included manuscripts by Quintilian (discovered at the Abbey at St Gall in 1416) and works by Cicero (discovered in Lodi in 1421).

⁶ Classical rhetoric was the focus of reformers of European education in the sixteenth century, with humanist schools being established at Mantua (Vittorino) and Ferrara in Italy, Bordeaux, Liège, Strasburg and Louvain under Erasmus.

⁷ This rediscovery of rhetoric was reflected in the large number of manuals on the subject that were published during the period, manuals which attempted to return to the approach of the classical cultures in which rhetoric was primarily related to the social skill of persuasive oratory in a civilised and enlightened society. The civic benefits of rhetoric as a means of training in oratory and communication were emphasised by many Renaissance writers, yet unlike classical rhetoric, to most Renaissance theorists, rhetoric was a written art addressed to readers rather than listeners.

⁸ The written, *social genres* influenced by rhetoric that reappeared or were further developed during the Renaissance were the oration and the letter. Classical Roman orations, such as Cicero's *Pro Archia*, were published in the early part of the sixteenth century. By the mid-sixteenth century, the oration had become a published literary genre rather than a spoken means of political persuasion intended for readers, rather than a live audience. Collections of letters, such as those by Petrarch and other Italian writers, were also a published literary genre of the Renaissance which enjoyed considerable success. Letters were added to the grammar school curriculum and many Renaissance manuals on letter writing were published, an early treatise being Petrarch's *Familiar Letters*. Another influential work on Renaissance letter writing was Erasmus' *Opus de Conscribendis Epistolis* (1522). As there were no real classical models for letters as a rhetorical form, the humanists adapted the spoken rhetorical model. Erasmus suggested that letters could be written in any of the three types of rhetoric - *deliberative*, *forensic*, *epideictic* - and added the category of *sermo* - daily speech. As well, the full five-part rhetorical structure was applied to the organisation of letters, but the stereotyped Latin formulae of the Medieval *Ars Dictaminis* were avoided.

⁹ In poetry in the sixteenth century, there was a shift from the late medieval preoccupation with the formal properties of poems to an emphasis on the thought and intention relating to the effect of the

In the second half of the sixteenth century, the Ciceronian approach to the symmetrical structuring of arguments began to be challenged, with Protestant reformers of the Reformation encouraging styles of argumentation that gave more weight to what they held to be the truth. Thus, a more formal approach to argumentation began to give way to one in which there was greater focus on the process of persuasion and, hence, if indirectly, on processes of cognition (cognitive genres)¹¹.

The impetus for a 'new' approach to the organisation of ideas in rhetoric, originating from the Reformation, found expression in the theories of the French logician Peter Ramus (Pierre de la Ramée, 1515 – 1572)¹² who sought to reform the medieval trivium of grammar, rhetoric and dialectic. He aimed to establish a more rational, unemotional approach to discourse, separating rhetoric (which was to relate to training in style and delivery only), from invention and arrangement,

communicated meaning. In particular, Renaissance poetry employed a considerable range of metaphorical resources to achieve expressive effect. This began with the elaborate and highly metaphorical style of the Italian sonnet which in turn influenced the English Sonnet, (such as Sidney's *Astrophet and Stella* cycle). This use of metaphor and expression was further developed in the poetry of Donne and the other so-called 'metaphysical' poets.

¹⁰ In sermons, Renaissance preaching moved away from the medieval emphasis on abstract doctrine to focus more clearly on divine deeds and actions and to incite the listener to be moved by and imitate such exploits. Sermons were more epideictic – praising and blaming. The emphasis on the character of God and on presenting ideals for the listening congregations was evident in the sermons of Luther and John Donne. Epideictic rhetoric was even used by scientists, such as Galileo and Kepler, to argue for their astronomical theories. In these ways, Renaissance rhetoric was adapted to meet new communicative purposes.

¹¹ The conventional Ciceronian approach was to juxtapose different positions or viewpoints (*controversia*) in oratory in order to arrive at a tentative position that was 'sufficiently probable' (*satis probabile*). However, in the religious debates of the Reformation, the protestant reformers, basing their positions on the authority of scripture, did not employ a symmetrical controversia-based approach to argument. They adopted an approach that was asymmetrical for the communication of, what they held to be, immutable truth. As Conley (1990) notes, this difference in mentality toward rhetorical approaches became apparent in the published theological debates between Erasmus and Luther concerning the issue of free will.

¹² Ramus was killed in the Catholic massacre of protestants on Saint Bartholomew's day in Paris.

and treating the last two as part of logic and, thus, as part of what he saw as the core of a liberal curriculum (Howell, 1956, p. 148)¹².

2.3.1 Summary and implications for the study

During the Renaissance, rhetoricians continued to emphasise social genres (whole texts, such as letters, defined in terms of overall rhetorical purpose) and the figures of speech associated with them, but began also to take account of cognitive genres (the ways in which internal structuring allowed local effects to be achieved). At the end of the Renaissance period, the approach to rhetoric proposed by Ramus placed greater emphasis on logic and structure than on ornamentation in the creation of a persuasive text.

2.4. Rhetorical works focusing on the English language

During the Renaissance, works on rhetoric began to be published in vernacular languages rather than Latin, which, nevertheless, continued to be the language of scholarship in Western Europe. In England, these works included Leonard Cox's *The Arte of Rhethoryke* (c.1530/1899), Richard Sherry's *A Treatise of Schemes and Tropes* (1550) and Thomas Wilson's *The Arte of Rhetorique* (1553), a popular work that was reprinted in many editions during the second half of the sixteenth century. George Puttenham's *The Arte of English Poesie* (1589) deals with style in English poetry from the point of view of the application of Ciceronian principles.

Ramus' friend and associate Omer Talon (Audomarus Talaeus) wrote the Ramus-inspired, reformed rhetoric, the *Dialecticae Institutiones* (1544). By the end of the sixteenth century, the Ramist approach to rhetoric had taken hold in many universities in continental Europe, especially in Germany and was beginning to be influential in Britain.

Initially, works on English rhetoric were classical in orientation, focusing on the five procedures of Ciceronian rhetoric (invention, arrangement, style, memory and delivery) as well as figures and tropes. In the latter part of the sixteenth century, however, the work of Ramus began to have an influence on vernacular approaches to rhetoric throughout Europe. It was introduced to Scotland by Roland MacIlmaine¹³ at St Andrews in 1574, and to England by Gabriel Harvey at Cambridge in 1575. However, Britain, unlike Germany, did not adopt Ramism extensively and the Ciceronian *controversia* approach persisted into the seventeenth century when it was challenged, not by Ramism, but rather by scientific empiricism.

In seventeenth century England, meetings of groups of scientists in London from about 1645 led to the formation of *The Royal Society*¹⁴. The purpose of these meetings was to discuss and investigate current scientific enquiry, and, through knowledge, to bring about improvements in the human condition. Members of The Royal Society sought a suitable theory of communication on which to base the dissemination of its findings¹⁵. In Thomas Sprat's *The History of the Royal Society*, it is stated that Royal Society members must "reject all the amplifications, digressions, and swellings of style: to return back to the primitive purity and shortness, when men deliver'd so many things, almost in an equal number of words" (Sprat, 1667/1958, p. 113).

¹³ MacIlmaine published a vernacular translation of Ramus' chief work on logic.

¹⁴ The Royal Society received its charters of incorporation in 1662 and 1663.

¹⁵ In 1668, the Royal Society sponsored an essay by Wilkins, entitled *Essay Towards a real Character, And a Philosophical Language* which "officially endorsed an attempt . . . to create not only a basic vocabulary but also a philosophical grammar for the communication of scientific discoveries throughout the world" (Howell, 1971, p.481-482).

The figure within The Royal Society who was most influential in proposing a plain, direct form of communication – the *New Rhetoric* - was John Locke:

the ends of Language in our Discourse with others, being chiefly these three: First, To make known one Man's Thoughts or Ideas to another. Secondly, To do it with as much ease and quickness, as is possible; and Thirdly, Thereby to convey the Knowledge of Things. Language is either abused, or deficient, when it fails in any of these Three. (Locke, 1690/1975, p. 504)

In contrast with the deductive routines of traditional, persuasive rhetoric, Locke proposed that argument should be based on factual content and supported induction as a means for presenting proof or evidence. Thus, Locke's contribution to the New Rhetoric gave

British learning a fresh and enduring set of expectations concerning discourse. His account of the three ends of language, and his emphasis upon communication as the basic purpose of verbal composition, [leading] the intellectual community to see popular and learned exposition as the basic kind of speaking and writing when the human understanding was being addressed, and to see the old preoccupation of rhetoric with persuasion and the three kinds of speeches as a reflection of the past rather than present necessities (Howell, 1971, p. 501).

During the early eighteenth century, a number of influences from abroad also helped to shape the development of the New Rhetoric in Britain. One of these was Fénelon's *Dialogues Concerning Eloquence* (trans. Stevenson, 1832) in which the six part Ciceronian structure and the rhetorical topics and figures are rejected in

favour of a plainer style of discourse in which persuasion was no longer prioritised^{16, 17}.

A significant influence on the development of the New Rhetoric during the eighteenth century were lectures by Adam Smith, Professor of Rhetoric at Edinburgh University and the University of Glasgow (from 1749 to 1751). Smith saw rhetoric as primarily relating to the communication of meaning. He identified three types of communication: *instruction*, *persuasion* and *entertainment* (rhetorical purposes), which generated four broad categories of discourse: history, poetry, didactic writing and oratory (Howell, 1971, pp. 555-6). Noting that the rhetoric of one cultural system does not necessarily suit another, he proposed dispensing with the ritualistic parts of Ciceronian oration, claiming that only the proposition and its related proof were fundamental. Howell (1971) describes Smith's approach to rhetoric as one in which: "persuasive discourse is the species, and communicative discourse the genus" (p. 549).

Two other Scottish academics who were influential in the development of the New Rhetoric were George Campbell¹⁸ and Hugh Blair. In his most influential work, *The Philosophy of Rhetoric* (1776/1963), Campbell notes that the representation of meaning involves communication of knowledge through language, and, therefore, involves mental operations on the part of both speaker and hearer. He suggests that the purpose of a discourse will influence the type of

¹⁶ An English translation appeared in London in 1722.

¹⁷ Other French rhetoricians who had an influence on rhetoric in Britain were the Jesuits René Rapin, Dominique Bouhours and Charles Rollin. From Rollin's writings the term *belles lettres* (a study of the Greek, Latin and French languages, including poetry, rhetoric, history and philosophy) entered the English language.

¹⁸ Campbell, an ordained Presbyterian minister and theologian, was principal at Marischal College, Aberdeen from 1759 to 1795.

rhetoric used and identifies four basic purposes: “to enlighten the understanding, to please the imagination, to move the passions, or to influence the will” (Campbell, 1776/1963, p. 1). For Blair, the four basic purposes were *instructing*, *persuading*, *moving* or *pleasing* the reader¹⁹.

In the early nineteenth century in Britain, there was an initial move away from the New Rhetoric of the eighteenth century. Thus, Richard Whately’s *Elements of Logic* (1826) re-emphasised the Aristotelian system. However, New Rhetoric did characterise the work of probably the most significant figure in nineteenth century rhetoric, Alexander Bain (1818 – 1903), Professor of Logic at the University of Aberdeen. Bain combined an interest in associationist psychology and philosophy with an interest in rhetoric:

Bain’s notion of rhetoric and his philosophy of composition are a direct extension of his psychological work. . . . The study of style, which is the sole concern of rhetoric, is the study of the stylistic means of provoking and combining associations according to the mental laws uncovered by psychology (Conley, 1990, p. 252).

It is with the work of Bain that we see a decisive move towards an emphasis on cognitive approaches to genre (cognitive genres). Thus, the classification of texts

¹⁹ Perhaps less innovative than Campbell’s *Philosophy of Rhetoric* in terms of the development of a general theory of rhetoric, but far more widely read and influential was the work *Lectures on Rhetoric and Belles Lettres* (1783) by Hugh Blair, first Regius Professor of Rhetoric and Belles Lettres at the University of Edinburgh. Blair’s *Lectures* are divided into five sections: the nature of taste; consideration of language; style, different kinds of public speaking and a critique of types of prose and verse composition. His lectures propose a theoretical approach to compositions or oratory that are designed to influence or evoke a response in the reader or listener. They also provide a critical framework for judging other types of discourse, which he said fall within the four types of rhetorical purpose (*instructing*, *persuading*, *moving* or *pleasing* the reader). Blair’s work became particularly well known in the United States of America. It was adopted as the standard

in terms of their functions within society (e.g. letters, sermons) received less emphasis than their classification in terms of rhetorical purposes, these rhetorical purposes (*narration, exposition, description, and persuasion or argumentation*) being described as *principal forms* in his work *English Composition and Rhetoric* (1871). Each of these four principal forms is described in terms of the types of association of ideas which they entail and the effect that these entailments have on the structuring of discourse. Thus, of description, Bain says:

The chief rule in Description is to include with the Enumeration of the parts a comprehensive statement, or general plan, of the whole. The general plan may usually be given first; and, if there be danger of its dropping out of view, it should be repeated. The particulars are to be enumerated in the order that they occupy in the plan (Bain, 1871, p. 154).

Bain's four principal forms of discourse were widely used as a pedagogic system of classification in the context of the teaching of writing.

2.4.1 Summary and implications for the study

From the middle of the seventeenth century, empiricist philosophy and the reporting of scientific discoveries had a significant influence on the development of an approach to rhetoric (New Rhetoric) in which the straightforward communication of ideas, and the mental operations involved in such communication, occupied centre stage. Overall rhetorical purpose (e.g. narration, exposition, persuasion and argumentation) was thought to be fundamental to the

text on rhetoric and composition at Yale in 1785 and Harvard in 1788, and was extensively used in

structuring of discourse and, hence, the emphasis moved increasingly towards cognition (cognitive genres) and away from the classification of texts in terms of social functions (social genres). Thus, classification in terms of rhetorical purposes (and the ways in which these rhetorical purposes were realised) was given more emphasis than classification in terms of social functions (e.g. letters, sermons).

2.5 From rhetoric to discourse analysis: The beginning of the twentieth century onwards

From classical times until the end of the nineteenth century, two main strands within the study of rhetoric are detectable. One strand involves classificatory frameworks based primarily on the description of texts as social products (e.g. letters, sermons) designed to fulfil social purposes (social genres); the other involves a focus on rhetorical purposes (e.g. narration, exposition) and the means by which these rhetorical purposes could be realised (cognitive genres).

From the beginning of the twentieth century, the study of discourse structuring began to escape the confines of traditionally accepted rhetorical approaches as discourse began to be examined in the context of a range of disciplines. In this section, different approaches are classified in terms of whether their primary emphasis in classifying discourse is on what has been referred to here as *social genres*, or whether it is on what has been referred to here as *cognitive genres*.

American secondary and tertiary education throughout the nineteenth century.

2.6 The study of social genres from the beginning of the twentieth century

2.6.1 Genre and folktales

The twentieth century saw a wide range of approaches to the description and classification of whole texts in terms of the social purposes they served. One of the first of these emerged out of late nineteenth century studies of folklore. Olrik (1921) analysed folktales (social genre) in terms of plot, character and episodes. After analysing a corpus of folk stories, the Russian formalist, Propp (1928), proposed a *grammar* of folktales in which the character and sequence of events were used as characteristics to identify the genre. The same approach to literary analysis was further advanced in the 1930s by linguists of the Prague School, who examined social genres in terms of relationships among form, function and context.

Later, analysts of folktales began to incorporate factors such as function and belief, as well as overall content structure (Dundes, 1964) and linguistic factors were also gradually accommodated (Scott, 1965). Following this, Ben-Amos (1976) defined folklore defined in terms of a combination of formal features, thematic domains and potential social usages in particular contexts, or, more specifically, in terms of vocabulary, rhetorical features, symbolic meanings, character-types and attitudes towards reality. In addition, Oring (1986), drawing on the work of the linguistic anthropologist Malinowski (1923), argues that myths, tales and legends should be defined not only in terms of their form or structuring, but also in terms of the way they are received by a particular community, arguing that the *context of situation* and *context of culture* in which language occurs are also relevant. The idea of context of situation was developed

further in relation to text analysis by Firth (1957/1968, pp. 176-177) who put forward a framework including:

- the participants in a situation;
- the action(s) of the participants;
- other relevant features of the situation, including objects and events;
- the effects of the verbal action, that is, changes brought about by the language used in the situation.

Firth's paradigm for the construct of context of situation became a basis for the approach to text analysis and genre (the initial emphasis being on social genres) associated with systemic functional linguistics. This approach will be discussed later in this chapter and in more detail in Chapter 3.

Firth's context of situation framework is similar to that proposed by Hymes (1967) in the area of ethnography of communication. Hymes (1964; 1972) describes types of communicative events as *genres* that involve:

- a topic;
- the purpose of the communication;
- the settings and participants,;
- the form and content of the message; and,
- the order of speech acts, including turn taking and speaker overlap.

The belief here is that an adequate classificatory approach to discourse (social genre) requires an examination, not only of texts, but also of the social and cultural factors that impinge upon them. This work differs from research undertaken within the context of systemic functional linguistics - work that is also

socially oriented - in that there is less emphasis here on internal linguistic selection than there typically is in much of the work within the systemic functional approach. It also differs in that it does not separate Malinowski's *context of culture* from *context of situation*.

Although much of the early work on folktales suggested that genres could be defined in terms of strict adherence to certain regularities, the work of Röhrich (1964/1991) indicates that genres are not fixed and unchanging, but rather are entities that evolve and change over time. He also argues, that there are *hybrid genres* and that so-called rules can be broken.

2.6.1.1 Summary and implications for the study

Within folklore and ethnographic studies, approaches to the classification of genres in terms of socially recognisable discourse types gradually moved from rigid, rule-based approaches to more fluid approaches that accommodated context of culture and context of situation.

2.6.2 Genre and literary theory

Approaches to genre in *literary theory* in the earlier part of twentieth century also came under the influence of *structuralism* within linguistics and anthropology, and are characterised by the search for rules and regularities of form. Here again, the influence of Propp (1928) and, later, Lévi-Strauss (1983/1976) are particularly significant. With the development within literary studies of *practical criticism* (Richards, 1929; Empson, 1930/1953), which was echoed in America by Brooks and Warren (1938), the focus was on language and the structural analysis of

literary works independent of context. The principles put forward by these writers became the basis for the *New Criticism* approach to literary analysis, which was influential from the 1940s. In this approach, the emphasis was on attempting to identify, on the basis of *close reading*, the form and characteristic linguistic features of literary works, such as poems.

The structural era involved a search for general laws and rules. Gradually, however, there came the realisation that works which appeared to belong to the same general category (as defined in terms of what are referred to in this thesis as *social genres*), could differ significantly. By the 1960s, critics such as Croce (1922/1968) were arguing that texts belonging to a single genre could actually break generic laws. Indeed, poststructuralists, such as Derrida (1980), argued that genres (*social genres*) merge into one another. Thus, as the twentieth century progressed, approaches to genre within literary theory began to reflect a general intellectual movement that emphasised procedures and choices, and that was more accommodating to difference and flexibility. The influence upon genres of constructs such as gender, literacy and power began to be recognised (Barthes 1966b; Derrida 1967). Out of these developments have emerged critical approaches to discourse that explore the construction and reflection in text of a range of ideological positions (e.g. Kress 1990; van Dijk, 1993; Fairclough, 1995).

Fowler (1982) notes that the term *genre* as used by literary theorists has been applied to broad categories of literature and suggests, with qualifications, that the use of a Wittgensteinian *family resemblance* approach to the classification of

literary works might prove to be particularly useful. Thus, the same genre category could be applied to central (more typical) members as well as to peripheral (less typical) ones, allowing for considerable variation within a generic type²⁰.

Fowler suggests that generic patternings in literature are not merely the result of a process of conscious imitation, but of the internalisation and influence of certain literary works on the generation of subsequent ones. Thus: "In literature, the basis of resemblance lies in literary tradition. What produces generic resemblances, reflection soon shows, is tradition: a sequence of influence and imitation, and inherited codes connecting works in the genre" (Fowler, 1982, p. 42). Thus, genres can be localised within cultural and historical settings (e.g. Elizabethan Comedy; Restoration Comedy), the generic composition altering slowly over time. Thus, "both historically and within a single period, the family grouping allows for wide variation in the type" so that "we may find the genre's various historical states to be very different from one another" (pp. 42-43). For this reason, Fowler discounts the idea that members of a genre category must contain certain, clearly identifiable classifying elements (such as, for example, all tragedies involving a violent death)²¹. It is important to stress here, however, that Fowler is discussing the type of classification that was referred to at the beginning of this chapter as *social genre*. In the realm of what is referred to here as *cognitive*

²⁰ That is, within a social genre category.

²¹ Fowler's view concerning the ongoing nature of genre development is also supported in more recent work on genre. Lechte (1994) states that texts are "not self-contained units whose meaning could be established independently of context" (pp. 10-11). Within this framework, the work of the Russian theorist Lotman is particularly significant. Lotman (1977) draws attention to the way in which texts communicate culture and link the past with the present. Genres, therefore, are defined not only in terms of structural features, but also in terms of social and cultural expectations. In all of this work, the concept of 'intertextuality' is central, that is, the notion that a text is not an object

genre (that is, in classification frameworks that are based on the means by which rhetorical purposes are achieved), the situation is likely to be very different.

2.6.2.1 Summary and Implications for the Study

Within literary studies, approaches to genre are primarily oriented towards what was referred to at the beginning of this chapter as 'social genre'. As in the case of folklore-based studies, a rigid rule-based approach to classification gradually gave way to a more fluid one.

2.6.3 Genre and composition studies in North America

Approaches to composition studies in North American universities have continued the tradition established by The Royal Society in the seventeenth century. Characteristic of this approach, an approach that focuses on social genres as defined here (see *Chapter 1, Section 1.2*, pp. 4-8), is the belief that rhetorical forms arise in response to social contexts. Thus, “genres can serve both as an index to cultural patterns and as tools for exploring the achievements of particular speakers and writers . . . as keys to understanding how to participate in the actions of the community”²² (Miller 1984, p. 165). Later Miller (1994, p. 75) expanded her definition of genre, saying:

[genres] in their *structural* dimension, are conventionalised and highly intricate ways of marshalling rhetorical resources, such as narration and figuration. In their *pragmatic* dimension, genres not only help real people in the spatio-temporal communities do their work and carry out their purposes; they also help virtual communities, the relationship we carry

in its own right, but something we view and interpret in relation to our expectations and our experience of other texts.

around in our heads, to reproduce and reconstruct themselves, to continue their stories

In the words of Berkenkotter and Hucken: “[Genres are] dynamic rhetorical forms that are developed from actors’ responses to recurrent situations that serve to stabilise experience and give it coherence and meaning. Genres change over time in response to their users’ socio-cognitive needs” (Berkenkotter and Hucken, 1995, p. 4).

We find within the North American tradition of New Rhetoric, a context in which academic composition has been prioritised along with a very similar approach to genre to that articulated by Fowler within the context of literary theory (see *Section 2.6.2* above)²³.

2.6.3.1 Summary and implications for the study

Those working within the North American tradition of New Rhetoric, who have often focused on academic composition, have reached very similar conclusions to those reached by analysis working within the context of folklore studies and literary theory, that is, that genres (that is, what are referred to in this thesis as ‘social genres’) change over time in response to changing needs and circumstances.

²² Miller was influenced by Bitzer (1968) and Burke (1969).

²³ In this tradition, Bazerman (1988) has examined the changes and developments within scientific writing that have occurred as scientific knowledge has increased, Bizzell (1992) has examined genres in social and professional communication, and Yates and Orlikowski (1992) have analysed change and development in office memos.

2.7 Towards a cognitive emphasis in genre studies

During the 1940s and 1950s, language tended to be viewed as a fixed, internally-coherent system²⁴. In approaching writing, educators tended to focus on rules rather than rhetorical or communicative purposes, the emphasis being on the study of prescriptive grammar and usage at sentence and paragraph level²⁵. Nystrand, Greene, and Wiemelt (1993), in reviewing pedagogical approaches to composition instruction during this period, note:

An emblematic innovation of the time was the *five-paragraph theme*, a pedagogical form of exposition (of unclear origin) consisting of an introductory paragraph, three points developed into a three-paragraph body, and a concluding paragraph. This unique school genre, which prescribed a three-point structure regardless of writer purpose or argument, came to define the essay genre for a generation of American students (p. 275).

During the 1960s, formalist approaches to literature and composition were increasingly challenged as the focus of pedagogy moved from rules to cognitive processes. Thus, the Anglo-American conference on student composition at Dartmouth, New England in 1966 emphasised a *writer-centred* focus, drawing on cognitive theory (Piaget, 1969) and socio-linguistics (Hymes, 1972; Sapir, 1949).

²⁴ By the 1950s, Russian formalism, New Criticism and Prague structuralism, along structuralist approaches within linguistics (Saussure, 1916; Bloomfield, 1933), had exercised considerable influence. Nystrand et al. (1993) summarise the formalist influences as consisting of the following ideas:

- Language is composed of objective elements organized into fixed systems;
- The meaning of texts is encoded in “autonomous” texts themselves and is explicit to the extent that writers spell things out;
- Written texts are more explicit than oral utterances.

Texts were regarded as being properly interpreted only when readers avoided inferences about the writer or the context in which the text was written (p. 278).

Thus, for example, Britton (1970) classified discourse in terms of *participant* and *spectator* roles, proposing a continuum for the classification of writing with two extreme points: the writer as a participant (transactional writing) and the writer as a spectator (poetic writing):

Informing people, instructing people, persuading people, arguing, explaining, planning, setting forth the pros and cons and coming to a conclusion – these are participant uses of language, use of language to get things done. Make-believe play, day-dreaming aloud, chatting about our experiences, gossip, travellers’ tales and other story-telling, fiction, the novel, drama, poetry – these are uses of language in the spectator role (p. 122).

Britton justifies this type of distinction, claiming that transactional writing involves the selection and ordering of material according to “the demands made by something outside ourselves, something that exists in the situation”, whereas, in the case of poetic writing, “we select and arrange material first to please ourselves” (Britton, 1970, p. 124). This type of justification appears, in retrospect, to be rather simplistic. However, it did signal an increasing emphasis on cognition, as did the work of Kinneavy (1971) who, like Britton, focuses on general orientation (e.g. *expressive*) rather than specific rhetorical purposes (e.g. *arguing*). Thus, Kinneavy (1971, pp. 59-61) outlines the following categories of discourse based mainly around text-external factors:

- expressive (focus is on the sender);
- persuasive (focus is on the receiver);

²⁵ The idea of types of writing differing in terms of rhetorical or communicative orientation, such as proposed by Bain (1869), had waned.

- literary (focus is on the linguistic form of the text);
- referential (focus on some world reality).

In the approach of Threadgold (1989; 1994), the move towards an emphasis on cognition becomes more evident in that *form of argumentation* includes *expository* and *descriptive* categories.

More centrally cognitive in orientation has been the work of linguists working within the context of *tagmemic linguistics* (e.g. Longacre, 1964; Pike, 1967). Thus, for example, in examining a range of texts in a number of Philippine languages, Longacre (1968), in addition to what he refers to as a *dialogue genre*, identifies six basic genres in a way that combines the social and the rhetorical/cognitive. Thus, although the *epistolary* genre is primarily defined in terms of social purpose, several genres, such as the *procedural* genre, are primarily defined in terms of rhetorical purpose

- *Narrative*: recounting some sort of story
- *Procedural*: prescribing the steps of an activity or activity complex
- *Hortatory*: attempting to influence or change conduct (essentially sermonic)
- *Dramatic*: dramatic re-enactment by a single speaker of a dialogue involving several participants (neither the scenes, nor the participants are identified by the speaker, although they may be recoverable from the re-enacted dialogue itself)
- *Activity*: relating an activity or group of activities
- *Epistolary*: letter writing.

In each case, function, chronological orientation, tense/aspect and the presence or absence of explicit temporal and/or spatial setting was considered to be fundamental, and it was argued that there were both obligatory and optional elements. In fact, in examining chronological orientation and the presence or absence of explicit temporal and/or spatial settings, analysts will be concerned with aspects of that type of internal structuring that is characteristic of cognitive genres. Thus, in the work of Longacre, although social and cognitive genres are not distinguished, there is a clear indication that cognitive factors are seen as being of significance²⁶.

In his socio-linguistic analysis of *Black Vernacular English* (BVE), Labov (1972) found it useful to identify a narrative construct which could be employed in describing the language performance of his subjects. He defines a minimal narrative as “a sequence of two [independent] clauses which are temporally ordered” (p. 360), identifying more fully-formed narratives as potentially including: an *abstract, orientation, complicating action, evaluation, result or resolution* and *coda*. Labov used his narrative framework (minimal and extended) as a basis for the analysis of BVE in terms of the constituent syntactic structures and linguistic features commonly associated with the different sections of the narrative structures. On the basis of this narrative construct and its associated internal structuring, Labov attempted to evaluate different speakers’ mastery of the narrative genre in BVE. This focus on the achievement of a type of rhetorical

²⁶ It is important to note here that Longacre was referring not to all discourse, but to discourses in the particular Philippine languages he examined. However, Longacre (1976) did identify close similarities between one of the patterns typical of certain types of narrative discourse in the

purpose as well as social factors signals a concern with cognitive as well as social factors in the work of Labov.

Another approach to genre typology which, in emphasising function, also includes cognitive factors, such as perception in space and time, is that of Werlich (1974; 1976). To differentiate between types of texts, Werlich places emphasis on the “dominant contextual focus . . . the factors or circumstances in the context or the communication situation on which the text centers or to which it draws the receiver’s attention (space, time, analysis/synthesis, relationships, future behavior)” (Pilegaard & Frandsen, 1996, p. 6). Werlich proposes five different types of texts:

- *Description* – the encoder . . . deals with factual phenomena in space: It is the text type related to the cognitive process of perception in space.
- *Narration* – the encoder . . . deals with factual and/or conceptual phenomena in time. It is the text type related to the cognitive process of perception in time.
- *Exposition* - the encoder explains how the component elements interrelate in a meaningful whole. This is the text type related to the cognitive process of comprehension.
- *Argumentation* - the encoder proposes relations between concepts of phenomena. Argumentation is the text type related to the cognitive process of judging in answer to a problem.

Philippines and certain types of mono-climactic oral narrative found in Mexico and New Guinea and in some narratives written by English speakers.

- *Instruction* – the encoder tells himself or others what to do. Instruction is the text type related to the cognitive process of planning. (Werlich, 1976, pp. 39-40)

Werlich argues that these *text types* (which he describes in terms of cognitive orientation) are recognised in natural language as *text forms* (referred to here as social genres): “Text forms and text form variants, such as narrative, story, novel, or short story, are the conventional manifestations of a text type” (Werlich, 1976, p. 46). Although labelling his text types in terms of types of cognitive orientation (with respect to aspects of the content), Werlich, nevertheless, focuses on linguistic means, suggesting that text types (cognitive genres) can be identified by certain types of sentences or ‘text idioms’. He claims, for example, that *description* is characterised by *phenomenon registering* and *action-recording* sentences e.g.

1. *Phenomenon-registering* - There is / was + NG:

There were thousands of glasses.

2. *Action-recording* – X +Verb-ing:

Everybody was eating, drinking (Werlich, 1976, p. 47).

Virtanen (1992) continues the emphasis on the cognitive aspect of text organisation, referring to whole texts in terms of *discourse types* (social genres) and *text types* (cognitive genres), using the same taxonomy as Werlich. She argues that *text types* are “the same sort of categories [as discourse types] but on a level closer to the actual texts” (p. 293). They are “prototypical abstractions” (p. 297). Furthermore, a “superordinate discourse type need not always be realized through

the corresponding text type” (p. 293). Virtanen also argues that a discourse type may be realised either by one text type only - *unitype*, or by more than one text type - *multitype*.

A further typology that combines a cognitive and a textual focus and develops the work of Werlich is that proposed by Adam (1985, 1992) who suggests that part of communicative competence is textual competence:

on peut dire que la compétence discursive des sujets est, à la fois, constituée par une compétence communicationnelle et par un compétence textuelle . . . qui permet d’enchaîner syntaxiquement des phrases et sémantiquement des propositions adaptées à des situations pragmatiques spécifiques (Adam, 1985, p. 39).

In decoding a written text, a reader “repérant certains indices de surface . . . semble construire une base de texte cohérente quie s’appuie (en partie) sur une schématisation du type de celle de Werlich” (Adam, 1985, p. 40). Adam proposes that whole texts (social genres) should be seen as consisting of a number of *séquences* (cognitive genres) which have “une entité relativement autonome, dotée d’une organisation interne qui lui est propre et donc in relation de dépendance/indépendance avec l’ensemble plus vaste dont elle fait partie” (Adam, 1992, p. 28). He identifies five “séquences prototypiques: narrative, descriptive, argumentative, explicative et dialogale” (p. 30), and proposes an hierarchical internal structure for each.

A number of analysts, including several who are associated with the systemic functional approach that has characterised much recent linguistic research in

Australia, have focused on approaching genre in terms of specific/specifiable purposes, ranging from every-day encounters to academic discourses of a variety of types. Thus, for example, there have been studies of service encounters (Hasan, 1978, 1985/1989; Ventola, 1985). Similarly, in the area of *English for Specific Purposes* (ESP), researchers have described different types of genre, which are often associated with academic and professional writing. These include introductions to research articles (Swales, 1981, 1990), and science dissertations (Dudley-Evans, 1986, 1989). In both approaches, there is an emphasis on the unfolding stages of discourses, although the terminology and approaches differ. Those working within the systemic functional context (e.g. Eggins, 1994) refer to *schematic structure*; within the ESP context, reference is made to *moves and steps* (e.g. Swales, 1981). In both cases, these stages identified are related to specific types of linguistic feature.

Studies of this type, particularly those associated with the systemic functional approach, have had a significant impact on pedagogy, particularly in the context of the teaching of writing in primary schools. Dissatisfied with some of the *process* approaches to writing instruction in schools that were the legacy of the 1966 Dartmouth Conference 1966, Australian educators developed approaches to writing in schools based on research on genre. In the context of developing such materials for primary schools, Derewianka (1990) includes the following genre classification: *recount, instruction, narrative, information report, explanation* and *argument*. Here we see what appears to be a mixed-level classification: genre classified as social product (e.g. information report), and genres classified in terms of rhetorical purpose (e.g. arguments, explanations).

What is particularly interesting about the systemic functional and ESP approaches, (approaches that are discussed in more detail in *Chapters 3 and 4*) is that they do not distinguish clearly between what are referred to here as *social genres* and *cognitive genres* (see *Chapter 1, Section 1.2*, pp. 4-8). Thus, texts may be classified in terms of overall social purpose (e.g. research article) and/or in terms of rhetorical purpose (e.g. explanation). In fact, however, the first of these (classification in terms of overall social purpose) has very different implications from the second (classification in terms of rhetorical purpose). Although it seems entirely consistent with classification in terms of overall social purpose to examine whole texts in relation to overall structure (schematic structure) and specific linguistic realisation, this does not seem consistent with classificatory approaches that relate to rhetorical purposes. This is because a single text may concatenate a range of rhetorical purposes, each of which is likely to be associated with a different cognitive orientation and, hence, a different pattern of internal relationships. Thus, as will be argued in more detail in later chapters, social genres (genres defined in terms of overall socially identifiable purposes) are amenable to description as whole texts in terms of schematic structure and characteristic, discipline-specific linguistic features, whereas cognitive genres (genres defined in terms of rhetorical purposes) are amenable to description in terms of those internal relationships that characterise the cognitive orientations that are associated with different rhetorical purposes. Thus, a single text that exemplifies a particular social genre (e.g. a personal letter) may incorporate a range of cognitive genres. The characteristics of the social genres (overall organisation, specific linguistic features), being subject to varying social contexts, will change over time, whereas

the characteristics of cognitive genres are more likely to be marked by stability, something that has important implications for teaching contexts.

2.7.1 Summary and implications for the study

The writings that have been included in this section all classify genres in terms of both socially recognisable purposes (e.g. personal letters) and rhetorical purposes (e.g. persuasion). With the possible exception of the works of Werlich and Adam, there is, in general, no consistent differentiation between the two types of genre in terms of the analytical techniques employed. Furthermore, where cognitive genres are proposed, as in case of the work of Werlich and Adam, they tend to be classified in terms of characteristic linguistic features, rather than in relation to the development of a framework. Where cognitive genres are the focus of attention, the emphasis, I shall argue, needs to be on process rather than product.

Chapter 3 reviews two approaches to genre which have been used extensively in pedagogic contexts. They are the approach to genre influenced by systemic functional linguistics and that of linguistics working within the English for Specific Purposes movement.

CHAPTER 3:

FROM SOCIAL GENRE TOWARDS PEDAGOGY

3.0 Overview

In this chapter, approaches to defining and analysing *genre* which have had an effect on pedagogy are examined. These approaches include the work of:

- linguists influenced by the systemic functional school of linguistics, e.g. Eggins (1994); Hasan (1985/1989); Martin (1986, 1992, 1997, 2000) and Ventola (1985);
- linguists working in the field of *English for Specific / Specifiable Purposes* (ESP) e.g. Dudley-Evans (1986, 1989, 1994); Swales (1981, 1990); Bhatia (1993, 1998); Johns (1997).

In each case, the overall approach is presented in some detail and then discussed in terms of its adequacy. At the end of the chapter, a concluding discussion suggests the need for an emphasis on cognitive processes as a way of mediating between social genres and their linguistic representations.

3.1 Genre in applied linguistics and the purpose of genre for classification

The construct of genre identified by linguists working within the context of the systemic functional approach began to be applied to the teaching of writing in schools in the 1980s in Australia (see, for example, Macken, Kalantzis, Kress, Martin, Cope, & Rothery, 1989; Martin, 1989; Derewianka, 1990; Christie, 1990;

Knapp & Watkins, 1994; Butt, Fahey, Feez, Spinks and Yallop, 2000 and Martin, 2000). This approach to genre typically describes texts in terms of:

- *schematic structure*: described by Eggins (1994, p. 36) as the “staged, step-by-step organisation of the genre”; and,
- *linguistic* (lexico-grammatical) features: such as syntax, lexis, types of cohesion and reference (which relate to the elements of the schematic structure).

Within the context of this approach, although some theorists focus on social genres, such as, for example, service encounters (Hasan, 1978, 1989; Ventola, 1984), attempts to generalise for pedagogic purposes have tended to result in a more rhetorically-motivated classification in which the focus moves to cognitive genres, such as recount, instruction, exposition/argument, narrative, report, explanation (Derwianka, 1990) and instructing, arguing, narrating, explaining, describing (Knapp & Watkins, 1994).

In another approach to genre, linguists working in the field of *English for Specific Purposes* largely confine their description to English texts used in academic and professional contexts, such as introductions to research articles (Swales, 1981, 1990), introductions and discussions sections of dissertations (Dudley-Evans 1986, 1989) as well as types of medical, legal and business documents. The focus of the genre construct in this type of analysis is on specialised types of writing that may be inaccessible to non-specialised language users as well as to second language users who are unfamiliar with the rhetorical patterns of academic or professionally-related fields. Analysis of genre in this tradition involves examining the organisation of the conventionally recognised stages of a text in

terms of *moves* and *steps*. This knowledge is then used as a basis for teaching the language and rhetorical patterns of the genres identified.

3.2 The approach to genre influenced by systemic functional linguistics:

The systemic functional approach to classifying texts in relation to social context derives from the ideas of the social anthropologist Bronislaw Malinowski (1923, 1935). Based on his experiences in studying an unwritten Melanesian language, that of the Trobriand Islanders of Eastern New Guinea, he proposed the idea that understanding language involves understanding the *context of situation* and *context of culture* in which the language occurs. In order to have a working understanding of the language of the Trobriand Islanders, Malinowski emphasised the need to understand their culture, stating that “language is essentially rooted in the reality of the culture, the tribal life and customs of a people, and that it cannot be explained without constant reference to these broader contexts of verbal utterance” (Malinowski, 1923, p. 305).

In relation to the development of a clear understanding of individual words and phrases, especially in order to translate them accurately, Malinowski emphasised the need to take account of context: “the meaning of any single word is to a very high degree dependent on its context . . . [it] becomes only intelligible when it is placed within its context of situation (Malinowski, 1923, p. 306).

The idea of *context of situation* was further developed by the British linguist J. R. Firth (1957, 1957/1968) who put forward a framework including:

1. The participants: persons, personalities and relevant features of these:

- (a) The verbal action of the participants
 - (b) The non-verbal action of the participants
2. The relevant objects and non-verbal and non-personal events
 3. The effect of the verbal action (Firth, 1957/1968, p. 177).

Halliday (1978) continued this development, emphasising that the *social-semiotic* nature of language involved reference to the total meaning potential that people have as members of a society. Although a single individual may not achieve the full meaning potential of a society, typical social situations or contexts (the semiotic organisation of our social system) may be systematically correlated with the linguistic system. The operation of language within a certain context of situation, Halliday refers to as *register*. In discussing Halliday's approach to register, Martin (1992) notes that: "the socio-semantic organisation of context has to be considered from a number of angles if it is to give a comprehensive account of the ways in which meanings configure texts" (p. 494). Halliday proposes that the 'different angles' from which to analyse register are:

- *Field, the social action*: what is happening, the nature of the social action that is taking place: what it is that the participants are engaged in, in which the language figures as some essential component.
- *Tenor, the role structure*: who is taking part, the nature of the participants, their statuses and roles: what kinds of role relationship obtain among the participants, including permanent and temporary relationships of one kind or another, both the types of speech role that they are taking on in the dialogue and the whole cluster of socially significant relationships in which they are involved.

- *Mode, the symbolic organisation*: what part language is playing, what it is that the participants are expecting the language to do for them in the situation: the symbolic organisation of the text, the status that it has, and its function in the context, including the channel (is it spoken or written or some combination of the two?) and also the rhetorical mode, what is being achieved by the text in terms of such categories as persuasive, expository, didactic, and the like. (Halliday, 1975, in Halliday and Hasan, 1975/1989, p. 12)

Halliday proposes that each semiotic variable of a text (*field, tenor, mode*) relates to a specific component of the semantic structure and thereby to the systems of the lexico-grammatical features of a text. A register is “the semantic variety of which a text may be regarded as an instance . . . [and which] can be defined as the configuration of semantic resources that the member of a culture typically associates with a situation type” (Halliday, 1975/1989, pp. 110-111). Martin (2001, p. 155) emphasises that register, as a meaning-making semiotic system:

differs from semiotic systems such as language, music, dance, image and on. This is because it is a kind of parasite. It has no phonology of its own. The only way it can make meaning is by using the words and structures of the semiotic we call language.

For linguists working within the context of a systemic functional approach, *genre* (as distinct from register) involves the context of culture within which a text occurs. Martin defines genre as “a staged, goal oriented, purposeful activity in which speakers engage as members of our culture (1984, p. 25). Hasan says that

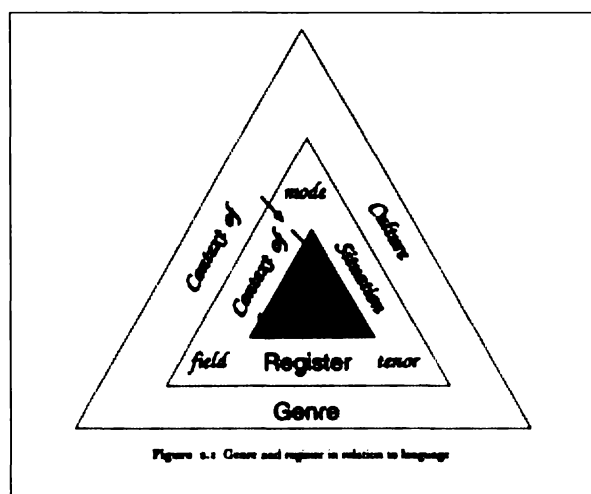
“Genre bears a logical relation to CC [contextual configuration], being its verbal expression. If CC is a class of situation type, then genre is language doing the job appropriate to that class of social happenings” (Hasan, 1985/1989, p. 108). Later, a similar definition is proposed by Eggins and Martin (1997): “different genres are different ways of using language to achieve different culturally established tasks, and texts of different genres are texts which are achieving different purposes in the culture” (p. 236).

In describing the relationship between register and genre, Eggins (1994) says:

genre and register are at two different levels of abstraction. Genre, or context of culture, can be seen as more abstract, more general – we can recognize a particular genre even if we are not sure exactly what the situational context is (p. 32).

Eggins sees register as filling in the “specifics relevant to a particular situation of use of a genre” (1994, p. 34). In *Figure 3.1* following, Eggins (1994, p. 34) demonstrates the relationship between genre and register.

Figure 3.1: Genre and Register



The stages or steps which are conventionally followed in a genre are called the *schematic structure*. The individual steps or stages of the schematic structure are sometimes referred to as its *functional stages*, defined as “those turns or groups of turns that fulfill a function relative to the whole. We therefore only call something a stage if we can assign to it a functional label” (Eggins, 1994, p. 38). As an example of a schematic structure, Ventola (1987) describes the functional stages of a sales encounter as:

| | |
|----------------------------|----------------------|
| <i>Sales Initiation</i> | <i>Sales Request</i> |
| <i>Price</i> | <i>Sales Request</i> |
| <i>Sales Clarification</i> | <i>Purchase</i> |
| <i>Price</i> | <i>Payment</i> |
| <i>Thanks</i> | <i>Change</i> |
| <i>Purchase Closure</i> | |

Hasan (1985/1989, pp. 64-65) further develops the idea of functional stages (or schematic structure) as the genre-classifying features of texts. She distinguishes between the *actual generic structure* of a particular text and the *generic structure potential* of the genre to which the text belongs. The actual generic structure of a text is the actual series of functional stages which appear in that text while the generic structure potential (GSP) is the whole potential range of structures for a particular genre, not all of which, presumably, are likely to appear in one particular example of a genre. From the GSP, she further identifies *obligatory elements* - those functional stages which are necessary for a text to be identified as an example of a certain genre. They are the genre-defining functional stages that

cannot be left out. Hasan (1985/1989) claims that the obligatory elements place restrictions on the types of semantic values which may be selected as the language which operates within that genre: "One need not know all the details of a particular situation in order to be able to say what the overall structure of the message should be" (p. 105). Hasan terms this restriction which operates on semantic choices within a genre as *genre-specific semantic potential*. Hasan allows that, within one type of genre, texts can exhibit a variety of structures, although certain semantic elements are obligatory: "the one respect in which they cannot vary without consequence to their genre-allocation is the obligatory elements and dispositions of the GSP" (1985/1989, p. 108). Hasan defines the obligatory elements which constitute a genre in terms of semantic rather than lexico-grammatical terms:

the statement of genre specific 'language' is best given in terms of the semantic categories, rather than the lexico-grammatical ones, since (1) the range of meanings have variant realisation; and (2) the more delicate choices within the general area is not a matter of generic ambience (Hasan, (1985/1989, p. 113).

Martin (1986) describes genre as "a staged, goal-orientated social process (p. 33), and argues that not all language follows genre patterns. In cases where language accompanies (is ancillary to) actions, such as in a tennis commentary, Martin says that field and genre are indistinct. However, as the mode of a text becomes more abstract (such as in extended written texts where the sender and the receiver of the message of the text are separated), "the grammar of the text becomes less iconic - it mirrors less closely the structure of the activity sequences to which it refers"

(Martin, 1986, p. 33). In those cases where language plays a larger role, and more and more constitutes the action of the text, there is a need to distinguish between field and genre. Similarly, Hasan (1985/1989) suggests that in a genre-structured text “the role of language is not ancillary but defining: all of the significant activity is manifestable only through language” (Hasan, 1985/1989, p. 113.)

Although Martin, (1986) described genre as “a goal-orientated social process” (p. 33), he later (1992) admits that *rhetorical purpose* is not consistently dealt with in the systemic functional approach to contextual description:

[Genre is] variously categorised under field (Halliday, 1965), tenor (Gregory, 1967), mode (Halliday 1978a, 1985/1989) and as a separate contextual variable in its own right (Firth, 1950 - effects, Ure & Ellis, 1977 - role, Fawcett, 1980 - pragmatic purpose). The main reason for this is that purpose is difficult to associate with any one meta functional component of the lexico grammar or discourse semantics. The effect of a text is the result of all components of its meaning (Martin, 1992, p. 501).

Because of the difficulty of associating rhetorical purpose with any of the *meta-functional components* of register (field, tenor, mode), Martin suggests that it is better placed in a superordinate category, that of genre itself:

The register variables of field, tenor and mode can then be interpreted as working together to achieve a text's goals, where goals are defined in terms of systems of social processes at the level of genre. It should be stressed here that bringing telos (purpose) into contextual theory at this point in no way implies that text is being interpreted as the realisation of the speaker's

intentions; genres are social processes and their purpose is being interpreted here in social and not psychological terms (Martin, 1992, pp. 502-503).

Kress (1986) similarly emphasises the social nature of texts which are realisations of genres:

In my view texts are social rather than individual in origin; that is texts are motivated by and come into being in specific social contexts, rather than through individual desire or whim. This assumes knowledge of textual conventions on the part of speakers or writers and therefore of textual forms; and it does assume that speakers and writers have a wide knowledge of other texts. . . . Texts arise in social occasions which have their specific form, which in turn are homologous with the overall organisation which characterises any one society (pp. 98-99).

Thus those working within the systemic functional context, see genre in terms of language texts which are associated with social contexts, and which follow a conventionalised structure, a structure which, rather than just mirroring or accompanying the action or experiential meaning of the text, because of cultural convention, goes some considerable way to constituting the text itself.

Among those whose approach to genre is influenced by systemic functional linguistics, there are stronger and weaker forms of the view that there is a specifiable relationship between genre (and register) and language. The stronger, deterministic view, involves the belief that “Both the context of culture (via genre)

and the context of situation (via register) determine the kind of language used to create a text” (Macken et al, 1989, pp. 5, 18). A similar view is expressed by Eggins (1994) who argues that:

both register and genre are realized through language. This means that we only know that we have a particular genre or register by looking at the way language gets used. It is through the patterns of meanings, words and structures, and of course sounds of language that these contextual dimensions are expressed (p. 36).

Knapp and Watkins (1994) also suggest that the structure and grammar of a text are determined by its genre: “the generic features (structure and grammar) of the genre of *describing*, for example, remain constant for all writers, from the experiential descriptions of early writers, to the scientific descriptions of senior secondary students” (p. 20).

A weaker form of the systemic functional view describes the relationship between genre and language as *probabilistic* rather than *deterministic*:

Genre theory suggests that texts which are doing different jobs in the culture will unfold in different ways, working through different stages or steps. Again, this relationship between context and text is theorized as probabilistic, not deterministic: an interactant setting out to achieve a particular cultural goal is most likely to initiate a text of a particular genre, and that text is most likely to unfold in a particular way – but the potential for alternative is inherent in the dialogic relationship between language and context. (Eggins and Martin, 1997, p. 236).

3.2.1 Summary and implications for the study

The construct of genre proposed by systemic functional linguists relates to what is referred to in Chapter 1 here as social genre. It refers to socially-recognised constructs according to which whole texts are classified in terms of their overall social purpose. In their approach to defining genre, systemic functional linguists claim that genres are identifiable in terms of:

- *schematic structure: commonly occurring functional stages which Hasan (1985/1989) claims can be reduced to a group of genre-defining obligatory elements drawn from the Generic Structure Potential (GSP) or range of elements that can occur in a particular genre; and,*
- *lexico-grammatical features which systematically correlate with the genre-defining functional elements of the schematic structure or GSP realised through the related register variables of Field Tenor and Mode.*

3.3 Discussion: The systemic functional approach to genre as a discourse categorising construct

The systemic functional approach to the construct of genre raises a number of issues, including:

- the nature of the relationship between different types of knowledge and the genre paradigm influenced by systemic functional linguistics;
- the relationship between genre, generic structure potential and text structure;
- the ways in which texts are classified in terms of genres;
- the relationship between genres and lexico-grammatical features of texts.

3.3.1 Content knowledge and the systemic functional approach

In the systemic functional approach, emphasis is placed on the social use of language in context in the creation of a text and its interpretation as discourse. Language is seen as a social-semiotic, a system capable of expressing the entire range of potential meaning employed by society. It is seen as operating within a functional/structural type of syntagmatic and paradigmatic system. The functional or syntagmatic element involves the types of social uses to which the language is put (such as a sales request in a shop or placing a bet). The structural or paradigmatic element refers to the choices from the semantic and lexico-grammatical systems of the language which are employed in social situations.

In the systemic functional approach, the content knowledge (*ideational content*) relates to the *field* variable. This includes not only the subject matter but also the nature of the speaker's or writer's participation in a social setting. Field, it is argued, influences the *transitivity* (case and syntactic) systems of the language. Eggins suggests that lexico-grammatical variation is influenced by field in terms of the degree of technicality from: "technical specialized to commonsense (everyday). Technicality is not only encoded in the lexis, however, technical texts frequently use abbreviated, non-standard syntax" (Eggins, 1994, p.74).

The construct of field is seen as being susceptible to the influence of social action and the degree of technicality of subject matter. However, it does not appear to take account of the fact that different types of content knowledge (such as knowledge about real-world entities, empirical data expressed in statistical number abstractions or abstract ideas or theories) may each be cognitively

categorised in different ways. Nor does it appear to involve any acknowledgement of the fact that different types of knowledge and their categorisation systems may exert an influence on the patterns of representation of such knowledge in discourse (see Carrell, 1981, 1988; Johnson, 1987; Lakoff, 1987; Oller, 1995; Sanford & Garrod, 1981). Beyond the proposed connection between the degree of technicality of field and its influence on the lexico-grammar, types of knowledge and their cognitive systems of categorisation are not seen as particular influences on the higher-level internal organisation of a text. Rather, it is the social purposes to which such knowledge is put that are seen as influencing the organisation of patterns of language.

In the systemic functional approach, whatever effect that the extra-linguistic content of field has on discourse has to be considered in combination with the other register meta-functions of tenor and mode. While the *field-tenor-mode* paradigm may provide a useful approach for the analysis of transactional discourse (where the social and interactive element of the discourse is in the foreground and changing), it seems less appropriate to the analysis of extended, monologic, written discourse (such as certain types of academic writing), in which particular types of knowledge (and their related patterns of categorisation and schematic organisation) may influence overall structuring. In extended monologic texts, tenor and mode may provide relatively stable background influences, with the content-internal categorisation systems of field (the ideational content of the text) playing a more foregrounded, structuring role which has an influence on the ways in which such knowledge is represented, something that is suggested in some of the cognitive approaches to the organisation of knowledge which are

reviewed in *Chapter 4*. To admit such a role would require that less primacy be given to social process, especially in relation to the creation of extended written discourse, than the systemic functional approach would appear to allow. Recognising that monologic texts are influenced in terms of their organisation or structuring by text-internal, content knowledge types (alongside the social contexts of culture and situation) presents a challenge to any conceptualisation of genre that is primarily socially-orientated.

3.3.2 Genre Structure: The schematic structure or GSP

In both the ESP (Swales, 1990; Askhave & Swales, 2001) and systemic functional (Martin, 1992) approaches to genre, *purpose* is seen as what distinguishes different genres. Where the two approaches differ is in how *purpose* is conceived. The approach to genre influenced by systemic functional linguistics sees genre as the result of a social process, working towards a goal, and this is manifested in the language choices of a text. The schematic structure drawn from the Generic Structure Potential involves a series of functional stages, the sum of which fulfils the underlying objective of the social process of the text (such as, for example, writing a scientific article).

If, however, in extended, written, monologic texts, the social purpose/function is a relatively stable background element, and it is admitted that the cognitive organisation of the content knowledge may also exercise some kind of influence, then a different approach to the issue of text purpose is required. Such an approach may need to take account of both the overall social purpose of a text (e.g. writing a scientific article) and the local *rhetorical purpose* of all or part of a

piece of discourse (e.g. reporting, explaining arguing) that is involved in the representation of a certain type of knowledge. This will also include the internal cognitive organisation of the knowledge type involved.

In many respects, this issue is prefigured in the *iconic* and *non-iconic* distinction between texts which Martin proposes: “Text can then be divided into those organised primarily with respect to activity sequence (iconic texts) and those organised along different lines (non-iconic texts)” (Martin, 1992, p. 517). Martin calls *non-iconic* texts *genre-structured* texts and makes a further distinction among the types of non-iconic (genre-structured) texts.

Genre-structured texts are divided into those which **review** field-structured texts (e.g. movie reviews), and so are partially determined by their activity sequences, and **theoretical** texts which are not organised around a sequence of events in any respect (e.g. editorials). This scale arranges text with respect to iconicity and the amount of ideational meaning that needs to be made explicit to realise the field (Martin, 1992, p. 518).

In the case of texts which Martin refers to as *theoretical* (in terms of their content), a socially constructed schematic structure (Martin, 1984) or Genre Structure Potential (Hasan, 1985/1989) may not necessarily account for all of the organisational patterns involved in content representation. Some evidence for this is offered by Paltridge (1993, 1997), who examined twelve introductions to research reports relating to an environmental issue, and attempted to establish a Generic Structure Potential (such as that proposed by Hasan (1985/1989) for his sample of research report introductions. In the introductions to the twelve research

reports, Paltridge identified the following components of discourse (structure) elements: *Background Information, Indicating a Gap, Question Raising, Previous Research, Purpose of Study, Materials, Results, Conclusions*. However, he found that:

only two structure elements emerged as being essential to the Introduction sections of the text; that is, Previous Research (PR) and Purpose of Study (PS). . . . Also, only one element , Purpose of Study (PS), occurred in the same position in all the texts, that is, in the final position. Beyond that, the analysis revealed a wide range of flexibility as regards sequencing of elements (Paltridge, 1993, p. 79).

On the other hand, in examining the same texts using a *macro-structural* analysis¹ (a cognitive, rather than social approach to text organisation), Paltridge found that the following pattern applied to most of the texts with only slight variation in the order of the stages:

Introduction ^ (followed by) ^ Materials and Methods ^ Results ^ Discussion (Paltridge, 1993, p. 177).

The construct of *schematic structure* (Martin, 1984) and *Generic Structure Potential* (Hasan, 1985/1989) are clearly important in terms of identifying certain instances of social genre. They do not, however, account for the role of different types of content knowledge in informing internal patterns of organisation. Furthermore, the research of Paltridge (1993, 1997) appears to suggest that

¹ “higher level semantic and conceptual structures that organize the ‘local’ macrostructures of discourse interaction and their cognitive processing” (van Dijk, 1980, p. v)

schematic structures may not prove to be stable, genre-identifying categories when examined in relation to certain social genres.

The approach of Hasan, which requires an instance of a social genre to contain certain *obligatory* elements, raises the issue of the type of categorising judgments which must be made in order to identify genres. In the following section, the difference between the systemic functional approach to categorising social genres and cognitive approaches to categorisation are discussed.

3.3.3 Identifying a genre

Hasan's Generic Structure Potential (GSP) appears to rest on a type of criterial attribute categorisation:

The GSP becomes pivotal in any discussion of the identity of a CC [contextual configuration] and we may claim that *only those values of field, tenor, and mode are defining for the identity of the CC that are motivationally related to the elements of its GSP* [my emphasis]. If the CC has these values, then these elements will appear in any text embedded in this CC; if these elements appear in any text, these values of the CC can be inferred from it (Hasan, 1989, p. 103).

This type of *criterial attribute* categorisation of genre in terms of values associated with *field, tenor* and *mode* may be successful in identifying prototypical instances of a genre in terms of those values. However, it may be less successful in identifying less prototypical, (peripheral) members of the same genre

category since a text lacking one of the genre-defining GSP attributes would presumably be excluded from a particular category of genre.

Research on human categorisation, such as that of Rosch (1973, 1975) and Rosch and Mervis (1975), suggest the human categorisation allows for prototypical and less prototypical categories in a range of knowledge types (see *Chapter 4*). In terms of category defining attributes or features, Rosch and Mervis (1975, p. 575) note:

The basic hypothesis was that members of a category come to be viewed as prototypical of a category as a whole in proportion to which they bear a family resemblance to (have attributes which overlap those of) other members of the category.

Rather than an item being either ‘in’ or ‘out’ of a category on the basis of one or more defining attributes, Rosch and Mervis argue for a categorising approach that is closer to Reed’s (1972) *cue validity* processing model whereby the validity of a cue as a characteristic of a category depends on its “total frequency within a category and its proportional frequency in that category relative to contrasting categories” (Rosch and Mervis, 1975 p. 575). Rosch and Mervis prefer the term *family resemblance* (see Wittgenstein, 1953) to *cue validity* because their focus is on the structural principles of categories rather than the development of a processing model for categorisation. The *cue validity* or *family resemblance* approach appears to offer a way of approaching grading that is likely to have important implications for the complex phenomenon of extended text in that it allows for prototypical or central examples as well as peripheral or less central

examples. Interestingly, Fowler (1982) in identifying examples of literary genres, while not basing his argument directly on cognitive psychology, also argues for *family resemblance* type of categorisation that is based on Wittgenstein's (1953) approach. In the English for Specific Purposes approach to defining genre, Swales (1990, p. 53) proposes "communicative purpose . . . as the *privileged* property of genre. Other properties, such as form, structure and audience expectations operate to identify the extent to which an exemplar is *prototypical* of a particular genre". Similarly, Paltridge (1997) suggests that peripheral or less typical cases of a genre may still be included in a genre category if a *family resemblance* approach to genre categorisation is employed: "A prototypical theory of categorisation allows for the inclusion of such cases within the umbrella of the one single genre rather than the much less flexible approach held in classical theories of categorisation" (p. 55).

3.3.4 Genre: The linguistic elements

The systemic functional approach to genre identifies genre in terms of the structural (*schematic structure*) elements of exemplar texts and their sequencing and recursion. Schematic structure is then described in terms of register and the semantic values which are required to realise each of the structural elements in language. A stronger version of the connection between genre and register holds that the combination of the two actually determines the language which will be used (Hasan, 1989; Macken et al., 1989, Eggins, 1994; Knapp & Watkins, 1994). At the lexico-grammatical level, three co-occurring aspects of language organisation - *transitivity*, *theme* and *mood* – are recognised.

The *transitivity* system involves language which is “associated with the realization of experiential meanings [field]” (Eggins, 1994, p.78). Halliday (1985, p. 101) says that:

Transitivity specifies the different types of process that are recognized in the language, and the structures by which they are expressed. The basic system for the representation of processes is very simple. A process consists potentially of three components:

- (i) the process itself;
- (ii) the participants in the process;
- (iii) the circumstances associated with the process

Theme involves aspects of the grammatical system of language which are used to produce “patterns of foregrounding and continuity in the organization of the clause” (Eggins, 1994, p. 70). Halliday (1985, p. 39) defines *theme* as:

The theme is one element in a particular structural configuration which, taken as a whole, organizes the clause as a message; this is the configuration Theme + Rheme . . . the Theme is the starting–point for the message: it is what the clause is going to be about.

Mood is language which is “associated with the realization of interpersonal meanings [tenor]” (Eggins, 1994, p. 39). Mood is expressed through such verbal systems as indicative, subjunctive, declarative, interrogative, and modality.

Paltridge (1993, 1997), in examining the introductions to twelve research articles which related to a specific environmental issue (that of the influence of air pollution on grain crops), examined a sample of texts attempting to identify

examples of genre-specific language in terms of transitivity systems of the lexico-grammatical patternings for one structural element, that of *Background Information* and one semantic value for this element, that of *quantity*. The rationale for examining this component of the lexico-grammar was twofold:

1. [the transitivity structure of the clause, associated group structures and logico-semantic relations], in systemic functional terms, carry the maximum semantic load in terms of the ideational content of the text;
2. It is also a commonly examined aspect of lexico-grammatical patterning in other systemic functional genre studies (Paltridge, 1997, p. 74).

The results of Paltridge's research indicated that none of the three aspects of the transitivity systems of the texts examined yielded any clear preponderance of lexico-grammatical structures which could be considered to be genre-defining:

The analysis revealed that no particular process type would always occur at specific points in the text. It also demonstrated a narrow range of verbal or nominal group structures might not necessarily occur in written research reports of the kind that were examined here (Paltridge, 1997, p. 81).

In fact, in examining the sample of texts in terms of one structural element (Background Information) and one semantic attribute (quantity), Paltridge found that a "wide range of language resources and structure are possible in the texts of the kind examined" (Paltridge, 1997, p. 81).

3.4 Conclusion

A review of the approach to genre which emerges out of systemic functional linguistics highlights a number of issues relating to the nature of genre categorisation, issues which are particularly significant in relation to the categorisation of extended monologic texts.

First, attempting to assign texts to specific genres in relation to schematic structure or GSP will not necessarily adequately accommodate peripheral (as opposed to prototypical) examples as indicated by the wide variety of functional elements and their orderings which may occur within examples of one type of genre (Paltridge, 1993). In the case of non-iconic texts (such as extended monologic texts), a consideration of the socially recognised textual conventions (for example the sections of an article reporting research), may need to be supplemented by a consideration of a cognitively-based approach to rhetorical organisation.

Secondly, a *criterial attribute* approach to the categorisation of a genre on the basis of a GSP (if, in fact, one can be clearly identified) may be insufficiently inclusive to categorise a range of texts within one genre. Given the wide range of discourse elements that Paltridge (1993) found possible, and the difficulty of setting up a GSP (only two elements in his research), the usefulness of this for the construction of a broad category for something as complex as extended written discourse (social genre) would appear to be questionable.

Thirdly, it appears that it may not be possible to define a social genre in terms of

lexico-grammatical characteristics. Paltridge (1993, 1997) finds no basis for identifying actual examples of genre-specific language (in his sample of introductions to published, scientific research reports in one field) in terms of recurrent lexico-grammatical patterns. In fact, his analysis of the elements of the transitivity systems of his sample texts serve to underline the wide variety of lexico-grammatical resources which can occur within a very restricted sample of texts.

While the systemic functional approach to genre may offer a useful way of categorising discourse which involves interpersonal transaction (in that it takes into account the social and attitudinal elements as well as the content of the discourse), it appears to be considerably more difficult to apply if meaningfully to what Martin (1992) refers to as non-iconic texts.

3.5 English for Specific Purposes

Richards, Platt and Weber define *English for Specific Purposes* (hereafter ESP) as “the role of English in a language course or programme of instruction in which the *content* and *aims* of the course are fixed by the specific needs of a particular learner group” (Richards, Platt and Platt, 1992, p. 94). ESP courses are, therefore, courses, which in their formation are designed to take account of the needs and interests of particular groups of learners. According to Hutchinson and Waters (1987, p. 19):

ESP must be seen as an approach not as a product, ESP is not a particular kind of language or methodology, nor does it consist of a particular type of teaching material. Understood properly, it is an approach to language learning, which is based on learner need. (Hutchinson and Waters, 1987, p. 19)

In the 1960s and early 1970s, ESP courses appeared to be based on the assumption that there were specific *varieties* or *registers* of English used in specialised areas, such as certain branches of science, technology or medicine. According to this view, ESP courses were not only for specific groups of learners, but also involved specialised types of English, a view that is now regarded as unsustainable. Hutchinson and Waters (1987, p. 31) note that “the assumption that language variation implies the existence of identifiable varieties of language related to specific contexts of use has, in effect, proved to be unfounded”. (Hutchinson & Waters, 1987, p. 31). Similarly Corbluth states:

Different fields of study in English do not have sufficiently different grammatical features to justify the preparation of courses appreciably dissimilar in these respects. Phonetic and phonological differences hardly

apply either. Lexis, however, varies widely and courses will include the vocabulary essential to the subject or range of subjects where learners are studying the language of known specific purposes. . . . To extract certain syntactical features from the grammatical common core on a superficial acquaintance with a limited number of scientific or technical texts and to emphasise them in teaching to the detriment of the whole body of common English structures and patterns could be irresponsible and dangerous. (Corbluth, 1975, p. 280).

Therefore, the general tendency in the definitions of ESP by most writers is that it is the target group of learners rather than the variety of English which is specific:

Given the great variety of contexts and of ESP courses around the world today, perhaps what we are really involved in as ESP practitioners is not so much teaching English for specific purposes but teaching English to specified people (Robinson, 1991, p. 5).

However, an exception to the view that there are not specific varieties and registers of language is proposed by Dudley-Evans and St. John (1998, p. 4), who define ESP in terms of *absolute* and *variable characteristics*. In relation to absolute characteristics, they say that “ESP makes use of the underlying methodology and activities of the discipline it serves; [and] ESP is centred on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities”. While not claiming discipline specific registers, they seem to be relating features of language at different organisational levels to the *activities* that occur within a particular discipline.

An attempt to characterise discipline-specific registers using corpus-based analysis of research articles from two disciplines (biology and history) by Biber, Conrad and Reppen (1998) showed inter-disciplinary variation in terms of the two dimensions examined (narrative versus non-narrative concerns and impersonal versus non-impersonal style). On the basis of its findings, the corpus-based study argued for a more comprehensive characterisation of discipline-specific registers through the use of corpus linguistics. However, the type of variation revealed in this illustrative study may be more an argument for the analysis of social genres, such as research articles, in terms of their use of non discipline-specific cognitive genres, such as narrative, rather than discipline-specific registers or particular linguistic features.

It now seems that the idea of particular varieties of English specific to certain activities or occupational groups (beyond what is referred to as *Restricted Repertoire English* - see Crombie & Rika-Heke, 1991) is not generally accepted although a weaker form of the view still appears to be held by some writers. Despite this, studies and research still continue to be published which focus on aspects of grammar, syntax or stylistic features seen as significant in the written or spoken language of specialised fields or disciplines. Examples of texts from specific fields which are analysed in terms of specific linguistic features are: the use of the passive in astrophysics journal articles (Tarone et al, 1981); the use of the present perfect tense in biology and biochemistry articles (Gunawardena, 1989); the use of conjuncts in business news stories and academic journal articles (Morrow, 1989); discourse functions of marked theme in scientific research

articles (Gosden, 1992); indirect speech acts in resumes (Popken, 1993); lexicogrammatical features of geology textbooks (Love, 1993); reporting verbs in medical journal articles (Thomas and Hawes, 1994); hedging in academic English textbooks and academic writing (Hyland, 1994); directives in college laboratory sessions (Tapper, 1994); communication strategies in research articles (Sionis, 1995); lexical verb use in medical research articles (Williams, 1996); sentence types in email memos (Price, 1997); collocational frameworks in medical research papers (Luzon Marco, 2000); and tendencies in the register of e-mail messages (Gimenez, 2000).

Thus there still appears to be the assumption that language used in certain activities, occupations or texts for specific purposes will employ certain linguistic or stylistic features. Although none of these articles claims a whole register or variety of English specific to its particular activity or special purpose, the focus of such research is usually on the occurrence of a linguistic feature or set of features in texts which relate to a certain field of activity.

3.6 Genre as a means of analysis of ESP texts

Some researchers and writers within the area of ESP use a social genre construct to provide a framework for analysing and teaching the types of written and spoken language said to be required in certain academic and professional settings (see Hyland, 2002, p. 115; Hyon, 1996, pp. 702-703). Thus, researchers sometimes use *genre* as a classification device to identify types of text which have a common purpose or goal within a certain field of activity. Examples of such genres that have been analysed for ESP purposes are: introductions to research articles

(Swales, 1981, 1990); science dissertations (Dudley-Evans, 1986, 1989; Hopkins and Dudley-Evans, 1988); popularized medical texts (Nwogu, 1991); job application, sales promotion letters and legal case studies (Bhatia, 1993); and grant proposals for European Union research grants (Connor and Mauranen, 1999). Examples of spoken genres that have been examined are: introductions to university lectures (Thompson, 1994); and lecture and poster sessions at conferences (Shalom, 1993). Genre has also been used as the basis for curriculum design and for programmes designed to provide language support for staff in a tertiary institution (Sengupta, Forey, and Hamp-Lyons, 1999).

Among ESP researchers and theorists, Swales (1990) provides the most detailed proposal for a social genre construct, a construct he describes as "a class of communicative events, the members of which share the same communicative or rhetorical purpose" (Swales, 1990, p. 58). Like Swales, Bhatia (1993, p. 43) sees communicative purpose as the main criterion for identifying different types of genre: "of all of the contextualised factors associated with a conventionalized speech event, communicative purpose is the most privileged criterion for the identification of genres".

In providing a working definition of genre, Swales (1990, pp. 45-57) includes the following defining features:

1. A genre is a class of communicative events.
2. The principal criterial feature that turns a collection of communicative events into a genre is some shared set of communicative purposes.
3. Exemplars or instances of genres vary in their prototypicality

4. The rationale behind a genre establishes constraints on allowable contributions in terms of their content, position and form.
5. A discourse community's nomenclature for genre is an important source of insight.

In his original proposals for a social genre construct, Swales asserts that a communicative event which can be considered as belonging to a genre is “one in which language plays a significant and indispensable role” (1990, p. 45), and that the prime determinant of membership of a genre is “shared communicative purpose rather than similarities of form” (1990, p. 46). He proposed that this purpose will often be encapsulated in the naming of the genre. More recently, however, Askehave and Swales (2000, p. 207) have cautioned that “it would be prudent to abandon communicative purpose as an immediate or even a quick method for sorting discourse into generic categories” (p. 209). They say that, because of the complex and evolving nature of (social) genres, establishing genre categories on the basis of “sets of communicate purposes” (p. 210) is possible, but that it involves extensive investigation of the operation of texts within contexts to establish different genre categories.

Swales, (1988, pp. 212-213; 1990, pp. 24-27) proposes that genres exist within *discourse communities*, groups of people who have the following characteristics:

1. A discourse community has a broadly agreed set of common public goals.
2. A discourse community has mechanisms for communication among its members.

3. A discourse community uses its participatory mechanisms primarily to provide information and feedback.
4. A discourse community utilises and hence possesses one or more genres in the communicative furtherance of its aims.
5. In addition to owning genres, a discourse community has acquired some specific lexis.
6. A discourse community has a threshold level of members with [the knowledge of] a suitable degree of relevant content and discursal expertise.

Thus, according to Swales, a discourse community is a socio-rhetorical network which exists to achieve certain goals. To achieve these goals, it has certain commonly used and understood configurations of language, which may involve some specialised vocabulary. For example, air traffic controllers use certain established patterns of language to perform their occupational tasks. The communicative acts which are meaningful within this discourse community do not have the same currency among non-members, who are not required to perform the same occupational tasks and thereby communicate to achieve the same purposes.

Swales' (1990) proposal for discourse communities has been subsequently challenged in a number of areas (see Borg, 2003). Issues that have been raised include: how large a discourse community might be; whether spoken language should also be a necessary defining element; the role of purpose as a defining element and the degree of stability a discourse community ought to have. More recently, Wenger (1998) has proposed the concept of *community of practice*. This

involves belonging to a community through one or more of the modes of “engagement, imagination and alignment” (p.182) and participation (practice) within an “historical and social context that gives structure and meaning to what we do” (p. 47). Wenger’s (1998) more socially-defined community of practice involves “mutual engagement” and “joint enterprise” (p. 78), requirements that separate the concept from the potentially more disparate *discourse community* that Swales proposes. Swales (1998, p. 204) distinguishes between the broader concept of a discourse community which may not be physically connected, and which communicates with itself through written communication and *place discourse communities*, which use both written and spoken communication.

According to Swales (1990, pp. 61-67) genres differ in relation to:

1. the complexity of rhetorical purpose - a recipe compared with a political speech;
2. the degree to which they are prepared in advance of their communicative instantiation;
3. the mode or medium through which they are expressed;
4. the extent to which producers of prepared-text genres are conventionally expected to consider their anticipated audiences and readerships;
5. the extent to which they exhibit universal or language specific tendencies.

Swales claims that the exercise of genre skills in language production involves two types of knowledge: prior knowledge of the world and knowledge of prior

texts. Knowledge of the world comes from previous experiences of life and language experiences. These provide background knowledge patterns which Swales terms *content schemata* and likens to *scripts* (Schank & Abelson, 1977) and *scenarios* (Sanford & Garrod, 1981). On the other hand, knowledge of prior texts provides the formal patternings which are applied to content knowledge to create recognised genres. Swales uses the term *formal schemata* (Carrell, 1981, 1988) to describe these patterns. He argues that the recognition and production of genres in language involve the interaction between these two types of schemata, although he suggests that the exact nature of their interaction is not well understood. He refers to Carrell (1988, p. 476) who suggests that understanding of rhetorical form (formal schema) may be more important when processing new or unfamiliar texts:

Rhetorical form is a significant factor, more important than content; in the comprehension of the top-level episodic structure of a text and in the comprehension of event sequences and temporal relationships among events

However, in describing higher-level patterns of the organisation of knowledge within genres, Swales' construct of *rhetorical moves* is largely described in terms of the stages of content itself, rather than any type of more abstract, textual patterning, such as formal schemata. This is evident in the move structure for introductions to published research articles and legal cases (see *Section, 3.7* following). The ESP approach does not attempt to fully accommodate the more general, rhetorical structures (such as the *formal schemata*) proposed by Carrell (1988). While acknowledging the roles of two types of schema, *content* and *formal*, Swales suggests that it may be difficult to maintain a distinction between

the two when examining genre in that: “the nature of genres is that they coalesce *what* is sayable with *when* and *how* it is sayable” (Swales, 1990, p. 88). In failing to address the cognitive, rhetorical organisational dimension as an organisational influence in discourse, it appears that the ESP approach to genre, like the systemic functional approach, involves the attempt to match socially constructed patterns or conventions of textual organisation with the linguistic systems of the language. Therefore, the ESP approach to genre is primarily a social genre construct although it acknowledges the existence of more general cognitive elements that are integral to the creation of discourse.

3.7 An ESP framework for genres

Below the genre level at which categorisation is determined by the communicative purpose, the text-internal elements of content and linguistic encoding are analysed in relation to: (a) *rhetorical moves* and *steps*; and, (b) linguistic structures which relate to these moves and steps. Dudley-Evans (1994) suggests that “decisions about the classification of the moves are made on the basis of linguistic evidence, comprehension of the text and understanding of the expectations that both the general academic community and the particular discourse community have of the text” (p. 226). For example, Swales (1981) proposes a four move structure for the introductory section of research articles, consisting of:

1. Establishing the research field;
2. Summarizing previous research;
3. Preparing for present research;
4. Introducing the present research.

Later Swales (1990, p. 141) revises this structural model, proposing a three move

CARS (create a research space) structure:

1. Establishing a territory;
2. Establishing a niche;
3. Occupying the niche.

This structural pattern is then discussed at a micro-level in terms of the linguistic elements which may occur within the moves and steps framework.

Bhatia describes moves as “discriminative elements of generic structure [which depend] upon the communicative purpose(s) that it serves in the genre and that is why it varies from one genre to another” (1993, p. 32). In analysing legal cases, Bhatia, (1993, pp. 135-136) offers a four move structure, consisting of:

1. Identifying the case;
2. Establishing the facts of the case;
3. Arguing the case;
4. Pronouncing judgment.

As well as examining legal cases at the level of moves, Bhatia also examines their linguistic properties in terms of: sentence length, nominal character, complex prepositional phrases, and binominal and multinominal expressions (Bhatia, 1993, pp. 106-110).

Other studies that examine texts in terms of moves and steps include those of: Swales (1981, 1990); Crookes (1986); Dudley-Evans (1986, 1989, 1994); Hopkins and Dudley-Evans (1988); Bhatia (1993) and Connor and Mauranen (1999)

3.8 Examples of genre analysis within Swales' framework

In the ESP approach to genre, the most examined and described genre is the Research Article (RA), with the main focus being on the introductory section. Swales (1990) deals at length with the research article as a genre in terms of the rhetorical structuring of moves and steps and the linguistic features which he identifies with the various stages of the rhetorical structure. Using his CARS model, Swales (1990, p. 141)² proposes the following pattern of moves and steps for the introductory sections of research articles.

Move 1 Establishing a territory

- Step 1 Claiming centrality, and/or
- Step 2 Making topic generalization(s), and/or
- Step 3 Reviewing items of previous research.

Move 2 Establishing a niche

- Step 1A Counter-claiming, or
- Step 1B Indicating a gap, or
- Step 1C Question-raising, or
- Step 1D Continuing a tradition.

Move 3 Occupying the niche

- Step 1A Outlining purposes, or
- Step 1B Announcing present research,
- Step 2 Announcing principal findings,
- Step 3 Indicating RA structure.

² Swales (2002, pp. 70-75) has subsequently revisited the CARS structure for introductions to research articles, allowing for a range of possible structures (including CARS) depending on the research environment, the purpose of the writer and the nature of the potential audience.

Swales then discusses linguistic elements which frequently occur within the move structure of the introductory sections of Research Articles.

3.8.1 Move 1

Swales (1990) bases his proposals relating to move and step structure on a corpus of 158 introductory sections, noting that the exercise of Step 1 occurs in about 50 of these texts of the corpus, and offering a range of example sentences for centrality-claiming. These include:

Recently, there has been a spate of interest in how to . . .

In recent years, applied researchers have become increasingly interested in . .

Similarly, in discussing step 2, he presents a range of exemplar sentences for making topic generalizations, such as:

[X} . . . is a common finding in patients with . .

An elaborate system of . . . is found in the . . . (p. 146)

Swales says that Step 3 is:

one of the main occasions where the RA author needs to relate *what has been found* (or claimed) with *who found it* (or claimed it). More precisely, the author needs to provide a *specification* (in varying degrees of detail) of previous findings, an *attribution* to the research workers who published those results, and a stance towards the findings themselves. (p. 148).

The Step 3 reporting role includes different types of citation of sources. In

particular, Swales draws attention what he calls *integral citation* and *non-integral citation*:

An integral citation is one in which the name of the researcher occurs in the actual citing sentence as some sentence-element; in a non-integral citation, the researcher occurs either in parenthesis or is referred to elsewhere by a superscript number or via some other device. (pp. 148-149).

Also in relation to Step 3, Swales examines the use of reporting verbs in creating a research space and the use of tense and aspect in citation.

3.8.2 Move 2

Move 2 of Swales' CARS model involves establishing a *niche* or area of the research field which has previously been unexplored: "the move opens with an adversative sentence-connector" (p. 154). Here, the most frequent signallers, according to Swales, are: *however*, *yet*, *nevertheless*, *yet*, *unfortunately* and *but*. However, he also refers to the use of open class lexical signallers to initiate the move. For example:

e.g. The first group . . . *cannot* treat . . . and is *limited to* . . .

The second group . . . is *time consuming* and *therefore expensive*, and it is *not sufficiently accurate*.

Although Swales argues that further research on the linguistic exponents involved in establishing a niche is required, he provisionally suggests the following categories (based on a survey of 100 instances of Move 2):

1. negative or quasi-negative quantifiers (28 instances);
2. lexical negation (26 instances);

3. negation in the verb phrase (16 instances);
4. questions (8 instances);
5. expressed needs / desires / interests (8 instances);
6. logical conclusions (6 instances);
7. contrastive comment (6 instances);
8. problem-raising (2 instances) (pp. 155-156).

Another issue which Swales raises about Move 2 is its “cyclicity”. He notes that establishing a niche may not just occur once at the end of the literature review, but “may [also] follow reviews of individual items, so that the cycles of Move 1/ Step 3 and Move 2 recur” (p. 158).

3.8.3 Move 3

According to Swales the role of Move 3 is “to turn the niche established in Move 2 into the research space that justifies the present article” (1990, p. 159). The opening step of Move 3 is a kind of promissory statement, and is typically marked by:

1. the absence of reference to previous research and
2. the use of deictic references to the present text.

Swales notes that typical deictic elements are: *this, the present, we, reported, here, now, I* and *herein*, and provides a range of examples culled from introductions which use deictics

e.g. The aim of *the present* paper is to give . . .

In relation to the language of Move 3, Swales (1990, p. 160) comments that:

1. First, there is a strong tendency for the deictic signal to occur early . . .

2. There is also some evidence that the co-occurrence of inanimate subject and animate verb varies in its acceptability from one language to another . . .
3. In cases where the deictic refers to the *genre* (paper, report, note, review, etc.) tense is restricted to the present.

3.9 Other sections of research articles

Swales does not provide an analysis of the *Methods* section of research articles in terms of moves and steps. However, in reviewing a range of findings by other researchers, he suggests that Methods sections frequently make use of the past passive (p. 167) and that there is often a lack of pronominal or anaphoric reference (p. 168). Because of this latter tendency, he suggests that the writer often assumes the reader's shared knowledge of the relevant discipline in order to make inferential bridging and achieve a coherent reading of this section.

In relation to the *Results*, *Discussions* and *Conclusions* sections of research articles, Swales supplies some 'exploratory' comments, noting that while some articles have separate Results and Discussion sections, others combine the two under another heading. He also suggests that for research articles, the major differences in the various disciplines do "not lie so much in Introductions and Discussions . . . but in the Method and Results sections" (pp. 175-176) This appears to be borne out by the research of Brett (1994) and Williams (1999).

Brett (1994, p 52) examined the results sections from 20 sociology research articles employing what he calls three *communicative categories*: *Metatextual*,

Presentation and Comment:

Metatextual defines parts of the text which refer to the data or to other written sections; it is text about the text, . . . guiding the reader to other parts of the writing. . . . *Presentation* categories are those which objectively and impersonally report, present, or highlight the results or the ways in which they were obtained. . . . *Comment* categories are those in which authors offer their own interpretation of, or comment and opinion about the results already presented, building up on the Presentation categories.

Brett claims that the organisational categories he identifies are cyclical, the most frequent pattern being *Pointer* (metatextual) followed by *Statement of Finding* (Presentation), and *Substantiation of the finding* (Presentation). He describes each of the three communicative categories in terms in terms of their linguistic features.

Brett's communicative categories (Metatextual, Presentation, Comment) appear to be specific to a particular social genre, although they can be related to the more general schematic structures suggested by Derewianka (1990) in more general connection with the teaching of writing.

A further investigation of the Results sections of research articles was carried out by Williams (1999), who analysed eight medical research articles using a modified version Brett's (1994) model of communicative categories. Williams found Brett's model to be "an adequate basic model for the rhetorical categories of Results sections for interdisciplinary genre analysis." (p. 362), he did observe that cyclical patterning proposed was less common in biomedical articles (where the results section tended to be presented in a more linear way). He, therefore,

suggests that both type of study and subject matter influence organisation, which may be either *chronological*, *hierarchical* or *climactic*. What this suggests is that more content-related, cognitive patterns may be involved in the discourse organisation of medical research articles.

In relation to his analysis of the Discussion section of research articles, Swales (1990) supports the 11-Move scheme (for articles relating to natural sciences) proposed by Peng (1987) and Hopkins and Dudley-Evans (1988) of:

1. Background information;
2. Statement of results;
3. (Un)expected outcome;
4. Reference to previous research;
5. Explanation;
6. Exemplification;
7. Deduction and hypothesis;
8. Recommendations for future research.

Although Swales observes that little is known about the linguistic exponents of these moves, he accepts that “Discussions, in strict contrast with Introductions, move during a cycle in an ‘inside-out’ direction’ they move from stating the results themselves, to placing them within the established literature, to reviewing their general significance” (1990, p. 173). Developing this idea, Swales and Feak (1994) offer a three move structure for discussions, which contain a number of *interpretative* points. The structure that they propose is:

Move 1 Points to consolidate your research space (obligatory)

- Move 2* Points to indicate the limitations of your study (optional but common)
- Move 3* Points to identify useful areas of future research (optional and only common in some areas)

(Swales & Feak, 1994, p. 196)

Also reflecting the cyclic approach to the organisation of discussion sections, a modified version of the 11-Move scheme has been used by Jacoby, Leech and Holte (1995, p. 368) in a course designed to teach the writing of scientific reports to undergraduates.

Holmes (1997) has examined the Discussion sections of research articles from history, political science and sociology in terms of the move scheme proposed by Hopkins and Dudley-Evans (1988) for natural science articles. He found the Discussion sections of articles from political science and sociology to be similar to those of the natural sciences, but that those that occurred in research articles relating to history “normally do not have a cyclical structure and tend to be brief” (Holmes, 1997, p. 332).

3.10 The ESP approach to genre: Some comments

ESP-related analysis of texts appears to involve two broad approaches:

- identification of a type (or types) of linguistic features which commonly occur within texts from certain fields of special purpose activity;

- a genre-based approach involving the identification of a genre by investigating the operation of texts within a context in terms of “sets of communicative purposes” (Swales & Askehave, 2001, p. 210). Such a genre is employed by a discourse community engaged in a common sphere of activity.

In both types of analysis, the focus is on certain types of language (usually structural features) which are proposed as characteristic of the language of certain fields of activity. In the case of the genre-based approach, attention is paid to lexical or syntactic elements which are commonly employed in certain, identified sections of texts (to fulfil the purpose of the section). Thus, although Swales, does not accept the concept of subject-specific registers, he, nevertheless, claims that genre is “a determinant of linguistic choices” (Swales, 1990, p. 42).

ESP genre analyses focus on a small range of genres (social genre) often confining analysis to one or more sections of texts belonging to these genres (such as the introductions of research articles). The organisational structuring proposed is a structuring of content (content schemata) and is highly specific. The socially recognised staging of the content of a genre is identified in terms of moves and steps, which are discussed in relation to those linguistic features which are commonly employed for their realisation. The higher-level structuring patterns of texts belonging to a genre category are not the type of more broadly applicable formal schemata which Carrell (1988) proposes. Although there is an acknowledgement of schema, those who work within the ESP context generally do not attempt to describe a more universal, interdisciplinary rhetorical patterning.

Rather, they propose schemata which are specific to texts within a particular field or subject area. Bhatia (1998), however, notes the need for approaches to the teaching and learning of academic discourses which are appropriate for university-level programmes concerned with interdisciplinary and multi-disciplinary approaches to knowledge. In comparing textbooks in different subjects (linguistics and law), lectures in different disciplines (humanities and social sciences with law lectures) and the genres of cases in business and law, Bhatia (1998, pp. 26-27) observes:

We need the sophistication and subtleties of ESP but at the same time we need to master the power of generalizations across disciplinary boundaries. . . . One could see a movement away from the discipline-based ESP course design and methodology to a more discourse and genre-based cross-disciplinary approach, which will change the entire ESP paradigm by taking into account the dynamic aspects of disciplinary boundaries . . . However, in order to deal with the complexity of generic patterns so commonly intertwined in academic discourse across disciplines, one needs a system of linguistic analysis which is powerful enough to account for the intricacies of academic genres across disciplines

3.11 Discussion

In this chapter, two approaches to social genre – both of which have been influential in pedagogic contexts – were reviewed. In both cases, genre is seen primarily as a social construct, which exists in order to achieve some kind of conventionalised purpose within a particular cultural context or discourse community. Thus, for example, Biber (1988, 1989) proposes that genre categories

(such as novels, newspaper articles editorials, academic articles, public speeches, radio broadcasts, and everyday conversations) are “defined primarily on the basis of external format, [these distinctions being] related to other differences in purpose and situation” (Biber, 1989, p. 6).

In both of the approaches reviewed here, attempts are made to relate the conventionally-recognised, organisational stages of a social genre to actual linguistic features of exemplar texts, these features then being used as a means of defining or identifying examples of a particular genre. It is interesting, however, that Biber’s corpus-based study does not support such an approach: “Genres are defined and distinguished on the basis of systematic non-linguistic criteria, and they are valid in those terms (Biber, 1989, p. 39). Furthermore, Luke (1996), in discussing genre from a sociological perspective and drawing on Voloshinov’s notion of *speech genres*, emphasises that (social) genres are “sites for the contestation of difference” (p. 318), which is not reflected in a “finely grained synchronic analysis of texts” (p. 333).

In investigating texts belonging to a single social genre (Paltridge 1993) found no systematic relationship between social purpose and lexico-grammatical characteristics. It may be, however, that there is a systematic relationship between genre and some aspects of language. What is likely, however, is that it is a relationship involving cognitive genre rather than social genre (see *Chapter 5*). This will involve making a distinction along the lines proposed by Pilegaard and Frandsen (1996, p. 3):

text genres, (e.g. novels, instructions, newspaper editorials, legal text or business letters); . . . [and] . . . *text types* . . . (e.g. narrative, expository, descriptive, argumentative or instruction text types)

Pilegaard & Frandsen (p. 3) suggest *text genre* and *text type* may be distinguished in the following way:

The criteria defining texts as text types will usually apply only to text parts (or text sequences . . .) whereas the criteria defining text as *text genres* will commonly apply only to whole text, i.e. except cases where one text genre is embedded within another genre

They go on to define a *text type* on the basis of the following criteria:

1. *the cognitive operation* it reflects or represents (e.g. to describe or narrate)
2. *the linguistic means* it deploys to perform this operation (the structural criterion), and
3. *the communicative function* the sender or receiver intend to realize (the functional criterion (Pilegaard & Frandsen, 1996, pp. 3-4).

This distinction between text genre and text type is similar to that proposed between social genre (text genre) and cognitive genre (text type). However, in the cognitive genre model proposed here, (see *Chapter 5*), cognitive processes (e.g. comparison) mediate between the macro-functions or overall purpose of cognitive genres (e.g. explanation) and linguistic choices.

To conclude, it is suggested that an adequate approach to overall discourse categorisation must involve three elements:

1. the social motivation, which is the recognised, conscious level of a whole text and its socially recognised overall organisation (social genre);

2. the cognitive organisation of intermediate structures that involve the less conscious, automatic use of language, structures which are usually described in more abstract terms, such as exposition and narrative (cognitive genre), and;
3. the actual linguistic realisation of the knowledge

Chapter 4 reviews a range of approaches to the classification of knowledge, including schema theory, prototype theory and related constructs. The review will particularly focus on approaches to knowledge classification that relate to the structuring of extended written discourse, in order to establish the principles that ought to constrain any theoretical approaches to describing discourse in terms of cognitive genres. Chapter 5 will propose a cognitive model for the organisational level of text which Pilegaard and Frandsen refer to as text type (referred to in this thesis as cognitive genre) and a typology for the types of intermediate-level cognitive genre structures which are likely to occur within academic writing.

CHAPTER 4:

FAMILY RESEMBLANCE, PROTOTYPE AND SCHEMATA IN THE CONTEXT OF THE UNDERSTANDING OF COGNITIVE GENRE

4.0 Introduction

This chapter (a) presents a critical analysis of literature on *prototype theory* and *schema theory*, including an examination of different approaches to the ways in which *schemata* and *prototype effect* influence the process of categorisation of human knowledge, and (b) provides an initial assessment of the extent to which these two theories, and associated theories and approaches, may be relevant to the understanding of the structure of cognitive genres in academic writing.

In Section 4.1, Wittgenstein's notion of *family resemblance*, as it relates to language and categorisation, is reviewed (Wittgenstein, 1953). This is followed (Section 4.2) by an examination of studies by Rosch (1973, 1975) and Rosch and Mervis (1975) that appear to provide empirical support for the application of the notion of family resemblance to human categorisation. The emphasis in this section is on what is referred to as *prototype effect*.

In the light of the work of Wittgenstein (1953), Rosch (1973, 1975) and Rosch and Mervis (1975), the following approaches to theory and model-building in the area of categorisation are then examined (*Section 4.3*):

- category levels: (Brown, 1958, 1965; Rosch, Mervis, Gray, Johnson & Boyes-Braem, 1976) and *folk taxonomies* (Berlin, Breedlove & Raven, 1974) (*Section 4.3.1*);
- schema theory (Bartlett, 1932; Oller, 1995; Rumelhart, 1975; Rumelhart & Ortony, 1977) (*Section 4.3.2*);
- other schema-like constructs: *scripts*, *plans* and *goals* (Schank & Abelson, 1977), *frames* (Minsky 1975, 1985; Winograd, 1975, 1977; Fillmore, 1976, 1977, 1985; Van Dijk, 1977; Barsalou, 1992), *scenarios* (Sanford & Garrod, 1981) (*Section 4.3.3*);
- cognitive constructs related to the representation of meaning and the organisation of discourse that involve the use of metaphor: *mental spaces* (Fauconnier, 1985); *cognitive grammar* (Langacker, 1987); *kinaesthetic image schemata* (Johnson, 1987), *idealised cognitive models* (Lakoff, 1987) (*Section 4.3.4*).

A summary of the literature reviewed is then provided (*Section 4.4*) in the context of a discussion of:

- its usefulness as a basis for categorisation (*Section 4.4.1*);
- the structuring of categories internally and in relation to each other (*Section 4.4.2*);
- the role of prototype in the making of categorising judgements (*Section 4.4.3*);
- issues of complex categorisation with respect to language (*Section 4.4.4*).

Finally, in *Section 4.4.5*, there is an initial discussion of the possible relevance of this research to an understanding of cognitive genres and genre-classification.

4.1 Wittgenstein and family resemblance

Wittgenstein begins an examination of human understanding of words by talking about *ostensive definition*. He suggests that a language user is not able to achieve an understanding of the ostensive definition of a word until "the overall role of the word in the language is clear" (Wittgenstein, 1953/1963, Remark 30). He explains this by analogy: explaining to a learner of chess how the king piece functions involves the assumption that the learner, "... has already played other (board) games, or has watched other people playing and understood - and *similar things*" (Remark 30). The suggestion seems to be that to develop an ostensive definition of a word requires a knowledge paradigm or setting into which the new word may be grafted. The new word, therefore, draws its meaning, in part, from the learner's previous understanding of the meaning setting to which the word belongs. This raises the issue of bounded categorisation. In questioning classical ideas of bounded categorisation in relation to language, Wittgenstein (1953) develops the idea of *family resemblances*, an idea that he presents by analogy with board games:

We see a complicated network of similarities overlapping and criss-crossing: sometimes overall similarities, sometimes similarities of detail. I can think of no better expression to characterise these similarities than family resemblances . . . one might say the concept, 'game' is a concept with blurred edges (Remark 71).

Wittgenstein acknowledges that adopting this position implies an open-endedness of meaning, an open-endedness that may be detectable even within a single sentence. However, whereas "the sense of a sentence . . . may . . . leave this or that open . . . the sentence must nevertheless have a definite sense" (Remark 99). Thus, there is a necessity for boundaries which are, nevertheless, "indefinite" (Remark 99). This, at first sight, appears to contradict the reference to 'a definite sense'. In fact, however, the contradiction may be more apparent than real: a sentence may, in one context, convey the meaning required for interpretation in that context; in another context, however, what is conveyed by the same sentence may be different. In other words, there is an open-endedness in relation to sense which is generally resolved in relation to adequate contextualisation. Thus, as Wittgenstein (1953/1963) observes, "what we call 'sentence' and 'language' has not the formal unity that I imagined, but is the family of structures more or less related to one another" (Remark 108).

In reflecting on thought and its relationship to language, Wittgenstein proposes some kind of cognitive ordering of concepts before they are encoded as language:

Thought is surrounded by a halo - Its essence, logic, presents an order, in fact the *a priori* order of the world: that is the order of possibilities, which must be common to both world and thought . . . the order existing between the possibilities of proposition, word, truth, experience and so on. This order is a super-order between - so to speak - super concepts (Remark 97).

Central to Wittgenstein's reflections on meaning are his comments on colour perception:

How is [it] even possible to be tempted to think that we use a word to mean at one time the colour known to everyone - and at another the 'visual impression' that I am getting now" (when I say "How blue the sky is!") (Remark 275).

The question of uniformity and/or difference in colour perception has been tested empirically by Rosch (1973, 1975) and Rosch and Mervis (1975) (see *Section 4.2* following).

In these very brief remarks, Wittgenstein raises issues and questions of considerable importance to later cognitive psychology and information processing. The extreme brevity of his remarks and, therefore, their own lack of full contextualisation means that they remain open to a range of interpretation and, thus, serve as little more than an illustration of his thesis. Nevertheless, Wittgenstein's discomfort with any concept of stable categories, unrelated to context, is clear.

Thus, Wittgenstein prefigures many of the ideas of modern cognitive psychology related to category. In particular, he:

- presents the concept of family resemblances in attempting to account for how categorisation occurs in language (using as an example the analogy of the category of games) and proposes that categories should be seen as consisting of more typical and less typical members;

- posits the idea of thought imposing its order on language, thus prefiguring the ideas of cognitive model and category effects that were later developed in cognitive psychology.
- points to the cognitive phenomenon of commonly shared concepts, taking as an example human perception and colour attribution.

4.1.1 Summary and implications for the study

Wittgenstein's ideas point to underlying processes of cognitive ordering involved in different types of human categorisation, such as of activities and colours, and, therefore, by logical extension, more complex concepts, such as types of discourse. He argues that an understanding of the ostensive definition of words requires a range of experiences in which these words are contextualised. Similarly, it will be argued here that understanding what characterises acceptable examples of a cognitive genre requires a range of experiences in which texts are seen as being representative of these genres. Just as Wittgenstein notes that meaning must, in a sense, be open-ended, being subject to revision in the light of experience, so it is argued here that categories used for the classification of discourse (such as genres) are open-ended, being subject to increasingly complex reformulations in the light of experience.

4.2 Prototype effect: The experiments of Rosch and Rosch and Mervis

The research of Rosch (1973, 1975) and Rosch and Mervis (1975) relates to those family resemblances (referred to as *prototype effects*) foreshadowed by Wittgenstein. Particular attention is paid here to the results of those experiments that explore prototype effects in perceptual and semantic categories and that relate

to the existence of central (prototypical) and peripheral members, and to superordinate, basic-level and artificial categories.

Rosch (1973) performed colour experiments involving the Dani, a tribe in Irian Jaya in Indonesia, whose language had only two colour categories *mili* (dark-cool, including black, green and blue) and *mola* (light-warm, including white, red and yellow). She demonstrated that, in learning a range of colour names, the Dani acquired focal colour terms (the presumed natural stereotypes) with greater ease than they did those relating to non-focal colours. Even when grouped in categories with focal colours as non-central members of a category grouping, focal colours were learned with greater ease.

Using two dimensional figures which pilot research showed were not already classified into form classes by the Dani tribe, Rosch demonstrated the role of natural prototypes in form (shape) categories, thus providing a parallel study to that involving colour terms, but one that involved a different area of perception. The same hypothesis concerning the learning of a category was tested - that is, that the presumed natural prototype shapes were central members of the category and a group of distortions were peripheral members. It was found that the natural prototypes were learned faster than the distortions, even when they (the prototypical shapes) were taught (to some subjects) as peripheral members of a grouping of shapes.

On the basis of her research on perceptual categories with the Dani, Rosch (1973) concluded that prototype effects - more easily recognised central members and

less easily recognised peripheral members - could be observed in the learning of the names of the members of the perceptual categories of colour and shape.

In a different series of experiments that involved native speakers of English, Rosch proceeded to attempt to determine whether centrality and peripherality were also meaningful for those types of noun category that did not relate directly to perception (Rosch, 1973). When asked to make selections as to the centrality or peripherality of a word, subjects' reaction times were much faster when the word was selected as a central member of a category than when it was a peripheral one.

A second hypothesis was that central or prototypical members of a category are learned before less typical, more peripheral members of the same category. Here, the experiment involved answering 96 true / false questions about the category membership of nouns. Both children and adults readily recognised the central members of a category, although children required more reaction time than adults. For the recognition of peripheral category members, children required more time and made more errors, whereas the proportion of errors adults made in relation to central and peripheral category membership was not significantly different. Adults, however, took longer to recognise peripheral category members than they did to recognise central members. In both cases, the recognition time required by adults was less than that required by children. Furthermore, the proportional difference between the times required for the two types of recognition was much less for adults.

Thus, Rosch was able to demonstrate prototype effects operating in a variety of types of noun category, including colour and shape perception categories. From her experiments with other semantic categories with adult and child subjects, it appears that categories are learned, and that prototypical members of a category are learned before peripheral ones.

Rosch (1975) reported on a series of nine experiments in which various aspects of the prototype-effect in the area of categorisation were examined. Most of these experiments involved the use of a prime (a superordinate category name) which was then followed by a second noun, the aim being to examine the nature of cognitive representation of categories. These experiments are summarised in *Appendix I: Rosch (1975) – Experiments on prototype effect.*

Three key findings that emerged from these experiments:

- The internal structure of a category representation appears to affect the perception of subsequently represented stimuli when they are activated /primed by a category name. When activated, this internal representation appears to be more effective in facilitating the recognition of central members of the category than it does in the case of peripheral ones.
- The effect of category representation appears to be due to the abstract representation of the category's name, rather than to concrete physical features associated with the category.
- The meanings of superordinate category terms (for groups of nouns, e.g. vehicle for car, truck, motor-cycle) are not specifically coded in

terms of words or pictures. However, the fact that less time is needed to classify pictures suggests that pictures may be closer to the underlying meaning than are words.

As an extension of the experiments that identified prototype-effect within categories, Rosch and Mervis (1975) proceeded to investigate how the internal structure of categories arises. Anecdotal information and some indications from the previous study (Rosch, 1975) suggested that the identification of prototypes develops through learning. Rosch and Mervis, however, did not intend to provide a processing model for learning or developing knowledge of prototypes. Rather, their intention was to research "one of the major structural principles which . . . may govern the formation of the prototype structure of semantic categories" (p. 574), that is, the principle of *family resemblances*. Here, the central basic hypothesis was that "members of a category come to be viewed as prototypical of a category as a whole in proportion to which they bear a family resemblance to (have attributes which overlap those of) other members of the category" (p. 575).

Central to this hypothesis is the *cue validity model* proposed by Reed (1972). Rosch and Mervis (1975) define cue validity as a characteristic of a category which depends on its "total frequency within [that] category and its proportional frequency in that category relative to contrasting categories" (p. 575). However, they retain the term family resemblance (rather than cue validity) in order to indicate that their concern is with providing a description of the structural principles of categories rather than developing a processing model for categories.

Three types of noun category were used in the study: *superordinate categories* (such as 'furniture' and 'vehicle'), *basic-level categories*, (such as 'car' and 'chair') and *artificial categories* formed from sets of letter strings. For each type of category, the two aspects of the family resemblance hypothesis were examined: "that the most prototypical members of categories are those with most attributes in common with other members of the category", and "are those with least attributes in common with other categories" (Rosch and Mervis, 1975, p. 576). A summary of these experiments is provided in *Appendix 2: Rosch and Mervis (1975) - Experiments involving superordinate, basic-level and artificial categories*.

In this study, family resemblance, defined in terms of discrete attributes, was shown to be a major factor in category formation, although family resemblance in this research was "a descriptive, not a processing principle" (p. 600). The primary findings were as follows:

- Prototype effect was found to operate in certain categories, specifically colour and form perception and several other noun categories. In each case, the prototype effect contained central examples which were strongly identified as representing the category. The identification of peripheral examples was graded in relation to degree of representativeness.
- Activation of the cognitive representation of a category appears to affect the recognition of individual items as members. The underlying representation facilitates more rapid recognition of central or prototypical members of a category rather than peripheral ones.

- Subjects' ratings of prototypicality and family resemblance attributes were significantly correlated. This supports the idea of graduated category membership or prototype-effect in relation, at least, to the categories examined.

These experiments on prototype-effect do not, in themselves, constitute an explanation of categorisation. As Rosch (1978, pp. 40-41) herself notes:

- prototype . . . is a convenient grammatical fiction; what is really referred to are judgements of degree of prototypicality;
- prototypes do not constitute any particular processing model for categories . . . [but] . . . processing models should not be inconsistent with the known facts about prototypes;
- prototypes do not constitute a theory of representation for categories . . . the facts about prototypes can only constrain, but do not determine models of representation;
- although prototypes must be learned, they do not constitute any particular theory of language learning.

The empirical studies of Rosch (1973, 1975) and Rosch and Mervis (1975) provide powerful evidence for a prototype effect within human cognition and categorisation. However, prototype effect does not in itself provide a theory of categorisation. Nor do the experiments to which reference has been made provide an explanation of prototype effect. They do, however, establish a basis for later research that seeks to (a) provide a theory of categorisation, and/ or (b) explain prototype effect (see *Section 4.3* following).

4.2.1 Summary and implications for the study

The research of Rosch (1973, 1975) and Rosch and Mervis (1975) provides evidence that when categorising certain types of objects, shapes and colours, the principle of family resemblance – central and peripheral category members - are fundamental to human perception and understanding. Knowledge of a category and ability to categorise appropriately appears to relate to knowledge of the central members or prototypes of the category. If categorisation involves making “judgements of degrees of prototypicality” (Rosch, 1978, p. 40), this would suggest that the development of a complex language skill (such as exercising discourse competence relating to academic writing), would appear to require familiarity with the prototypes that occur within this type of discourse, such as the Rhetorical Types proposed as the prototypical cognitive genres of written academic discourse in English. The findings of the research of Rosch (1973, 1975) and Rosch and Mervis (1975) suggest that identifying and becoming familiar with such prototypes may assist novice users in developing the type of awareness that underpins the effective exercise of such a competence.

4.3 Categorisation: Theory formation and model building

4.3.1 Category levels and folk taxonomies

Brown (1958, 1965) suggests that there are three levels of categorisation: *superordinate*, *basic-level* and *subordinate*. According to Brown, basic-level categorisation may be the first level of categorisation to be learned, "the level of distinctive action" (e.g. 'flowers', 'dogs', 'cats'). He suggests that the next type of category to be learned is the superordinate category, involving "achievements of

the imagination" (e.g. 'plants' and 'animals'). The final type of category to be learned is, according to Brown, the subordinate (e.g. 'jonquil' and 'Siamese').

The first type of categorisation to be acquired (basic-level) was judged by Brown, (1965, pp. 318-319) to have the following converging properties:

- the level of distinctive action;
- the level learned earliest and at which things are named;
- the level at which the names are shortest and most frequently used;
- the natural level of categorisation, as opposed to the level created by "achievements of the imagination".

In documenting the folk categories of plants and animals of the Tzeltal people living in the Chiapas region of Mexico, Berlin, Breedlove and Raven (1974, p. 27), attempted to provide a basis for psychological research on basic-level categorisation. They postulated that this level of categorisation, which they referred to as *folk generic* was psychologically basic because *folk generic* taxa:

- represent the most commonly referred to groupings of organisms in the natural environment;
- [are] the most salient psychologically; and,
- [are] likely to be among the first taxa learned by the child.

Stoss (1969), in studying Tzeltal language acquisition, discovered that the bulk of the child's first-learned plant names are basic-level categories, categories which are in the middle of the taxonomic hierarchy of Brown (1958) of superordinate, basic-level and subordinate. Children then work up the hierarchy generalising,

and down the hierarchy specialising. This means that after learning basic-level, gestalt-related words such as 'chair' and 'potato', children learn more abstract, organisational categories within which to structure their basic-level knowledge, such as 'furniture' and 'vegetable'. Later, they learn to reduce their known basic-level categories to smaller subordinate units, or more specific examples of each category, such as 'kitchen chair', 'armchair', 'toilet chair', and 'Idaho', 'Red King', 'Black Kidney' potatoes.

Basic-level categorisation depends upon experimental aspects of human psychology: gestalt perception, mental imagery, motor activities, social function and memory. Berlin (n.d. in Lakoff, 1987, p. 12) suggests that certain cultures, for example, urban cultures, under-utilise certain human capacities used in basic-level categorisation: they under-use the capacity for gestalt perception. Thus, people in urban cultures may treat the category 'tree' as a basic-level one. Moreover, there may be sub-populations of specialists within a culture, who, through training, achieve a more finely honed gestalt perception for a limited range of domains, for example, horse breeds or types of cars. Berlin predicts, however, that there will be no culture in which all the levels of categorisation differ fundamentally from those of other cultures. In most domains, the levels of categorisation will be the same for all human beings because human beings share the same general capacities for gestalt perception and holistic motor movement play a major role in determining basic-level categorisation.

4.3.1.1 Summary and implications for the study

Research on superordinate, basic-level and subordinate categorisation suggests a sequence or order in developing knowledge of categories. This may also be related to the development of the knowledge of a complex category, such as a discourse competence – the ability to recognise and create examples of types of extended text. It may be that novice users of particular types of discourse at the level of social genres may benefit from initial exposure to prototypical examples of cognitive genres (such as the Rhetorical Types proposed for academic writing - those of recounting, reporting, explaining and discussing) as a type of basic level discourse category. The basic level discourse unit of cognitive genre (Rhetorical Type in academic writing) may then be analysed, and practised so that its constituent elements may be developed into more automatically employed knowledge (see Chafe, 1994, pp. 137-138) when the language user is involved in the creation of social genres.

4.3.2 Schema theory: Introduction

In his 1932 monograph entitled *Remembering*, Bartlett described a series of experiments in which students began by reading stories from unknown cultures. The students then retold the stories from memory to other subjects. The recipients of the stories then retold the same stories yet again from what they are able to recall.

Bartlett (1932) reported systematic changes that took place during the retelling of the culturally unfamiliar stories. These were:

- *levelling / flattening* where story-specific details, such as proper names and unfamiliar cultural concepts are lost;
- *sharpening* which involves the retention of a smaller number of details which receive more emphasis or are sharpened; and,
- *rationalisation* which involves (a) the compacting of passages that are made to conform to readers' expectations, and (b) the omission of unfamiliar cultural references, such as references to ghosts and spirits.

Bartlett argued that readers, in attempting to make stories conform to their own cultural expectations, are engaged in 'effort after meaning'. He proposed that learning or assimilating new material requires some matching by the learner of the new material to his or her existing concepts or 'schemata': "without some general setting or label, as we have repeatedly seen, no material can be assimilated" (p. 172). Bartlett proposes that remembering involves a "process of construction" in which details recalled are matched to an existing schema which is then used to fill out unrecalled details.

Rumelhart (1975) examined memory and recount of stories, the purpose of his research being to uncover the "supra-sentential relationships" that are implied in ordinary discourse in order "to infer the causal relationships between propositions" (p. 212). On the basis of his research, Rumelhart presents a tentative theory, involving two sets of rules, to account for the internal structure of simple stories. These two sets of rules are: (a) a set of syntactical rules that generate the constituent structures of stories, and (b) a corresponding set of

semantic interpretation rules which determine their semantic representation (p. 213)

For a simple story narrative, Rumelhart (pp. 213-216) proposes eleven 'syntactic rules' which can be summarised as follows:

- a story consists of two parts, a setting and an episode;
- a setting consists of a set of stative propositions;
- an episode consists of an event and a reaction;
- an event involves either two subsuming, but connected, sub-events or a change of state;
- a reaction consists of an internal response and an overt response

The following tree diagram provides an analysis of a simple story in terms of Rumelhart's syntactic rules.

Figure 4.1: *Rumelhart's Story Syntactic Rules.*

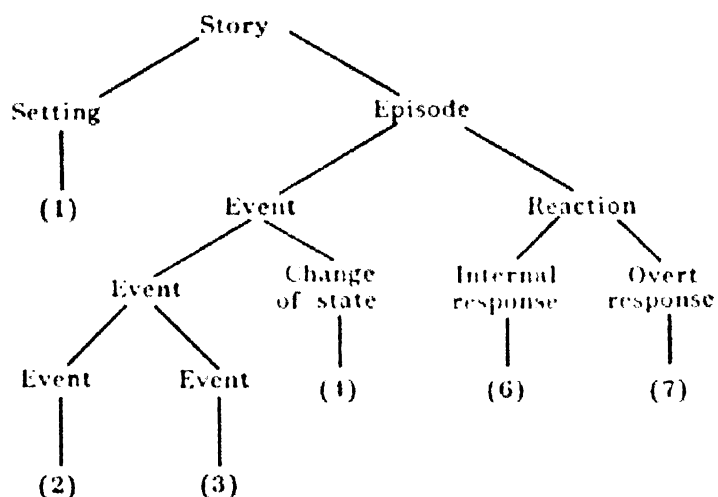


Fig. 1b. The syntactic structure of the story.

(Rumelhart, 1975, p. 217)

As well as the syntactic rules for the structure of a simple story, Rumelhart (p. 220) proposes six semantic principles (definitions of semantic relationships) for their interpretation as follows:

Principle 1: AND A simple conjunctive predicate of any number of arguments.

Principle 2: ALLOW The relationship between an event made possible, but which did not directly cause a second event. Thus for example, going to the store ALLOWS but does not cause me to buy some bread.

Principle 3: INITIATE The relationship between an external event and the willful reaction of an anthropomorphized being to that event. Thus for example, an angry lion escaping from a cage in front of me INITIATES my being afraid and running for safety.

Principle 4: MOTIVATE The relationship between an internal response and the actions resulting from that internal response. Thus for example, my being afraid MOTIVATES my running to safety.

Principle 5: CAUSE The relationship between two events in which the first is the physical cause of the second. Thus for example, the baseball striking the bat CAUSES the baseball to fly towards the outfield.

Principle 6: THEN The relationship which holds among a temporally sequenced set of events. The first argument occurs prior in time to the second, the second prior to the third, etc.

Rumelhart (p. 226) postulates that it is possible to summarise the most important elements of the meaning of connected discourse:

Connected discourse differs from an unrelated string of sentences (among other ways) in that it is possible to pick out what is important in connected discourse and summarise it without seriously altering the meaning of the discourse

Rumelhart's story grammar is an attempt, using a top-down form of analysis, to uncover the schematic patterns within what he terms as 'the syntax and semantics' of simple stories, simple stories that are, he suggests, reducible to a series of summary propositions. This story grammar is applicable only to simple narratives, narratives that are generally chronologically sequenced. More complex, rhetorically-organised discourse, such as that involving reported information or argument, would arguably require a considerably greater level of complexity in terms of what Rumelhart describes as syntactic rules and semantic relationships.

Rumelhart and Ortony (1977) present a summary of schema theory, aiming to describe the features common to their own earlier work and that of Bobrow and Norman (1975), Minsky (1975), Norman, Rumelhart and the LNR Research Group (1975), Rumelhart (1975), Shank and Abelson (1977) and Winograd (1975). First, schemata are defined as follows:

[Schemata are] data structures for representing the generic concepts stored in memory. They exist for generalized concepts, underlying objects, situations, events, sequences of events, actions and sections of actions (Rumelhart & Ortony, 1977, p. 101).

They say that schemata are said to have four essential characteristics. They:

- have variables (e.g. gift, receiver and recipient) that are associated with the context within which they operate: “a schema for give would have three variables: a giver, a gift and a recipient(p. 102);
- can be embedded within one another as in the case of the schema for FACE which involves embedded schemata (‘subschemata’) such as for those for eye and mouth (pp. 106-107);
- can represent generic concepts at various levels of abstraction, such as schemata for lexical items that refer to things, to action sequences or plots of stories (pp. 109-100);
- represent knowledge rather than definitions (pp. 100-111).

Thus, schemata represent the constituents and interrelations that are ‘normally’ to be found: “schemata attempt to represent knowledge in the kind of flexible way which reflects human tolerance for vagueness, imprecision and quasi-inconsistencies” (pp. 110-111). They are postulated as having four functions:

- *Comprehension*: involving making use of schemata that appear to give a sufficient account of the information (p. 120).
- *Remembering*: involving making use of episodic memory, of “those memories for particular events which we have directly or indirectly experienced” (p. 116).
- *Inferencing*: involving assignment of values to variables on the basis of whole/part or part/whole perception. Thus, for example, a RESTAURANT schema contains sub-schemata, such as WAITER, MENU, ORDERING, EATING, and PAYING; the RESTAURANT

schema can activate the related sub-schemata (and their parts) for the purpose of making inferences.

- *Action*: involving the engagement of schemata in the performance of actions. For example, juggling involves a TRANSFER schema which contains subschemata of TOSS, TRAJECTORY, APEX and CATCH.

These four functions are outlined more fully in *Appendix 3: Rumelhart and Ortony (1977): the four functions of schemata*.

Three main types of schema have been identified by theorists and researchers:

- *content schemata* which are configurations of knowledge or concepts specific to certain domains or contexts;
- *formal or rhetorical schemata* which account for patterns of organisation of knowledge in language and the interrelationships between parts or sections of language;
- *abstract schemata* (introduced by Oller, 1995) which involve deductive reasoning.

Content schemata involve the representation of knowledge resulting from some kind of human perception. They are based on abductive judgements about facts or states of affairs in the real world, that is, they involve judgements relating to human (often sensory) perceptions: “Abduction occurs at just the point where a particular fact . . . is linked with a distinct representation” (Oller, 1995, p. 284).

Formal schemata involve inductive reasoning which links different events, details or states in terms of similar, shared characteristics: “To connect such separate and individual, abductive inferences and to know them as pertaining to the same, logical object, induction is required” (p. 284). Thus, for example, in spite of physical differences, hotel lobbies will have formal similarities which remain relatively invariant and which enable observers to classify them as being members of the same group. These similarities, judged by induction, are dependent upon structures and arrangements abstracted to some degree from the particular facts of any given context. (p. 286).

Abstract schemata involve a “kind of inference identified as *deduction* [in which] reason, works on the basis of an abstracted symbol which applies not only to the case in hand, but to all possible cases” (p. 285). According to Oller, these are the most general and, therefore, the most powerful of schematic constructs:

For instance, if hotels are businesses that aim to make a profit, they must generally charge more for their services than those services cost the owners. Thus, deductive inferences give us a great deal of information about all possible hotels that could not be acquired by merely examining or auditing the records of however many individual cases (Oller, 1995, p. 287).

In memory and language, the research of Meyer (1977) points to the role and operation of structural (formal) schemata as higher-level organisers of *recalled knowledge*. Meyer analysed a number of passages of prose in terms of the logical relationships within their content using Fillmore’s (1968) case grammar. Based

on her analysis, she identified ideas within the prose passages as belonging to different levels, such as ideas at an organising or superordinate level in relation to other ideas within the same passages which stand in subordinate relationship to the upper-level ideas. Thus, “a passage is viewed as being a complex proposition that can be decomposed into sub-propositions bearing certain relations to one another” (p. 181). Using the analysed passages, Meyer performed a number of experiments which involved subjects in listening to, or reading prose passages. These subjects were then asked to (a) produce a free recall of the content of the passages immediately after listening or reading, and (b) attempt to recall the content again some time later. Over a range of experiments in which she controlled for types of content within passages, the findings showed that:

- in the case of free recall (a) subjects were more likely to recall high-level (rather than lower level) subject matter immediately after encountering a passage, and (b) high-level content was less likely to be forgotten over time than was lower level content;
- in the case of cued recall, higher-level content was more readily remembered although some aspects of higher-level content (such as, for example problem-solution relations) appeared to be recalled more readily than others.

In examining reading comprehension, Carrell (1988) distinguishes between *formal schemata* and *content schemata* as constructs which organize knowledge within written texts:

One type of schema, or background knowledge, a reader brings to a text is a *content schema*, which is knowledge relative to the content domain of

the text. Another type is a *formal schema*, or knowledge relevant to the formal, rhetorical organizational structures of different types of texts (Carrell, 1988, p. 461).

Previous research had indicated that texts with schemata based on familiar cultural material were more easily understood than texts with unfamiliar cultural content (Carrell, 1981; Johnson, 1981). Similarly, it had been shown that texts with familiar rhetorical organisations were more easily understood than texts whose rhetorical structure was unfamiliar. What was not known was (a) how different types of schema influenced understanding of written text, and (b) how different types of schema influenced one another. Carrell, therefore, investigated the influence of both types of schema (formal schemata and content schemata) in a series of reading comprehension experiments with students from two cultural backgrounds: students of Muslim background and students of Spanish Catholic background.

Carrell's research involved presenting two biographies of religious figures (one of a Catholic saint, and one of a Muslim religious figure) to two groups of subjects: one group of Muslim background; the other of Spanish Catholic background. The texts were historical narratives with a setting and two episodes. Two versions of each text were used, one in straightforward temporal order, and the other involving a mixing of events from the two episodes (but with markers of time and place added to facilitate comprehension).

Analysis of the subjects' understanding of all four texts indicated that familiar content, even when organised in an unfamiliar way, is more easily understood than unfamiliar content, even when that unfamiliar information is presented in a familiar rhetorical form. Analysis of recall of the higher-level ideas – the two episodes of each text – indicated that the form of the text was an important factor. Subjects were more likely to recall the main episode ideas from the rhetorically unadulterated (temporally organised) versions of each text. Thus, irrespective of rhetorical structure, familiar content appears to be more readily understood than unfamiliar content. However, high-level ideas are more likely to be recalled if they were originally presented in chronological order.

There are different approaches to schema theory and these different approaches use different terminology for the constructs proposed. However, the following general principles emerge:

- schemata are generic knowledge patterns which are stored in our memory;
- there are different types of schemata which operate in relation to different types and levels of knowledge;
- higher-level schemata relate to more general knowledge, and lower-level schemata relate to more specific knowledge.

4.3.2.1 Summary and implications for the study

The introduction of schema theory in the work of Bartlett (1932) and Rumelhart (1975) provides an approach to the organisation of human knowledge. Bartlett's research indicates that levelling, flattening, sharpening and rationalisation may

be fundamental to human memorisation. This would appear to indicate that already-held, underlying schemata are employed as part of the operation of human memory, but such schemata reflect cultural differences. Thus, in recalling a text which is an example of a particular genre, particularly where cultural content is relatively unfamiliar, language users may lose sight of unfamiliar concepts and specific details (levelling and flattening), emphasise those details that are recalled (sharpening) and reformulate in terms of existing textual expectations (rationalisation). Bartlett's research appears to reinforce the fact that cognitive genres (such as the folk narratives that were the subject of his research) vary according to cultural context, and are reformulated in the minds of readers and listeners who have a different cultural background.

If applied to written discourse, this suggests that language users who are being initiated into unfamiliar (cognitive) genres should be presented initially with texts that are designed in such a way as to reduce the burden of recall, texts that (a) are as familiar as possible in terms of content and cultural presuppositions, (b) have as little supporting detail as possible, and (c) conform as far as possible to existing expectations relating, for example, to sequential presentation of events. However, it is important also to remember that unique events, referred to as 'script distracters' by Bower, Black and Turner (1979) may also be recalled with little difficulty.

Before attempting to create or discover (cognitive) genre-exemplifying texts for pedagogic purposes (such as the teaching of academic writing skills), it will be necessary to discover the patterns, sequences and relationships that are typical of

the cognitive genre in question (see Chapters 5 and 6). In most cases, these are likely to be more complex than those that Rumelhart (1975) associated with simple narratives. However, the way in which Rumelhart approached the problem of specification may, nevertheless, provide a useful starting point.

If different types of schemata play a role in comprehension, memorisation, inferencing and action (Rumelhart and Ortony, 1977), they will be called on in interpreting and creating texts and will, therefore, be relevant at all stages of text comprehension and production. However, so far as novice writers of texts belonging to a particular social genre are concerned, different types of schemata may need to be prioritised at different stages. Thus, content schemata may be particularly relevant where background information is processed, abstract schemata may play an important role in making decisions about the ordering of content, and formal (rhetorical) schemata may need to be prioritised during the text creation process (see Chapters 5 and 6). All three, will, however, play a role in creating a new text or interpreting an unfamiliar one.

4.3.3 Exploring other schematic constructs: Scripts, plans, goals, frames and scenarios

The fundamental tenets of schema theory have been used as the basis for research and theoretical modelling in a number of different fields requiring constructs for the organisation of knowledge within language. Within the context of linguistics, a schematic basis for the formal or rhetorical organisation of ideas has been proposed within the *frame semantics* model (Fillmore 1976, 1977, 1985; Minsky, 1975). Within the context of artificial intelligence, the *script/plan model*

performs a similar function (Schank & Abelson, 1977). In relation to content (as opposed to rhetorical ideas), the work of Sanford and Garrod (1981) on *scenarios* has been influential.

4.3.3.1 Scripts, plans and goals

Much of the research on schemata relates to the processing and storing of knowledge – comprehending, inferencing and recall. Considerably less attention appears to have been paid to the use of schemata in knowledge representation, in, for example, creating spoken and written discourses. One exception is the work of Schank and Abelson (1977) which gives attention to the roles of schemata in both knowledge understanding and knowledge representation. Working in the area of Artificial Intelligence, they aimed to devise computer programmes that would enable computers to "understand and interact with the outside world" (p. 1).

Schank and Abelson distinguish between two types of knowledge which people employ to interpret and understand situations with which they are confronted: *general knowledge* and *specific knowledge*. According to them, specific knowledge, which is employed by a language user in the interpretation of the more detailed events of a situation, is organised in terms of *scripts*:

A script is a structure that describes appropriate sequences of events in a particular context. A script is made up of slots and requirements about what can fill those slots. The structure is an interconnected whole, and what is in one slot affects what can be in another. Scripts handle stylized everyday situations. (p. 41)

They claim that the purpose of scripts is economy in cognitive processing. A stylised or default version of a situation can be called up for the interpretation of a new situation, and points of difference which individualise the new situation may be identified.

Schank (1975) notes that scripts are associated with the definition of certain situational nouns, such as: restaurant, football, game, birthday party, classroom and meeting. In this context, they consist of "predetermined sequences of actions that define a situation" (p. 264). He observes that scripts are recognisable because, after they have been entered, objects that are part of the script may be referenced as if they had been mentioned before. He cites the following example:

John went into a **restaurant**. When he looked at **the** menu, he complained to **the** waitress about **the** lack of choice. Later he told **the** chef that if he could not make much, at least he could make it right. (p. 264).

Thus, Schank proposes that a word, such as restaurant, calls up a script. On the basis of that script, roles and props are referenced as previously mentioned information. For relatively common scripts, such as riding a bicycle, much of the information in different people's scripts is the same.

As a schematic construct, scripts as information structures relate directly to the actual content of a piece of discourse at a relatively detailed level, rather than to the procedural role of organising that content. For a review of the script theory, see *Appendix 4: Schank and Abelson: Script theory*.

In attempting to deal with the more complex processing demands involved in creating as well as understanding discourse, Schank and Abelson propose the concept of *plans* and *goals*. Whereas scripts deal with specific information, *plans* and *goals* deal with more general information. A plan relates to an overall general goal and may be fulfilled by a number of more specific *delta-goals* (**D-goals**) or *instrumental goals* (**I-goals**).

D-goals perform the function of organizing knowledge about how to achieve standard subgoals. Whenever a goal has been selected, a plan to realize that goal can be chosen. Some realizations are simply scripts (Schank & Abelson, 1977, p. 83).

Instrumental goals (**I-goals**) are more stereotyped goals which simply lead to standardised scripts, with no further selection from a range of possible fulfilment choices being required.

As an example of the construct of a plan, the authors offer the following sequence:

John needed money.

He got a gun and went into a liquor store.

PLAN: To get money

MAIN GOAL: ACHIEVE POSSESSION (money)

D - GOALS: gain control [presumably of the liquor store]
robbery script

(Schank and Abelson, 1977, pp. 74-75)

Schank and Abelson propose that the following steps are involved in the understanding of plans:

1. determine the [overall] goal
2. determine the [possible] **D**-goals that will satisfy that goal
3. analyse the input conceptualisations for their potential realisations of the delta goals [and presumably match the input to a **D**-goal] (p. 76)

Thus, main goals lead to the range of possible **D**-goals or **I**-goals. If a standardised script is possible for the realisation of any **D**-goal, it is chosen; otherwise the given language information is matched to the **D**-goal which it best matches. In the case of 'named plans' (that is, formulaic plans that follow a set sequence of scripts which in achieving an overall goal), the steps are known and so the need for selection and further processing is unnecessary.

According to Schank and Abelson, plans fulfil goals. For example, we will, in listening to a story, have expectations. These expectations will relate to events and to goals. In the case of goals, our expectations will be generated from our belief systems; in the case of events, our expectations will be derived from our expectations in relation to goals. For the monitoring and tracking of underlying goals in discourse, Schank and Abelson propose a 'goal monitor': "an interrelated bundle of processes which recognizes when goals are triggered, interprets their nature, keeps track of their fate, and makes predictions about goal-related events" (p. 102). In dealing with a story, they suggest that the goal monitor should be able to deal with *goal origin, goal specification and substitution, goal suspension* and *goal embellishment*. These are illustrated with reference to a story about a

professor who comes to a town to settle: see *Appendix 5: Schank and Abelson - An illustration of goal monitoring functions.*

Schank and Abelson claim that "such top-down predictions form the basis of our understanding" (p. 82). However, they also acknowledge that the process of discourse creation cannot be accommodated in this way. They see discourse creation (creating a plan) as involving "stringing methods together in an optimal or admissible way to realise a goal. Plan creation is problem solving" (p. 73).

4.3.3.1.1 Summary and implications for the study

In attempting to account for the process of discourse understanding and discourse creation (for the purpose of creating computer programmes that are able to generate actual language), Schank and Abelson propose a 'discourse understanding model' involving a plan (overall goal) which is fulfilled by delta and instrumental goals, and realised at a lower level by scripts which are standardised knowledge episodes. In relation to the higher level construct of plans, their constituent delta goals and instrumental goals appear to have an identification / specification role which relates directly to the actual content of a piece of discourse, rather than to the procedural role of organising that content. This is a very real problem in relation, for example, to the writing of academic discourses in that it is a process which does not necessarily involve prediction and the matching of input to predictions. A writer may, for example, begin with (a) an existing set of data or ideas, with, in other words, the entire conceptual content of the discourse, or (b) a clear plan or idea of the direction of the discourse which s/he seeks to encode in as overt a way possible. Thus, the writer

may actually aim to minimise a reader's need to make extra-linguistic inferences. In this kind of creation process, the requirement is not so much predictive or transactional as rhetorical or structural, involving the organisation of already known knowledge, the problem being how best to organise or present a set of ideas or data. Creating extended written discourse appears to involve a process that is primarily organisational / representational, rather than being inferential.

4.3.3.2 Scenarios

Sanford and Garrod (1981) present a further schema-like construct – *scenarios* - in relation to the decoding and representation of written text. In particular, scenarios are related to a number of psychological aspects of the reading process including: *primary and secondary processing, topicality, foregrounding and backgrounding, explicit and implicit reference* (see **Appendix 6: Sanford and Garrod - The reading process and referencing**).

Sanford and Garrod (1981) see text comprehension as involving a contract between the writer and the reader:

A writer wishes to convey an idea to his readers. In essence, this means that he must establish in the mind of his reader a situational model which is the same as (or closely similar to) the one in his own mind (p. 8).

They propose the construct of the scenario to accommodate a number of aspects of this contractual relationship and suggest that “knowledge of settings and situations [can be thought of] as constituting the interpretative scenario behind a text” (p. 110). Thus, for example, the decomposition of the meaning of a word may activate a possible domain of reference containing slots into which

succeeding items within the same discourse may fit. This is supported by reading time experiments which demonstrate that the activation of inappropriate scenarios (as, for example, in the case of a misleading title) will considerably increase reading processing time.

Just as Schank and Abelson's (1977) scripts involve roles and props, scenarios contain entities and role entities. Thus, for example, a court-case scenario contains a judge, a jury and lawyers as entities. The role entities involve may be, for example, lawyers probing witnesses, juries evaluating evidence and giving a verdict. A text serves to set up a search in long-term memory for a model of a recognisable episode or situation (the scenario) into which it will fit (p. 117). In this respect, there is very little difference between scenarios, entities and role entities (Sanford and Garrod, 1981) and scripts, roles and props (Schank and Abelson, 1977). What *is* different, however, is the emphasis in the work of Sanford and Garrod on referencing and, hence, on the establishment of textual relationships. Thus, Sanford and Garrod (1981) demonstrate that reading times for specifically identified entities are faster than for more general statements. They cite the example of:

The tank came trundling around the bend.

The vehicle came trundling around the bend.

Sanford and Garrod (1981) carried out empirical tests measuring reading response times between pairs of sentences with stated antecedents and implied antecedents. There was a negligible difference in processing time - seven milliseconds with a standard error of eighteen milliseconds. This was the basis

for their proposal that pre-activated, context-driven inferencing is involved in cases where antecedents are implied.

The research of Sanford and Garrod (1981) demonstrates that reading processing times of specific entities (basic-level categories), like 'the tank', are consistently faster than they are in the case of general items (superordinate categories) like 'the vehicle'. Based on these findings, they suggest that although "understanding of general statements [such as that containing 'the vehicle'] may not go far beyond the explicit propositions of the sentence . . . a specific statement [such as that containing 'the tank'] may well be more easily mapped into a scenario rich in default information, thus serving to facilitate later comprehension" (p. 120).

Scenarios may be simple and minimal (such as in relation to a concrete noun), or detailed, that detail relating to either (a) the information conveyed, or (b) the specifications or sequences of events expected in relation to an entity or setting. They may be activated by spatio-temporal setting or characterisation, that is, the model that is built up of someone's personality. A characterisation model is generally a representation of predispositions.

4.3.3.2.1 Summary and implications for the study

The scenario as a schematic construct is primarily concerned with textual referencing. It offers insights into topicalisation at a macro-structural level through an integrated account of knowledge-types and referencing within extended discourse. The scenario-based modelling of Sanford and Garrod provides an account of the operation of implicit background knowledge

(scenarios) as a necessary element in text processing. It also, however, provides an account of explicit, non-scenario based knowledge, an account that involves a detailed explanation of the types of pronominal referencing that operate with both types of knowledge. Together, these types of modelling provide insights into text processing as well as the procedural knowledge employed.

There are a number of pedagogical implications associated with the observations above (relating to scenario-based and non-scenario-based inferencing), especially in relation to the content of discourse related instruction. First, it seems that basic-level category information and direct and/or concept-driven referencing should be used wherever possible in the early stages of familiarisation with a discourse type such as a cognitive genre. What the research of Sanford and Garrod also suggests is that (a) the introduction of unfamiliar genres should be preceded by the presentation of information that will activate an appropriate scenario, and (b) the selection of titles of genre-exemplifying texts should be directly related to information provided in the presentation phase that precedes the introduction of the texts.

4.3.3.3 Frames

This section examines a further schema construct, that of *frames*. Two proposals for the construct of *frame* as a knowledge organiser for Artificial Intelligence, will be examined - that of Winograd (1975, 1977) and that of Minsky (1975, 1985). Further approaches from linguistics that are then examined include the *frame semantics* of Fillmore (1977) and the approaches to frames (in language) of Van Dijk (1977) and Barsalou (1992).

4.3.3.3.1 Frames in artificial intelligence

Two approaches to the construct of *frames* for knowledge representation in Artificial Intelligence are those of Minsky (1975, 1985) and Winograd (1975, 1977). Although there are close similarities in what they propose, their terminologies and the types of examples which they employ differ.

In order to establish a basis for computer-based organisation and representation of knowledge, Minsky (1975, 1985) proposes an integrated account for how the human mind organises and represents knowledge in economical ways, ways which account for the use of a small number of cues to activate seemingly organised and ordered complex knowledge entities. In relation to a minimal ‘story’ example, Minsky puts forward the idea that perceptual experiences activate structures *called frames*, “structures we have acquired in the course of a previous experience” (Minsky, 1985, p. 244). He (p. 245) defines a frame as “a sort of skeleton, somewhat like an application form with many blanks or slots to be filled”

We’ll call these blanks its *terminals*; we use them as connection points to which we can attach other kinds of information. For example, a frame that represents a “chair” might have some terminals to represent a seat, a back, and legs, while a frame to represent a “person” would have some terminals for a body and head and arms and legs (p. 245)

In an earlier explanation of the frame construct, Minsky (1975, p. 212) argues:

We can think of a frame as a network of modes and relations. The “top levels” of a frame are fixed, and represent things that are always true

about the supposed situation. The lower levels have many *terminals* – “slots” that must be filled by specific instances or data.

Minsky suggests that frames are stored in the long-term memory with “weakly bound *default assignments*” at every terminal (1975, p. 228). By default assignments, Minsky means what one usually assigns to the terminals of a remembered frame, such as a stereotypical realisation of the frame in one’s memory: “The frame for a chair may involve four legs, a seat, a back and possibly arms for most people, as a conceptualisation of a stereotypical chair. These manifest themselves as often useful but sometimes counterproductive stereotypes” (p. 228).

Thus, Minsky suggests that default assignments of frames are the ways in which we represent our previous experience: “We use them for reasoning, recognizing, generalizing, predicting what may happen next, and knowing what we ought to try when expectations aren’t met” (Minsky, 1985, p. 245). Default assumptions fill our frames to represent what’s typical. As soon as you hear a word like “person,” “frog,” or “chair,” you assume the details of some “typical” sort of person, frog, or chair. (Minsky, 1985, p. 245)

In representing knowledge, Winograd (1977, p. 475) defines a frame as “a collection of facts and procedures associated with a concept. It [a frame] does not correspond to a ‘single fact’ as in a formal logic representation, but is a chunking of information around a single concept”.

Similar to Minsky's *default* assignments, is Winograd's proposal that each frame has a set of *important elements*, or *Imps*. These are the elements that contribute to the meaning of the frame. For example, in the frame for *giving*, Winograd (1977, p. 476) proposes the following Imps:

the ACTOR doing the giving, the BENEFICIARY receiving it and the OBJECT being given are of primary importance. In [the frame for] *paying*, the OBJECT is further specified as being money, and the reason (which in general is an Imp for any act) is further specified as being some kind of debt. The frame for "donate" would have a different further specification for its reason.

An important element in frame representation, and that accounts for the relationship between frames, is what Winograd terms "hierarchies of generalization" (p. 485). For example, an ACT is a very general type of frame describing an action, whereas GIVE is a more specific type of ACT involving:

an ACTOR: a person;

a BENEFICIARY: a person; and,

an OBJECT: a physical object.

PAY is a more specific type of GIVE, involving additionally:

an OBJECT: money;

a REASON: debt (summarized from Winograd, 1977, p. 475).

Thus, frames may be connected through being a more specific or more general example of another. Information is said to be organised hierarchically because of *inheritance of properties*. Thus, the *Imps* – important elements – which are true of

any more general frame will be true of any more specific frame below it in the hierarchy of generalization:

When we further specify a frame (that is, move down the generalization hierarchy) we also further specify the IMPs that go with it. This makes sense only if we think of each IMP as being another frame (which in turn fits into the hierarchy, and so recursively) (Winograd, 1975, p. 200).

4.3.3.3.2 Frames in linguistics

Fillmore proposes that there are three types of linguistic knowledge: knowledge about *grammar, lexis and frames*.

- [The grammar of a language is] “the part of linguistic knowledge that can be represented by rules”.
- [The lexicon is] “that part [of linguistic knowledge] that represents item-by-item knowledge”.
- “The cognitive and interactional frames [are those aspects of linguistic knowledge] in terms of which the language-user interprets his environment, formulates his own messages, understands the messages of others, and accumulates or creates an internal model of this world.”
(Fillmore, 1976, p. 23)

Two background principles which Fillmore (1976, p. 24) suggests are important for using and understanding language are:

1. the meanings of words may, more than we are used to thinking, depend on contexted experiences; that is, the contexts within which we have experienced the objects, properties or feelings that provide the

perceptual or experiential base of our knowledge of the meaning of a word (or phrase, or grammatical category) may be inseparable parts of those experiences;

2. in order to perceive something or to attain a concept, what is at least sometimes necessary is to have in memory, a repertory of prototypes, the act of perception or conception being that of recognizing in what ways an object can be seen as an instance of one or another of these prototypes.

In describing a prototypical event, such as a commercial transaction, Fillmore, (1977, p. 59) proposes that there are two levels of conceptual framework: “the one giving a general representation of all of the essential aspects of events of a particular category and the other giving the particular perspective on an event of the type dictated by a case frame”. He labels the two levels of conceptualisation *scenes* (the level of more general representation) and *case frames*, (the linguistic choices associated with a scene, suggesting that individual words are learned within such meaningful contexts as scenes and frames, each word serving to foreground some part of the context. Furthermore, a single word may belong to more than one frame, even though the same history of experiences is responsible for each frame. He hypothesises that the process of understanding a word requires recall of memories of experiences through which the labelling or describing function of the words has been used:

A frame is a kind of outline future with not necessarily all of the details filled in. . . . Comprehension can be thought of as an active process during which the comprehender – to the degree that it interests him – seeks to fill

in the details of the frames that have been introduced, whether by looking for the needed information in the rest of the text, by filling it in from his awareness of the current situation, or from his own system of beliefs, or by asking his interlocutor to say more (1976, p. 29).

Fillmore suggests, rather than a checklist or 'list of conditions' approach to the categorisation of knowledge, that categorisation is based on a *prototype* or a *typical case* in experience. He believes that the research on colour categorisation by Berlin and Kay (1969) and natural categories by Rosch (1973) both indicate that the way in which human beings categorise involves *experiential* rather than *formal* knowledge (Chafe, 1972). Fillmore says that "formal knowledge is the kind of knowledge that can be expressed propositionally; experiential knowledge is the kind of knowledge that exists as memories of experiences" (1977, p. 57). Fillmore proposes that knowledge of prototypes or typical cases is *essentially experiential*:

Prototype semantics can be thought of as a generalization of the view that a theory of language needs to distinguish between being a rule and using a rule. It may turn out to be much more useful to speak of the 'internalized' linguistic rules as being simple rules which cover prototypic cases.

(p. 57)

Similar to Fillmore's proposal for formal or propositionally-based knowledge is Van Dijk's (1977, 1981) proposal for the construct of *macrostructures*, which he says are larger structures within discourse which organise micro-information into "complex or hypercomplex information, such as discourse, conversation, action

sequences" (1981, p. 12). He says that macrostructures serve an organisational and reductive function. They are essentially semantic: "They define higher-level or global meaning derived from lower-level meanings . . . macrostructures define the global coherence of a text" (p. 12).

Involved with the construct of the macrostructure is the idea of prominence or importance. The overall proposition of a macro-structure assumes a more important role in the global meaning of a text than its constituent information. In a sequence of such patterns, some sections may be more important to the global meaning than others. According to Van Dijk, macro-structures of discourse can be summarised in terms of *macro-propositions*. Macro-propositions are sometimes directly expressed by the discourse, usually occurring at the beginning of a text (such as the first sentence of a newspaper article). Thus, for example, the opening section of a narrative (the setting section) may be reducible to one or two summary propositions which express the central meaning.

Van Dijk says that *frames*, unlike macrostructures, organise our conventional knowledge of the world and "enable us to perform such basic cognitive acts as perception, action and language comprehension. At some higher level the content of a frame is fixed, but its lower level terminal can be accommodated to the properties of information input" (Van Dijk, 1977, p. 19):

We propose that frames define units or chunks of concepts which are not essentially, but *typically* related . . . they usually denote certain normal courses of events or courses of actions involving several objects, persons, properties, relations, and facts. These kinds of denotata, or values, or

frames will be called *episodes*. It is in this sense that frames are higher-level organizing principles. They unify concepts of various types and at various levels of representation under the constraint of typicality and normality (p. 21).

Later, Van Dijk (1981) distinguishes between: (a) frames which relate to “complex conceptual structures only. Hence, prototypical knowledge about books, chairs, buildings, animals” (p. 233); and (b) scripts which relate to “prototypical episodes, that is, sequences of events and actions, taking place in frames” (p. 234). Above these in the hierarchy, he places schemata which he describes as:

the most general in the prototypical organization of knowledge . . . to denote the overall *structural* organization of complex conceptual units . . . *schemata may have their origin in perceptual organization, along such categories as ‘horizontal,’ ‘vertical,’ ‘surface,’ ‘bottom,’ and ‘top’.* [my emphasis] (p. 233).

Within Van Dijk’s model, both macro-structures and frames organise complex semantic information.

Frames, however, are conventional and general. Most members of a society or culture have approximately the same set of frames. Macro-structures do not have this character. Instead, they are ad hoc information. i.e., the particular global content of a particular discourse (Van Dijk, 1977, p. 22).

Thus macro-structures are a device concerned with functioning to make a synopsis of a discourse in the memory of a language user. This gives the language user the basis for recall, although what is actually recalled will be a summary of the main elements of the particular discourse which has been processed. Frames or conventionalised units of knowledge will be included in a macro-structural summary of a particular discourse. If there is some loss through failure to remember the actual details of a discourse or through inaccuracies in a macro-structural summary, Van Dijk suggests that frame knowledge will then be used, and this may lead to some inaccuracies in recall as the details of a conventional frame may not all fit one particular situation. "If such information [macro-structural] is no longer retrievable, it is supplied by the most probable components of the frames associated with the concepts of the relevant macro-structure proposition. Of course, this may lead to false recognition." (p. 28).

Tannen (1993), while not concerned with categorising different types of frame or schema, acknowledges that people have "stored their prior experiences as 'an organised mass' and . . . see events and objects in the world and in relation to their prior experience" (pp. 20-21). Tannen says that this stored knowledge creates "expectations about the world" (p. 21) at a number of levels. In a research project, involving subjects viewing a short film and retelling the events of the film, Tannen (1993) shows that, from close examination of the retelling, frame knowledge "can be seen in the surface linguistic form in the features of a narrative" and that "close analysis of linguistic evidence can reveal the expectations or frames which create them" (p. 53).

The idea of the use of stored multiple frames which are used interactively for the complex interpretation of knowledge in a number of areas including written text underpins the approach to framing of MacLachlan and Reid (1994), who say that identification of a literary genre:

will depend on what frames are dominating one's reception of the text. Even minimal written forms such as graffiti, slogans or epitaphs cannot be comprehended unless they are framed in some way. . . . readers always need to 'place' it in relation to comparable text, in relation to surrounding information . . . To read generically is to posit frames for interpreting the language used (pp. 85-86).

In proposing his account of a frame construct, Barsalou (1992) places "A co-occurring set of attributes" at the core and defines an attribute as follows:

[An attribute is a] a concept that describes an aspect of at least some category members. For example, *color* describes an aspect of *birds*, and *location* describes an aspect of *vacations*. . . . A concept is only an attribute when viewed as describing some aspect of a category's members (Barsalou, 1992, p. 31-32).

Thus, attributes combine to make a frame and they (i.e. attributes) are specified in terms of values which "are subordinate concepts of an attribute" (p. 31) which inherit information from other attributes, so that they "contain additional information not in their respective attributes, thereby making them more specific concepts" (p. 31). Thus, a frame for a car contains the attributes *fuel*, *engine*, *transmission* and *wheels*. Values for the fuel attribute could be *gasoline*, *diesel* or

gasohol. Values for the engine attribute could be *four*, *six* or *eight* cylinder, and values for the transmission attribute could be *standard* or *automatic*. Barsalou suggests that the attributes within a frame may “be associated with [their] own frame of more specific attributes” Thus,

in our recent work on real estate planning, the frame for *house* has an attribute for location, which in turn is a frame whose attributes include *convenience*, *utilities*, *zoning* and *security*. These secondary attributes often have frames as well. (1992, p. 33).

Barsalou also puts forward the idea of *attribute systematicity*, suggesting that frames contain certain core attributes that co-occur frequently whenever the frame is applied. As an example of attribute systematicity, the frame for *buy* will usually include the core attributes of *buyer*, *seller*, *merchandise* and *payment*. At the same time, he emphasises that attribute systematicity is not necessarily rigid and that variation is possible as frames occur in different contexts.

Barsalou also puts forward the construct of *structural invariants* to describe relatively fixed conceptual relationships that occur between the attributes of one frame. An example is the *operates* relation between the attributes of *driver* and *engine*. Thus, *engine* in the *car* frame “reflects people’s conceptual understanding that the driver controls the engine’s speed” (p.35).

Frames not only provide a means of representing specific exemplars “but also of representing specific information across exemplars” so that “the prototype is

simply the set of the most frequent values across attributes . . . the prototypical bird is *small in size, brown in colour* and has a straight beak” (p. 47).

Frames are used in a variety of ways to determine category membership which requires constraints:

- physical attributes e.g. colour for a physical entity;
- possession of certain attribute values e.g. human, female and adult count for species, sex and age as evidence for being a woman;
- possession of values beyond a fixed reference point can count as evidence for category membership e.g. legal voters are 28 years or older.

4.3.3.3 Summary and implications for the study

Proposals for frames as cognitive constructs for organising and storing knowledge are, in many ways, similar to approaches to the previously discussed constructs of scenarios and schemata. Originating from Artificial Intelligence and developed by linguists, most of the approaches propose frames as chunks of configured information that are based on experience rather than formally learned knowledge. They are stored in the long-term memory and can be readily applied to, or adapted to, appropriate situations. Some approaches to frames (e.g. Minsky 1975; and Van Dijk, 1981) suggest that at the upper level, the structure of a frame is fixed, whereas at the lower levels they may be realised in a number of ways. Associated with this is the notion of the hierarchical organisation of knowledge (e.g. Winograd’s (1975) “hierarchies of generalisation”(p. 485)) with more general knowledge at a higher level and more detailed, specific lower level

knowledge, allowing for interrelationship and combination. In addition, several of the approaches suggest that frames operate as prototypes, and that the application of frame knowledge to situations involves judgments of prototypicality, with frames allowing for variation in the assignment of lower level features or attributes to a frame, depending on the situation in which it is applied. Simpler frames, such as those of book and desk, combine to form larger frames, such as library.

Several of the approaches to frame theory distinguish between the operation of frame-based and non frame-based knowledge in attempting to explain how frames are employed in extended discourse. Thus, Van Dijk (1977, 1981) proposes that frames function in conjunction with macrostructures (ad hoc summaries of non frame-based knowledge), both of which may be organised at the highest level by schemata, which may themselves be gestalt-based (1981, p. 233-234). However, none of the approaches to frame theory reviewed here is integrated into a more detailed proposal for a larger framework that accounts for interrelationships between different types of knowledge.

In the section that follows, four theories that address this issue of knowledge that organises knowledge are reviewed. Common to each is the idea that metaphor plays a pivotal role in connecting together and organising a variety of types of knowledge in order to represent complex, interrelated knowledge of different types within coherent discourse.

4.3.4 Approaches to cognitive organisation that involve metaphor

This section reviews four cognitive theories that emphasise the role that metaphor plays in the structuring of knowledge. The first two theories relate to the use of metaphor in the structuring of language. They are the theory of *mental spaces* (Fauconnier, 1985); and of *cognitive grammar* (Langacker, 1987). The second two theories place metaphor as central in the structuring of knowledge in general. They are *kinaesthetic image schemata* (Johnson, 1987) and *idealised cognitive models* (Lakoff, 1987).

4.3.4.1 Fauconnier: Mental Spaces

This section examines the approach to discourse coherence and reference of Fauconnier (1985), an approach which involves a key concept termed *mental spaces*. Important aspects of Fauconnier's approach which will be discussed are: *the identification principle*, *pragmatic functions* for reference (based on Nunberg, 1978), the concept of *mental spaces*, *space builders*, *roles* and *role values* and the account of how spaces are filled up or internally structured. This will include discussion of the types of connectors which are identified as operating between mental spaces and types of equivalence.

Fauconnier (1985) defines mental spaces as "constructs distinct from linguistic structures, but built up in any discourse according to guidelines provided by linguistic expressions" (p. 16). He sees mental spaces as containing: "structured, incremental sets . . . (with) relationships holding between them (set members), such that new elements can be added to them and new relations can be added to their elements" (p. 16). Although Fauconnier describes mental spaces as primarily

a psychological construct, he proposes they are manifested through their encodings in language, noting that "linguistic expressions will typically establish new spaces, elements within them and relationships holding between the elements" (p. 17).

Fauconnier was first motivated to propose his ideas on mental spaces when trying to develop a logical account for the phenomenon of pronominalisation. He stresses, however, that mental space theory is not a theory of reference as such. Nevertheless, he observes that theories of reference cannot bypass most of the issues which he addresses in his mental space theory, in particular the lack of a direct link between some linguistic structures and their referents which often occurs within a text. He suggests (pp. 15, 161) that mental space theory:

- (a) develops a way of accounting for this lack of direct, discernible reference in language; and,
- (b) deals with philosophical questions about difficulties in the direct assignment of *truth conditions* to this type of linguistic encoding.

Fauconnier refers to linguistic expressions which set up new spaces or refer back to earlier spaces as 'space builders'. Space builders may be prepositional phrases, (*in Len's picture, in John's mind, at the factory, from her point of view*), adverbs (*really, possibly, theoretically*), connectives (*if __, either __, or __*), underlying subject/verb combinations, (*Max believes __, Mary hopes __*). Furthermore, a space builder, in setting up a new space, will always connect it with another space, its parent space, by the type of syntactic embedding or reference contained within the space builder itself.

The types of connections which operate between mental spaces are possible because of the use of metaphor, which Fauconnier terms *pragmatic functions* (Nunberg, 1978). Pragmatic functions can "establish links between objects of a different nature for psychological, cultural or locally pragmatic reasons" (Fauconnier, 1985, p. 1). Fauconnier (p. 5) calls this type of connection the 'ID principle':

The ID principle states that in a connected situation, a description of the trigger may suggest the target. An example of this is: "Plato is on the top shelf". This sentence can be taken to mean that the books by Plato are on the top shelf.

In Fauconnier's account of categorisation, noun phrases, rather than simply identifying people, things or concepts are seen as performing roles, or what Fauconnier calls, *role functions*. Thus, "definite descriptions are primarily role functions and secondarily the value taken by such roles (identifying). The domain of the role may include times, places, situations, contexts and much more" (p. 40).

Some examples of the role functions of noun phrases are:

1. The president changes every seven years.
2. Your car is always different.
3. Your apartment keeps getting bigger and bigger (p. 40).

'The president', 'your car' and 'your apartment', therefore, do not have one fixed referent in reality. Thus, Fauconnier, in describing noun phrases, says that they can have "a fixed identity, but their other properties can change" (1985, p. 41). In

explaining this, Fauconnier says that “roles are also elements, but such that identity (i.e. role value) can change, while, one particular property (e.g. president, car, apartment) is fixed; for such elements; identity is a variable property” (p. 41). The linguistic elements of a mental space may identify a role (as in the three examples above) or its role value.

Fauconnier suggests that ambiguity of interpretation of language may not necessarily be the result of a contrast between role and value interpretations, but rather may arise from contrasts between particular (one value) interpretations and general (all value) interpretations" (p. 51). What he calls *first order equivalence* reading is where the mental space within which language exists contains all of the relevant parameters necessary for the interpretation of the linguistic material contained within the space. As an example he offers the sentence: ‘In 1929, the president was a baby’. In discussing the possible interpretations of this sentence, he proposes that an example of *first-order interpretation* is that in 1929, the person who was the president was a baby. He proposes that, first-order interpretation can be employed to express a universal idea. In such a case, the proposition will not be attached to a tightly specifying space-builder. An example of this more universalist, less mental space-bound statement, would be: ‘The president governs the country’ The *non-first order* interpretation of the example sentence, and the more salient one, would be that the man who is currently the president was a baby in 1929. Fauconnier points out that this type of interpretation (non-first order) takes place using more than what he calls the *lexical* properties of the nouns or verbs involved. Non-first order interpretation is essentially interconnectionist in that it does not simply rely on the roles and

values of the elements within the mental space, but on their *interlinkage with, or reference to*, elements outside the space. It is also for this reason that non-first order is often the more salient method of interpretation.

About his theory of mental spaces, Fauconnier himself says:

the construction of spaces should not be over interpreted. . . . They are not representations of reality or partial 'possible worlds'. . . . The construction of spaces represents a way in which we think and talk, but does not in itself say anything about the real objects of this thinking and talking (p. 152).

He adds that "[spaces] are constructions linked to a discourse; they are part of the description of cognition, but do not imply any corresponding metaphysical objects" (p. 153).

4.3.4.1.1 Summary and implications for the study

Fauconnier's mental space theory seeks to develop a cognitive account for the coherent structuring of discourse, an approach which goes beyond a grammatical /syntactical description of language, and provides possible explanations for aspects of meaning, in particular, aspects of reference in language which are difficult to account for in other ways.

A key element in Fauconnier's theory is the device of 'space builders', a group of discourse markers which may be linguistic devices derived from a number of syntagmatic/paradigmatic language categories, devices which play a boundary-marking role in discourse, providing essential knowledge for successful

processing of textual meaning by a language user. A second key element in correctly interpreting discourse information within a mental space conceptual unit is Fauconnier's proposal for types of equivalence relating to the interpretation of linguistic material within a mental space construct. Central to the creation of a mental space is the role of metaphor in setting up many of the connections that are made between pieces of information.

Fauconnier's approach bears some similarities to the macro-structure/frame constructs of Van Dijk (1981) and the constructs of scenario/non-scenario-based information in discourse of Sanford and Garrod (1981). Essentially, what theorists are aiming to describe are the different types of knowledge that are represented within discourse and the different cognitive systems that are employed in structuring such different knowledge-types into coherent discourse.

What these approaches seem to have in common is the idea that socially shared knowledge (often relating to the real world) is stored using schema or frame-type structures for ease of retrieval and use in discourse. However, the coherent representation of such knowledge in extended discourse itself is complex and employs a range of further cognitive structuring systems, systems that may involve more abstract or formal schematic constructs.

4.3.4.2 Langacker: Cognitive Grammar

This section briefly examines key aspects of the approach to describing language of Ronald Langacker (1987), which he terms *Cognitive Grammar* (hereafter CG).

Three ideas that are central to Langacker's approach are discussed. They relate to

the nature of language knowledge, the structuring of language knowledge and categorisation.

Fundamental to Langacker's theory of CG are that:

- Lexicon, morphology and syntax form a continuum of symbolic units (p. 35); and,
- The grammar of a language represents a speaker's knowledge of linguistic convention, and much of this knowledge resides in his mastery of conventional expressions (p. 36).

In particular, Langacker emphasises the roles that imagery and symbolism play within linguistic structures to create meaning. He states that grammar "serves an imagic function and much of it has a figurative character. Grammar (like lexicon) embodies conventional imagery . . . [and] it structures a scene in a particular way for purposes of linguistic expression, emphasising certain facets of it at the expense of others, viewing it from a certain perspective" (pp. 38-39)

Langacker claims that grammar is non-generative. He does not accept that there is a rigid distinction between linguistic and non-linguistic elements, and refutes the idea that language is "an autonomous formal system" (p. 64). Rather the grammatical system is inherently symbolic. A speaker's knowledge of the language is, therefore, **procedural** rather than **declarative**. The grammar of a language is defined as those aspects of cognitive organisation in which resides a speaker's grasp of established linguistic units.

A second key element in Langacker's CG theory is his idea of relations (the ways in which the human mind groups or categorises linguistic units). Three types of relation (correspondence) between linguistic units are recognised:

1. symbolization - the correspondence between a semantic structure (the meaning of something and how it is conceptualised in language) and a phonological structure (how this conceptualised structure is realised in actual language production);
2. categorisation - elements that participate in a categorizing relationship can be any sort: semantic, phonological, symbolic. [Langacker refers to such categorising as *schematic networks*]; and,
3. integration - syntagmatic combination of two or more structures in a given domain where semantic, phonological or symbolic elements combine to form a composite (grammatical) structure of greater size:
... when the formation of grammatical constructions is regular to any substantial degree, this regularity is expressed in the grammar by a schematic unit . . . the schema therefore captures whatever generalisation can be made about the nature of the syntagmatic combination defining the grammatical construction (p. 82)

In CG a speakers' "conventional knowledge of a construction is not given by any single structure (such as a prototype or high level schema). Its cognitive representation is more adequately treated as a full schematic network. Langacker observes that "the precise geometry of the schematic network is less important than having some idea of its general nature" (p. 411). In using language, a

speaker's knowledge involves the activation of a schematic network where structures are selected and combined according to categorising schemas:

In the final analysis, a schematic network is a set of cognitive routines, entrenched to varying degrees: despite our inevitable reifications, it is not something a speaker has, but rather what he does. (p. 382).

The third fundamental aspect of CG is categorisation. Categorising judgements are made about well-formedness (generality), certain types of rules, the assignment of structural descriptions, syntagmatic relationships and composition. Membership of linguistic categories is by degree, and is not strictly bounded and subject to linguistic convention.

Within CG, lexical items are categorised in terms of a unified account of categories using a usage-based model. This involves listing all of the conventional uses of a lexical item. The principal relationships which would be shown are *elaboration* - the relationship between a schema and its instantiations - and *extension* - the relationship between prototypical and peripheral values. It is suggested that these two types of relationship are interrelated aspects of one system, with *extension* as a horizontal relationship and *schematicity* as a vertical relationship in the network of a single category. Schematic networks or categories are not clear-cut, but vary according to the linguistic knowledge of the speaker, which, in turn, can be a changing and developing variable. However, in most cases there are sufficient commonalities of meaning for communication to take place despite idiosyncratic variations:

Seldom . . . can we expect a clear-cut basis for determining all of the features of a schematic network; in practice many points of detail are bound to remain uncertain if not indeterminate. . . . The specifics of particular networks are less important than having a realistic conception of their general character (p. 377).

4.3.4.2.1 Summary and implications for the study

Langacker's cognitive grammar proposes an integrated account of the lower-level categories of discourse, such as lexical and syntactic structures up to the level of sentences or speech acts. Any idea that language is some kind of fixed autonomous systems that can be described in terms of stable, bounded categories (which are somehow separable from the knowledge that they represent) is discounted. Categorisation and structuring of language systems involves schemata and prototypes which (such as semantic and phonological systems) are combined and interrelated at the encoding level. Like Fauconnier, Langacker stresses the role of imagery and symbolism in setting up the connections between the cognitive structures.

4.3.4.3 Johnson: Kinaesthetic Image Schemata

This section examines the construct of the *kinaesthetic image schema* proposed by Johnson (1987) as a fundamental device by which humans structure knowledge. First, the theory of knowledge on which Johnson bases his image schema construct is summarised. Secondly, the image schema itself and its *gestalt* nature is discussed. Thirdly, Johnson's ideas concerning the role of metaphor in the operation of this construct as a categorising device are examined, along with evidence which Johnson claims points to the existence and operation of image-schemata. Finally, the image schema construct is discussed in relation to its possible structuring role in written discourse.

Based on the ideas of Putnam (1981), Johnson puts forward a theory of knowledge upon which he bases his proposal for the construct of image-schemata:

1. Knowledge is shared by humans, and there is not an absolute 'God's eye' knowledge.
2. Knowledge is mediated by understanding. Understanding is a shared community of understanding, and to be shared, has to be expressed through language and some system of description.
3. Shared understanding is not just a matter of concepts and propositions, but also involves image schemata which constitute form in our experience.
4. Understandings develop from bodily experiences and interactions with our environment.

5. What psychologists call 'basic-level' of experience and conceptual organisation is the level at which we react with our environment. It is the level characterised by gestalt perception of overall shape, by our capacities for motor movement in interaction with the object, and by our ability of form rich mental images of an object.
6. Our conceptual system is plugged into our most relevant experiences at two levels:
 - (a) the basic-level - the level of interaction with the environment
 - (b) the image schematic level - which gives a general form to our understanding. This is extended imaginatively by category formation and by metaphorical and metonymic projection.
7. To interpret our experience, we need categories that are superordinate and subordinate to basic-level categories (summarised from Johnson, 1987, pp. 206 - 209)

Johnson contends that semantics, in its concern with 'truth conditions', often ignores non-propositional structures, such as images, schematic patterns and metaphorical projections. He claims that these structures, although frequently ignored, are central in conveying meaning that relates to abstractions. Johnson refers to the proposals of Kant (1781/1998) for *transcendental schemata*. Kant suggested that there are empirical and abstract types of knowledge, as well as a third type knowledge, which he called *transcendental schemata*, a type of knowledge which can mediate between the other two types. Drawing on Kant's ideas, Johnson describes *image schemata* as "non-propositional structures of imagination" (p. 19). This is a proposal for a type of schema that is different from

that proposed by Rumelhart (1975) (i.e. schemata for knowledge structures) and that of Schank and Abelson, (1977) (i.e. schemata for scripted activities).

According to Johnson's proposal (1987, p. 29), the construct of *image schemata* conform to the following concepts:

1. A schema consists of a small number of parts and relations, by virtue of which it can structure indefinitely many perceptions, images and events.
2. The patterns [of image schemata] emerge as meaningful for us, chiefly at the level of our bodily movements through space, our manipulation of objects and our perceptual interactions.
3. They operate at a level of organisation that falls between abstract propositional structures on the one side, and particular concrete images on the other.

Johnson sees image schemata as *gestalts*, defining a *gestalt* structure as "an organised, unified whole within our experience and understanding that manifests a repeatable pattern or structure" (p. 44), and claiming not only that image schemata fit the requirements of *gestalt* structures according to the above definition but also that "all image schemata are characterizable as irreducible *gestalts*" (p. 44). Examples of image schemata are: *the container schema*, *the link schema*, *the centre-periphery schema* and *the source-path-goal schema*, *the up-down schema*, *the front-back schema* and *the linear order schema*. The first four of these are outlined here.

Johnson (pp. 21-22) contends that at an early age humans develop the *container schema* gestalt from experiencing their bodies as containers and as things in containers (e.g. being in a room or a bed). The structural elements of the container schema are: INTERIOR, BOUNDARY, EXTERIOR. The classificatory idea of the *container schema* is that everything is either inside or outside of the container.

According to Johnson (pp. 117-119), the *link schema* develops from the physical link of the umbilical between a child and its mother. During their development, children are often physically held by, or hold onto their parents to determine physical location. The use of the link to determine location can be both spatial and temporal. The structural elements are two items with a link connecting them. The classificatory idea of the link schema is, given two linked elements X and Y, X is linked to and dependent on Y, and conversely Y is linked to and dependent on X.

The *centre periphery schema*, according to Johnson (pp. 124-125), develops from our bodies as the perceptual centres of the world through which we experience sensations, objects and relationships. The structural parts of this schema are an ENTITY, a CENTRE and a PERIPHERY. The classificatory idea is the centre is most important and the periphery is less important. This schema almost always operates with other schemata, such as NEAR-FAR (for establishing a scale or degrees of importance).

The *source-path-goal schema* (pp. 113-117) develops from the bodily experience of any kind of movement. The structural parts of this schema are the SOURCE

(the starting point), the PATH (the course or direction) and the GOAL (the endpoint). The classificatory idea of this schema is accounting for anything which literally moves or figuratively progresses.

Johnson claims that schemata are the primary means by which we construct or constitute order, and that they are flexible enough for us to apply to any number of instantiations in varying contexts. He also claims that schemata for temporal and spatial orientation "are so pervasive and so constitutive of our ordinary experience that they are taken for granted (and thus overlooked) in standard accounts of meaning and understanding" (1987, p. 31).

One of the central ideas of Johnson's theory is the metaphorical projection of a schema from the physical to the non-physical. He claims that the conventional view of metaphor in objectivist metaphysics involves the similarities conveyed by metaphor as "[existing] objectively in the world and [being] expressible in literal propositions" (p. 68), and observes that Davidson (1978) and Searle (1979), while holding different views on the non-propositional aspect of metaphorical meaning, "both share the recognition of a non-propositional operation of metaphorical projection" (p. 73). In developing this idea, he argues that metaphors play a "constitutive" role in structuring human experience, illustrating this by examining the operation of the BALANCE schema where the concept of metaphorical balance is said to emerge out of an understanding of the preconceptual gestalt structure which begins with balancing as a bodily activity. An understanding of balance in visual perception involves metaphorically projecting the idea of weights and forces from physical experience to a visual experience.

Thus, Johnson argues by metaphorical projection, the balance schema becomes the organising concept for the relations which operate in a number of other domains. Examples to which he refers are: systemic balance, psychological balance, the balance of rational argument, legal and moral balance and mathematical balance.

Johnson presents a number of arguments in support of the construct of image-schemata and their metaphorical projection. These include language phenomena relating to the operation of metaphor as well as empirical psychological studies.

In natural language, Johnson argues, the systematic nature of metaphor, extensions of conventional metaphor, and polysemy indicate the operation of image-schemata. As an example of systematic metaphor, he cites, referring to Lakoff and Johnson (1980, pp. 92-96), metaphor related to argument, particularly the content of an argument, which usually tends to relate to buildings or construction. Examples are: support, construct, form, shore up, stand or fall, buttress with solid arguments.

Another aspect of natural language which Johnson argues indicates the existence of image-schemata and their metaphorical operation is polysemy. He defines polysemy as "the multiple, related meanings for terms" (p. 107), claiming that it exists because of underlying schemata which structure a network of related meanings by metaphorical extension. As an example, he discusses the OUT schema which, he argues, can be applied prototypically to the spatial domain, but is also metaphorically projected into a wide variety of cognitive areas, such as:

selection (leave out), withdrawal (get out [of], back out, weasel out [of]), producing (put out), despatching (get out, send out), distributing (hand out, give out), emphasising (bring out).

Perhaps more significantly, Johnson cites several studies which have demonstrated that the human mind performs operations involving image-schemata that are analogs of spatial operations. For example, a series of experiments by Brooks (1968) involved subjects being shown physical figures which were then removed. The subjects were then questioned on their memory of them, their responses indicating that the scanning operations performed were analogs of spatial operations. Anderson (1980) reports that subjects distinguish between simple, gestalt-based images and more detailed or rich images (which he calls "mental pictures"). Furthermore, experiments conducted by Marmor and Zbeck (1976) demonstrated that congenitally blind subjects performed mental operations in ways similar to sighted subjects as a result of kinaesthetic experiences.

4.3.4.3.1 Summary and implications for the study

Image schemata, as conceptualised by Johnson, are simple irreducible gestalt-based patternings. Essentially what Johnson argues is that these patternings, which are learned early in life as basic-level knowledge, may later form the basis of more general or superordinate categorisation. He proposes that this construct (image schema) organises knowledge in a wide variety of domains, and, using the BALANCE schema as an example, argues for instantiations of it in the visual, systemic and psychological domains, and in rational argument, moral and legal argument, and mathematics.

A number of recent studies have considered the construct of image-schemata as a categorising principle for linguistic categories. These include Japanese cause markers (Matsumoto, 1997); German prepositions (Serra-Borneto, 1997) and spatial prepositions (Beitel, 1995). Johnson himself makes no specific claims for image-schemata as discourse-organising constructs. However, Lakoff (1987) suggests that propositional information may be structured by image-schemata, and a more recent study by Salies (1998) actually examines whole texts as instantiations of image-schemata. Furthermore, Van Dijk (1981, p. 233) provisionally proposes that a “schema is perhaps the most general in the prototypical organization of knowledge” and that “schemata may have their origin in perceptual organization, along such categories as ‘horizontal,’ ‘vertical,’ ‘surface,’ ‘bottom,’ and ‘top’.”

If, in the identification of cognitive genres, the construct of image-schemata were to be applied to the higher level categorisation of discourse, certain issues would have to be addressed. First it would be necessary to identify the connection between discourse type and the image-schema which would organise discourse of a certain type, such as narrative. Secondly, attention would need to be paid to how an image schema typically maps onto larger sections or macrostructures of discourse. Thirdly, the influence of image schemata on the selection of lower-level categorising structures (such as semantic relations, syntax and lexis) would also need to be explored.

4.3.4.4 Lakoff: Idealised Cognitive Models

This section will briefly examine key aspects of the approach to categorisation proposed by Lakoff (1987), an approach which draws on many of the theories previously reviewed in this chapter. In particular, attention is drawn to two aspects of Lakoff's proposals concerning human categorisation: his proposal for different types of prototypes (called *idealised cognitive models*) and, related to this, his *spatialization of form hypothesis*.

Lakoff supports the view that categories are cognitive concepts, and that the use of prototypes provides the basis for making a categorising judgement. He argues that the type of prototype used for a particular category is related to the subject matter being categorised. Different types of category will employ different types of prototype, which he terms *idealised cognitive models* (ICM). Thus, "our basic claim will be that prototype effects result from the nature of cognitive models, which can be viewed as theories of some subject matter" (Lakoff, 1987, p. 45). In his proposal, Lakoff incorporates aspects of frame semantics, (Fillmore, 1985), metaphor and metonymy (Lakoff and Johnson, 1980), mental spaces (Fauconnier, 1985) and cognitive grammar (Langacker, 1987).

Central to Lakoff's ICM approach is the idea of conceptual embodiment: "The idea [is] that the properties of certain categories are a consequence of the nature of human biological capacities and of the experiences of functioning in a physical and social environment" (p. 12). Lakoff proposes that basic-level and image-schematic concepts (see Johnson, 1987) are directly understood in terms of physical experience, and that they form the basis for more complex human

categorisation: “Given basic-level and image-schematic concepts, it is possible to build up complex cognitive models. . . . Image schemata provide the structures used in those models” (p. 282)

As a result of his theory of conceptual embodiment, Lakoff proposes that the kinds of image schemata that structure people’s experience of space (e.g. CONTAINER, SOURCE PATH GOAL, LINK, PART-WHOLE, UP-DOWN) are also used to structure concepts in abstract domains. He terms this the *spatialization of form hypothesis*, and (p. 283) provides the following summary of this hypothesis:

- Categories (in general) are understood in terms of CONTAINER schemas.
- Hierarchical structure is understood in terms of PART-WHOLE schemas and UP-DOWN schemas.
- Relational structure is understood in terms of LINK schemas.
- Radial structure in categories is understood in terms of CENTER-PERIPHERY schemas.
- Foreground-background structure is understood in terms FRONT-BACK schemas.
- Linear quantity scales are understood in terms of UP-DOWN schemas and LINEAR ORDER schemas.

Lakoff emphasises the role of metaphor in employing an image-schema which relates to a physical domain as a means of structuring an abstract domain: “image

schemas (which structure space) are mapped into the corresponding abstract configurations (which structure concepts)” (p. 283).

Five types of idealised cognitive models are proposed: *image-schematic*, *propositional*, *metaphoric*, *metonymic* and *symbolic*:

- *Image-schematic*: organisation within a mental space is done by a schema, based on patternings derived from gestalt perceptions, such as the image-schemata proposed by Johnson (1987) for *higher level categorisation* e.g. PART-WHOLE, CONTAINER, LINK, CENTRE-PERIPHERY and SOURCE-PATH-GOAL. (p. 284).
- *Propositional*: (a mental space which is not organised by imaginative devices): "A simple proposition consists of an ontology of elements (the "arguments") and a basic predicate that holds of these arguments" (p. 285) and semantic relations may hold between the elements in this type of schema (p. 288).
- *Metaphoric*: “a metaphoric mapping involves a source domain and a target domain): the source domain is assumed to be structured by a propositional or image-schematic model" (p. 288)
- *Metonymic* "a metonymic mapping occurs within a single conceptual domain which is structured by an ICM. Given two elements A and B, in the ICM, A may stand for B. If B is a category, and A is a member, or subcategory of B, the result is a metonymic category structure, in which A is a metonymic prototype of B (p. 288)

- *Symbolic*. when an ICM is used to structure or organise linguistic elements, such as grammatical categories, Lakoff calls this a symbolic ICM. (p. 289)

4.3.4.4.1 Summary and implications for the study

The concept of idealised cognitive models proposed by Lakoff is another example of an attempt to explain how categorisation involving prototype occurs in relation to different types of knowledge. Lakoff assigns a significant, knowledge-organising role to simple gestalts - described as image schemata by Johnson (1987) - in a certain type of category. He proposes that through metaphorical projection, image-schema structures (which relate in the first place to knowledge in the physical realm) are able to structure other, more abstract types of knowledge at a superordinate level - his 'spatialization of form hypothesis'. This idea was first proposed by Van Dijk (1981, p. 233) and developed by Johnson (1987) both of whom suggest that it is simple gestalt knowledge that may operate as the highest-level, structuring element in many categories, not just in one type of category. In his ICM proposal Lakoff focuses on specific knowledge types and proposes types of categorisation that may relate to each knowledge type. He does not, however, provide an integrated approach which could be related directly to written discourse involving more than one knowledge type (e.g. content knowledge and linguistic knowledge).

4.4 Discussion

In this chapter, a range of theories and constructs relating to the categorisation of knowledge have been reviewed. In this section, these are discussed under the following headings:

- cognitive categorisation (*Section 4.4.1*);
- approaches to types and levels of category (*Section 4.4.2*)
- the role of prototypes in making categorising judgements (*Section 4.4.3*);
- issues of complex categorisation within discourse (*Section 4.4.4*)

4.4.1 A cognitive basis for categorisation

In reviewing the ideas of Bartlett (1932) and Wittgenstein (1953/1963), fundamental questions were raised about the ways in which the human mind views and categorises knowledge, ways which appear to differ from the conventional Aristotelian ideas of classical category organisation, according to which categories are “assumed to be abstract containers, with things either inside or outside the container. Things were assumed to be in the same category if and only if they had certain properties in common. And the properties they had in common were taken as defining the category” (Lakoff, 1987, p. 6).

Bartlett (1932) proposed that knowledge is organised by means of schemata which use existing concepts as a basis to judge and classify information. This idea has been developed by a number of theorists who put forward knowledge-organising constructs, termed variously: schemata, frames, scripts or scenarios. Wittgenstein (1953) put forward a family resemblance view of categorisation,

which allowed for central or prototypical members of a category as well as less typical or peripheral members of a category. Empirical studies by Rosch (1973, 1975) and Rosch and Mervis (1975) point to a *prototype effect* which operates when categorising judgements are made in a number of fields. Similarly, Fillmore (1976, p. 24), in proposing his theory of *frame semantics*, proposes that prototypes play a role in the organisation of knowledge: “[In] order to perceive something or to attain a concept, what is at least sometimes necessary is to have in memory a repertory of prototypes, the act of perception or conception being that of recognizing in what ways an object can be seen as an instance of one or another of these prototypes”.

The approach to categorisation put forward by Bartlett and subsequent schema theorists raises specific issues in relation to the connection between language and referents, the structuralist view of stable word and referent connections being challenged. If categorisation and organisation of knowledge is based on already held concepts or prototypes - which, as Bartlett demonstrated, may be culturally influenced or determined - the representation of knowledge through word and referent relationships cannot be treated as fixed. Rather, it will be seen as being determined by cultural and contextual factors which vary according to the situation of language use. Thus, any proposal relating to cognitive genres as discourse classifying constructs must accommodate their particular realisation of these in the cultural context (such as, for example, (English) academic writing related to Rhetorical Types).

It is proposed here that categories of knowledge are cognitive constructs which are based on a human view of the world; they are, therefore, essentially a human creation based on human perception and human reasoning about different types of knowledge.

4.4.2 Approaches to types and levels of category

The idea of levels of category appears in much of the literature reviewed here (especially that which concerns more complex categorisation involving more than a single type of type of item or concept). In most of the approaches, category levels relate to the degree of specificity of the knowledge represented. Categories which classify knowledge in a more general way are referred to as high level categories, those dealing with more specific knowledge as low level categories.

Brown's (1958, 1965) three level category construct (superordinate, basic-level and subordinate) provides the basis for a variety of approaches to the investigation of the categorisation of knowledge, such as the research of Rosch (1973, 1975) and Rosch and Mervis (1975) (which related to the categorisation of single objects or colours). It is also employed in theories of more complex categorisation which relate to connected or related data, objects, events, scenes or situations. For example, in schema theory, higher level schemata are said to relate to general types of knowledge, and lower level schemata to more specific types of knowledge (Rumelhart and Ortony, 1977 pp. 109-110). Oller (1995) proposes three levels of schemata – abstract, formal and content - in descending order of increased specificity. In script theory, scripts are envisaged as more specific than plans, which are in turn, more specific than goals (Schank and Abelson, 1977).

Similarly, in their approaches to frames, the artificial intelligence theorists, Minsky (1975) and Winograd (1977) argue for an hierarchical organisation of frames, from general to specific. More recently, Barsalou (1992) has argued that “[frames] for what were once primitive concepts produce complex concepts that are used to build more specific concepts” (p. 43). Thus, complex categorisation is generally treated as involving an hierarchy of related category types. In considering high level categorisation, Van Dijk (1981, p. 233) and Johnson (1987) argue that gestalts may provide a basis for upper level or superordinate categorisation.

4.4.3 The role of prototype in making category judgements

Cognitive organisation in many areas of knowledge appears to involve assigning a category in relation to a prototype. This involves more prototypical central category members, and less prototypical, peripheral category members. Categorising judgments thus involve “judgments of degree of prototypicality” (Rosch, 1978, p. 40), which can be related to the family resemblance ideas of Wittgenstein (1953). This appears to be an underlying principle in all of the categorising constructs which relate to frame or schema theory, where this principle is involved in the

- a) assignment of values to the variables of a schema (Rumelhart and Ortony, 1977, p. 105), and
- b) The application of the whole schema to examples of a category (Bartlett, 1932).

Judgements of prototypicality also appear to be the categorising principle in the other schema-like categorizing constructs which were reviewed, such as scripts (Schank and Abelson, 1977; scenarios, Sanford and Garrod, 1981 and frames, Fillmore, 1977, Van Dijk, 1977; Barsalou, 1992; idealized cognitive models, Lakoff, 1987). Moreover, categorisation based around a prototype (such as a central example schema, scenario or script) is proposed as the categorising construct relating to both empirical knowledge, such as scripts (Schank and Abelson, 1977) and abstract knowledge, such as cognitive grammar categories (Langacker, 1987).

4.4.4 Issues of complex categorisation within discourse

Kant (1781/1998) suggests a type of procedural organising knowledge called *transcendental schemata* that is able to mediate between empirical and abstract knowledge. In modern schema and frame theory, there are a number of approaches that attempt to address the issue of different knowledge types with different organisational structures and the ways in which they intermesh with one another in order to represent complex knowledge through language. (Schank and Abelson, 1977; Sanford and Garrod, 1981; Carrell, 1988; Oller, 1995). The systems of categorisation relating to discourse need to take account of:

- a) the categorisation involved in classifying the conceptual content of the discourse;
- b) the classificatory categories involved in the procedural knowledge for organising the conceptual content in ways appropriate to the discourse community audience; as well as,

- c) the categories for the syntactic and grammatical systems of the language that encodes the discourse content.

To account for the first two of these systems within discourse organisation, Carrell (1988) proposes constructs of formal and content schemata, and attempts to account for the relative influence of each type of schema. Her empirical studies reveal that culturally familiar content schemata appear to be more important than formal schemata in terms of assisting subjects in understanding the meaning of texts. However, her experiments also showed that rhetorically organised texts (employing formal schemata) were still better understood than those whose rhetorical organisation had been disrupted and did not follow a formal schema pattern, regardless of whether the content was familiar or unfamiliar.

Also in respect of the content knowledge that is represented by discourse, another issue which arises is the distinction is made between:

- knowledge which is being specifically referred to in the discourse and;
- knowledge which is in the background or to which reference is implied and not directly stated.

Three approaches which deal with this explicit / implicit focus distinction are Sanford and Garrod's (1981) explicit focus reference and implicit focus reference. Rumelhart and Ortony (1977) refers to this as episodic (explicit) knowledge and generic (implicit) knowledge and Van Dijk (1977) refers to explicit knowledge being able to be summarized by higher-level macro-structures and implicit or background knowledge as organized by frames and Fauconnier's (1985) types of equivalence.

4.5 Implications of schema and prototype theory for theories of language organisation

Language is a human output which encodes human knowledge to reflect the ways in which the human mind organises and categorises that knowledge. Therefore, it is proposed that theories that attempt to account for the organisational structures of language are not able to ignore what is already known about how the human mind organises and categorises different types of knowledge. It is proposed that the types of procedural knowledge which the human mind employs in *hyper-complex categorisation* – that is representing various different types of knowledge in an integrated and connected way, a way through which coherent discourse is created - must, of necessity, influence the structure of that language.

As has been seen in the variety of approaches to the issue of categorisation which have implications for creating discourse, the organisation of language output is not a homogeneous activity to a single type of categorisation is able to be applied. Any representation of knowledge in coherent discourse involves intermeshing systems of categorisation. In the approaches reviewed, the intermeshing systems of categorisation employed will involve:

- the conceptual content of the discourse, both empirical and abstract;
- knowledge which is explicitly and implicitly referred to in the discourse;
- the categorising systems of the language itself;
- the type of language use, such as spoken or written language, and how this influences the type of language which is used.

(This last issue is addressed in detail in *Chapters 5* and *6*, where the differences between the organisational patterns of spoken and written language are discussed.)

In relating categorisation theories to this thesis, I propose that:

- certain types of rhetorical or communicative purpose instantiate a small number of prototypical discourse patterns (cognitive genres), which are, in effect, a type of highly complex category;
- as complex categories, cognitive genres may be described in terms of different types of intermeshing procedural (organising) knowledge, which relate hierarchically (higher level general and more specific lower level structures)
- this procedural knowledge is fundamental to a cognitive genre, and it is this that influences linguistic choice.

In *Chapter 5*, a theoretical model for a specific type of cognitive genre is proposed. The model proposes four Rhetorical Types as the prototypical cognitive genre patterns that occur within written, academic (English) discourse.

CHAPTER 5:

TOWARDS A REPRESENTATIONAL MODEL FOR ENCODING AND DECODING LANGUAGE AS EXEMPLIFIED IN A RANGE OF RHETORICAL TYPES

5.0 Introduction

Chapter 2 provided an historical review of the classification of oral and written text in a Western cultural context. This review pointed to an ongoing tendency throughout to classify larger texts in terms both of what are referred to here as *social* and *cognitive genres*. In *Chapter 3*, two approaches to social genre as a means of classifying extended texts (mainly written) for pedagogic purposes were examined. These approaches focused on (a) systems of categorisation, and (b) claims relating to the association between socially recognised genre categories and the actual language that occurs in examples of these genres. In *Chapter 3*, it was concluded that three overall classificatory systems are required to account for:

- the socially recognised overall purpose and conscious organisation of a text (social genres);
- the cognitive structures or procedural knowledge by means of which extra-linguistic knowledge is organised and developed into discourse (cognitive genres); and,
- the actual linguistic realisation of the socially motivated, cognitively organised genre knowledge (knowledge of linguistic systems).

In *Chapter 4*, theories and research relating to the cognitive nature of human categorisation were examined and discussed. This review included approaches to the types of, and interrelationships between, classificatory structures employed in the categorisation of complex knowledge. Central to that review was the emergence of the following principles:

- categorisation is carried out on a cognitive basis;
- categorising judgments are often made on the basis of, and in relation to, prototypes or typical examples of a category; and
- categorisation of complex knowledge involves more than one categorising system and is organised on an hierarchical basis with more general higher-level categories which, in turn, organise more detailed lower-level categories;
- categorisation involving discourse or extended use of language may involve several systems that intermesh.

This chapter is concerned with the level of the underlying cognitive structuring of written discourse. It is proposed that the structures that operate in this area involve procedural knowledge, knowledge which, among native-speakers of a language, is not (generally fully) engaged at a conscious level when encoding extra-linguistic content into extended written discourse in an organised and principled way. The idea of less conscious elements involved in the creation of discourse accords with the proposal of Chafe (1994) for *peripheral* or *semi-active consciousness* (p. 29) and *discourse topics* (p. 120). This is also similar to what Sanford and Garrod (1981) propose in their constructs of *foregrounded* and *background* information (p. 135). Both approaches suggest that background or semi-active information may involve both content and procedural information.

The identification of semi-consciously applied procedural knowledge is of value to those engaged in the teaching of writing to young learners and second language learners. In both cases, an understanding of organisational patterns relating to procedural knowledge can help their development of a discourse competence in the target language.

First, this chapter will make some general observations about the need to acknowledge the operation of cognitive structures within discourse. These observations include a discussion of the diversity of approaches and terminologies used, suggesting that many of these approaches share considerable areas of common ground. Secondly, the chapter will review a number of taxonomies of cognitive genres that have been proposed for extended, written discourse. In most cases, these are taxonomies that have been proposed as a basis for the teaching writing. Thirdly, a construct for describing cognitive genres within the cultural context of extended academic discourse – the *Rhetorical Type* (hereafter RT) - will be proposed. An overview of classificatory levels of the RT construct will be provided, as will an outline of the relationship of those levels to social genre knowledge and language systems. In *Chapter 6*, a more detailed description of the *Rhetorical Types* construct will be presented, including the types and operation of its classificatory levels. Each of these levels will be exemplified with reference to the four Types outlined.

5.1 The cognitive structuring of discourse: Some observations

Discourse production involves the representation of a language user's understanding of concrete features of the real world, or of abstractions. That representation may involve either speech or writing. Rosch (1978), when discussing human categorisation of knowledge, observes that "it should be emphasised that we are talking about the perceived world and not a metaphysical world without a knower" (p. 29). With reference to the ideas of Putnam (1981), Johnson (1987) observes that "all knowledge requires structure and categorisation. Specifically human knowledge requires categories of understanding that humans can make sense of in terms of their own mediated experience and can use for human purposes" (p. 206). It is suggested, therefore, that discourse creation is a process of representation. It involves the representation of cognitive categories in terms of the linguistic possibilities of a language (which will, of necessity, employ the organisational and categorising systems of that language), usually to achieve a social purpose in socially prescribed ways (see Hyland, 2003, p. 166).

Language users employ transactional competence in successfully interacting in everyday situations in the real world. However, the production of extended written discourse for an audience involves a real, an hypothetical or an imagined third party. It also generally involves, if it is to successfully communicate the writer's intended meanings (in the absence of paralinguistic cues and interactional feedback), organisational patterns, which may include a complex series of macro- and micro-level choices. In *Chapter 4*, reviews of approaches to the cognitive structuring of extended discourse, such as those proposed by Sanford and Garrod

(1981) and Oller (1995), suggest that these choices may relate to the content of the discourse, the categorisation involved in the linguistic system and possibly procedural knowledge which mediates between the other two systems. The production of extended written discourse, such as that often required in academic contexts, must, therefore, involve something other than day-to-day transactional competence.

In approaching the issue of identifying cognitive organisational constructs in relation to the writing of extended text, the current literature in the fields of education and applied linguistics presents a multiplicity of approaches with a wide range of terminology despite the fact that there appears to be considerable common ground in the actual concepts proposed. Furthermore, Kroll (2003), in introducing an overview work relating to the field of second language writing and the range of issues and variables relevant to this field, expresses that view that there is no single theory of writing “capable of explaining the role of and interaction among key variables” (p. 6). Nevertheless, the variations in approaches along with a lack of a common terminology appear to have inhibited progress in the development of pedagogy for the teaching of writing, in particular a pedagogy which acknowledges and builds on common knowledge and understanding.

An example of diversity of description and terminology in relation to a similar construct can be seen in the area of accounting for the differences between the linguistic competencies that are required to transact orally and those that are required to write extended written text. In describing this, Bakhtin (1986, p. 87) makes a distinction between *primary speech genres*, which “correspond to typical

situations of speech communication”, such as greetings, military commands and requests for information, and the more complex *secondary genres* of writing which derive from speech genres. The same issue is addressed by Martin in discussing the construct of *mode* in systemic-functional linguistics; “Texts can then be divided into those organised primarily with respect to activity sequences (iconic texts) and those organised along different lines (non-iconic texts)” (Martin, 1992, p. 517). Martin argues that certain types of non-iconic texts are *genre* structured: “Genre-structured texts are divided into those which **review** field-structured texts (e.g. movie reviews), and so are partially determined by their activity sequences, and **theoretical** texts which are not organised around a sequence of events in any respect, e.g. editorials” (p. 517).

In approaching the same issue, Kaplan (1987) says that “spoken language is more likely to provide information relevant to immediate need”, whereas “written language is more likely to provide elaborated information, that very elaboration being likely to require sequencing, structure, and stance not characteristic of spoken language” (p. 15). He (p. 16) goes on to draw a distinction between *writing* and *composing*:

Once sound-symbol correspondence is established, it is likely that an individual can acquire the ability to write, but there is some serious question whether an individual can acquire the ability to write *text* - to compose. . . . [It] seems that composing is more likely to be learned than acquired.

This issue (that is, the distinction between writing and composing) is also discussed by Bereiter and Scardamalia (1987). They present two models which

distinguish between writing which involves simple *knowledge-telling* and more complex *knowledge-transforming* writing. Their model for knowledge-transforming writing identifies a *rhetorical-problem need*, which draws on what they refer to as *discourse knowledge* in order to create more complex types of written text. In making these distinctions, the approach of Bereiter and Scardamalia has much in common with those of both Kaplan (1987) and Martin (1992).

Another writer who also addresses the issue of discourse-organising knowledge, especially for writing, is Miller (1984). She emphasises the hierarchical nature of any representation of meaning through language and proposes that an hierarchy of several levels of meaning is involved, with different forms of communication emphasising different levels. She suggests that extended, monologic discourse may involve a greater hierarchical complexity than dialogue in the representation of meaning:

[Monologue] and dialogue pose different problems, for example, they probably operate with differing hierarchical structures. In dialogue, because the audience tends to be small and constraints managed through interactive coordination, personal intentions manifest themselves more easily. Such interaction requires elaboration of the rule structure at the lower levels of the hierarchy, to guide turn-taking, implicature, and management of multiple intentions. In monologue, personal intentions must be accommodated to public exigencies – because the audience is larger, the opportunity for complex statement is greater, and constraints are less easily managed; more elaborate rule structures at the upper end of

the hierarchy, at the level of whole discourse, are therefore necessary for both formulation and interpretation (Miller, 1984, p. 162).

As discussed previously (*Chapter 3, Section 3.11*, p. 92; *Chapter 4, Section 4.5*, pp. 174-175), one of the crucial issues in many of the theories proposed is the nature of the relationships between extra-linguistic knowledge and linguistic knowledge. Some have found it convenient to focus solely on linguistic knowledge around a social genre construct, thus avoiding many issues associated with joint models that combine linguistic, cognitive and social knowledge within a framework for rhetorical organisation. However, since procedural, organisational knowledge involves human categorisation, there can be no valid reasons for attempting to separate linguistic and non-linguistic categorising knowledge in relation to rhetorical structuring.

In relation to the literature accounting for different approaches to cognitive genre, a number of central questions arise in respect of the issue of the competence required to produce extended written text, the types of knowledge that this requires and the exercise of that knowledge. If the process of organising extended written discourse is, as Kaplan suggests, *learned* rather than *acquired*, what type of knowledge needs to be learned to provide a basis for this type of procedural, discourse-organising competence? If this discourse-organising knowledge is to be learned, it firstly has to be identified, analysed and described to provide a basis for instruction and learning. What are the stages and types of classificatory systems which constitute procedural, discourse-organising knowledge?

The following section will review a number of further approaches to identifying cognitive genres (in addition to those reviewed in *Chapter 2*). The cognitive genres that are reviewed in this chapter involve taxonomies that have been developed in order to teach writing to young first-language learners or to non-English-speaking background (NESB) students who are learning English, mainly focusing on written discourse. First, in order to provide a framework with an empirical basis within which to consider the taxonomies of pedagogic approaches to cognitive genres, Biber's corpus-based research on text types (1988, 1989) is reviewed.

5.2 Research and theories related to identifying cognitive organisational structures in academic writing

Corpus studies reveal that one (social) genre category of written texts can employ more than one *text type* (cognitive genre). Biber, for example, puts forward a typology of text types (cognitive genres) with respect to a five-dimensional model of lexical and syntactic variation (Biber, 1988, 1989). The dimensions are:

- involved versus information production;
- narrative versus non-narrative concerns;
- explicit versus situation dependent reference;
- overt expression of persuasion;
- abstract versus non-abstract style (Biber, 1989, p. 10).

Within these five dimensions, Biber examines co-occurrence distributions of groups of linguistic features in 481 spoken and written texts of contemporary British English taken from the London Oslo Bergen and the London Lund Corpora. Biber's typology of texts is identified solely in terms of linguistic and stylistic features. He emphasises that they are not socially recognised genres,

which he sees as being "defined and distinguished on the basis of systematic, non-linguistic criteria" (p. 39). In avoiding social genre descriptions, Biber identifies his eight text types in terms of their rhetorical or communicative purpose:

- intimate, interpersonal interaction;
- informational interaction;
- scientific exposition;
- learned exposition;
- imaginative narrative;
- general narrative exposition;
- situated reportage;
- involved persuasion (pp. 20-22).

Biber (p. 39) found that academic prose texts employed four of the eight text types:

Type 3: *scientific exposition* which is extremely informational, elaborated in reference, and technical, and abstract in style and content;

Type 4: *learned exposition* which is similar to scientific exposition except that it is markedly less abstract and technical in style;

Type 6 *general narrative exposition* which is a very general text type which combines narrative forms, with epistary, information elaboration;

Type 8: *involved persuasion* which involves texts with a primarily argumentative and persuasive purpose and style.

Biber's corpus-based research provides a useful background against which to discuss pedagogic classifications of extended written texts which are cognitive in orientation, classifications that have been proposed to assist in the teaching of writing both to young learners and more advanced-level learners involved in instruction in academic writing.

5.2.1 Cognitive genres and young learners

To avoid, initially at least, the complexity involved in the synthesis of rhetorical patterns that appear in authentic texts, educators have often found it useful to identify cognitive genres (such as narration, description and exposition) discretely for pedagogic purposes. These have been used in the teaching of reading and writing to young learners (Crowhurst, 1990; Richgels et al., 1987; Meyer, 1987; and Spiro & Taylor, 1987). Studies of isolated, single (cognitive) genres or *meta-genres* (Grabe & Kaplan, 1996, p. 140) in educational contexts have shown that students process and produce cognitive genres in different ways.

Two issues arise in respect of cognitive genre-based approaches to the teaching of reading and writing. The first is the difficulty of identifying whole reading texts (social genres) which conform to one single type of such so-called (cognitive) *genre* category (Spiro & Taylor, 1987, p. 79). The second issue is that in studies of writing, researchers have found that young learners tend to mix cognitive genres (such as exposition, narration and description) in their responses when they are required to write texts employing one such genre. Thus, for example, Crowhurst (1990, p. 206-210) found that younger writers tended to mix narration with persuasion when required to write a persuasive response to a task. She concluded that persuasion was a more difficult genre pattern, and that educators often gave little instruction in the construction of persuasive compositions.

Alternatively, it could be suggested that pure persuasion is a relatively rare written rhetorical pattern, and one which is not often encountered by young learners in their reading, whereas Biber's *Type 6* text type (*general narrative exposition*) has probably been encountered by young learners more frequently, for example in school textbooks. Thus, their familiarity with this text type in their reading may, in turn, influence their responses to persuasive writing tasks.

Crowhurst's (1990) identification of exposition simply as a genre which involves persuasion may be an oversimplification in relation to what persuasive writing involves in an academic setting, especially when considered in the light of Biber's three text type categories of expository writing. In an attempt to address this issue when teaching writing, Martin (1984) distinguishes between *hortatory* writing, (writing which “persuades to”) and *analytical exposition* (which “persuades that”) (1984, pp. 16-17). Martin suggests that hortatory persuasion usually involves the use of more personal language than does analytical exposition, which is more impersonal and makes greater use of nominalisation.

The desire of educators of young learners to find authentic texts that conform to a single cognitive genre category is also reflected in the comment of the systemic functional genre theorists Knapp and Watkins (1994) who say “science books that shift from explanation to narrative to instruction, with the grammar moving backwards and forwards between personal and impersonal voice, make heavy language demands on the reader” (p. 23). However, this may simply be the normal synthesis of different types of cognitive genre in the creation of a complete text that realises a social genre.

It is not the intention here to discount the value of isolating cognitive genres for pedagogic purposes, quite the contrary. It is important, however, to be aware that authentic, whole texts (exemplars of social genres) usually involve a combination of cognitive genres. Nevertheless, for pedagogic purposes, isolating specific cognitive genres can be helpful and can provide a useful basis for teaching so long as research that identifies the actual cognitive genre prototypes that are the building blocks of whole texts within a certain culture is taken into account.

Examples of some of the taxonomies of pedagogic (mainly cognitive) genres proposed as a basis for teaching writing to the young by educationalists in Australia include Macken, Kalantzis, Kress, Martin, Cope and Rothery (1989); Martin, (1989); Derewianka, (1990); Knapp and Watkins (1994); Butt, Fahey, Feez, Spinks and Yallop (2000) and Martin (2000). Derewianka (1990) proposes a taxonomy of genre categories for the teaching of writing in elementary schools. This includes: *recount*, *instruction*, *narrative*, *information report*, *explanation* and *argument*. Generally, these appear to be cognitive genre categories although in her explanations and examples Derewianka appears to attempt to present them as if they were simple social genres (see Paltridge, 1996, p. 238). She identifies each of her genres through descriptions of different types of rhetorical purpose:

Recount: “A recount is the unfolding of a sequence of events over time. [Its purpose is] to tell what happened” (pp. 14-15).

Instructions: “[Instructions] are concerned with procedures, which tell us how something is accomplished through a sequence of actions or

steps. [Their purpose is] to tell someone how to do or make something” (p. 27).

Narratives

“The basic purpose of a narrative is to entertain, i.e. to gain and hold the reader's interest in a story. But Narratives may also seek to teach or inform, to embody the writer's reflections on experience, and - perhaps most important - to nourish and extend the reader's imagination. The focus of the text is on a sequence of actions” (p. 40).

Information Reports:

“The function of an Information Report is to document, organise and store factual information on a topic” (p. 51).

Explanation

“To give an account of how something works or reasons for some phenomenon” (p. 60).

Arguments

“To take a position on some issue and justify it” (p. 75).

As well as a detailed description of rhetorical purpose for each genre, Derewianka also gives considerable attention to the staging and structuring of ideas. For example, for Recount genre, she specifies a text organisation of *orientation* and *events*. Orientation is explained as providing background information in relation to who, what and where for the subsequent events of a recount. The events section explains what actually happens; this is usually organised chronologically. Derewianka also specifies the linguistic features which, she claims, usually occur in the Recount genre.

Derewianka's taxonomy of pedagogic genre types is one of many approaches that see teaching the writing skill to young learners as involving cognitive genre constructs. Generally such cognitive genres are proposed as discourse categories that are predicated on types of rhetorical or communicative purpose, and, where the taxonomy is more elaborated, each has its own category-internal structure for the organisation of ideas. The approach of Derewianka (1990) appears to go some way to bridging the gap between the conscious, social conventions of discourse and the semi-consciously applied language patterns through which these are realised. However, pedagogic applications of cognitive genre categories need to find some way of accommodating (a) the relationship between 'real discourse' and the genre under consideration, and (b) that fact that cognitive genres often combine to create whole texts.

5.2.2 Cognitive genres and academic writing in university contexts

A number of studies have investigated the issue of the writing requirements of university assignment tasks and the expectations of university staff in respect of responses to such tasks. Research in this area has generally been carried out in three ways:

- surveys of undergraduates and the types of assignment tasks and writing which they have experienced (Kroll, 1979);
- surveys of university teaching staff, (involving asking the types of tasks which they assign and their expectations of student responses to those assignments) (Braine, 1989; Bush, 1994; Pearson–Casanave & Hubbard, 1992);

- surveys of actual university assignment tasks (involving, for example, the gathering a sample of such tasks from a range of departments and faculties and analysing the actual requirements of the assignments) (Braine, 1989; Canseco & Byrd, 1989; Moore & Morton, 1999)

Using the third of these approaches, Moore and Morton (1999) examined the types of writing tasks required of university students at undergraduate and postgraduate level. They carried out a survey of 155 written assignment tasks from a wide variety of faculties and subject areas at two Australian universities. The purpose of their study was to investigate “the authenticity of the Task 2 component of the IELTS [*International English Language Testing System*] writing test (academic module). Specifically, the study’s aim was to find out the extent to which this component of the test corresponds to the writing requirements of university study” (Moore and Morton, 1999, p. 64).

The requirements of Task 2 of the IELTS writing test (academic module) are:

- present the solution to a problem
- present and justify an opinion
- compare and contrast evidence, opinions and implications
- evaluate and challenge ideas, evidence or an argument (IELTS Handbook, July 2001, p. 12)

Within their sample of writing tasks, Moore and Morton identified twelve categories of university writing task: *essay, review, literature review, experimental report, case study report, research report, research proposal,*

summary, exercise, short answer, written argument/case, and other. Moore and Morton analysed each of the university writing task types in terms of:

- *genre*, by which they meant university assignment task type - “the genre of a task was taken to be the name given to the required written product as outlined in the task rubric” (Moore and Morton, 1999, p. 72);
- *information sources* from which the information in the assignment was drawn (the writer's prior knowledge, primary reports of research and secondary sources) (p. 75);
- *rhetorical function*, a “concept can be modified to mean ‘that which a task (or unit of a task) is instructing students to do’”, including, “*evaluation, description, summarisation, comparison, explanation, recommendation, hortation, prediction and instruction*” (p. 77);
- the object of the enquiry *phenomenal* or *metaphenomenal*: “The *Phenomenal* category was used for those tasks which directed students primarily to consider such ‘real world’ entities as events, actions, processes, situations, practices etc. The *Metaphenomenal* category, in contrast, was applied to tasks concerned mainly with the abstract entities of ideas, theories, methods, laws etc” (p. 79).

Moore and Morton found that, in terms of the types of task (what they termed genres), essays (58%) were the most common, followed by case study reports (10%) and exercises (8%). All the other types of task were relatively rare in their frequency of occurrence. In terms of information sources, almost all of the assignment tasks involved gathering information of some kind, requiring the use of secondary sources (in 55% of assignment tasks), primary sources (in 18% of

assignment tasks) or a combination of secondary and primary sources (in 21% of assignment tasks). Moore and Morton's summary of the frequency of occurrence of rhetorical functions in the 155 tasks of the survey sample is included as *Table 5.1* following:

Table 5.1: *Rhetorical Functions in University Assignments According to Moore and Morton (1999, p. 88)*

| Rhetorical Function | Modality: Epistemic / Deontic | Number of Tasks Incorporating Function | Percentage of tasks incorporating function |
|----------------------------|--|---|---|
| Evaluation | E | 104 | 76 |
| Description | E | 71 | 49 |
| Summarisation | E | 55 | 35 |
| Comparison | E | 54 | 35 |
| Explanation | E | 43 | 28 |
| Recommendation | D | 35 | 23 |
| Hortation | D | 15 | 15 |
| Prediction | E | 11 | 7 |
| Instruction | D | 5 | 3 |
| TOTAL FUNCTIONS 393 | | | |

In terms of the objects of enquiry of the surveyed tasks, 61% were phenomenal, and 39% were metaphenomenal. Tasks with a metaphenomenal object of enquiry were distributed across a wide range of subject areas, but occurred more frequently in humanities subjects.

5.2.3 Moore and Morton's study and its approaches to social and cognitive genre

In reviewing Moore and Morton's study, it is useful to consider their approach in relation to the social genre and cognitive genre aspects of the university writing tasks they examined. They identify (social) genres, simply in terms of the names of assignment tasks of the sample (e.g. essay, review, literature review, experimental report). Although Swales (1990) identifies (social) genre as "a class of communicative events, the members of which share the same communicative or rhetorical purpose" (p. 58), the most frequently occurring social genre in Moore and Morton's sample (*i.e. essay*), does not, suggest one socially-recognised "communicative or rhetorical" purpose. Rather, Moore and Morton themselves define an essay as "a task with a variety of features and specifications. In its prototypical form, an essay is a task requiring the presentation of an argument in response to a given proposition or question (p. 74).

This difficulty of identifying (social) genre in an academic context is also recognised by Johns (1997): "Some genres, particularly in pedagogical contexts, are loosely, and almost casually named" (Johns, 1997, p. 23). This lack of stability in the naming of types of university assignments emerges from a number of studies of university writing tasks (see Braine, 1989, p. 10; Canseco & Byrd, 1989, p. 312; Johns & Swales, 2002, p. 14). A recent study by Samraj (2004), which examined the genre of the *research paper* in two different disciplines, also confirms this view. She says that "research papers can have multiply layered communicative purposes, which may vary in different disciplinary courses, resulting in texts characterized by different discoursal features" (p. 5)

As Moore and Morton themselves indicate, *essay* also appears to be a blanket term. As an example of a social genre, essay is difficult to describe in terms of a type of discourse with a conventionally recognised structure and features. In fact, the types of rhetorical purpose (which Moore and Morton term *rhetorical functions*) associated with a particular essay task, rather than the task of writing an essay itself, seem to indicate the type of discourse required. This may, for example, involve argument.

Moore and Morton employ the construct of rhetorical functions in university writing tasks, defining rhetorical functions as “[That] which a task (or unit of a task) is instructing students to do” (Moore and Morton, 1999, p. 76). They divide rhetorical functions into two broad categories: *epistemic* and *deontic*, a distinction based on an approach to the modality of clauses. They note that “an epistemic clause . . . has the status of a proposition; it asserts whether something is true, partly true, false etc” whereas “[A] deontic clause . . . has the character of an action . . . whether something is going to be done” (p. 76). Within the epistemic and deontic categories, other sets of rhetorical function categories are grouped:

- *epistemic*: comparison, description, explanation, evaluation, prediction, summarisation;
- *deontic*: hortation, instruction, recommendation;

It is difficult, however, to see how the rhetorical function of, for example, *comparison* can be assigned solely to epistemic knowledge. While some academic writing tasks might require the comparison of graphic data about real world entities, others might, for example, involve the comparison of the arguments for and against a solution to a problem. Similarly evaluation or even

summarisation could relate to deontic hypotheses as much as epistemic phenomena. Furthermore, there appears to be degree of overlap in terms of the categories within the two groups of rhetorical functions. If the intention is that each different rhetorical function should be seen as to entail a different cognitive structure, it is difficult to see how this could be established in the case of *recommendation*, *hortation* and *evaluation* (which do not appear to have any necessary distinguishing features). Thus, the rhetorical categories employed to analyse the tasks do not appear to have a rationale that is sufficiently clear. They are based loosely on the rhetorical function construct of Trimble (1985, pp. 69-113), but using Trimble's definition of rhetorical function rather than his categories. A theory of cognitive genre which has the capacity to classify the rhetorical requirements of the rubrics of academic writing tasks (by means of a smaller number of prototypical categories) would have been useful. It would also help to overcome the problems associated with the terminology used in analysing and classifying the rhetorical functions involved in assignment tasks (or assignment task rubrics).

Moore and Morton's categories of rhetorical function are described in terms of their frequency of occurrence over the whole sample of the 155 tasks. They are not, however, analysed in terms of the frequency with which rhetorical functions cluster or combine within one type of task or genre. (e.g. research reports or reviews) although Moore and Morton actually observe that "assignments were generally found to prescribe more than a single rhetorical function." (p. 87). A more detailed picture of the range of requirements associated with writing tasks would involve identifying which rhetorical functions tend to co-occur or cluster in the types of assignment tasks (genres) examined (such as essays) and which of the

task types identified are most commonly associated with specific rhetorical functions.

5.2.4 Towards a cognitive genre construct for academic writing

In proposing a taxonomy of text types for use in designing curricula for tertiary level writing courses for NESB students (writing courses which use a genre-based approach), Quinn (1993) observes:

The problem with this approach [a genre-based approach to teaching writing] is that in real-life, academic texts are more diverse and complex than the existing limited (or finite) range of models would suggest. There is more variety in the range of possible academic text types than any proscriptive, genre-based approach can predict. (Quinn, 1993, p.33)

This appears to confirm the view of Biber (1988, 1989) (based on corpus studies) and that of Pilegaard and Frandsen (1996) that authentic whole texts (which are examples of what is referred to here as *social genres* and by Pilegaard and Frandsen as *text genres*) can be a synthesis of different *text types* (cognitive genres). On the basis of a needs analysis for his writing course, Quinn presents a taxonomy of text types "based on family resemblances or similarities and differences within each family" (1993, p. 35). He offers the following "family resemblance" groups of text types as a basis for instruction in EAP (English for Academic Purposes) courses (pp. 34-35)

Table 5.2: Quinn's Taxonomy of Text Types for EAP Courses

Reports

| | | |
|--|--|---|
| Technical / Scientific classification (scientific reports) | Describing a graph or a table of numbers (numerical reports) | Describing a proposal or proposition (ideas reports, or action reports in the past and future e.g. describing political or business strategy) |
|--|--|---|

Explanations

| | | | |
|--------------------------------|--|---|--|
| Description of a process (how) | Description of cause and effect (why?) | Description of historical cause and effect (when / where) | Descriptions of hypothetical cause and effect (historical speculations or hypothetical explanations) |
|--------------------------------|--|---|--|

Discussions

| | | |
|--|--|---|
| Compare and contrast objects e.g. consumer reports | Compare and contrast proposals (possible future actions) or propositions (hypotheses and ideas) e.g. discussions of the best site for the 3rd runway in Sydney | Compare and contrast hypotheses about historical causation and effect e.g. theoretical astronomy discussions about possible origins of the solar system |
|--|--|---|

Recounts

| | | |
|---|---|--------------------------|
| Personal topics with human participants | Abstract topics with non-human participants | Formal academic recounts |
|---|---|--------------------------|

As mentioned previously, Biber (1989, p. 39), on the basis of corpus research, proposes that academic prose texts relate to four of eight text types. Although there appears to be some relationship between these and Quinn's pedagogic taxonomy of text types (see *Table 5.3* following), the two taxonomies actually differ considerably in their conceptualisation and purpose. Biber's taxonomy is corpus-based and descriptive. Quinn's taxonomy is based on a needs analysis and is prescriptive, having been designed for pedagogical purposes.

Quinn's view is that authentic texts are "blends, hybrids or mixtures of numerous genres" (p. 33). In order to develop the framework for an English for Academic purposes curriculum, Quinn (1993) examined a range of authentic texts and isolated what he saw as the "elementary genres [cognitive genres] which go to make up these more complex, authentic text types" (p. 34). He said that his main

criteria for identifying the four main genres were the “*purpose and staging*” (p. 35) and that “the main criteria for assessing family differences [within each genre] were textual choices made concerning modality, modulation, tense, theme-rheme organisation, voice, agency and lexis” (p. 35). Quinn suggests that his proposal for genre is an heuristic concept, but one which enables for teachers and course planners to identify the genres in texts “which learners are most likely to encounter” (p. 45).

Table 5.3: Comparison of Biber’s and Quinn’s Text Types for Academic Prose

| Biber’s Text Types (Academic Prose) | Quinn’s Text Types |
|---|---|
| <p>Type 3: <i>Learned Scientific Exposition</i> focus on highly abstract and technical information . . . they are, therefore, concerned with entities being acted on (the patients) [rather] than any active agents. They further depend on the frequent use of conjuncts to specify the logical relations among propositions (Biber, 1989, p. 29).</p> | <p><i>Explanation</i> Descriptions of a process, cause and effect, (when? where? why?), historical and hypothetical cause and effect (Quinn, 1993, p. 34).</p> |
| <p>Type 4 <i>Learned Exposition</i> Type 4 texts tend to be less technical in content . . . show a preference for a more active style (Biber, 1989, p. 29)</p> | <p><i>Report</i> Describing a scientific or technical classification, a graph, table of numbers proposal or proposition (ideas reports, or action reports in the past and future e.g. describing political or business strategy) (Quinn, 1993, p. 34).</p> |
| <p>Type 6: <i>General Narrative Exposition</i> They are primarily informational and expository but often use narration to convey information . . . the narrative portions in these texts are not imaginary or for entertainment; they are rather an integral part of the expository information being conveyed (Biber, 1989, p. 31)</p> | <p><i>Recounts</i> personal and academic recounts with human participants, formal academic recounts (Quinn, 1993, p. 35)</p> |
| <p>Type 8: <i>Involved Persuasion</i> the texts in Type 8 are primarily distinguished by their persuasive and argumentative emphases . . . this orientation is typically combined with an involved, often interactive, style, which aids the persuasive force of the text by developing a sense of solidarity with the listener or reader. In other cases though, these texts can be overtly persuasive while having a marked informational focus (Biber, 1989, p. 38)</p> | <p><i>Discussion</i> compare and contrast objects, proposals, propositions, hypotheses and historical causation and effect (Quinn, 1993, p. 35)</p> |

At first sight, *Discussion* in Quinn's taxonomy appears not to mirror Biber's *Involved Persuasion* category. However, in explaining this category of *Discussion*, Quinn (1993, p. 35) provides examples of topics for writing tasks that relate to this text type (e.g. 'the best site for the third runway in Sydney' and 'the possible origins of the solar system'), topics which appear to involve an evaluation or conclusion. *Discussion* text type, therefore, does appear to involve argument, but it is argument that is presented discursively with an added element of a synthesising or evaluation of views, (apparently reflecting the way in which argument is constructed in academic writing).

Quinn identifies four text types (referred to here as cognitive genres): *Explanation, Report, Recount* and *Discussion*. The four are predicated on types of rhetorical purpose, and are not the same as context-specific, social genres, such as a newspaper editorial or a book review. Like Pilegaard and Frandsen (1996), Quinn suggests that these text types are likely to occur in combinations rather than singly in the realisation of a whole text (social genre). In terms of their overall communicative or rhetorical purposes, Quinn's text types (based on needs analyses) reflect the four types (or prototypes) of academic prose texts described by Biber in relation to a corpus-based study.

5.2.5 Summary

A variety of approaches to the analysis of written text in terms of what is referred to here as cognitive genre have been reviewed. These approaches all aim to describe the structuring of extended written texts for the purpose of teaching writing. In relation to this review the key findings are:

- whole authentic texts, examples of a social genres, may be realised by different cognitive genres or a synthesis of different cognitive genres;
- cognitive genre, rather than social genre, appears to be the preferred unit of discourse that is used as basis for instruction in writing; and,
- whatever cognitive genre construct is used as a basis for instruction, there is a need to reflect the reality of how cognitive genres interact in relation to social genres in authentic discourse.

In the section that follows, the *Rhetorical Type* construct is proposed as an organising structure of the second classificatory level in extended written texts of academic prose. Rhetorical purpose is taken as a basis for identifying four different *Rhetorical Types*. Drawing on Biber's corpus-based findings, and Quinn's needs-based analysis, the four classifiers – Report, Explanation, Recount, Discussion - are employed as the types of rhetorical purpose underlying the Rhetorical Types which are proposed. The relationship between this purpose (intentionality) and the creation of meaning along with each classificatory level of the Rhetorical Type construct and its function will be discussed in greater detail at the beginning of *Chapter 6*.

5.3 A model for the cognitive structure of discourse

5.3.1 Rhetorical Types: Larger cognitively-organised structures within texts

It has been suggested here that the competence to create a whole extended written text may draw on three types of classificatory system:

- social genre;
- cognitive genre; and
- the actual linguistic systems of the language.

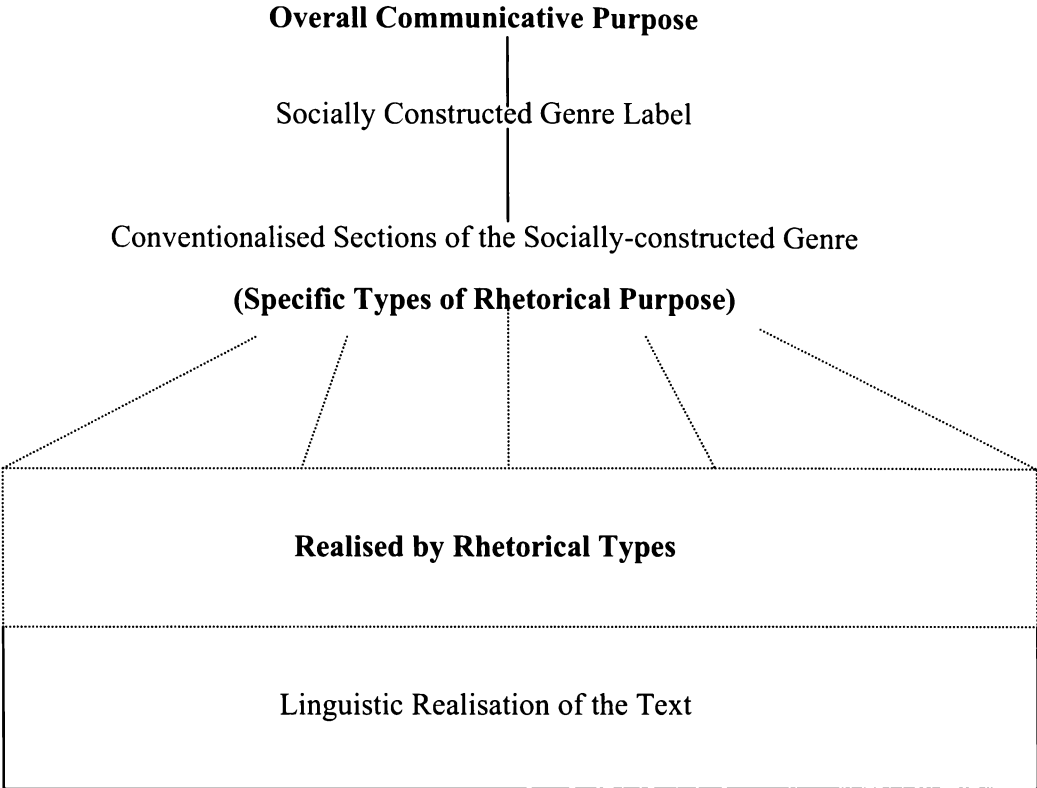
At the first level of classification, social genre is treated as “a class of communicative events, the members of which share the same communicative or rhetorical purpose (Swales, 1990, p. 58). According to Swales, such genres exist within a discourse community, that is, within “socio-rhetorical networks that form in order to work towards sets of common goals” (p. 8). Thus, Swales’ concept of genre underlies the view of social genre employed here. However, the model that follows does not relate to socially recognised genres (such as academic articles or book reviews) or recognised text segments (such as abstracts of, or introductions to research articles) but to cognitive genre structures of the second classificatory level, which, singly or in combination, may be used to organise the realisation in language of such texts.

At the second level of classification, it is suggested that writers, in the process of creating extended written discourse, and in exercising various types of overall rhetorical purpose, draw on cognitive genres. In doing so, they produce discourses that have rhetorical patterning that is characteristic of particular cognitive genres. The localised cognitive genres that occur in English academic

writing are referred to here as Rhetorical Types. Each of the Rhetorical Types is associated with a particular way of representing knowledge (in terms of cognitive organisation), and so discourse that is organised in terms of a particular Rhetorical Type will share certain organisational characteristics. Thus, in realising a particular type of rhetorical purpose, a writer will draw on an appropriate Rhetorical Type and its associated patterning. This, in turn, will have an influence on the linguistic structuring of the discourse. In English academic writing, four Rhetorical Types are proposed, the rhetorical purpose of each being based on the text types of Quinn (1993): Report, Explanation, Discussion and Recount. However, their use in the Rhetorical Type model involves a reinterpretation of Quinn's text type construct to include extra-linguistic as well as linguistic information. This section will present an overview of the levels of categorisation which occur within the Rhetorical Types. This summary will demonstrate the interrelationship between social genre and Rhetorical Type at the upper levels of text organisation and Rhetorical Types and language at the lower and more specific levels.

Rhetorical Types are psychologically driven patternings based on perception, and can be described at a number of levels. A closer examination of the classificatory levels of Rhetorical Types is provided in the next chapter. Rhetorical Types, of themselves, are not usually whole texts, but are used, usually in combination, to create texts in socially driven ways (see *Figure 5.1* following). On the other hand, social genres, which are realised by whole texts, are socially prescribed and accepted constructs, which are realised by specific types or combinations of ways of perceiving which have a cognitive or psychological basis.

Figure 5.1: The Relationship Between Social Genres and Rhetorical Types



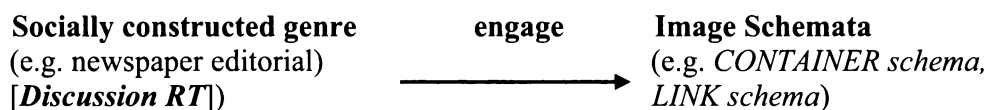
Rhetorical Type knowledge involves complex categorisation at a number of levels, this categorisation relating to the creation of discourse which meets the classificatory expectations of the discourse community within which it occurs. Rhetorical Type knowledge draws on idealised patterns which exist as templates or models for text creation. The creation of a text may involve a single Rhetorical Type pattern. However, extended texts will generally employ more than one Rhetorical Type, (according to varying rhetorical purposes) as they unfold.

5.3.2 The internal structure of Rhetorical Types: Levels of categorisation

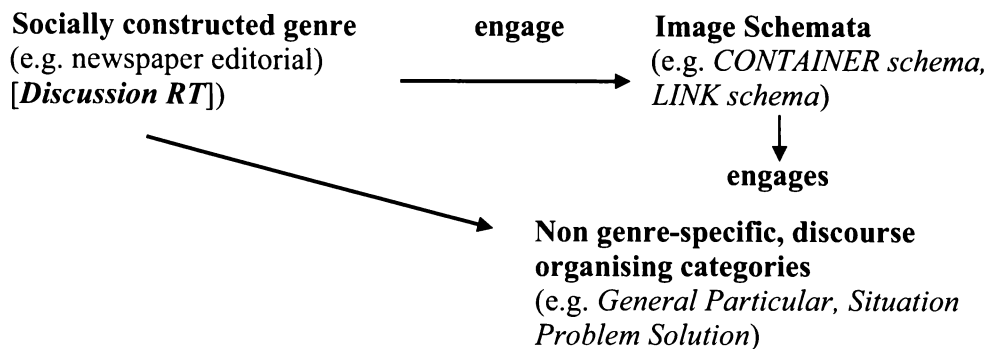
This section will present a diagrammatic summary of the hierarchical structure of the Rhetorical Type construct. This construct involves a number of interrelated classificatory levels. The systems of classification employed at each level will be briefly described here. A more detailed description of these classificatory systems will be provided in association with the study of a small corpus (and illustrative sample texts from the corpus) in *Chapter 6*.

It is argued here that social genre does not, in any direct sense, influence linguistic selection. Instead, in an extended text, the immediate type of rhetorical purpose of a single section or segment of the text (such as reporting, explaining, recounting or discussing) engages an hierarchical, cognitive structuring for that section or segment of text, that structuring being referred to as a Rhetorical Type. The effect on linguistic selection is, therefore, indirect or mediated.

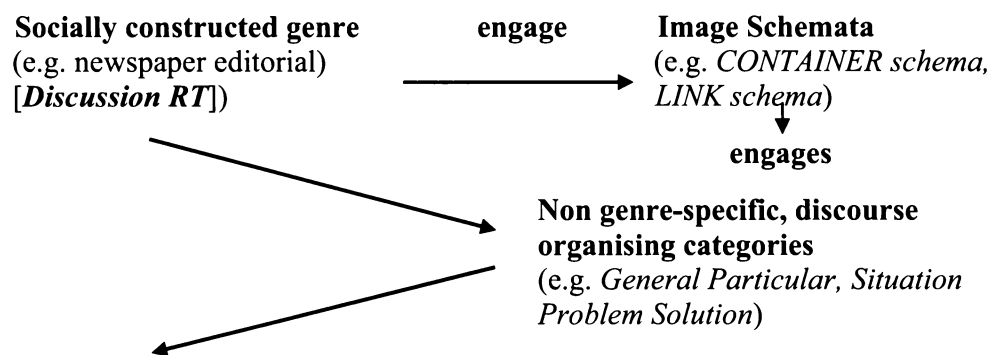
First, the rhetorical purpose associated with a particular Rhetorical Type will engage a high-order, *image schema* (gestalt) in order to broadly structure the content knowledge which is to be represented within the written text, (as proposed by Lakoff (1987, p. 283) in the spatialisation of form hypothesis).



The image schema selected leads to the engagement of non-genre-specific cognitive organising categories (e.g. General-Particular, Problem-Solution), which have typical patterns of co-occurrence.

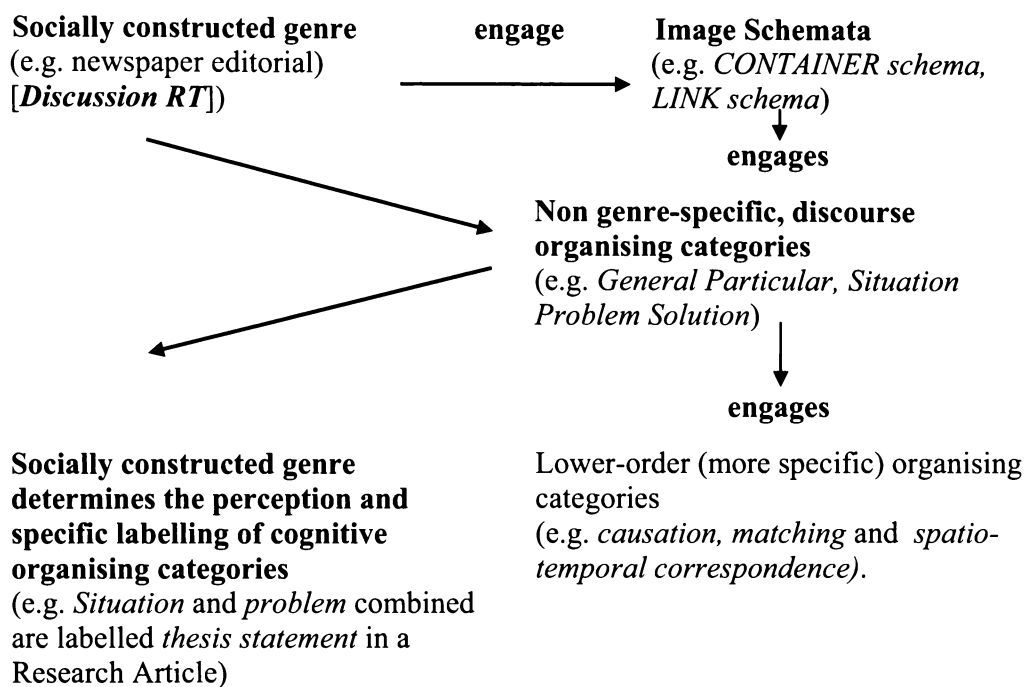


Depending on the socially constructed genre, these non genre-specific organising categories (or segments) will be perceived (and labelled) differently. Thus, for example, within the socially constructed genre *Research Article*, situation may be labeled *thesis statement*.

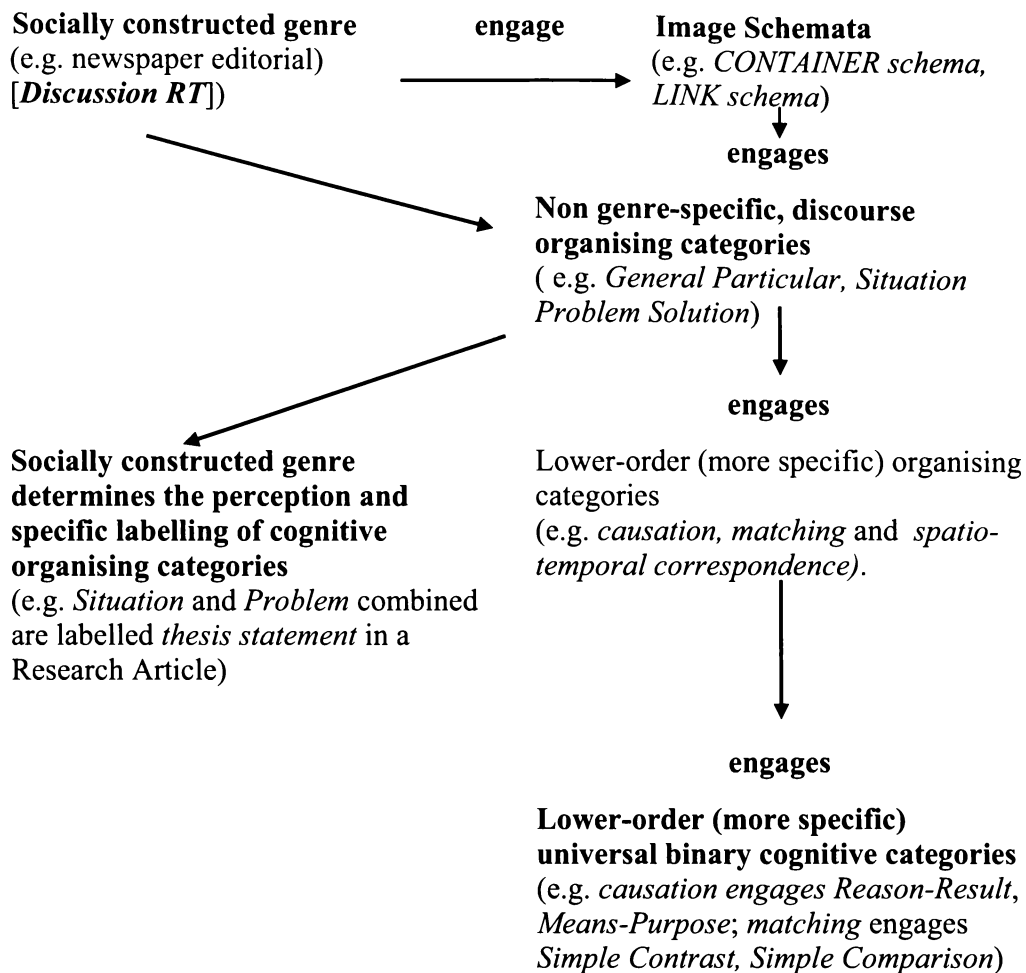


Socially constructed genre determines the perception and specific labelling of cognitive organising categories
(e.g. *Situation* and *Problem* combined are labelled *thesis statement* in a *Research Article*)

The typical patterns of co-occurrence of non genre-specific cognitive organising categories have implications for the selection and combination of *lower-order* (more specific) *cognitive organising categories*

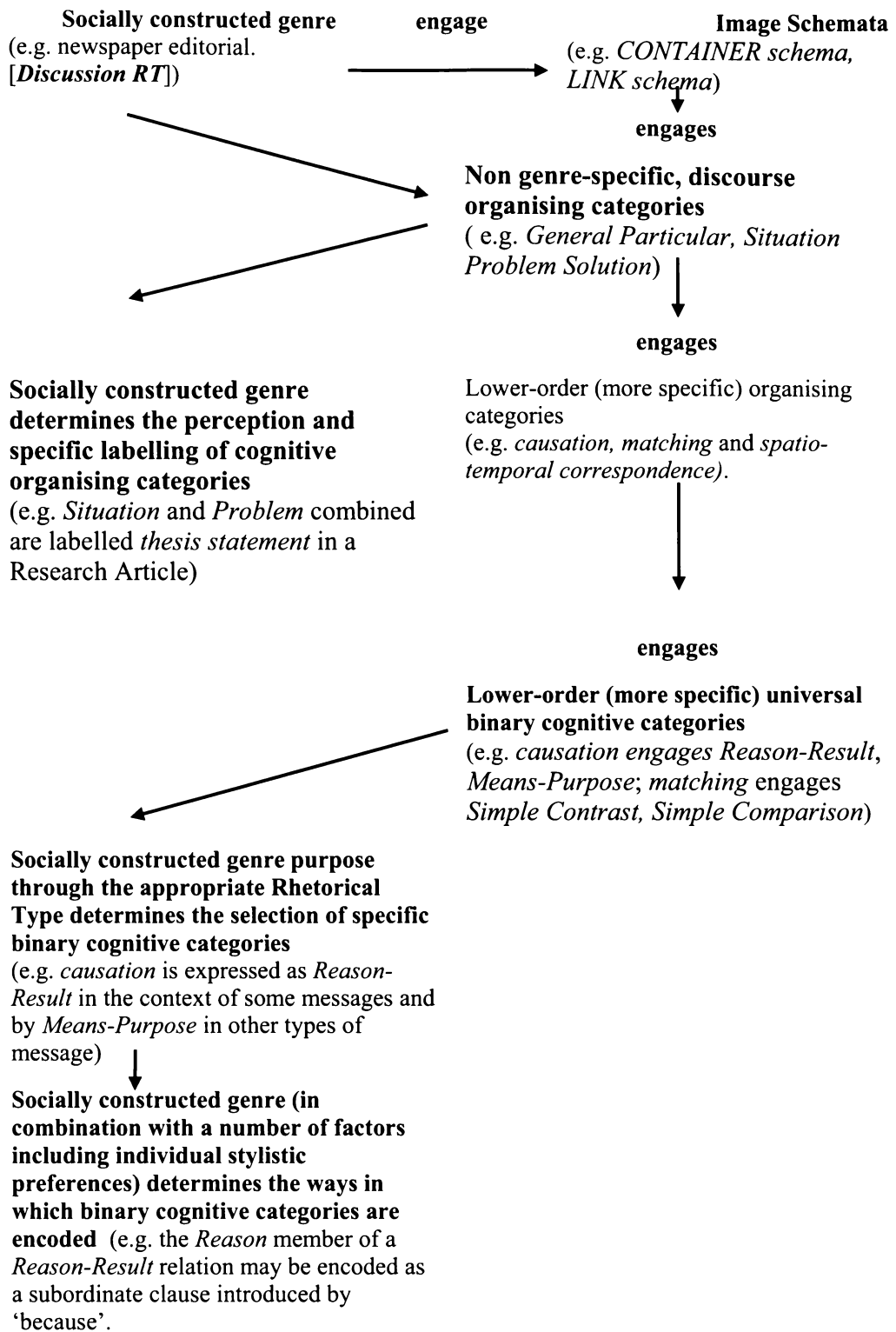


The engagement of these lower-order, (more specific) cognitive organising categories determines, in turn, selection from a specific set of *lower-order universal cognitive categories* (e.g. Reason–Result, Chronological Sequence) which always have two parts in that they involve the relationship of more than one proposition. Because these organising categories are related to propositions, they have a direct effect on linguistic organisation and linguistic selection:



The actual choices of these lower-order binary cognitive categories are determined by the nature of the message to be conveyed which is, to some extent at least determined by the communicative purpose of the socially-constructed genre.

Figure 5.2: *The Rhetorical Type Model: Levels of Categorisation*



Having engaged a specific type of relation (universal binary cognitive category), a speaker/writer will generally have a choice of relational realisation (encoding). For example, in English the Reason member of a Reason-Result relation may be introduced by *because* or *because of*. In the first case, a subordinate clause of reason will be involved, (e.g. *because* he arrived late). In the second, there will be a nominalisation, (e.g. because of his lateness). There are, of course, many other ways of encoding the Reason-Result relation in English (see, for example, Crombie, 1985, pp. 78-80). The specific choice of a realisation type in the case of each relation will be determined, in part, by socially determined expectations which relate to the socially constructed genre engaged and in part by other considerations, such as individual preference for specific types of stylistic variety.

Other linguistic choices (e.g. those that do not relate directly to the encoding of relationships but are, rather, related to the specific nature of the message) will be determined by a combination of factors that include:

- the field of the subject matter, such as technical vocabulary;
- the medium of communication, (e.g. spoken and written language); and,
- attitudinal and evaluative factors, such as the social distance between interlocutors (e.g. as writer and audience in the case of written text).

In some cases, linguistic choices will also be influenced by the socially-constructed genre engaged (and the extent of the individual's control of that genre); in others, they will be influenced by factors, such as group identity and individual choice.

In *Chapter 6*, the findings of a study which examines occurrences of the four Rhetorical Types in a corpus of 20 academic articles will be presented. Following

this, each classificatory level of the Rhetorical Type model will be examined along with a detailed discussion of the kinds of classification employed. Each level of classification will be exemplified in sample texts which realise each of the four Rhetorical Types.

CHAPTER 6:

RHETORICAL TYPES: THE CLASSIFICATORY LEVELS

6.0 Introduction

In *Chapter 5*, the model for the *Rhetorical Type* (RT) construct was presented as a means of identifying the cognitive structuring of knowledge within extended written texts in terms of an hierarchy of classificatory levels. In this chapter, the organisational levels of the RT model will be further considered by examining and describing the type of classificatory system employed at each level and by presenting the findings of a small corpus study relating to occurrences of Rhetorical Types in a corpus of texts from academic journals.

6.1 Rhetorical types in academic texts

A small corpus of 20 academic journal articles, randomly selected from a population of 99, was analysed for occurrences of the four Rhetorical Types (see *Appendix 7* for the method of selection, the population and the corpus sample). The aim of the corpus study was, where possible, to analyse (in terms of the proposed model) one instance of each the four RT from each of the articles of the sample. From 16 articles (of the 20 articles of the corpus), instances all four types were found, and from four articles, three of the four types were found. *Table 6.1*, following, indicates the actual numbers of each RT that were analysed.

Table 6.1: *Corpus Rhetorical Types Analysed*

| Rhetorical Types | Total number analysed from the corpus |
|-------------------------|--|
| Report | 19 |
| Explanation | 16 |
| Discussion | 19 |
| Recount | 17 |

All of the text segments were analysed in order to determine how the three different types of organisational knowledge for each of the four RT were represented and statistical calculations were applied to the results. To indicate how the analyses were conducted, four analysed sample text segments are included here. These were taken from two business management journals (Report RT,¹ Recount RT²), one computer science journal (Explanation RT³) and one applied linguistics textbook (Discussion RT⁴). These sample text segments are not intended to be considered as representative of any one section or part of a socially constructed genre (such as, for example, the abstract of a research article). Rhetorical types are not specific to one type of social genre. Rather, they relate to types of rhetorical purpose involving the representation of certain types of content knowledge within extended discourse. In order to achieve this representation, each RT employs a specific type of procedural knowledge.

¹ Qian, G. (2000). Performance of U. S. FDI in different world regions. *sia Pacific Journal of Management*, 2000,17, 62-83

² Sharma, S. (2000). Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Academy of Management Journal*.43, 4. 681-687

³ Bertin, B., Catania, B. & A Filippone. (2000). An index allocation tool for object-oriented database systems. *Software: Practice and Experience*. 30, 9. 973-1002.

⁴ Cranny-Francis, A. (1996). Technology and/or weapon: The discipline of reading in the secondary English classroom. In R. Hasan, & G. Williams (Eds.), *Literacy in society* (pp. 172-190). Harlow, Essex, England: Addison Wesley Longman Limited.

6.2 The relationship between purpose and discourse

In establishing the four categories of the Rhetorical Type model, the relationship between a writer's rhetorical purpose and the creation of discourse is considered in the context of the relationship between intentionality and meaning. Searle (1979) argues that meaning comes from intentionality, which is itself a property of mental states. Johnson (1987), whilst not endorsing all aspects of Searle's account, states that "meaning always involves human understanding and intentionality. It is never merely an objective relation between symbolic representations and the world" (p. 178). Schank and Abelson (1977), in describing their theory of Artificial Intelligence, also appear to agree with Searle's view that intentionality exerts a formative influence on the creation and structuring of meaning. Creating a *Plan*, they say, means that "given a goal, one must string methods together in an admissible or optimal way to realize the goal" (pp. 72-73). Similarly within cognitive psychology, evidence has been provided for the relationship between intention (rhetorical purpose) and the forming of categories. Thus, Barsalou (1983) suggests that the nature of a category is determined by goals, a view that is supported by the work of Murphy and Medin (1985).

In the *Figure 5.1* (p. 197), the relationship between social genre and Rhetorical Type is outlined. Social genres are socially-recognised whole texts which perform an overall purposive, social function - "a class of communicative events the members of which share the same rhetorical purpose" (Swales, 1990. p. 58; Askehave & Swales, 2001, p. 209). It is proposed that social genres are often realised by using one or more Rhetorical Types, each of which realises one subsuming rhetorical purpose.

The types of knowledge employed in the Rhetorical Type model and how they interrelate are outlined in *Figure 5.2*, p. 206). Engaging a particular Rhetorical Type relates to the engagement of a rhetorical purpose which, in turn, relates to the type of information that is being represented. This activates a *gestalt (image schema)* for the organisation of ideas, the gestalt itself relating directly to a *discourse pattern* (the overall organisation of the representation of the ideas in discourse). The nature of the rhetorical purpose and the information represented also influence the engagement of a set of *semantic relations* which link smaller segments within the discourse. These *semantic relations* affect the types of cohesion that will occur, and, to some extent, the lexico-syntactic choices (which may also be influenced by the engagement of a social genre).

Taking into consideration Biber's (1989) corpus-based text types (occurring in academic prose) and Quinn's (1993) pedagogic text types (see *Table 5.3* p. 199), the types of purpose proposed for each of the four Rhetorical Types are outlined in *Table 6.2* following:

Table 6.2: *Types of Rhetorical Purpose*

| <i>Rhetorical Type</i> | <i>Rhetorical Purpose</i> |
|-------------------------------|---|
| <i>Report</i> | Presentation of information that is essentially non-sequential. |
| <i>Explanation</i> | Presentation of information with a focus on means. |
| <i>Discussion</i> | Focus on the organisation of data in relation to possible outcomes, conclusions or choices. |
| <i>Recount</i> | Presentation of information that is essentially chronological. |

6.3 Rhetorical Types and image schemata: Higher level categorisation of knowledge

The notion of implicit, deterministic organising structures in language is not new. It is, in many ways, similar to Kant's (1781/1998), notion of *transcendental schemata*. These were neither sensory images nor purely abstract concepts, but, rather, a faculty of the imagination which is able, in the process of creating categories, to mediate between abstract concepts and sensory information about concrete objects. Kant put forward the notion of transcendental schemata as a type of general procedural knowledge (although he did not use the term), which can categorise other types of knowledge. However, beyond suggesting that these schemata exist and operate as an organising device, Kant offered no descriptions of what actually constitutes this type of knowledge.

The studies of Rosch (1973, 1975) and Rosch and Mervis (1975) were concerned with categorisation in terms of prototype-effect in perceptual (colour and shape) and (what are termed) semantic categories (i.e. commonly occurring categories of nouns, in this case). In her 1975 study, Rosch identifies a number of significant effects:

- It is the less concrete aspects of a category name which assist subjects in identifying other members of the same category (Experiment 5);
- In matching items to categories, it is not a visual representation of a category prime [usually the name of a category] but, rather, an aspect of the meaning of the representation which is generated by the category name (when used as primes) which facilitates the recognition of physically identical pairs (Experiment 6);

- The representation of a category is not specific to either pictorial or verbal mode, but is some abstract set of inclusion possibilities that can represent the meaning of a category in either mode (Experiment 7). (Rosch, 1975, pp. 213-219)

From Rosch's research, it seems (as Kant suggested), that categorisation is performed at a level which is neither empirical nor abstract, but a level which may be able to operate on both types of knowledge. The process of categorising seems to involve some kind of procedural knowledge (what Kant calls a "third kind of knowledge"). Therefore, whatever constructs are put forward as higher-level organisers of discourse would seem to need to comply with a number of requirements:

- they must be a type of procedural knowledge which acts in an organising way upon several types of knowledge;
- they must be able to act upon both abstract concepts and empirical knowledge;
- they must be productive in terms of being able to impose an organising pattern on knowledge; and
- they must be able to be understood as a simple, general patterning.

In addition, for the purposes of the model being presented here, any schematic patterning must be able to apply to one-party, rhetorical discourse, such as is found in extended writing tasks and is the focus of the present study.

In *Chapter 3*, most of the types of organisational *schemata* which are examined appear to be based on either:

- (a) a series of actions (Scripts and Plans, Schank and Abelson, 1977; Scenarios, Sanford and Garrod, 1981); or
- (b) "stereotypes of concepts" which provide background information (Rumelhart and Ortony, 1977, p. 101).

Instantiations of either type of schema are usually specifically related to a certain situation or topic, such as a restaurant script, shopping or a classroom setting. Activated in respect of their topic or activity area, they are able (in the case of an action-based script), to impose a productive ordering of events for knowers of the schema within that topic area, or (in the case of background information schemata), a set of details about the background or setting of a situation. However, both the action-based or background-information types of schemata, because of their specificity, would appear not to be able to operate as higher-order organising schemata, that is, as schemata which can produce an ordering or patterning *in a variety of knowledge domains*. This close relationship to one knowledge type would appear to limit the capacity of either type of schema to act as organisers of other knowledge types.

In discussing higher-level cognitive patterns in relation to discourse, Van Dijk uses the term *schema* "to denote the overall structural organisation of complex conceptual units, such as situations and episodes". He defines such higher-level schemata as "the most general in the prototypical organisation of knowledge" (1980, p. 233). Significantly, Van Dijk, in considering the requirement that schematic organisers be able to map onto both situational and episodic knowledge, suggests that higher-level schemata that perform an overall organisational role in discourse "may have their origin in perceptual organisation,

along such categories as *horizontal*, *vertical*, *surface*, *bottom*, and *top* (1980, p. 233):

In this perspective we use the notion [of schemata] in a more general way, to denote the overall *structural* organization of complex conceptual units, such as situations and episodes. This structure is defined in terms of *categories* and *rules* or conventions of linear and hierarchical ordering. (Van Dijk, 1980, p. 233).

What Van Dijk seems to suggest is a gestalt-based type of higher-order schema, a type of schema which is different from situation-based or action-based constructs of schemata. Lakoff and Johnson (1980), in examining the role of metaphor in structuring meaning, also confirm Van Dijk's suggestion of a gestalt basis for the schemata which structure and provide overall coherence to meaning: "Structuring our experience in terms of . . . multidimensional gestalts is what makes our experience coherent" (Lakoff and Johnson, 1980, p. 81).

Two similar approaches to the higher-level organisation of meaning are put forward by Bower (1972) and Pearce and Conklin (1979). Both of these approaches point to gestalts as higher-order knowledge organisers. In the hierarchical model for the "coordinated management of meaning" proposed by Pearce and Conklin (1979), the construct of *Archetypes* is proposed as the highest level organiser of meaning.

[Archetypes are] those fundamental local operations or symbolic reasoning procedures which persons use to detect or generate patterns in the sequence of events. These are based on the common physiology that

human beings share and in the common physical properties of the world they live in (Pearce and Conklin, 1979, p. 78)

Also Bower (1972), in discussing his studies of Mental Imagery and Associative learning, suggests:

Whatever the general principles of relational organization may be, they appear to be similar within the imaginal and the verbal systems My speculation is that a base grammar underlies our linguistic and pictorial analysis and generation. In particular, this suggests that Gestalt laws of perceptual organization will be the phrase-parsing rules of the picture grammar (Bower, 1972, p. 85).

Among the range of schematic constructs surveyed in *Chapter 4*, it is the *image-schema* construct of Johnson (1987) that has a gestalt basis. Johnson describes gestalts as "non-propositional structures of imagination" (1987, p. 19). Such gestalts consist of a small number of parts, which are irreducible, such as part-whole or centre-periphery. Lakoff (1987, p. 283) in his *spatialization of form* hypothesis proposes that the kinds of image schema that structure people's experience of space are also used to structure concepts in abstract domains. The image-schema construct appears to meet the requirements of a higher-level knowledge organiser in that it involves an ability to :

- project procedural organisation metaphorically, for example a WHOLE PART schema;
- apply to descriptions of abstractions (such as numerical data) or concrete knowledge;
- impose an organising pattern on knowledge; and

- be understood in simple terms, such as WHOLE PART, UP DOWN, and CENTRE PERIPHERY.

In the model of discourse representation proposed here, the image-schema construct of Johnson (1987) is used as the higher-level categoriser of knowledge. Drawing on Lakoff's (1987, p. 283) spatialization of form hypothesis, five image schemata are proposed as knowledge organisers within the range of Rhetorical Types in the model. The five image-schemata are:

WHOLE PART: the parts of something properly configured can make a whole;

LINK: elements are linked and interdependent to make a whole;

CONTAINER: everything is either inside or outside of a container;

SOURCE PATH GOAL: for accounting for anything which literally or physically progresses;

UP DOWN: progression from big to small, more significant to less significant.

Activated by the types of rhetorical purpose related to the representation (within extended discourse) of certain types of knowledge, the following *image-schemata* may be involved, singly or in combination, as overall RT knowledge organisers.

Table 6.3: *Types of Image Schemata*

| Rhetorical Type | Rhetorical Purpose | Image Schemata |
|------------------------|---|--------------------------|
| <i>Report</i> | Presentation of information that is essentially non-sequential. | WHOLE PART UP DOWN |
| <i>Explanation</i> | Presentation of information with a focus on means. | SOURCE PATH GOAL LINK |
| <i>Discussion</i> | Focus on the organisation of data in relation to possible outcomes, conclusions or choices. | CONTAINER |
| <i>Recount</i> | Presentation of data that is essentially chronological. | SOURCE, PATH, GOAL |

Schemata operate as procedural knowledge. Their role within a text is cognitive and organisational rather than linguistic. They have an over-arching role in the patterning of ideas within a Rhetorical Type, and they are also often recursive. That is, the same schema which is operating at an overall macro-level within a text can often be found at a micro-level within the same text.

In the corpus study that examined Rhetorical Types from 20 academic journal articles, the use of the proposed image schemata was investigated. The findings are presented in *Table 6.4* following.

Table 6.4: *Analysis of the Corpus in Terms of Image Schemata*

| Rhetorical Types | Total number Examined | Image Schema Occurrences | | | | | |
|-------------------------|------------------------------|---------------------------------|------|------------------------------|-----|-------------|------|
| | | WHOLE PART | | UP DOWN | | | |
| Report | 19 | 19 | 100% | 9 | 47% | | |
| Explanation | 16 | SOURCE PATH GOAL | | PATH GOAL⁵ | | LINK | |
| | | 13 | 81% | 3 | 19% | 16 | 100% |
| Discussion | 19 | CONTAINERS | | | | | |
| | | 19 | | 100% | | | |
| Recount | 17 | SOURCE PATH GOAL | | PATH GOAL⁶ | | | |
| | | 11 | 65% | 6 | 35% | | |

^{5,6} . Note that a type of *textual ellipsis* occurs in some cases where the information relating to the first part of a cognitive pattern (e.g. the SOURCE part of the SOURCE PART GOAL schema) has been presented in prior text.

In respect of image schemata, the findings from the corpus study largely support the selection of image schemata of the proposed model. However, two aspects emerged from the corpus texts in relation to the use of image schemata:

- in Report RT, the corpus study showed that in cases where the (non-sequential) content information was quantifiable, this RT also uses an UP DOWN schema to hierarchically organise the data in the PART section, but in cases where the content information was not quantifiable, the UP DOWN schema was not used in the PART section;
- while the fundamental idea underlying the concept of image schemata (and discourse patterns) is that they are irreducible, it does appear that when the idea of the first part of a schema (e.g. SOURCE in SOURCE PATH GOAL) has been already established firmly in the mind of the reader in prior text and its repetition would seem unnecessary, it is omitted, seemingly in the interests of economy of information for cognitive processing.

Each of the four sample texts from the corpus which illustrate each of the four Rhetorical Types is analysed here in terms of its use of image schemata to organise ideas

6.3.1 Report Rhetorical Type: Gestalt structure

Report has the overall rhetorical purpose of the presentation of information that is essentially non-sequential. In some cases, the presentation may involve comparison of data. The following text segment (from *Corpus Item 18*) illustrates Report Rhetorical Type. This text describes the levels of *Foreign Direct*

Investment (FDI) in developing countries, and compares the levels of investment in the developing countries of the Asia Pacific region with other regions which contain developing countries.

The Rhetorical Type model proposes that static or non-sequential data is presented hierarchically and employs WHOLE PART and UP DOWN image schemata in the structuring of information. This is based on Lakoff's (1987, p. 283) spatialization of form hypothesis in which "hierarchical structure is understood in terms of PART-WHOLE schemas and UP-DOWN schemas". In the sample text segment, the two introductory paragraphs present an overview of the situation of FDI in developing countries - the WHOLE element of the image schema. The next three paragraphs describe the PART element of the image schema, involving the description of specific regions and the levels of FDI which they receive. Furthermore, the PART section is organised internally by an UP DOWN schema. This involves describing the largest FDI recipient regions and countries first, followed by other regions and countries in decreasing size, according to the levels of foreign direct investment which they receive. The UP DOWN schema is also recursive. As well as operating as the organiser of the larger topic ideas of the PART section, it also organises data within some of the paragraphs of the PART section, with exemplifying percentages and numbers ranked according to decreasing size.

Table 6.5: Report Rhetorical Type: Image Schemata- An Illustration

| Schemata | | UP DOWN (recur -sion) |
|----------|----------------------|---|
| WHOLE | (UP DOWN) | As noted earlier, increasing outflows to developing countries in recent years are one of the most significant changes in the pattern of FDI. Among the developing country regions, however, FDI inflows are rather unbalanced. Asia and the Pacific have received the bulk of these investments. It is estimated that about 70% of FDI flows to developing economies are in the Asia-Pacific region (The United Nations 1996). |
| | largest group | Huge capital inflows into Asia and the Pacific, especially into East Asia and the Pacific, are closely related to the economic performance in this region (see Table 1). As indicated in Table 1, the average growth rates of both GNP and external trade in the region were the highest among all countries in the world while inflation and external debt remained relatively low during the 1980-93 period. In contrast, other developing country economies (especially Africa and Latin America and the Caribbean) experienced a relatively slow economic growth, and much higher inflation and external debt as well. ³ It is evident that when the previous two periods are further compared (i.e. 1980-93 and 1970-80), the economic performance of East Asia and the Pacific improved substantially while that of Africa and Latin America and the Caribbean deteriorated significantly. |
| PART | second largest group | Within the East Asia—Pacific region, China emerged as the largest recipient of FDI among all developing countries. FDI inflows to China grew, on average, by 30% annually during 1985-90. They leaped by 156% in 1992 and 134% in 1993 (The United Nations 1995). China alone accounted for 47% and 38% of the total flows into the largest ten host developing economies and all developing countries, respectively. ⁴ Because of its large domestic market and extremely low wage rates, China has been regarded as an attractive location for FDI inflows. |
| | largest country | |
| | smaller groups | In contrast, two country groups that have not benefited from the increase of FDI into developing countries continued to be Africa, Latin America and the Caribbean (most are least developed countries or LDCs). Their share of FDI flows into all developing countries has declined significantly; that is, from 12.3% and 34.9% during 1984—89 to 4.7% and 26.6% in 1995, respectively (The United Nations 1996). |
| | smaller countries | There are currently 57 low-income countries (i.e. US\$725 or less of GNP per capita) without the inclusion of several Eastern European (i.e. former communist countries) and central Asian (i.e. former Soviet Union states) countries (The World Bank 1995). Almost 70% of these LDCs are in Africa, especially in West and East Africa. The latest statistics show that these LDCs (mainly African countries) accounted for a very small share of FDI flows into developing countries (only 1.1% in 1995), and witnessed a substantial decline during the last decade. |
| | | In summary, it appears that the LDCs in East Asia and the Pacific (especially China) are faring much better than the LDCs in Africa and Latin America and the Caribbean. Because of existing and potential favorable opportunities in this region, developed countries' firms that invest in these developing economies are more likely to achieve a better risk-return performance than those that invest, say, in the other developing country regions. |
| | | (Qian, 2000, pp.71-73) |

6.3.2 Explanation Rhetorical Type: Gestalt structure

Explanation has the overall rhetorical purpose of the presentation of information with a focus on means. This often involves describing a process which involves cause and effect. The example text segment (from *Corpus Item 16*) for Explanation RT is taken from an article in a computer science journal. This text describes an algorithm developed to address the problem of index configuration in database system performance. The section from which the text is taken is entitled *Calibrating and implementing the proposed tool*.

The model for Explanation Rhetorical Type proposes that presenting data which is focused on the means by which something is achieved employs the schemata: SOURCE PATH GOAL and LINK. The organisational idea of SOURCE PATH GOAL is that anything that progresses has a starting point, a progression and a finishing point. The SOURCE section, at the beginning of the text, describes the aim of the calibration step. Most of remainder of the text describes the PATH, (that is, how calibration was carried out), and the GOAL at the end discusses the data that were obtained from this calibration process. The PATH and GOAL sections are further structured by a LINK schema. The organisational idea of the LINK schema is that elements are linked and interdependent to make a whole: “relational structures are understood in terms of a LINK schema” (Lakoff, 1987, p. 283). A range of interconnected steps within the calibration process are identified throughout the text, demonstrating the ideas of connectedness and interdependence involved in the progression to achieve the calibration process.

The relationships between the two types of schemata is that SOURCE PATH GOAL is the overall ideas organiser. The LINK schema is the micro-level

organiser of the individual related steps within the process. The links largely operate within the PATH part of the SOURCE PATH GOAL schema.

Table 6.6: Explanation Rhetorical Type: Image Schemata – An Illustration

| Schemata | | |
|----------|------|--|
| SOURCE | | The aim of the calibration step is to derive the factors for the generic cost formulas presented in Section 4. In particular, we have estimated only the factors belonging to the first two groups (subscripts o and i), in order to better analyze index performance. |
| PATH | LINK | In order to derive calibration factors for the cost formulas of the generic cost model, when used on a given OODBMS, a synthetic database must be used. Values for calibration factors are then derived from the cost of executing such queries and updates against such databases. |
| | LINK | In order to reduce the impact of physical storage factors , such as pagination and data placement, Gardarin <i>et al.</i> in [24] suggest for calibration a specific synthetic database whose attribute values guarantee uniform distribution criteria. Another important requirement is that the synthetic database and the calibration procedures must guarantee the prediction of the execution strategy that will be used by the optimizer. Under this assumption , the results obtained by executing queries and update operations can be used to determine calibration factors. |
| | LINK | In order to calibrate the formulas of the generic cost model presented in Section 4.1, we have followed this approach and we have used the database presented in [24]. The database is composed by six classes that are interconnected as shown in Figure 7. Each object, an instance of one of these classes, has seven attributes, on which some simple indexes are defined. Objects in each class have an average fan-out equal to 4. Values are assigned to object attributes so that the uniform distribution of attribute values is guaranteed for different kinds of query (equality and range queries) and for different access methods (DFF, simple index, complex indexes). On this database, several queries and maintenance operations have been performed, on direct and nested attributes. We refer the reader to [24] for further details on the synthetic database. |
| | LINK | |
| | LINK | |
| GOAL | LINK | Values for calibrating factors have been derived as follows . First of all , the number of page accesses and the time required to execute queries and maintenance operations have been determined by using a monitoring tool available for the OODBMS at hand. Such tool allows one to tune database operations in terms of page accesses, classified with respect to the ‘type’ of accesses. For example the counter for the system access allows one to establish values for the first group of parameters (see Section 4) and response time. Using this information , we have determined the values for calibrating factors. The obtained values are presented in Table V. (Bertin, Catania and Filippone, 2000, pp. 993-994) |
| | LINK | |
| | LINK | |

6.3.3 Discussion Rhetorical Type: Gestalt structure

Discussion RT has the overall purpose of a focus on the organisation of data in relation to possible outcomes, conclusions or choices. The sample text segment (from *Corpus Item 2*) that is used to illustrate the schematic organisation of Discussion Rhetorical Type involves an examination of pedagogic approaches to the teaching of literature in schools. The writer (Cranny-Francis, 1996) proposes an approach to teaching students to extract meaning from literary texts which involves a focus on a number of textual and contextual features relating both to the target text and the institutional setting in which the reading takes place. The Discussion sample text is taken from the beginning of a section in which Cranny-Francis is describing the basis for the present approach to the teaching of literature in many Australian schools. This includes an account of the approach to literary analysis of F. R. Leavis (albeit from a critical perspective). She then presents arguments against the Leavisite approach to literature, while acknowledging that this approach is still strongly entrenched within the Australian school curriculum.

In Discussion RT, the overall schema that organises the ideas is the CONTAINER schema for the groupings of the arguments that are presented. According to Johnson (1987), the classificatory idea of the CONTAINER schema is that everything is either inside or outside of a container. Opposing arguments or standpoints are mutually exclusive and independent of each other. Therefore, the elements that combine to make one argument (in one container) are excluded from the ideas cluster that constitutes an opposing argument.

Table 6.7: Discussion Rhetorical Type: Image Schemata- An Illustration

Schema

| | |
|-------------------------------|--|
| <p>CONTAINER 1</p> | <p>The reasons for this highly individuated and individualized reading lie in a particular combination of the discourses which operate in the English classroom, most commonly a Leavisite critical methodology combined with a version of child-centred pedagogy</p> <p>For F.R. Leavis the key to literary criticism lay in a finely honed critical sensibility, a quality of mind and character which enabled a highly sensitive reader to understand, seemingly intuitively, what the writer was about in constructing a text. Leavis was totally opposed to theoretical knowledge which he believed would blunt critical sensibility. You might argue that Leavis was presenting the case for a high degree of semiotic awareness, even if unselfconscious, and certainly that is essentially how the successful Leavisite critics functioned. However, Leavis's hostility to theory meant that his methodology was read as a call for acute sensitivity to the story and the moral dilemmas it addressed not to the theoretical construct motivating the story and its sociocultural meanings. Story was fetishised to the exclusion of story-telling, and the only apparent way of appreciating that story was by feeling it intensely in yourself, feeling the characters' lives as though they were your own. If you could not do that, then you could only conclude that you were an insensitive soul who was unfit for the fine works with which you came in contact.</p> |
| <p>CONTAINER 2</p> | <p>Since Leavis's time, many critics have questioned the basis of his work, pointing out that there are barriers of class, gender and ethnicity (among others) against many individuals making the prescribed sensitive readings of the prescribed sensitive texts. (See, for example, Belsey 1980; Eagleton 1983; Widdowson 1982.) Nevertheless, Leavis's ideas dominate commonsense responses to texts, like the mainstream discourses which those responses commonly encode. Since those of us who grew up any time earlier than the 1980s were mostly raised as realist readers, on texts which concealed rather than flaunted their constructedness and intertextuality, it is second nature ('commonsense') for us to feel with the characters, even if the character is unashamedly a piece of rubber, like ET, the main character of Stephen Spielberg's film of that name, whose imminent death was constituted so tragically by the filmmakers that as many adults as children were reduced to tears. That response is still very commonly voiced in the media. So, for example, Brett Easton Ellis's book about a psychopath, <i>American Psycho</i>, was held up as a responsible piece of writing because of the insight it gave us into the mind of a psychopath. In years to come, if not already, it is clear that the book gives us some insight into the collective unconsciousness or consciousness of a society obsessed with violence and of a writer prepared to exploit (and just possibly deconstruct) that, but that what it tells us about psychopaths (whomever that category actually covers) is probably minimal. This Leavisite understanding of the process of reading not only dominates common sense and the media, it is also still one of the dominant discourses in English Literature classrooms. (Cranny-Francis, 1996, pp. 176-177)</p> |

6.3.4 Recount Rhetorical Type: Gestalt structure

Recount has the overall rhetorical purpose of ‘the presentation of data that is essentially chronological’. The Recount sample text segment (from *Corpus Item 19*) is taken from a business management journal article. It describes the procedures carried out in a questionnaire survey of oil companies in Canada. The survey aimed to find the extent to which oil companies complied with environmental standards. Specifically, it sought to find out whether companies met the minimum requirements of environmental protection legislation or went beyond that and voluntarily implemented more extensive environmental protection measures.

The schema that is employed in the Recount Rhetorical Type is the SOURCE PATH GOAL image schema. The schematic idea of SOURCE PATH GOAL is that anything that progresses has a starting point, a progression and a finishing point. A SOURCE PATH GOAL schema is used to show a sense of progression of events.

The SOURCE describes the participants and any other necessary background information for the subsequent action. In this case, it describes the source of the information, the types of company which were surveyed and the basis on which they were selected. The PATH section encompasses the events that take place in the Recount. In this text, it describes the information-gathering process in terms of the steps which were taken by the researcher in their chronological order. The GOAL section describes the categorisation of the responding and non-responding companies in terms of their wealth, leading to an examination of the analysis of the data gathered from the responding companies.

Table 6.8: *Recount Rhetorical Type: Image Schemata – An Illustration*

| Schema | |
|------------------------------|---|
| SOURCE (AND PATH) | <p>I administered a questionnaire survey to the total population of Canadian oil and gas companies with annual sales revenues in excess of \$20 million listed in the Compact Disclosures database. Smaller companies, which were revealed in exploratory research to have neither the resources nor the motivation to go beyond minimum regulatory compliance, were excluded. I contacted companies by phone to obtain the names of potential respondents and to eliminate those ineligible for the study either because they had merged with another company or were merely service or equipment providers. After exclusions, 110 Canadian oil and gas companies were eligible for the survey. These accounted for approximately 80 percent of the total annual sales revenues in the Canadian oil and gas sector.</p> <p>I mailed questionnaires to between three and five persons identified through telephone contact for each company. These included the CEO or a member of the top management team, a staff specialist (usually the environment, health, and safety manager), and a line or operating manager. Confidentiality was assured, and serial numbers on questionnaires were used to match informants in each company. Telephone calls followed up on the mailings. The company response rate was 90 percent; that is, 99 out of 110 companies returned one or more questionnaires, with a total of 181 questionnaires being returned out of 345 sent, for an overall response rate of 53.5 percent. Sixty-four companies (65%) provided multiple respondents, so I could study corporate environmental strategy from different perspectives in the organizations achieving “triangulation” (Mintzberg, 1978). (Sharma, 2000, pp. 681-687)</p> |
| PATH | |
| GOAL | |

6.3.5 Gestalts and higher-level categorisation: A summary

Image-schemata are a small number of gestalts, which are simple, general and can be applied to the organisation of different types of knowledge. The role of image-schemata is that of organisers of ideas, relating to the cognitive rather than linguistic organisation of extended written text. This organisation of ideas by image-schemata is activated by rhetorical purpose in relation to the representation of different types of knowledge, the four fundamental rhetorical purposes in academic prose being reporting, explaining, discussing and recounting. Image-schemata are not mutually exclusive in their operation as higher-level organisers of ideas, but can combine. This is likely to happen in, for example, reports where the WHOLE PART and UP DOWN schemata often operate in combination.

Similarly, in explanations of a process, the SOURCE PATH GOAL and LINK schemata can combine in the structuring of the ideas of a text.

For pedagogical purposes, a focus on image-schemata provides a starting point for the organisation and staging of information to be encoded into extended written discourse. In teaching academic writing skills to non-native speakers of English, schemata can be a useful starting point.

6.4 Rhetorical Types and discourse patterns

This section is concerned with the identification and classification of language in terms of larger sections within written discourse termed *discourse patterns* (Hoey, 1983). In terms of the Rhetorical Type model presented in *Figure 5.2*, p. 202, the gestalts operating as higher-level organisers of knowledge engage discourse patterns which are concerned with the organisation of the larger parts of a unified piece of written discourse. In this section, each of the Rhetorical Types (Report, Explanation, Discussion and Recount) will be examined in terms of the relationship between their knowledge-organising gestalt patterns (discussed in the previous section) and their related discourse patterns.

Hoey (1983), drawing on the work of Winter (1977), identifies a small number of patterns that are commonly employed in the organisation of written discourse: *General–Particular*, *Problem–Solution*, and *Matching Relations*. Although Hoey's discourse patterns relate both to the ideas and the linguistic organisation of written discourse, their conceptual basis largely mirrors that of the *image-schemata* (that Johnson (1987) proposes as the overall organisers of ideas or knowledge) in each RT.

The image schema WHOLE PART has the classificatory idea that “the parts of something which are properly configured can create the whole” (Lakoff, 1987, p. 273). Hoey’s General–Particular discourse pattern largely reflects the same idea in relation to a structure that occurs within discourse, that of:

- a whole being described by a Generalisation and elaborated by Examples; or,
- a whole being described by a Preview elaborated by specific Details.

Hoey’s *Problem–Solution* (sometimes termed *Situation–Response*) discourse pattern is based on the idea of the word Problem being used in a very wide sense. A *Problem* is “[some] aspect of a situation requiring a response” (Hoey, 1983, p. 49). The *Solution* section is some kind of response to the *Problem* section. This may include an answer to a question, a resolution of a complication, or an actual solution to a problem. Combined with the optional elements of *Situation* and *Evaluation*, the discourse pattern (*Situation*)–*Problem–Solution*–(*Evaluation*) relates conceptually to the Image–Schema of SOURCE PATH GOAL, involving the idea of something that has a starting point, involves some kind of complication, progresses and reaches an end point or resolution:

Hoey’s *Matching Relations* discourse pattern relates to discourse that involves a focus on comparison or contrast.

[It] is what happens when two parts of a discourse are compared in respect of their detail. Sometimes they are matched for similarity, in which case we call the resulting relation *Matching Compatibility*, and sometimes for difference, in which case we call the resulting relation *Matching Contrast* (Hoey, 1983, p. 113).

In terms of the image schema construct, Matching Relations occur in texts organised by the Container schema. In a text that involves comparing and

contrasting propositions, the Matching Relations discourse pattern (particularly Matching Contrast) can occur between two larger sections within the text, and both forms often occur recursively at a lower level relating ideas within one section of a text.

It is proposed that the following discourse patterns (see *Table 6.9* following) relate to the four *Rhetorical Types* and their respective image-schemata.

Table 6.9: *Types of Discourse Pattern*

| <i>Rhetorical Type</i> | <i>Rhetorical Purpose</i> | <i>Image Schema</i> | <i>Discourse Pattern</i> |
|-------------------------------|---|------------------------------|---|
| Report | Presentation of information that is essentially non-sequential | WHOLE PART, UP DOWN | <i>General-Particular (Preview-Details)</i> |
| Explanation | Presentation of information with a focus on means | SOURCE PATH GOAL, LINK | <i>General-Particular (Preview-Details)</i> |
| Discussion | Focus on the organisation of data in relation to possible outcomes, conclusions or choices. | CONTAINER | <i>General-Particular (Generalisation- Examples) Matching Relations</i> |
| Recount⁷ | Presentation of data that is essentially chronological. | SOURCE PATH GOAL | <i>Situation-Response</i> |

The corpus findings in respect of discourse patterning are presented in *Table 6.10* following.

⁷ Note that this appears to be one of two types of recount, the one typical of academic writing Biber terms *general narrative exposition*. The other is type of recount are *narratives* that are primarily written to entertain.

Table 6.10: Analysis of the Corpus in Terms of Discourse Patterns

| Rhetorical Types | Total number Examined | Discourse Pattern Occurrences | | | |
|------------------|-----------------------|--|-----|----------------------|-----|
| Report | 19 | Preview Details | | | |
| | | 19 | | 100% | |
| Explanation | 16 | Preview Details | | Details Only | |
| | | 13 | 81% | 3 | 29% |
| Discussion | 19 | Generalisation Examples | | Examples Only | |
| | | 16 | 84% | 3 | 16% |
| Recount | 17 | Situation Response | | | |
| | | There was at least one instance of <i>Situation Response</i> in all 17 Recounts that were examined | | | |

The findings from the corpus study support the discourse patterns of the RT model. However, there appeared again to be a textual ellipsis in a small number of examples of Explanation RT and Discussion RT. This ellipsis operated in relation to the first part of the discourse pattern in some cases (e.g. no *Preview* in a *Preview Details* pattern or no *Generalisation* in a *Generalisation Examples* pattern). In these cases, the idea of the topic or overview of the Rhetorical Type is firmly established in the prior text and its repetition seems unnecessary to the operation of the Rhetorical Type involved.

6.4.1 Report Rhetorical Type: Discourse pattern

As seen in the previous section on the gestalt structuring of knowledge, Report appears typically to use a WHOLE PART schema as its overall knowledge organiser and an UP DOWN schema to order related categories of data in the PART section. When realised as written discourse, this gestalt typically appears to give rise to a General-Particular discourse pattern, and, in relation to Report, it is the Preview-Details variation that appears to be most commonly employed in the discourse structuring Report content:

The Detail member of the relation supplies information about the Preview member that would otherwise typically be placed as postmodification to the appropriate noun or as adjunct to the clause (Hoey, 1983, p. 138).

In the Report example, the *Preview* items in the opening section are the levels of Foreign Direct Investment (FDI) and the regional recipients of FDI. The *Details* section is concerned with outlining specific recipients of FDI and how much is received in specific recipient regions and countries.

Table 6.11: Report Rhetorical Type: Discourse Pattern- An Illustration

| <i>Schemata</i> | | | <i>Discourse pattern</i> |
|-----------------|-----------------------------|---|-----------------------------|
| WHOLE | UP DOWN | <p>As noted earlier, increasing outflows to developing countries in recent years are one of the most significant changes in the pattern of FDI. Among the developing country regions, however, FDI inflows are rather unbalanced. Asia and the Pacific have received the bulk of these investments. It is estimated that about 70% of FDI flows to developing economies are in the Asia-Pacific region (The United Nations 1996).</p> | General (Preview) |
| | largest group | <p>Huge capital inflows into Asia and the Pacific, especially into East Asia and the Pacific, are closely related to the economic performance in this region (see Table 1). As indicated in Table 1, the average growth rates of both GNP and external trade in the region were the highest among all countries in the world while inflation and external debt remained relatively low during the 1980-93 period. In contrast, other developing country economies (especially Africa and Latin America and the Caribbean) experienced a relatively slow economic growth, and much higher inflation and external debt as well. It is evident that when the previous two periods are further compared (i.e. 1980-93 and 1970-80), the economic performance of East Asia and the Pacific improved substantially while that of Africa and Latin America and the Caribbean deteriorated significantly.</p> | |
| PART | second largest group | <p>Within the East Asia—Pacific region, China emerged as the largest recipient of FDI among all developing countries. FDI inflows to China grew, on average, by 30% annually during 1985-90. They leaped by 156% in 1992 and 134% in 1993 (The United Nations 1995). China alone accounted for 47% and 38% of the total flows into the largest ten host developing economies and all developing countries, respectively.⁴ Because of its large domestic market and extremely low wage rates, China has been regarded as an attractive location for FDI inflows.</p> | Particular (Details) |
| | largest country | <p>In contrast, two country groups that have not benefited from the increase of FDI into developing countries continued to be Africa, Latin America and the Caribbean (most are least developed countries or LDCs). Their share of FDI flows into all developing countries has declined significantly; that is, from 12.3% and 34.9% during 1984—89 to 4.7% and 26.6% in 1995, respectively (The United Nations 1996).</p> | |
| | smaller groups | <p>There are currently 57 low-income countries (i.e. US\$725 or less of GNP per capita) without the inclusion of several Eastern European (i.e. former communist countries) and central Asian (i.e. former Soviet Union states) countries (The World Bank 1995). Almost 70% of these LDCs are in Africa, especially in West and East Africa. The latest statistics show that these LDCs (mainly African countries) accounted for a very small share of FDI flows into developing countries (only 1.1% in 1995), and witnessed a substantial decline during the last decade.</p> | |
| | smaller countries | <p>In summary, it appears that the LDCs in East Asia and the Pacific (especially China) are faring much better than the LDCs in Africa and Latin America and the Caribbean. Because of existing and potential favorable opportunities in this region, developed countries' firms that invest in these developing economies are more likely to achieve a better risk-return performance than those that invest, say, in the other developing country regions.</p> | |

(Qian, 2000, pp. 71-73)

6.4.2 Explanation Rhetorical Type: Discourse pattern

The image-schemata that are used in organising knowledge in this Rhetorical Type appear typically to be SOURCE PATH GOAL schema for the overall structuring of ideas and the LINK schema to show the inter-connection and inter-dependence of the stages of a process. The classificatory idea of the LINK schema is that, in the knowledge represented, elements are linked to and dependent on each other.

Explanation, like report, involves the representation of knowledge, but unlike Report it is knowledge relating to an incremental, stage by stage process rather than to non-sequential data. However, the discourse pattern which relates to this Rhetorical Type appears typically also to be the *Preview-Details* version of the discourse pattern General-Particular. In the *Preview* section, the purpose of the process is described as being to “derive the factors for the generic cost formulas”. The *Details* section then outlines the prerequisites for the calibration step, followed by the actual process, as it was carried out.

Table 6.12: Explanation Rhetorical Type: Discourse Pattern- An Illustration

Schemata

Discourse pattern

| | | | |
|--------|--------------------------------------|---|----------------------|
| SOURCE | | The aim of the calibration step is to derive the factors for the generic cost formulas presented in Section 4. In particular, we have estimated only the factors belonging to the first two groups (subscripts o and i), in order to better analyze index performance. | General (Preview) |
| PATH | LINK LINK LINK LINK LINK | <p>In order to derive calibration factors for the cost formulas of the generic cost model, when used on a given OODBMS, a synthetic database must be used. Values for calibration factors are then derived from the cost of executing such queries and updates against such database.</p> <p>In order to reduce the impact of physical storage factors, such as pagination and data placement, Gardarin <i>et al.</i> in [24] suggest for calibration a specific synthetic database whose attribute values guarantee uniform distribution criteria. Another important requirement is that the synthetic database and the calibration procedures must guarantee the prediction of the execution strategy that will be used by the optimizer. Under this assumption, the results obtained by executing queries and update operations can be used to determine calibration factors.</p> <p>In order to calibrate the formulas of the generic cost model presented in Section 4.1, we have followed this approach and we have used the database presented in [24]. The database is composed by six classes that are interconnected as shown in Figure 7. Each object, an instance of one of these classes, has seven attributes, on which some simple indexes are defined. Objects in each class have an average fan-out equal to 4. Values are assigned to object attributes so that the uniform distribution of attribute values is guaranteed for different kinds of query (equality and range queries) and for different access methods (DFF, simple index, complex indexes). On this database, several queries and maintenance operations have been performed, on direct and nested attributes. We refer the reader to [24] for further details on the synthetic database.</p> | Particular (Details) |
| GOAL | LINK LINK LINK | <p>Values for calibrating factors have been derived as follows. First of all, the number of page accesses and the time required to execute queries and maintenance operations have been determined by using a monitoring tool available for the OODBMS at hand. Such a tool allows one to tune database operations in terms of page accesses, classified with respect to the 'type' of accesses. For example the counter for the system access allows one to establish values for the first group of parameters (see Section 4) and response time. Using this information, we have determined the values for calibrating factors. The obtained values are presented in Table V.</p> <p>Bertin, Catania and Filippone, 2000, p. 993-994)</p> | |

6.4.3 Discussion Rhetorical Type: Discourse pattern

The schematic idea which is related to ideas organisation within this Rhetorical Type appears typically to be the CONTAINER schema, which has the classificatory idea that everything is either inside or outside of a container. In the Discussion example which follows, this involves contrasting approaches to the teaching of literature in Australian schools.

The discourse pattern that appears typically to relate to this schema is *Matching Relations*. This discourse pattern occurs when two parts of a discourse are compared in respect of their details. They can be matched for similarity (*Matching Compatibility*) or difference (*Matching Contrast*). Hoey suggests that *Matching Relations* alone can be used to structure small discourses, but that in larger discourses one of the other discourse patterns: either *General Particular* or *Problem-Solution* provides the overall rhetorical organisation, within which the *Matching Relations* prototype may operate.

In the sample text for Discussion, it is the *Generalisation-Example* form of the General-Particular discourse pattern that is used as the overall organising discourse pattern. The issue introduced in the *Generalisation* section (the arguments that relate to a Leavisite critical methodology and a child-centred pedagogy in school literature classes) is developed in the Examples section in terms of a *Matching Contrast*, firstly with the outline of the Leavis approach to the interpretation to literature and then the beginning of detailed objections to this approach.

Table 6.13: Discussion Rhetorical Type: Discourse Pattern- An Illustration

| <i>Discourse pattern (General Particular)</i> | | <i>Discourse pattern (Matching Relations)</i> |
|---|--|--|
| Generalisation | <p>The reasons for this highly individuated and individualized reading lie in a particular combination of the discourses which operate in the English classroom, most commonly a Leavisite critical methodology combined with a version of child-centred pedagogy</p> | |
| Example | <p>For F.R. Leavis the key to literary criticism lay in a finely honed critical sensibility, a quality of mind and character which enabled a highly sensitive reader to understand, seemingly intuitively, what the writer was about in constructing a text. Leavis was totally opposed to theoretical knowledge which he believed would blunt critical sensibility. You might argue that Leavis was presenting the case for a high degree of semiotic awareness, even if unselfconscious, and certainly that is essentially how the successful Leavisite critics functioned. However, Leavis's hostility to theory meant that his methodology was read as a call for acute sensitivity to the story and the moral dilemmas it addressed not to the theoretical construct motivating the story and its sociocultural meanings. Story was fetishised to the exclusion of story-telling, and the only apparent way of appreciating that story was by feeling it intensely in yourself feeling the characters' lives as though they were your own. If you could not do that, then you could only conclude that you were an insensitive soul who was unfit for the fine works with which you came in contact.</p> | <p>Matching Contrast</p> |
| Example | <p>Since Leavis's time, many critics have questioned the basis of his work, pointing out that there are barriers of class, gender and ethnicity (among others) against many individuals making the prescribed sensitive readings of the prescribed sensitive texts. (See, for example, Belsey 1980; Eagleton 1983; Widdowson 1982.) Nevertheless, Leavis's ideas dominate commonsense responses to texts, like the mainstream discourses which those responses commonly encode. Since those of us who grew up any time earlier than the 1980s were mostly raised as realist readers, on texts which concealed rather than flaunted their constructedness and intertextuality, it is second nature ('commonsense') for us to feel with the characters, even if the character is unashamedly a piece of rubber, like ET, the main character of Stephen Spielberg's film of that name, whose imminent death was constituted so tragically by the filmmakers that as many adults as children were reduced to tears. That response is still very commonly voiced in the media. So, for example, Brett Easton Ellis's book about a psychopath, <i>American Psycho</i>, was held up as a responsible piece of writing because of the insight it gave us into the mind of a psychopath. In years to come, if not already, it is clear that the book gives us some insight into the collective unconsciousness or consciousness of a society obsessed with violence and of a writer prepared to exploit (and just possibly deconstruct) that, but that what it tells us about psychopaths (whomever that category actually covers) is probably minimal. This Leavisite understanding of the process of reading not only dominates common sense and the media, it is also still one of the dominant discourses in English Literature classrooms. (Cranny-Francis, 1996, p.176-177)</p> | <p>Matching Contrast</p> <p>Matching Contrast</p> |
| | | <p>Matching Contrast</p> <p>Matching Contrast</p> <p>Matching Compatibility</p> |

6.4.4 Recount Rhetorical Type: Discourse pattern

In Recount, it is proposed that the knowledge-organising gestalt pattern is typically the SOURCE PATH GOAL image schema. This structure of ideas accounts for anything which has a starting point, a progression and a finishing point or point of resolution.

In describing the larger overall patterns of the written text, the discourse pattern that is employed in this Rhetorical Type is typically *Problem-Solution*, a *Problem* being “some aspect of a situation requiring a response” (Hoey, 1983, p. 49). With the optional element Evaluation, the discourse pattern *Problem-Solution-Evaluation* relates to the concept of the image schema of SOURCE PATH GOAL, which has the idea of something which has a starting point, progresses and reaches an end point or resolution.

In the sample text segment, the *Problem* section describes the narrowing down of and identification of the actual sample from which the writer needed to gather his data. The *Solution* section describes the steps which the writer took to gather the data required for his research.

Table 6.14: *Recount Rhetorical Type: Discourse Pattern- An Illustration*

| Schema | Discourse pattern | |
|----------------------|--|--|
| SOURCE (AND PATH) | <p><i>Problem (aspect of a situation requiring a response)</i></p> <p><i>Solution (response)</i></p> | <p>I administered a questionnaire survey to the total population of Canadian oil and gas companies with annual sales revenues in excess of \$20 million listed in the Compact Disclosures database. Smaller companies, which were revealed in exploratory research to have neither the resources nor the motivation to go beyond minimum regulatory compliance, were excluded. I contacted companies by phone to obtain the names of potential respondents and to eliminate those ineligible for the study either because they had merged with another company or were merely service or equipment providers. After exclusions, 110 Canadian oil and gas companies were eligible for the survey. These accounted for approximately 80 percent of the total annual sales revenues in the Canadian oil and gas sector.</p> |
| PATH | | <p>I mailed questionnaires to between three and five persons identified through telephone contact for each company. These included the CEO or a member of the top management team, a staff specialist (usually the environment, health, and safety manager), and a line or operating manager. Confidentiality was assured, and serial numbers on questionnaires were used to match informants in each company. Telephone calls followed up on the mailings. The company response rate was 90 percent; that is, 99 out of 110 companies returned one or more questionnaires, with a total of 181 questionnaires being returned out of 345 sent, for an overall response rate of 53.5 percent. Sixty-four companies (65%) provided multiple respondents, so I could study corporate environmental strategy from different perspectives in the organizations achieving “triangulation” (Mintzberg, 1978).</p> |
| GOAL | | |

6.4.5 Discourse patterns: Summary

Hoey's discourse pattern construct was developed essentially as a tool for analysing written texts. What it appears to reveal, however, is the operation of higher-level organisers which need to:

- be able to act upon both abstract concepts and empirical knowledge;
- be productive (in terms of being able to impose an organising pattern on knowledge); and,
- be able to be understood as a simple general patterning.

Extended written discourse involves planning and organisation, which Kaplan calls 'composed' (Kaplan, 1987, p. 15). It is, therefore, suggested that conscious knowledge of higher-level organisers can be used in the composition process. Knowledge of gestalt patterns and discourse patterns may, therefore, help students to plan a composition or the section of a composition that relates to a certain Rhetorical Type.

6.5 Rhetorical Types and semantic relations

At the level of semantic relations between smaller sections of written text, *inter-propositional, relational analysis* is employed to describe this type of structuring (Beekman and Callow, 1974; Crombie, 1985; Winter, 1977). According to Crombie, a proposition involves at least one (intra-propositional) semantic relation, for example, agent-action. Propositions can be encoded within a phrase (involving nominalization), clause, sentence or larger piece of discourse (see the examples below):

1. *Her intervention* (proposition as a nominalisation) caused his defeat.
2. *She intervened* (proposition as a clause) which resulted in his defeat.
3. *She intervened in the dispute.* (proposition as a sentence) He was defeated.

(summarized from Crombie, 1985, p. viii)

Coherence can be both intra-propositional (case relations – Anderson, 1971; Fillmore, 1975) or inter-propositional (semantico-pragmatic relations). Crombie (1985) posits an extensive taxonomy of inter-propositional relations as a means of describing such relations within discourse. According to her approach, these relations account for inter-propositional coherence: “[accounting] for the relations that hold between one proposition (or group of propositions) and another” (Crombie, 1985, p. i). Crombie’s taxonomy of inter-propositional relations is based on a framework of binary values e.g. *Condition-Consequence* or *Reason-Result*. She proposes that such binary values, taken together, can operate as functions or unitary values. For example, one of the binary, inter-propositional relations from Crombie’s taxonomy is *Condition–Consequence* which can be used to perform the function of warning or threatening (see the example below):

4. If you do that again, I will call the police.

condition *consequence*

Crombie’s general semantic relations are listed in *Table 6.15* following and explained in more detail and with examples in *Appendix 8*.

Table 6.15: *Crombie’s (1985, 1987) General Semantic Relations*

| Cognitive processes and inter-propositional relations | | | |
|--|--|--|---|
| Cognitive processes | Associative (comparison/contrast) | Logico-deductive (cause and effect) | Temporo-contigual (time and space) |
| Inter-propositional relations | Simple contrast; Comparative similarity (Simple comparison); Statement – affirmation; Statement-exception; Statement-denial; Denial – correction; Concession- contraexpectation; Supplementary alternation; Contrastive alternation; Paraphrase; Amplification | Condition-consequence; Means-purpose; Reason-result; Means-result; Grounds-conclusion. | Chronological sequence; Temporal overlap; Bonding. |

(Summarised from Crombie, 1985, pp. 19 – 28, 1987, p. 102)

In proposing a provisional range of inter-propositional, semantic relations for the RT model, a list of the possible relations that will occur most commonly within most realisations of each of the four RT are included (see *Table 6.16* following). While these were considered to be prototypical of the RT, it was assumed that other relations will, of course, also occur.

Table 6.16: Proposal for Semantic Relations in Rhetorical Types

| <i>Rhetorical Type</i> | <i>Rhetorical Purpose</i> | <i>Image Schema</i> | <i>Discourse Pattern</i> | <i>Semantic Relations</i> |
|-------------------------------|---|-----------------------------|---|---|
| <i>Report</i> | Presentation of information that is essentially non-sequential | WHOLE PART UP DOWN | <i>General-Particular</i> (<i>Preview-Details</i>) | Associative relations |
| <i>Explanation</i> | Presentation of information with a focus on means | SOURCE PATH GOAL LINK | <i>General-Particular</i> (<i>Preview-Details</i>) | Logico-deductive relations, (particularly Means – Result, Means Purpose) |
| <i>Discussion</i> | Focus on the organisation of data in relation to possible outcomes, conclusions or choices. | CONTAINER | <i>General-Particular</i> (<i>Generalisation-Examples</i>), <i>Matching Relations</i> | Logico-deductive relations (particularly. Reason–Result, Means–Result); |
| <i>Recount</i> | Presentation of data that is essentially chronological. | SOURCE, PATH, GOAL | <i>Problem-Solution</i> | Temporal (esp. Chronological-Sequencing); Cause-effect (esp. Reason–Result) |

As anticipated, a semantic relational analysis of the corpus sample of texts showed a considerable variety in the types of semantic relations employed in each of the four Rhetorical Types. **Table 6.17** following provides an overall summary of the occurrence of relations in the corpus.

Table 6.17: Occurrences of Semantic Relations in the Corpus Texts

| REPORT | | | | EXPLANATION | | | | DISCUSSION | | | | RECOUNT | | | |
|-------------------------------|-----|------------------------------|----------------------------|-------------------------------|-----|------------------|---------------|-------------------------------|-----|------------------|---------------|-------------------------------|-----|------------------|---------------|
| Associative | No | % of Assoc rels ⁸ | % of all rels ⁹ | Associative | No | % of Assoc rels | % of all rels | Associative | No | % of Assoc rels | % of all rels | Associative | No | % of Assoc rels | % of all rels |
| Simple Contrast | 26 | 16 | 4 | Simple Contrast | 5 | 5 | 1 | Simple Contrast | 18 | 10.5 | 3 | Simple Contrast | 15 | 13.5 | 3 |
| Comparative similarity | 14 | 9 | 3 | Comparative similarity | 7 | 7.5 | 1 | Comparative similarity | 6 | 3.5 | 1 | Comparative similarity | 7 | 6 | 1 |
| Statement-Affirmation | 0 | 0 | 0 | Statement-Affirmation | 0 | 0 | 0 | Statement-Affirmation | 0 | 0 | 0 | Statement-Affirmation | 0 | 0 | 0 |
| Statement-Exception | 3 | 2 | 0.5 | Statement-Exception | 1 | 1 | | Statement-Exception | 0 | 0 | 0 | Statement-Exception | 2 | 2 | |
| Statement-Exemplification | 14 | 9 | 2 | Statement-Exemplification | 9 | 10 | 2 | Statement-Exemplification | 23 | 13 | 4 | Statement-Exemplification | 10 | 9 | 2 |
| Denial-Correction | 9 | 6 | 1 | Denial-Correction | 5 | 5 | 1 | Denial-Correction | 9 | 5 | 1 | Denial-Correction | 1 | 1 | |
| Concession-Contrarexpectation | 26 | 16 | 4 | Concession-Contrarexpectation | 25 | 27 | 5 | Concession-Contrarexpectation | 67 | 39 | 11 | Concession-Contrarexpectation | 23 | 21 | 4 |
| Supplementary Alternation | 12 | 7.5 | 2 | Supplementary Alternation | 6 | 6.5 | 1 | Supplementary Alternation | 15 | 9 | 2 | Supplementary Alternation | 8 | 7 | 1.5 |
| Contrastive Alternation | 2 | 1 | | Contrastive Alternation | 0 | 0 | | Contrastive Alternation | 6 | 3.5 | 1 | Contrastive Alternation | 2 | 2 | |
| Paraphrase | 5 | 3 | 1 | Paraphrase | 1 | 1 | | Paraphrase | 0 | 0 | 0 | Paraphrase | 0 | 0 | |
| Amplification | 48 | 30 | 8 | Amplification | 34 | 36.5 | 7 | Amplification | 27 | 16 | 4 | Amplification | 43 | 39 | 8 |
| TOTAL | 159 | | | TOTAL | 93 | | | TOTAL | 171 | | | TOTAL | 111 | | |
| Logico-deductive | No | % of Logic. rels | % of all rels | Logico-deductive | No | % of Logic. rels | % of all rels | Logico-deductive | No | % of Logic. rels | % of all rels | Logico-deductive | No | % of Logic. rels | % of all rels |
| Condition-Consequence | 25 | 27 | 4 | Condition-Consequence | 18 | 19 | 4 | Condition-Consequence | 30 | 18 | 5 | Condition-Consequence | 14 | 14 | 3 |
| Means-Purpose | 13 | 14 | 2 | Means-Purpose | 30 | 32 | 6 | Means-Purpose | 15 | 9 | 2 | Means-Purpose | 30 | 30 | 6 |
| Means-Result | 10 | 11 | 2 | Means-Result | 28 | 30 | 6 | Means-Result | 27 | 16 | 4 | Means-Result | 18 | 18 | 3 |
| Reason-Result | 19 | 21 | 3 | Reason-Result | 14 | 15 | 3 | Reason-Result | 54 | 33 | 9 | Reason-Result | 24 | 24 | 5 |
| Grounds-Conclusion | 25 | 27 | 4 | Grounds-Conclusion | 4 | 4 | 1 | Grounds-Conclusion | 39 | 24 | 6 | Grounds-Conclusion | 13 | 13 | 2.5 |
| TOTAL | 92 | | | TOTAL | 94 | | | TOTAL | 165 | | | TOTAL | 99 | | |
| Temporo-contigual | No | % of Temp. rels | % of all rels | Temporo-contigual | No | % of Temp. rels | % of all rels | Temporo-contigual | No | % of Temp. rels | % of all rels | Temporo-contigual | No | % of Temp. rels | % of all rels |
| Chronological Sequence | 7 | 2 | 1 | Chronological Sequence | 9 | 3 | 2 | Chronological Sequence | 11 | 4 | 2 | Chronological Sequence | 39 | 12.5 | 7 |
| Temporal Overlap | 3 | 1 | 0.5 | Temporal Overlap | 4 | 1 | 1 | Temporal Overlap | 7 | 2 | 1 | Temporal Overlap | 2 | 1 | |
| Bonding | 349 | 97 | 57 | Bonding | 282 | 96 | 58.5 | Bonding | 272 | 94 | 43 | Bonding | 271 | 87 | 52 |
| TOTAL | 359 | | | TOTAL | 295 | | | TOTAL | 290 | | | TOTAL | 312 | | |

⁸ In this column, the occurrence of each relation (e.g. Simple Contrast) as a percentage of all semantic relations within that cognitive process (e.g. Associative) is provided.

⁹ In this column, the occurrence of each relation as a percentage of all relations of all types is provided.

When the effect of Bonding is removed, the proportion of cognitive processes for each relation is as follows:

Table 6.18: *Occurrences of Cognitive Processes in the Corpus Texts*

| | Report | Explanation | Discussion | Report |
|------------------|---------------|--------------------|-------------------|---------------|
| Associative | 61% | 46.5% | 48% | 44% |
| Logico-deductive | 35% | 47% | 47% | 39% |
| Temporal | 4% | 2% | 5% | 16% |

Report RT is distinguishable from the other in terms of its higher proportion of associative relations; Recount RT in terms of its higher proportion of temporal relations. Explanation RT and Discussion RT are very similar in terms of the cognitive processes involved, but differ considerably in terms of the actual semantic relations employed. Discussion RT involves a higher proportion of Reason – Result and Grounds – Conclusion, while Explanation RT makes more use of Means – Purpose and Means Result.

The semantic relational component of the model has been altered to reflect the findings of the corpus analysis. The modified model can be seen in **Table 6.19** following.

Table 6.19: *The Rhetorical Type Model Incorporating the Corpus Findings*

| Rhetorical Type | Rhetorical Purpose | Image Schema | Discourse Pattern | Cognitive Processes (calculations include Bonding [Coupling]) | Semantic relations ¹⁰ (Bonding [Coupling] removed): only relations with 10% or more included |
|------------------------|---|------------------------|---|---|--|
| Report | Presentation of information that is essentially non-sequential | WHOLE PART, UP DOWN | <i>General-Particular (Preview-Details)</i> | Temporo-contigual (59%) Associative (26%) Logico-deductive (15%) | Amplification (approx. 18%); Reason-Result & Grounds-Conclusion combined (approx. 17%); Simple Contrast & Comparative Similarity combined (approx. 15%); Concession-Contraexpectation (approx. 10%); Condition-Consequence (approx. 10%) |
| Explanation | Presentation of information with a focus on means by which something is achieved | SOURCE PATH GOAL, LINK | <i>General-Particular (Preview-Details)</i> | Temporo-contigual (60%); Associative and Logico-deductive (20% each) | Means-Purpose & Means-Result combined (approx. 29%); Amplification (approx. 17%); Concession-Contraexpectation (approx. 12.5%) |
| Discussion | Focus on the organisation of data in relation to possible outcomes, conclusions or choices. | CONTAINER | <i>General-Particular (Generalisation-Examples), Matching Relations</i> | Temporo-contigual (46%); Associative (27%); Logico-Deductive (26%) | Grounds-Conclusion & Reason-Result combined (26%); Means-Purpose & Means-Result combined (approx. 22%); Concession-Contraexpectation (approx. 19%) |
| Recount | Presentation of data that is essentially chronological. | SOURCE, PATH GOAL | <i>Problem-Solution</i> | Temporo-Contigual (60%); Associative & Logico-Deductive (20% each) | Means-Purpose & Means-Result combined (approx. 19%); Amplification (approx. 17%); Chronological Sequence (approx. 15.5%); Grounds-Conclusion & Reason-Result combined (approx. 14.5%) |

In the corpus findings, Bonding accounted for about half of all of the semantic relations in each of the four Rhetorical Types. Because of this and because

¹⁰ Because of the high occurrence of Bonding in all RTs, and because of the fact that there is a roughly equivalent percentage of this relation in all cases, the percentage calculations for the other relations was done after the effect of this relation was removed. In other words, the percentage occurrence of each relation recorded here is a percentage for the total occurrences of all relations other than Bonding.

Bonding is the baseline (unmarked) relation, it was decided to remove Bonding from the model in terms of assignment of an identifying role in relation to any one Rhetorical Type. Also, it was decided to group some of the relations together (e.g. Reason-Result & Grounds-Conclusion) where they perform a similar type of function. In analysing the respondent texts in Experiment 1 (reported in *Chapter 7*), combined categories are treated as a whole. Thus, for example, two instances of Reason-Result would be taken as representing two instances of the combined Reason-Result and Grounds-Conclusion category.

6.5.1 Report Rhetorical Type: Semantic relations

In Report Rhetorical Type, the overall discourse pattern employed is Preview Details. In the sample text segment, the previewed items are ‘outflows to developing countries’ and ‘patterns of FDI’ (Foreign Direct Investment). Hoey, (1983, p. 138) says that in this type of discourse pattern “the Detail member of the relation supplies information about the Preview member that would otherwise typically be placed as post modification to the appropriate noun or as adjunct to the clause”.

In the Details part of the example Report, one item of information from the Preview is developed as the topic of each paragraph to which is added further detailed information, usually in a post modifying position.

The text segment is typical of those in the corpus representing the Report RT to the extent that it includes examples of Amplification, Reason-Result, Simple Contrast and Concession-Contraexpectation. It does not, however, include

Condition–Consequence and both Amplification and Simple Contrast are more frequent in percentage terms than is the norm.

Table 6.20a: Report Rhetorical Type: Semantic Relations

| Schema | Discourse pattern | Text segment | Semantic relations | | |
|----------------------------------|-------------------|---|--|----------------------------------|--|
| | | | Amplification | Logico-deductive | Temporo-contigual |
| PART WHOLE (& UP- DOWN) | Preview | As noted earlier, increasing outflows to developing countries in recent years are one of the most significant changes in the pattern of FDI. Among the developing country regions, however , FDI inflows are rather unbalanced. Asia and the Pacific have received the bulk of these investments. It is estimated that about 70% of FDI flows to developing economies are in the Asia-Pacific region (The United Nations 1996). | Amplification (Term specification) | Concession- Contraexpectation | |
| | Details | Huge capital inflows into Asia and the Pacific, especially into East Asia and the Pacific, are closely related to the economic performance in this region (see Table 1). As indicated in Table 1, the average growth rates of both GNP and external trade in the region were the highest among all countries in the world while inflation and external debt remained relatively low during the 1980-93 period. In contrast , other developing country economies (especially Africa and Latin America and the Caribbean) experienced a relatively slow economic growth, and much higher inflation and external debt as well . It is evident that when the previous two periods are further compared (i.e. 1980-93 and 1970-80), the economic performance of East Asia and the Pacific improved substantially while that of Africa and Latin America and the Caribbean deteriorated significantly. | | Simple Contrast | Bonding (Rhetorical Coupling) |
| PART | | Within the East Asia-Pacific region, China emerged as the largest recipient of FDI among all developing countries. FDI inflows to China grew, on average, by 30% annually during 1985-90. They leaped by 156% in 1992 and 134% in 1993 (The United Nations 1995). China alone accounted for 47% and 38% of the total flows into the largest ten host developing economies and all developing countries, respectively. Because of its large domestic market and extremely low wage rates, China has been regarded as an attractive location for FDI inflows. | Amplification (Term specification) | Simple Contrast | Bonding (Rhetorical Coupling) Bonding (Rhetorical Coupling) |
| | | In contrast, two country groups that have not benefited from the increase of FDI into developing countries continued to be Africa, Latin America and the Caribbean (most are least developed countries or LDCs). Their share of FDI flows into all developing countries has declined significantly ; that is, from 12.3% and 34.9% during 1984-89 to 4.7% and 26.6% in 1995, respectively (The United Nations 1996). | Amplification (Predicate specification) | Reason-Result | Bonding (Coupling) |

Table 6.20b: Report Rhetorical Type: Semantic Relations (continued)

| Schema | Discourse pattern | Text segment | Semantic relations | | |
|------------|-------------------|--|--|------------------|---|
| | | | Amplification | Logico-deductive | Tempero-contigual |
| PART (ctd) | Details (ctd) | <p>There are currently 57 low-income countries (i.e. US\$725 or less of GNP per capita) without the inclusion of several Eastern European (i.e. former communist countries) and central Asian (i.e. former Soviet Union states) countries (The World Bank 1995). Almost 70% of these LDCs are in Africa, especially in West and East Africa. The latest statistics show that these LDCs (mainly African countries) accounted for a very small share of FDI flows into developing countries (only 1.1% in 1995), and witnessed a substantial decline during the last decade.</p> <p>In summary, it appears that the LDCs in East Asia and the Pacific (especially China) are faring much better than the LDCs in Africa and Latin America and the Caribbean. Because of existing and potential favorable opportunities in this region, developed countries' firms that invest in these developing economies are more likely to achieve a better risk-return performance than those that invest, say, in the other developing country regions.</p> | <p>Amplification (Term Specification)</p> <p>Concession</p> <p>Contraexpectation</p> | | <p>Bonding (Rhetorical Coupling)</p> <p>Bonding (Rhetorical Coupling)</p> |
| | | | <p>Simple Contrast</p> <p>Simple Contrast</p> | Reason Result | |

6.5.2 Explanation Rhetorical Type: Semantic relations

Explanation RT, like Report RT, also involves a Preview–Details discourse pattern. The previewed items are the aims of the calibration step which are “to derive the factors for the generic cost formulas”. The body of the text is concerned with the means by which the aim is achieved. The types of interpropositional relations which most frequently occur within this Rhetorical Type are a combination of *Means - Purpose* and *Means - Result*.

In this text segment, Means-Purpose and Means-Result occur more frequently in percentage terms than is the norm and there are no instances of Concession-Contraexpectation.

Table 6.21: Explanation Rhetorical Type: Semantic Relations

| Schema | Discourse pattern | Text segment | Semantic relations | | |
|--------|-------------------|---|---|---|-------------------------------|
| | | | Amplification | Logico-deductive | Tempero-contigial |
| Source | Preview | The aim of the calibration step is to derive the factors for the generic cost formulas presented in Section 4. In particular , we have estimated only the factors belonging to the first two groups (subscripts o and i), in order to better analyze index performance. | | Purpose - Means | Bonding (Rhetorical Coupling) |
| | Details | | | Means - Purpose | |
| Path | Details | In order to derive calibration factors for the cost formulas of the generic cost model, when used on a given OODBMS, a synthetic database must be used. Values for calibration factors are then derived from the cost of executing such queries and updates against such database. | | Purpose- Means | Chronological Sequence |
| | | In order to reduce the impact of physical storage factors, such as pagination and data placement. Gardarin <i>et al.</i> in [24] suggest for calibration a specific synthetic database whose attribute values guarantee uniform distribution criteria. Another important requirement is that the synthetic database and the calibration procedures must guarantee the prediction of the execution strategy that will be used by the optimizer. Under this assumption, the results obtained by executing queries and update operations can be used to determine calibration factors. | Statement Exemplification | Purpose - Means | |
| Goal | Details | In order to calibrate the formulas of the generic cost model presented in Section 4.1, we have followed this approach and we have used the database presented in [24]. The database is composed by six classes that are interconnected as shown in Figure 7. Each object, an instance of one of these classes, has seven attributes, on which some simple indexes are defined. Objects in each class have an average fan-out equal to 4. Values are assigned to object attributes so that the uniform distribution of attribute values is guaranteed for different kinds of query (equality and range queries) and for different access methods (DFF, simple index, complex indexes). On this database, several queries and maintenance operations have been performed, on direct and nested attributes. We refer the reader to [24] for further details on the synthetic database. | | Condition - Consequence Result - Means Purpose- Means | Bonding (Coupling) |
| | | Values for calibrating factors have been derived as follows. First of all , the number of page accesses and the time required to execute queries and maintenance operations have been determined by using a monitoring tool available for the OODBMS at hand. Such a tool allows one to tune database operations in terms of page accesses, classified with respect to the 'type' of accesses. For example the counter for the system access allows one to establish values for the first group of parameters (see Section 4) and response time. Using this information, we have determined the values for calibrating factors. The obtained values are presented in Table V. | Amplification (Term Specification) | Means - Purpose | |
| | | | Amplification (Predicate Specification) Statement Exemplification | Result - Means | Chronological Sequence |
| | | | | Means - Result | |

6.5.3 Discussion Rhetorical Type: Semantic relations

The overall discourse pattern which is employed in Discussion Rhetorical Type is Generalisation–Example. Within this overall or framing discourse pattern, a further discourse pattern which operates between the contrasting subsections of a Discussion is that of Matching Relations. In the sample text; the Generalisation section introduces a contrast which relates to contrasting viewpoints about the issue of approaches to teaching the analysis of literature to young learners. The contrast is developed in the Example sections.

Although Discussion RT, generally employs a wide variety of semantic relations, the revised model proposes that inter-propositional relations that occur more frequently in this Rhetorical Type are Grounds- Conclusion and Reason–Result (26%); Means–Purpose and Means–Result (22%); and Concession–Contraexpectation (19%). The percentage occurrence of Grounds–Conclusion and Reason–Result combined (represented by Reason–Result only in this text segment) and of Concession–Contraexpectation is close to the overall average for the corpus. However, the percentage of Means–Purpose and Means–Result combined (represented here by Means–Result only) is, at 9.5% considerably lower than the corpus average for Discussion RT.

Table 6.22a: Discussion Rhetorical Type: Semantic Relations

| Schema | Discourse pattern | Text segment | Semantic relations | | |
|----------------|----------------------|--|---|-----------------------------------|---------------------------|
| | | | Amplification | Logico-deductive | Tempero-contigual |
| Container 1 | <i>Generalisaton</i> | <p>The reasons for this highly individuated and individualized reading lie in a particular combination of the discourses which operate in the English classroom, most commonly a Leavisite critical methodology combined with a version of child-centred pedagogy.</p> <p>For F.R. Leavis the key to literary criticism lay in a finely honed critical sensibility, a quality of mind and character which enabled a highly sensitive reader to understand, seemingly intuitively, what the writer was about in constructing a text. Leavis was totally opposed to theoretical knowledge which he believed would blunt critical sensibility. You might argue that Leavis was presenting the case for a high degree of semiotic awareness, even if unselfconscious, and certainly that is essentially how the successful Leavisite critics functioned. However, Leavis's hostility to theory meant that his methodology was read as a call for acute sensitivity to the story and the moral dilemmas it addressed not to the theoretical construct motivating the story and its sociocultural meanings. Story was fetishised to the exclusion of story-telling, and the only apparent way of appreciating that story was by feeling it intensely in yourself feeling the characters' lives as though they were your own. If you could not do that, then you could only conclude that you were an insensitive soul who was unfit for the fine works with which you came in contact.</p> | Statement Exemplification | Reason - Result | |
| | <i>Examples</i> | | Amplification (Term Specification) Concession - Contraexpectation Concession - Contraexpectation Correction - Denial Simple Contrast | Means - Result Result - Reason | Means - Result Bonding |
| | | | | Condition - Consequence | |

Setting/Conduct (Event-Manner)

Table 6.22b: Discussion Rhetorical Type: Semantic Relations (continued)

| Schema | Discourse pattern | Text segment | Semantic relations | | |
|-------------------------|-------------------|---|--|---|---|
| | | | Amplification | Logico-deductive | Temporo-contigual |
| Container 2 | | <p>Since Leavis's time, many critics have questioned the basis of his work, pointing out that there are barriers of class, gender and ethnicity (among others) against many individuals making the prescribed sensitive readings of the prescribed sensitive texts. (See, for example, Belsey 1980; Eagleton 1983; Widdowson 1982.) Nevertheless, Leavis's ideas dominate commonsense responses to texts, like the mainstream discourses which those responses commonly encode. Since those of us who grew up any time earlier than the 1980s were mostly raised as realist readers, on texts which concealed rather than flaunted their constructedness and intertextuality, it is second nature ('commonsense') for us to feel with the characters, even if the character is unashamedly a piece of rubber. Like ET, the main character of Stephen Spielberg's film of that name, whose imminent death was constituted so tragically by the filmmakers that many adults as children were reduced to tears. That response is still very commonly voiced in the media. So, for example, Brett Easton Ellis's book about a psychopath, <i>American Psycho</i>, was held up as a responsible piece of writing because of the insight it gave us into the mind of a psychopath. In years to come, if not already, it is clear that the book gives us some insight into the collective unconsciousness or consciousness of a society obsessed with violence and of a writer prepared to exploit (and just possibly deconstruct) that, but that what it tells us about psychopaths (whomever that category actually covers) is probably minimal.</p> | <p>Concession - Contraexpectation Statement - Exemplification</p> <p>Reason - Result</p> <p>Reason - Result</p> <p>Concession - Contraexpect. Statement - Exemplification</p> <p>Reason - Result</p> <p>Statement - Exemplification</p> <p>Result - Reason</p> <p>Concession - Contraexpectation</p> | <p>Reason - Result</p> <p>Reason - Result</p> <p>Reason - Result</p> <p>Result - Reason</p> | <p>Chronological Sequence (linking previous section re Leavis to later)</p> |
| Container 1 (revisited) | | <p>This Leavisite understanding of the process of reading not only dominates common sense and the media, it is also still one of the dominant discourses in English Literature classrooms. (Cranny-Francis, 1996, p.176-177).</p> | | | <p>Bonding (Rhetorical Coupling)</p> |

6.5.4 Recount Rhetorical Type: Semantic relations

As previously proposed, the schematic construct for the organisation of knowledge within this Rhetorical Type is SOURCE PATH GOAL, in which the rhetorical idea of progression to an end or resolution is conveyed. At the level of written text, the discourse pattern employed in Recount is *Problem Solution*. The revised model predicts that the Recount RT is characterised by Means – Purpose and Means–Result combined (19%); Amplification (17%); Chronological Sequence (15.5%) and Reason–Result and Grounds–Conclusion combined (14.5%). In the sample text segment analysed here, the percentage of Reason–Result and Grounds–Conclusion combined (represented here by Reason–Result only) is higher, and that of Amplification lower than is the average for the Recount RT in the corpus as a whole.

Table 6.23: Recount Rhetorical Type: Semantic Relations

| Schema | Discourse pattern | Text segment | Semantic relations | | |
|--------------------------------|---|--|--|---|---|
| | | | Amplification | Logico-deductive | Temporo-contigual |
| SOURCE PATH GOAL | <i>Problem (aspect of a situation requiring a response)</i> | I administered a questionnaire survey to the total population of Canadian oil and gas companies with annual sales revenues in excess of \$20 million listed in the Compact Disclosures database. Smaller companies, which were revealed in exploratory research to have neither the resources nor the motivation to go beyond minimum regulatory compliance, were excluded. | Amplification | | Bonding |
| | | I contacted companies by phone to obtain the names of potential respondents and to eliminate those ineligible for the study either because they had merged with another company or were merely service or equipment providers. After exclusions, 110 Canadian oil and gas companies were eligible for the survey. These accounted for approximately 80 percent of the total annual sales revenues in the Canadian oil and gas sector. | Simple Contrast | | |
| | | I mailed questionnaires to between three and five persons identified through telephone contact for each company. These included the CEO or a member of the top management team, a staff specialist (usually the environment, health, and safety manager), and a line or operating manager. Confidentiality was assured, and serial numbers on questionnaires were used to match informants in each company. Telephone calls followed up on the mailings. | Amplification (Term Specification) Amplification (Term Specification) | Means Purpose Means Purpose Result - Reason | Bonding Chronological Sequence Chronological Sequence |
| | | The company response rate was 90 percent; that is, 99 out of 110 companies returned one or more questionnaires, with a total of 181 questionnaires being returned out of 345 sent, for an overall response rate of 53.5 percent. Sixty-four companies (65%) provided multiple respondents, so I could study corporate environmental strategy from different perspectives in the organizations achieving "triangulation" (Mintzberg, 1978). | Supplementary Alternation | Result - Means | Chronological Sequence |
| | | | Amplification (Term Specification) | Reason - Result | Chronological Sequence |

6.6 Rhetorical Types: Summary:

This chapter described the type of classificatory system employed at each level of the RT model, and presented the findings of a small corpus study which analysed actual occurrences of the four RT in terms of the proposed model. The classificatory system and the method of analysis of the corpus were explained by providing one illustrative example of each of the four RT from the corpus.

Chapter 7, following, reports on two studies involving the examination of samples of writing gathered for four different tasks, each of which required a written response to fulfil the rhetorical purpose of one of the four RT. The samples of writing gathered for each task are examined for the occurrence of the cognitive features proposed for each of the Rhetorical Types.

CHAPTER 7:

INVESTIGATIONS OF WRITING OUTPUTS FOR THE OCCURRENCE OF RHETORICAL TYPES

7.0 Introduction

This chapter consists of two parts; each outlines a study and describes its results. In the first part (7.2 - 7.7), a study involving the collection and analysis of responses to writing tasks is described. There are four writing tasks, each of which has a primary rhetorical purpose, that is, each can be related to a specific *Rhetorical Type* (RT). The written responses to the tasks are analysed for their overall prototypicality (or closeness to the RT) in terms of the organisational features proposed for the relevant RT model, (see *Chapters 5 and 6*). Each response is analysed in terms of:

- the way the ideas are structured (in terms of the image schemata employed);
- the discourse organisation (in terms of the discourse patterns employed);
- and,
- the more detailed, micro-level cognitive organisation (in terms of the binary semantic relations employed).

In the second study (*Section 7.8*), two ‘expert writers’ (university academics working in English and applied linguistics at the level of senior lecturer or professor who were unfamiliar with the RT model) were asked to rate a selection of the task responses from the first study by assigning a grade from a four point scale. The expert writers’ ratings of the responses were then compared with

prototypicality ratings from the first study to determine the extent of the correlation between them.

7.1 Aims of Study 1: Collection and analysis of samples of writing

Chapters 5 and 6 propose a model (see *Table 7.1* following) for the cognitive organisation of four Rhetorical Types (RT) as prototypical patterns in written academic discourse in English. Study 1 involves the collection and analysis of samples of writing related to four tasks, each of which is designed in such a way as to seek to invoke one of the four rhetorical types. The four tasks involve:

- reporting data from a numerical table (Report RT);
- explaining a diagram conveying information about the means by which something is achieved (Explanation RT);
- discussing both sides of an issue (Discussion RT); and,
- recounting a sequence of events (Recount RT).

This study has three aims:

- to determine the extent to which the organisational features present in the samples of writing conform to those identified in the proposed prototype models of the four Rhetorical Types that are the focus of enquiry;
- to determine whether, and to what extent, the organisational features identified in the models differ in the case of texts written by more experienced and less experienced native-speaker writers of English;
- to determine whether, and to what extent, the organisational features used by inexperienced writers differ in the case of native and non-native speakers of English.

The model proposed in *Chapters 5 and 6* (see *Table 7.1* following) predicts that experienced writers¹, when requested to write extended discourse in response to the four different types of overall rhetorical purpose, will write in a way that is closer to prototypical cognitive patterns (in relation to schematic structuring of ideas; discourse patterning; and semantic relations) than less experienced writers.

Table 7.1: *Summary of the Rhetorical Type Model*

| Rhetorical Type | Rhetorical Purpose | Image Schema | Discourse Pattern | Cognitive Processes (calculations include Bonding [Coupling]) | Semantic Relations² (Bonding [Coupling] removed): only relations with 10% or more included |
|------------------------|---|------------------------|---|--|--|
| Report | Presentation of information that is essentially non-sequential | WHOLE PART, UP DOWN | <i>General-Particular (Preview-Details)</i> | Temporo-contigual (59%) Associative (26%) Logico-deductive (15%) | Amplification (approx. 18%); Reason-Result & Grounds-Conclusion combined (approx. 17%); Simple Contrast & Comparative Similarity combined (approx. 15%); Concession-Contraexpectation (approx. 10%); Condition-Consequence (approx. 10%) |
| Explanation | Presentation of information with a focus on means by which something is achieved | SOURCE PATH GOAL, LINK | <i>General-Particular (Preview-Details)</i> | Temporo-contigual (60%); Associative and Logico-deductive (20% each) | Means-Purpose & Means-Result combined (approx. 29%); Amplification (approx. 17%); Concession-Contraexpectation (approx. 12.5%) |
| Discussion | Focus on the organisation of data in relation to possible outcomes, conclusions or choices. | CONTAINER | <i>General-Particular (Generalisation-Examples), Matching Relations</i> | Temporo-contigual (46%); Associative (27%); Logico-Deductive (26%) | Grounds-Conclusion & Reason-Result combined (26%); Means-Purpose & Means-Result combined (approx. 22%); Concession-Contraexpectation (approx. 19%) |
| Recount | Presentation of data that is essentially chronological. | SOURCE, PATH GOAL | <i>Problem-Solution</i> | Temporo-Contigual (60%); Associative & Logico-Deductive (20% each) | Means-Purpose & Means-Result combined (approx. 19%); Amplification (approx. 17%); Chronological Sequence (approx. 15.5%); Grounds-Conclusion & Reason-Result combined (approx. 14.5%) |

¹ Experienced writers in the present study refers to groups of teachers with the minimum of a first degree in an Arts subject from a university.

² Because of the high occurrence of Bonding in all RTs, and because of the fact that there is a roughly equivalent percentage of this relation in all cases, the percentage calculations for the other relations was done after the effect of this relation was removed. In other words, the percentage occurrence of each relation recorded here is a percentage for the total occurrences of all relations other than Bonding.

The expectation is not, however, that each writer's response to a task will yield exactly all or only those features of the model outlined above. Indeed, responses (to each task) are likely to vary considerably. However, it is predicted that the writing of those who have more experience of the type of task involved in each case will exhibit features that are closer to those associated with the related RT. It is also anticipated that cognitive structuring, and, in particular, semantic relational structuring, will have certain implications in terms of referencing and syntactic range. For example, in relation to Report RT, the semantic relation of *Amplification* is identified as a frequently-occurring feature. In terms of syntax and reference, this may often involve the use of relative clauses, object noun clauses and the definite article for anaphoric reference or noun specification.

7.2 Anticipated rhetorical moves

Although each task has one primary rhetorical purpose (reporting, explaining, discussing or recounting), it was anticipated that responses would not necessarily be wholly constrained by that primary purpose, that is, they may exhibit evidence of rhetorical moves which reflect changing perspectives on the task as writers proceed.

7.2.1 Report Rhetorical Type: Task 1

Writing task 1 (see *Appendix 9*) asked writers to describe the content of a table of numbers (classifying road deaths over a one year period in New Zealand), which, it was anticipated, would motivate the use of the Report RT. It was also considered possible that subjects who wrote more extensively in response to this part of the task might make a rhetorical move into Discussion RT, making reference (on the basis of the data) to reasons for the rates of road deaths in

different age groups and road-user group categories, and proposing ways to further reduce the road toll. If a full move were made into Discussion RT, it was hypothesised that this would be accompanied by the features associated with the Discussion RT model.

7.2.2 Explanation Rhetorical Type: Task 2

Writing task 2 (see *Appendix 9*) asked writers to describe the factors which must be considered and the steps that should be taken to ensure the success of a small retail business. It was anticipated that some writers would make a rhetorical move into Discussion RT, involving outlining the consequences of not following the course of action recommended in the diagram. Again, if a move were made into Discussion RT, it was hypothesised that the discourse would reflect the features identified in the model as being associated with Discussion RT.

7.2.3 Discussion Rhetorical Type: Task 3

Task 3 (see *Appendix 9*) asked writers to compare and contrast arguments for and against a proposed solution to a problem. In the responses to the Discussion RT task, it was anticipated that writers might make an initial rhetorical move into Report RT if a decision were taken to explain the topic or provide background information about it. If this occurred, the discourse would be likely to reflect Report RT features in the introduction. After having provided this type of background information, writers might then make a rhetorical move back into Discussion RT in order to fulfil the main requirements of the task.

7.2.4 Recount Rhetorical Type: Task 4

Task 4 (see *Appendix 9*) asked writers to organise and recount significant events in the economic history of post World War 2 Japan. It was anticipated that parts of responses to the fourth task might involve rhetorical moves into Report RT in order to present the information about some of the historical stages (if writers chose to include details about them). Even if this type of move were adopted, it was also possible that narrative tenses and markers of chronological sequencing would still be in evidence, and that the Recount RT would be retained in an overall sense.

7.3 The implementation of Study 1: The sample

After obtaining the necessary ethical consents (see *Appendix 11*), a sample of convenience (gathered from the groups listed in *Table 7.2* following) was used in conducting the study. (For the analysed responses to each task see *Appendix 12* – compact disk). The total numbers of responses in each task sample were, as follows:

- Tasks 1 and 4 samples had totals of 75 responses each;
- Task 3 sample had a total of 72 responses;
- Task 2 sample had a total of 69 responses.

Each task sample was stratified, with equal numbers of responses being gathered from three different groups of writers. The three groups were:

- native-speaker teachers of English (all graduates);
- native-speaker students (including students in the final year of secondary school or students in their first or second year at university); and,

- non-native speaker students, all in the initial stages of a first year university writing course.

This stratification was to allow for a comparison of the features of the writing of the three groups. Because the writing responses were gathered from groups at different times and in different places, a standard set of instructions for the supervisor (see *Appendix 10*) was used on each occasion so that the conditions under which the sample was gathered were as uniform as possible for each group.

Table 7.2: *The Sample*

| Groups | | Tasks | Number of Responses | Date of Collection |
|--------|---|------------------|---------------------|--------------------------|
| 1. | Native-speaker university students taking a second year English course | Task 1 | 18 responses | 01.05 2001 |
| | | Task 3 | 24 responses | |
| 2. | Native-speaker university students taking a first year English course | Task 4 | 12 responses | 06.05.2001 |
| 3. | University ESOL ³ teachers | Task 3 | 10 responses | 16.05.2001 |
| | | Task 4 | 10 responses | |
| 4. | University ESOL teachers | Task 2 | 13 responses | 30.05.2001 |
| 5. | Polytechnic ESOL tutors | Task 1 | 12 responses | 05.07.2001 |
| 6. | Private language school ESOL teachers | Task 3 | 18 responses | 04.04 2002 |
| 7. | Teacher group taking a post-graduate applied linguistics course | Task 2 | 10 responses | 11.06.2002 |
| | | Task 4 | 4 responses | |
| 8. | University ESOL teachers' group | Task 1 | 13 responses | 12.07 2002 |
| 9. | Native-speaker university students taking a second year applied linguistics course | Task 1 | 7 responses | 10.09.2002 |
| 10. | Native-speaker year 13 ⁴ secondary school students | Task 2 | 11 responses | 20.09.2002 |
| | | Task 4 | 15 response | 20.09.2002 |
| 11. | University teachers of a foundation studies course | Task 4 | 11 responses | 30.10.2002 |
| 12. | Non native-speaker university students taking a first year writing course (six different tutorial groups during one week) | Tasks 1, 2, 3, 4 | 137 responses | 10.03.2003 to 14.03.2003 |
| 13. | Native-speaker university students taking a first year university linguistics course | Task 2 | 9 responses | 07.05.2003 |
| 14. | Native-speaker university students taking a first year university English grammar course | Task 2 | 3 responses | 21.05.2003 |

³ ESOL refers to 'English for speakers of other languages'

⁴ Students in their final year at a New Zealand secondary school most of whom are preparing to enter some kind of tertiary educational institution

Where a larger number of scripts than was required for a sample was gathered from one writer group (for example the non native-speaker student group), the required number of scripts only was transcribed and analysed for each task. The scripts had been sequentially numbered, and the required sample number (from the sequential number order) was selected for transcription and analysis.

For each of the four tasks, a report and discussion of the analysis of the sample of writing follows. This includes:

- a description of the writing task;
- presentation and discussion of the findings of the analysis in terms of gestalt structuring, discourse patterning, and semantic relations;
- a comparison of the three sub-groups of the sample in terms of the overall prototypicality ratings of the scripts.

7.4 Report Rhetorical Type: The sample and the task

To test the hypothesised features of Report RT (see *Table 7.1*, p. 257), responses to a writing task were gathered from a sample of 75 writers (see *Appendix 11*), consisting of:

- 25 native-speaker language teachers who are graduates;
- 25 native-speaker university students in either a first or second year course group;
- 25 non-native-speaker university students in the second week of a writing course specifically for non-native speaker students.

To ensure that there were the same number of scripts (25) for each writer category (teachers, native-speaker students and non native-speaker students), responses were gathered from five different groups on five separate occasions (see *Table*

7.2, p. 269 - Groups 1, 5, 8, 9 and 12), following a standard set of supervision instructions (see *Appendix 10*).

The task (see *Appendix 9*) is centred on a table of data produced by the New Zealand Land Transport Safety Authority (1998) which summarises the numbers of road deaths that occurred during a one year period. The numbers of deaths were divided into those for different road user categories, with each category being divided into five age groups. The task instruction was: “Write a brief report in paragraphs on the basis of the data in the table (approximately 200 words)”

7.4.1 Report: Findings

7.4.1.1 Report: Gestalt structuring

Report RT has the rhetorical aim of presenting data or information that is not sequential. The model for this rhetorical type predicts that the higher-level organisation of knowledge will be in terms of two gestalts:

- an overall WHOLE PART schema; of which,
- the PART section is organised internally by an UP DOWN schema

(see *Chapter 6, Section 6.3.1*, p. 223).

This schematic structure for the organisation of knowledge (in Report RT) is proposed as a prototype. In order to grade the responses to the task in relation to the prototype, a descriptor from the following scale was assigned to each script to show its degree of adherence to the proposed prototypical gestalt structure:

1. Adheres strictly to the RT model.
2. The overall structure is WHOLE PART, the PART section having some elements of UP DOWN schematic structure.

3. The overall structure is WHOLE PART but the PART section is not organised in terms of an UP DOWN schema.
4. The data are presented following an UP DOWN schema, but there is no WHOLE overview at the beginning
5. There are no elements of WHOLE PART or UP DOWN in the schematic structuring.

The findings are presented in *Table 7.3* following.

Table 7.3: *Report Rhetorical Type Gestalt Structuring: Summary of Findings*

| Sample | | 1 Adheres strictly to the RT model | 2 Overall structure is WHOLE PART, the PART section having some elements of UP DOWN schematic structure | 3 Overall structure is WHOLE PART, but the PART section is not organised in terms of an UP DOWN schema | 4 The data is presented following an UP DOWN schema but there is no WHOLE overview at the beginning | 5 There are no elements of WHOLE PART or UP DOWN in the schematic structuring |
|---|---|--|---|--|---|---|
| Native-Speaker Teacher Group | Number of scripts | 11 | 9 | 5 | 0 | 0 |
| | Percentage of Teacher Group of 25 | 44% | 36% | 20% | 0% | 0% |
| Native-Speaker Student Group | Number of Scripts | 2 | 14 | 1 | 7 | 1 |
| | Percentage of Native-speaker Student Group of 25 | 8% | 56% | 4% | 28% | 4% |
| Non Native-Speaker Student Group | Number of Scripts | 1 | 12 | 10 | 1 | 1 |
| | Percentage of Non-native-speaker Student Group of 25 | 4% | 48% | 40% | 4% | 4% |

Overall, 70% of the responses by native-speakers and 52% of the non-native speaker responses used both gestalt patterns in the organisation of ideas in their responses. Furthermore, 86% of all of the scripts employed the WHOLE PART gestalt as the overall patterning in the presentation of this type of data. In the

teacher group, a higher percentage (40%), of responses were assigned the highly prototypical Descriptor 1, and none received the less prototypical Descriptors 4 and 5. There were fewer Descriptor 1 responses among both student groups, but more than half of student responses were assigned either Descriptors 1 or 2.

7.4.1.2 Report: Discourse organisation

For Report RT, the hypothesised prototypical discourse pattern is *Preview Details* (Hoey, 1983, p. 138) (see *Chapter 6, Section 6.4.1*, pp. 235-236). In order to classify the written responses in relation to this prototypical structure, each script was assigned one of the following numbered descriptors:

1. Closely follows a *Preview Details* discourse pattern;
2. Mainly follows a *Preview Details* discourse pattern, but may incorporate a *Problem Solution* pattern within the *Details* section – presents the details of road deaths as a problem and suggests a solution
3. Begins with a general topic statement about the data followed by a *Details* section;
4. Consists solely of a *Details* section, no introductory *Preview* or general section; and,
5. No clear discourse pattern.

The findings are presented in **Table 7.4** following.

Table 7.4: Report Rhetorical Type Discourse Organisation: Summary of Findings

| Sample | | 1 Closely follows a <i>Preview Details</i> discourse pattern | 2 Mainly follows a <i>Preview Details</i> discourse pattern, but may incorporate a <i>Problem Solution</i> pattern within the <i>Details</i> section | 3 Begins with a general topic statement about the data followed by a <i>Details</i> section | 4 Consists solely of a <i>Details</i> section, no introductory <i>Preview</i> or general section | 5 No clear discourse pattern |
|----------------------------------|--|---|---|--|---|---------------------------------|
| Native-Speaker Teacher Group | Number of scripts | 17 | 5 | 3 | 1 | 0 |
| | Percentage of Teacher Group of 25 | 68% | 20% | 12% | 4% | 0% |
| Native-Speaker Student Group | Number of Scripts | 4 | 11 | 6 | 4 | |
| | Percentage of Native-speaker Student Group of 25 | 16% | 44% | 24% | 16% | 0% |
| Non Native-Speaker Student Group | Number of Scripts | 1 | 14 | 7 | 2 | 1 |
| | Percentage of Non-native-speaker Student Group of 25 | 4% | 56% | 28% | 8% | 4% |

Examination of the discourse patterns of the Report sample revealed that overall, approximately 70% of the responses employ a *Preview Details* structure (Descriptors 1 or 2). The sub-group with the largest number of responses that were assigned to Descriptor 1 was the teacher group (with 68%). Among the student responses from both sub-groups, the largest numbers were assigned to Descriptor 2. The desire to interpret the data (numbers of road deaths) as a problem and offer a solution led some writers, in addition to reporting the main aspects of the data, to incorporate a *Problem – Solution* discourse pattern (a small number of native-speaker responses). There was little evidence in the sample of the anticipated rhetorical move into Discussion RT.

7.4.1.3 Report: Semantic relations

The model for Report RT hypothesises the following occurrences of cognitive processes and semantic relations for Report RT.

| Cognitive Processes (calculations include Bonding [Coupling]) | Semantic relations ⁵ (Bonding [Coupling] removed): only relations with 10% or more included |
|--|---|
| Tempero-contigual (50%) Associative (26%) Logico-deductive (15%) | Amplification (approx. 18%); Reason-Result & Grounds-Conclusion combined (approx. 17%); Simple Contrast & Comparative Similarity combined (approx. 15%); Concession-Contraexpectation (approx. 10%); Condition-Consequence (approx. 10%) |

In the sample of written texts for Report RT, 17 of the semantic relations from Crombie's taxonomy (Crombie, 1987, p. 102) were identified. These are presented and analysed in the two tables - *Tables 7.5* and *7.6* following.

Table 7.5 provides a summary of the overall frequency of occurrence of cognitive processes and semantic relations in the responses of the three sub-groups of the sample (native-speaker teachers, native-speaker students and non native-speaker students).

In the next table, *Table 7.6*, the analysed findings from the three sample groups of Report RT responses are presented alongside the proposed Report RT model. The findings are then discussed, in terms of both cognitive processes and semantic relations (and the differences in use of these by the three groups of the sample).

⁵ Because of the high occurrence of Bonding in all RTs, and because of the fact that there is a roughly equivalent percentage of this relation in all cases, the percentage calculations for the other relations was done after the effect of this relation was removed. In other words, the percentage occurrence of each relation recorded here is a percentage for the total occurrences of all relations other than Bonding.

Finally, overall prototypicality scores are established for each response and the three sample groups are compared in relation to these. These are presented in *Table 7.8*.

Table 7.5: Report Sample: Overall Occurrences of Semantic Relations

| Semantic Relation | Native-Speaker Teacher Group | | Native-Speaker Student Group | | Non Native-Speaker Student Group | |
|--|------------------------------|---------------------|------------------------------|---------------------|----------------------------------|---------------------|
| | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total |
| Associative Process | 157 | 40.7% | 131 | 34.3% | 74 | 38.3% |
| Simple Contrast | 56 | 24% | 42 | 18.75% | 47 | 41.6% |
| Comparative Similarity | 10 | 4.5% | 2 | 0.9% | 7 | 6.2% |
| Statement-Affirmation | | | 1 | 0.45% | | |
| Statement-Exception | 5 | 2% | 1 | 0.45% | | |
| Statement-Exemplification | 4 | 1.5% | 5 | 2.25% | | |
| Denial-Correction | 1 | 0.5% | 2 | 0.9% | | |
| Concession-Contraexpectation | 36 | 15.5% | 34 | 15.18% | 2 | 1.8% |
| Supplementary Alternation | | | 8 | 3.5% | | |
| Contrastive Alternation | | | 1 | 0.45% | | |
| Paraphrase | | | | | | |
| Amplification | 45 | 19.5% | 35 | 15.6% | 18 | 16% |
| Logico-deductive Process | 176 | 19.7% | 93 | 24.3% | | |
| Condition-Consequence | 11 | 5% | 4 | 1.8% | 1 | 0.9% |
| Means-Purpose | 4 | 1.5% | 8 | 3.5% | | |
| Means-Result | 6 | 2.5% | 5 | 2.25% | | |
| Reason-Result | 15 | 6.5% | 27 | 11.25% | 4 | 3.5% |
| Grounds-Conclusion | 40 | 17% | 49 | 21.88% | 14 | 12.4% |
| Temporo-contigial Process | 152 | 39.4% | 158 | 41.3% | | |
| Chronological Sequence | | | | | | |
| Temporal Overlap | | | | | 1 | 0.9% |
| TOTALS (with and without Bonding) | 385/233⁷ | 100% | 382/224 | 100% | 193/114 | 100% |

⁶ According to Crombie (personal communication), Bonding is the unmarked relation and it is, therefore, excluded from the calculations of percentages for the overall occurrences of relations within the samples.

⁷ The first total number of semantic relations includes Bonding and the second total excludes Bonding.

Table 7.6: *Report Sample: Analysis of the use of Cognitive Processes and Semantic Relations*

| REPORT | | | | |
|--|--------------|---------------------------------|---------------------------------|--------------------------------|
| | Model | Native-speaker. Teachers | Native-speaker. Students | Non-native-sp. Students |
| Cognitive processes⁸ | | | | |
| Tempero-contigual | 59% | 39% | 41% | 38% |
| Associative | 26% | 41% | 34% | 42% |
| Logico-deductive | 15% | 20% | 24% | 10% |
| Semantic relations⁹ | | | | |
| Amplification | 18% | 19% (+1%) | 16% (-2%) | 16% (-2%) |
| Reason-Result & Grounds-Conclusion | 17% | 24% (+7%) | 34% (+17%) | 16% (-1%) |
| Simple Contrast & Comparative Similarity | 15% | 28% (+13%) | 20% (+5%) | 47% (+32%) |
| Concession-Contraexpectation | 10% | 15.5% (+5.5%) | 15% (+5%) | 2% (-8%) |
| Condition-Consequence | 10% | 5% (-5%) | 2% (-8%) | 1% (-9%) |
| Overall (+ and -) variation from model | | 31.5 | 37 | 52 |

In the case of Report RT, native-speaking teachers are closest to the model, followed by native-speaking students and then non-native speaking students.

The Report RT model predicts that the occurrences of cognitive processes will be: Tempero-contigual (59%) Associative (26%). The findings show that all three groups have a lower percentage of tempero-contigual relations than is found in the model. However, when associative and logico-deductive groups are compared to one another, the proportion in the native-speaking teachers' group sample (63%/37%) is the same as that in the model. The native-speaking students group sample is closer to the model (58%/41%) than the non-native-speaking student group sample (80%/20%).

⁸ Bonding relation included in the calculations

⁹ Bonding relation excluded from the calculations

For semantic relations, the findings show that, in terms of overall points variation from the model (counting + and – values equally), the native-speaking teacher group is closer to the model (31.5 points overall variation from the model), than the native-speaking student group (37 points variation), which is closer than the non-native-speaking student group (52 points variation).

The most significant semantic relational variations from the model appear to be:

- In the case of both student groups, the Condition-Consequence relation hardly features, dropping from 10% to 2% (native-speaking students) and 1% (non-native-speaking students);
- In the non-native-speaking student group, Simple Contrast and Comparative Similarity are significantly over-represented (47% as opposed to 15% in the model).

In all cases (native-speaking teacher group, native-speaking student group, non-native-speaking student group), the first three relations (or relational combinations) in terms of percentage occurrence are the same as is the case in the model (except that the order in which they occur is different). Also, for the native-speaking teacher group, the five relations that occur most frequently are also the same five that occur most frequently in the model.

Finally, to establish categories of prototypicality in the use of semantic relations in the sample of Report RT responses, a descriptor number was assigned to each response in relation to its overall use of the cognitive processes and semantic relations of the model. The descriptors were calculated on the basis of texts in the

corpus of between 200 and 250 words containing approximately 16 semantic relations (including Bonding) and 11 semantic relations if Bonding is removed. Applying the corpus findings in relation to cognitive process and semantic relational frequencies, the following table was employed to assign a prototypicality descriptor to each response of the Report RT sample.

Table 7.7: *Report RT Prototypicality Descriptors for Semantic Relations*

| Descriptor 1 (Most prototypical) | Descriptor 2 | Descriptor 3 | Descriptor 4 | Descriptor 5 (Least Prototypical) |
|--|---------------------|---------------------|---------------------|--|
| 2 Amplification; 2 Reason – Result and/or Grounds Conclusion; 2 Simple Contrast and/or Comparative Similarity; 1 Concession - Contraexpectation | 6 or 7 of these | 4 or 5 of these | 2 or 3 of these | 1 or none of these |

The results of assigning a prototypicality descriptor to each response are presented in **Table 7.8** following.

Table 7.8: *Report Rhetorical Type: Prototypicality in the use of Semantic Relations*

| Sample | | 1 2 Amplification; 2 Reason – Result and/or Grounds Conclusion; 2 Simple Contrast and/or Comparative Similarity; 1 Concession - Contraexpectation | 2 6 or 7 of these | 3 4 or 5 of these | 4 2 or 3of these | 5 1 or none of these |
|---|---|--|-----------------------------|-----------------------------|----------------------------|-----------------------------------|
| Native-Speaker Teacher Group | Number of scripts | 3 | 7 | 7 | 6 | 0 |
| | Percentage of Teacher Group of 25 | 12% | 28% | 28% | 18% | |
| Native-Speaker Student Group | Number of Scripts | 1 | 6 | 10 | 6 | 0 |
| | Percentage of Native- speaker Student Group of 25 | 4% | 24% | 40% | 24% | |
| Non- Native- Speaker Student Group | Number of Scripts | | | 6 | 8 | 9 |
| | Percentage of Non- native- speaker Student Group of 25 | | | 24% | 32% | 36% |

7.4.1.4 Report: Overall ratings of prototypicality of the sample

In the previous three analyses, each response was examined for its use of the three component RT knowledge types (gestalt structuring, discourse organisation and semantic relations). Each was then given a descriptor score from a scale of 1–4 or 1–5. To establish an overall prototypicality rating for each script, the three descriptor scores were added together, and the following formula was applied:

| | |
|---|---|
| Descriptor 1 <i>highly prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 3 or 4 |
| Descriptor 2 <i>moderately prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the descriptor three scores is 5 or 6 |
| Descriptor 3 <i>Less prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 7 or 8 |
| Descriptor 4 <i>not prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 9 or greater. |

The findings of the overall descriptor assignments are summarised in **Table 7.9** following.

Table 7.9 Report Rhetorical Type Sample: Overall Ratings of Prototypicality

| Overall Prototypicality Descriptors | 1 | 2 | 3 | 4 |
|---|----------|----------|----------|----------|
| Teacher responses | 4 | 13 | 8 | |
| Native-speaker Student Responses | | 5 | 10 | 10 |
| Non-native-speaker Student Responses | | 2 | 10 | 13 |

7.5 Explanation Rhetorical Type: The sample and the task

To test the hypothesised features of Explanation RT (see *Table 7.1* p. 285), responses to a writing task were gathered from a sample of 69 writers (see *Appendix 11*), consisting of:

- 23 native-speaker language teachers who are graduates;
- 23 native-speaker students in either their final year of secondary school or a first year university course group;
- 23 non-native-speaker university students in the second week of a university writing course for first year, non native-speaker students.

To gather 23¹⁰ scripts for each of the three writer categories (teachers, native-speaker students and non native-speaker students), responses were collected from six different groups on six separate occasions (see *Table 7.2*, p. 270 - Groups 4, 7, 10, 12, 13 and 14), following a standard set of supervision instructions (see *Appendix 10*).

The task (see *Appendix 9*) was to write an explanation of the information contained in a diagram outlining a series of factors that are suggested as necessary for small businesses to succeed. The factors are arranged non-sequentially in a cluster diagram. The task instruction is: “Express the advice below in an explanation organised in paragraphs”.

¹⁰ The maximum number of scripts obtainable from the two teacher groups was 23. Therefore, the same number of responses was gathered from the two student groups. Selection of the student scripts was on the basis of the first 23 numbered scripts from each of the two sub-groups.

7.5.1 Explanation: Findings

7.5.1.1 Explanation: Gestalt structuring

Explanation RT has the rhetorical aim of presenting information with an orientation on the means by which an outcome can be achieved. The model for this rhetorical type predicts that the higher level organisation of knowledge will be in terms of two gestalts:

- the overall structure will be a SOURCE PATH GOAL schema; and,
- the relationship between (any two) interconnecting, interdependent parts will involve a LINK schema (see *Chapter 6, Section 6.3.2, p. 226*).

This schematic structure for the organisation of knowledge (in Explanation RT) is proposed as a prototype. In order to grade scripts in relation to this prototype, a descriptor from the following scale was assigned to each script to describe its degree of adherence to the proposed prototypical gestalt structure:

1. Adheres strictly to the RT model;
2. The PATH or process is outlined by clear use of LINK schemata but the overall organisation may lack a SOURCE or GOAL section;
3. The data are arranged using a SOURCE PATH GOAL schema but there is little or no use of LINK schemata;
4. There are no elements of SOURCE PATH GOAL or LINK in the schematic organisation.

The findings are presented in *Table 7.10* following.

Table 7.10: *Explanation Rhetorical Type Gestalt Structuring: Summary of findings*

| Sample | | 1 Adheres strictly to the RT model | 2 The PATH or process is outlined by clear use of LINK schemata but the overall organisation may lack a SOURCE or GOAL section | 3 The data are arranged using a SOURCE PATH GOAL schema but there is little or no use of LINK schemata | 4 There are no elements of SOURCE PATH GOAL or LINK in the schematic structuring. |
|---|---|--|--|--|---|
| Native-speaker Teacher Group | Number of scripts | 19 | 4 | | |
| | Percentage of Teacher Group of 23 | 82.5% | 17.5% | | |
| Native-speaker Student Group | Number of Scripts | 16 | 7 | | |
| | Percentage of Native-speaker Student Group of 23 | 69.5% | 30.5% | | |
| Non-native-speaker Student Group | Number of scripts | 3 | 3 | 16 | 1 |
| | Percentage of Non-native-speaker Student Group of 23 | 13.05% | 13.05% | 69.5% | 4.4% |

Almost all of the responses ordered the data in terms of a SOURCE PATH GOAL schema, or with at least the SOURCE and PATH elements of the schema. The GOAL or concluding section was the element that was most likely to be missing, as evidenced by the number of Descriptor 2 responses. The LINK schema was strongly evident in all of the responses of the native-speakers (both teachers and students), but it occurred relatively infrequently in the responses of the non-native speaker students, with the largest group being assigned Descriptor 3 “showing little or no use of LINK”.

7.5.1.2 Explanation: Discourse organisation

For Explanation RT, the hypothesised prototypical discourse pattern is *Preview Details* (Hoey, 1983, p.138) – see *Chapter 6, Section 6.4.2*, p. 238. In order to classify the written response in relation to this prototypical structure, each script was assigned one of the following numbered descriptors:

1. Closely follows a *Preview - Details* discourse pattern;
2. Follows a *Preview - Details* discourse pattern - the *Preview* is minimal, but there is a complete *Details* section;
3. No *Preview* or introductory section, but contains a *Details* section;
4. No clear discourse pattern.

Table 7.11: *Explanation Rhetorical Type Discourse Organisation: Summary of Findings*

| Sample | | 1 Closely follows a <i>Preview - Details</i> discourse pattern | 2 follows a <i>Preview - Details</i> discourse pattern - the <i>Preview</i> is minimal, but there is a complete <i>Details</i> section | 3 No <i>Preview</i> or introductory section; but contains a <i>Details</i> section. | 4 No clear discourse pattern |
|----------------------------------|--|--|--|---|--|
| Native-speaker Teacher Group | Number of scripts | 13 | 8 | 2 | |
| | Percentage of Teacher Group of 23 | 56.6% | 34.7% | 8.7% | |
| Native-speaker Student Group | Number of Scripts | 6 | 15 | 2 | |
| | Percentage of Native-speaker Student Group of 23 | 26% | 65.3% | 8.7% | |
| Non native-speaker Student Group | Number of scripts | 2 | 19 | 2 | |
| | Percentage of non-native-speaker Student Group of 23 | 8.7% | 82.6% | 8.7% | |

In terms of the discourse pattern employed, 21 out of 23 responses in each of the three groups employed some form of a *Preview Details* pattern, being assigned

either Descriptor 1 or Descriptor 2. The responses from the teacher group adhered most closely to the *Preview Details* pattern, with over half of the responses being assigned Descriptor 1. Also a quarter of the native-speaker students were assigned Descriptor, 1. However, for both of the student groups, the largest numbers of responses were assigned Descriptor 2. Overall, the sample showed little evidence of the anticipated move into Discussion RT and a more argument-focused response.

7.5.1.3 Explanation: Semantic relations

The model for Explanation RT hypothesises the following occurrences of cognitive processes and semantic relations

| Cognitive Processes (calculations include Bonding [Coupling]) | Semantic relations ¹¹ (Bonding [Coupling] removed): only relations with 10% or more included |
|---|---|
| Tempero-contigual (60%); Associative and Logico-deductive (approx. 20% each) | Means-Purpose & Means-Result combined (approx 29%); Amplification (approx 17%); Concession-Contraexpectation (approx 12.5%) |

In the sample of written responses for Explanation RT, 16 semantic relations from Crombie's taxonomy were identified (Crombie, 1985, p. 102). These are presented and analysed in the two tables - *Tables 7.12* and *7.13*- following.

Table 7.12 provides a summary of the overall frequency of occurrence of cognitive processes and semantic relations in each of the sub-groups of the sample (native-speaker teachers, native-speaker students and non-native-speaker students)

¹¹ Because of the high occurrence of Bonding in all RTs, and because of the fact that there is a roughly equivalent percentage of this relation in all cases, the percentage calculations for the other relations was done after the effect of this relation was removed. In other words, the percentage occurrence of each relation recorded here is a percentage for the total occurrences of all relations other than Bonding.

The following table, *Table 7.13*, presents the analysed findings from the three sample groups of Explanation RT responses alongside the proposed Explanation RT model. The findings are then discussed in terms of both cognitive processes and semantic relations and the differences in the use of these by the three groups of the sample.

Finally, overall prototypicality scores are established for each response and the three sample groups are compared in relation to these. These scores are presented in *Table 7.15*.

Table 7.12: *Explanation Sample: Overall Occurrences of Semantic Relations*

| Semantic Relation | Native-Speaker Teacher Group | | Native-Speaker Student Group | | on Native-Speaker Student Group | |
|------------------------------|------------------------------|---------------------|------------------------------|---------------------|---------------------------------|---------------------|
| | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total |
| Associative | 54 | 12.2% | 46 | 10% | 16 | 8.7% |
| Simple Contrast | 4 | 1.5% | 2 | 0.6% | 1 | 0.8% |
| Comparative Similarity | | | | | | |
| Statement-Affirmation | | | | | 1 | 0.8% |
| Statement-Exception | | | | | | |
| Statement-Exemplification | 8 | 3% | 8 | 2.6% | 3 | 2.4% |
| Denial-Correction | 1 | 0.4% | | | | |
| Concession-Contraexpectation | 7 | 2.5% | 8 | 2.6% | 1 | 0.8% |
| Supplementary Alternation | | | 2 | 0.6% | | |
| Contrastive Alternation | 2 | 0.8% | 6 | 2% | | |
| Paraphrase | | | | | | |
| Amplification | 32 | 11.6% | 20 | 6.4% | 10 | 8.2% |
| Logico-deductive | 216 | 48.8% | 259 | 57% | 100 | 54.3% |
| Condition-Consequence | 30 | 11% | 39 | 12.5% | 10 | 8.2% |
| Means-Purpose | 41 | 15% | 55 | 17.7% | 6 | 4.9% |
| Means-Result | 109 | 39.6% | 114 | 36.6% | 56 | 46% |
| Reason-Result | 33 | 12% | 47 | 15% | 28 | 23% |
| Grounds-Conclusion | 3 | 1% | 4 | | | |
| Tempero-contigual | 171 | 39% | 152 | 33% | 68 | 37% |
| Chronological Sequence | 4 | 1.5% | 6 | 2% | 6 | 4.9% |
| Temporal Overlap | | | | | | |
| Bonding | 167 | | 146 | | 62 | |
| TOTALS ¹² | 442/275 | 100% | 457/311 | 100% | 184/122 | 100% |

¹² With and without Bonding.

Table 7.13: *Explanation Sample: Analysis of the Use of Cognitive Processes and Semantic Relations*

| EXPLANATION | | | | |
|---|--------------|----------------------------|---------------------------|--------------------------------|
| | Model | Native-sp. Teachers | Native-sp Students | Non-native-sp. Students |
| Cognitive processes¹³ | | | | |
| Temporo-contigual | 60% | 39% | 33% | 42% |
| Associative | 20% | 12% | 10% | 38% |
| Logico-deductive | 20% | 49% | 57% | 10% |
| Semantic relations¹⁴ | | | | |
| Means-Purpose & Means-Result | 29% | 54% (+25%) | 54% (+25%) | 51% (+22%) |
| Amplification | 17% | 12% (-5%) | 6% (-11%) | 8% (-9%) |
| Concession- Contraexpectation | 12.5% | 2.5% (-10%) | 3% (-9.5%) | 1% (-11.5%) |
| Overall (+ and -) variation from model | | 40 | 45.5 | 42.5 |

In the case of Explanation RT, all three groups have a significant imbalance in relation to the model.

The findings in relation to cognitive processes show that all three groups have a lower percentage of temporo-contigual relations (39%; 33%; 41%) than the model (60%). Although the proportion of Associative and Logico-deductive relations is equal in the model (20%/20%), the two native-speaking groups have a far higher proportion of Logico-deductive relations, and the non-native-speaking student group also has a higher proportion of Associative relations.

In terms of overall points variation from the semantic relational occurrences in the model (counting + and – values equally), the native-speaking teacher group is slightly closer (40 points overall variation from the model), than the other two

¹³ Bonding relation included in the calculations

¹⁴ Bonding relation excluded from the calculations

groups. However, the non-native-speaking student group is actually closer to the model (42.5 points variation) than the native-speaking student group (45.5 points).

The most significant semantic relational variations from the model appear to be:

- The fact that all three groups have a significantly higher proportion of Means-Purpose and Means-Result relations (54%/54%/51%) than is found in the model (29%);
- The fact that in all three cases, Concession-Contraexpectation drops significantly – from 12.5% in the model to 2.5%/3%/1%.

Finally, to establish categories of prototypicality in the use of semantic relations in the sample of Explanation RT responses, a descriptor number was assigned to each response in relation to its overall use of the cognitive processes and semantic relations of the model. The descriptors were calculated on the basis of texts in the corpus of between 200 and 250 words containing approximately 16 semantic relations (including Bonding) and 11 semantic relations if Bonding is removed. Applying the corpus findings in relation to cognitive process and semantic relations frequencies, the following table - *Table 7.14* - was employed to assign a prototypicality descriptor to each response of the Explanation RT sample.

Table 7.14 Explanation RT Prototypicality Descriptors for Semantic Relations

| Descriptor 1 (Most prototypical) | Descriptor 2 | Descriptor 3 | Descriptor 4 | Descriptor 5 (Least Prototypical) |
|--|---------------------|---------------------|---------------------|--|
| 3 Means – Purpose and/or Means - Result; 3 Reason – Result and/or Grounds - Conclusion; 1 Concession - Contraexpectation | 5 or 6 of these | 3 or 4 of these | 1 or 2 of these | None of these |

The results of assigning a prototypicality descriptor to each response are presented in *Table 7.15* following.

Table 7.15: Explanation RT: Prototypicality in the Use of Semantic Relations

| Sample | | 1 3 Means – Purpose and/or Means - Result; 3 Reason – Result and/or Grounds - Conclusion; 1 Concession - Contraexpectation | 2 5 or 6 of these | 3 3 or 4 of these | 4 1 or 2 of these | 5 None of these |
|---|---|--|-----------------------------|-----------------------------|-----------------------------|---------------------------|
| Native-Speaker Teacher Group | Number of scripts | 3 | 7 | 7 | 6 | |
| | Percentage of Teacher Group of 23 | 13% | 30.5% | 30.5% | 26% | |
| Native-Speaker Student Group | Number of Scripts | 1 | 6 | 10 | 6 | |
| | Percentage of Native-speaker Student Group of 23 | 4.5% | 26% | 43.5% | 26% | |
| Non Native-Speaker Student Group | Number of Scripts | | | 6 | 8 | 9 |
| | Percentage of Non-native-speaker Student Group of 23 | | | 26% | 35% | 39% |

7.5.1.4 Explanation: Overall ratings of prototypicality of the sample

Based on the analysis results of the three component knowledge types (gestalt structuring, discourse organisation and semantic relations), each of the responses of the sample was assigned an overall descriptor rating. The following formula was used to establish the prototypicality rating that was assigned to each script.

| | |
|---|---|
| Descriptor 1 <i>highly prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 3 or 4 |
| Descriptor 2 <i>moderately prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 5 or 6 |
| Descriptor 3 <i>Less prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 7 or 8 |
| Descriptor 4 <i>not prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 9 or greater. |

The findings of the overall descriptor assignments are summarised in *Table 7.16* following.

Table 7.16: *Explanation Rhetorical Type Sample: Overall Ratings of Prototypicality*

| Overall Prototypicality Descriptors | 1 | 2 | 3 | 4 |
|---|----------|----------|----------|----------|
| Teacher Responses | 6 | 14 | 2 | 1 |
| Native-speaker Student responses | 3 | 12 | 6 | 2 |
| Non-native-speaker Student Responses | | 1 | 11 | 11 |

7.6 Discussion Rhetorical Type: The sample and the task

To test the hypothesised features of Discussion RT (see *Table 7.1* p. 265), responses to a writing task were gathered from a sample of 72 writers (see *Appendix 11*), consisting of:

- 24 native-speaker language teachers who are graduates;
- 24 native-speaker undergraduate, university students in a second year course group; and,
- 24 non native-speaker university students in the second week of a university writing course specifically for non native-speakers.

To ensure that there were the same number of scripts (24)¹⁵ for each of the three writer categories, responses were gathered from a total of four different groups on four separate occasions (see *Table 7.2*, p. 269 – Groups 1, 3, 6 and 12), following a standard set of supervision instructions. (see *Appendix 10*).

The task instruction (see *Appendix 9*) was: “Compare and contrast the arguments for and against the proposition that the New Zealand government should limit the number of students attending university in New Zealand because employment opportunities for graduates are limited (write approximately 250 words)”

¹⁵ The maximum number obtainable from the first group (native-speaker students) was 24. Therefore, the same number of responses was analysed from the samples gathered from the other two groups that provided responses to this task - the teacher and non native-speaker student samples.

7.6.1 Discussion: Findings

7.6.1.1 Discussion: Gestalt structuring

Discussion RT has the rhetorical aim of organising knowledge in relation to possible outcomes, conclusions or choices. The hypothesised model for the gestalt patterning in this RT is that the content ideas will be structured by CONTAINER schemata – containers or groupings of opposing arguments (see *Chapter 6, Section 6.3.3*, p. 238). This schematic structure for the organisation of ideas (in Discussion RT) is proposed as a prototype. In order to grade scripts in relation to this prototype, a descriptor from the following scale was assigned to each script to describe its degree of adherence to the proposed Gestalt structure.

1. The response adheres strictly to the RT model with most of the response consisting of CONTAINERS (clusters) of opposing arguments;
2. The response involves CONTAINERS of opposing arguments among other schematic structures;
3. The response mainly consists of one CONTAINER or clustering of arguments relating to one viewpoint and there is no contrasting group;
4. The content of the response is not concerned with viewpoints for or against the topic, but rather focuses on other content employing other schematic structures;
5. There is no discernible structuring of content.

The findings are presented in *Table 7.17* following.

Table 7.17: *Discussion Rhetorical Type Gestalt Structuring: Summary of Findings*

| Sample | | 1 The response adheres strictly to the RT model with most of the response consisting of CONTAINERS (clusters) of opposing arguments | 2 The response contains CONTAINERS of opposing arguments among other schematic structures | 3 There is only one CONTAINER or clustering of arguments relating to one viewpoint, there is no contrasting group | 4 The content of the response is not concerned with viewpoints for or against the topic but rather focuses on other content employing other schematic structures; | 5 There is no discernible structuring of content |
|---|---|---|---|---|---|--|
| Native-Speaker Teacher Group | Number of scripts | 17 | 4 | 3 | 0 | 0 |
| | Percentage of Teacher Group of 24 | 71% | 16.5% | 12.5% | | |
| Native-Speaker Student Group | Number of Scripts | 8 | 2 | 11 | 2 | 1 |
| | Percentage of Native-speaker Student Group of 24 | 33.33% | 8.33% | 45.83% | 8.33% | 4.46% |
| Non-Native-Speaker Student Group | Number of Scripts | | | 21 | 1 | 2 |
| | Percentage of Non-native-speaker Student Group of 24 | | | 87.5% | 4.16% | 6.33% |

Overall, half of the native-speaker respondents (52%) employed the predicted CONTAINER structure to contrast the two opposing viewpoints in relation to the topic. However, for both of the student groups (native-speaker and non-native-speaker), Descriptor 3 was assigned to the largest number of responses – a total of 35 scripts (or 49% of the whole sample). This indicates the clustering of arguments to support only one viewpoint in the response. This failure of the Descriptor 3 group to carry out the task instruction (requiring them to write about arguments for and against the proposition), suggests that the both student-writer

groups may have had less experience of writing tasks that involved contrastive argument than they did presenting one side of an argument or point of view.

7.6.1.2 Discussion: Discourse Organisation

For Discussion RT, the proposed prototypical discourse pattern is *Generalisation - Example* (Hoey, 1983, p. 135-143) and *Matching Relations* (Hoey, 1983, p. 113) - see *Chapter 6, Section 6.4.3*, p. 240. In order to grade the written responses in relation to these prototypical structures, each script was assigned one of the following numbered descriptors:

1. Closely adheres to *Generalisation - Example* discourse pattern with several *Matching* sections occurring either within or between each of these major sections;
2. Generally adheres to *Generalisation Example* discourse pattern with some occurrence of *Matching* sections within the text;
3. Has some form of a *General - Particular* pattern but does not employ *Matching Relations* to contrast viewpoints;
4. Has a *General - Particular* pattern, but adds a *Problem – Solution* discourse pattern as an additional organisational pattern;
5. Does not have an overall *Generalisation - Example* pattern, but employs some other kind of overall discourse pattern;

The findings relating to Discourse Organisation are presented in **Table 7.18** following.

Table 7.18: *Discussion Rhetorical Type Discourse Organisation: Summary of Findings*

| Sample | | 1 | 2 | 3 | 4 | 5 |
|----------------------------------|--|--|---|---|--|--|
| | | Closely adheres to <i>Generalisation Example</i> discourse pattern with several <i>Matching</i> sections | Generally adheres to <i>Generalisation Example</i> discourse pattern with some occurrence of <i>Matching</i> sections within the text | Has a some form of a <i>General - Particular</i> pattern but does not employ <i>Matching Relations</i> to contrast viewpoints | Has a <i>General - Particular</i> pattern, but adds a <i>Problem – Solution</i> discourse pattern as an additional organisational pattern; | Does not have an overall <i>Generalisation Example</i> pattern, but employs some other kind of overall discourse |
| Native-Speaker Teacher Group | Number of scripts | 14 | 1 | 4 | 5 | |
| | Percentage of Teacher Group of 24 | 58.33% | 4.16% | 16.66% | 20.83% | |
| Native-Speaker Student Group | Number of Scripts | 6 | 3 | 8 | 7 | |
| | Percentage of Native-speaker Student Group of 24 | 25% | 12.5% | 33.33% | 29.17% | |
| Non-Native-Speaker Student Group | Number of Scripts | | | 19 | 2 | 3 |
| | Percentage of Non-native-speaker Student Group of 24 | | | 79.16% | 8.33% | 12.5% |

Among the native-speaker groups (teachers and students), the largest group of responses was assigned Descriptor 1 (20 responses or 28% of the whole sample), indicating responses that presented arguments both for and against the topic. However, an interesting finding from the analysis of responses to this task was that **all of the non native-speaker student responses** and 58% of the native-speaker student responses failed to employ Matching relations in their discourse organisation. These responses presented arguments for one point of view only. This suggests that control of Discussion RT (involving discursive argument) requires the mastery of the Matching relations discourse pattern. There was no

evidence in any of the responses of the anticipated rhetorical move into Report RT.

7.6.1.3 Discussion: Semantic relations

The model for Discussion RT hypothesises the following occurrences of cognitive processes and semantic relations.

| Cognitive Processes (calculations include Bonding [Coupling]) | Semantic relations ¹⁶ (Bonding [Coupling] removed): only relations with 10% or more included |
|--|--|
| Tempero-contigual (46%); Associative (27%); Logico-Deductive (26%) | Concession-Contraexpectation (approx. 19%) Grounds-Conclusion & Reason-Result combined (approx. 26%); Means-Purpose & Means-Result combined (approx. 22%); |

In the sample of written responses for Discussion RT, 16 semantic relations from Crombie's taxonomy were identified (Crombie, 1987, p. 102). These are presented and analysed in the two tables - *Tables 7.19* and *7.20* - that follow .

Table 7.19 provides a summary of the overall frequency of occurrence of cognitive processes and semantic relations in each of the sub-groups of the sample (native-speaker teachers, native-speaker students and non-native-speaker students).

The next table, *Table 7.20*, presents the analysed findings from the three sample groups of Discussion RT responses alongside the proposed Discussion RT model. The findings are then discussed in terms of both cognitive processes and semantic relations and the differences in the use of these by the three groups of the sample.

¹⁶ Because of the high occurrence of Bonding in all RTs, and because of the fact that there is a roughly equivalent percentage of this relation in all cases, the percentage calculations for the other relations was done after the effect of this relation was removed. In other words, the percentage occurrence of each relation recorded here is a percentage for the total occurrences of all relations other than Bonding.

Finally, overall prototypicality scores are established for each response and the three sample groups are compared in relation to these. These scores are presented in *Table 7.22*.

Table 7.19: *Discussion Sample: Overall Occurrences of Semantic Relations*

| Semantic Relation | Native-Speaker Teacher Group | | Native-Speaker Student Group | | Non Native-Speaker Student Group | |
|--------------------------------------|------------------------------|---------------------|------------------------------|---------------------|----------------------------------|---------------------|
| | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total |
| Associative | 90 | 20% | 72 | 18% | 23 | 17% |
| Simple Contrast | 9 | 2.8% | | | 3 | 2.8% |
| Comparative Similarity | 2 | 0.6% | | | | |
| Statement-Affirmation | | | | | | |
| Statement-Exception | | | | | | |
| Statement-Exemplification | 4 | 1.2% | 11 | 4% | 2 | 1.9% |
| Denial-Correction | 2 | 0.6% | 6 | 2% | 2 | 1.9% |
| Concession-Contraexpectation | 39 | 12% | 29 | 10.4% | 13 | 12.4% |
| Supplementary Alternation | 3 | 0.9% | 1 | 0.4% | 1 | 0.9% |
| Contrastive Alternation | 18 | 5.5% | 13 | 4.7% | 1 | 0.9% |
| Paraphrase | 1 | 0.3% | | | | |
| Amplification | 12 | 3.7% | 12 | 4.3% | 1 | 0.9% |
| | | | | | | |
| Logico-deductive | 234 | 51% | 201 | 51% | 81 | 61% |
| Condition-Consequence | 54 | 16.5% | 39 | 14% | 19 | 18% |
| Means-Purpose | 14 | 4.2% | 13 | 4.6% | 6 | 5.7% |
| Means-Result | 61 | 18.7% | 63 | 22.6% | 3 | 2.9% |
| Reason-Result | 94 | 28.7% | 65 | 23.3% | 41 | 39% |
| Grounds-Conclusion | 11 | 3.3% | 21 | 7.5% | 12 | 11.5% |
| | | | | | | |
| Tempero-contigual | 131 | 29% | 116 | 29% | 29 | 22% |
| Chronological Sequence | 3 | 0.9% | 2 | 0.7% | 1 | 0.9% |
| Temporal Overlap | | | | | | |
| Bonding | 128 | | 114 | | 28 | |
| TOTALS (with/without Bonding) | 455/327 | 100% | 393/279 | 100% | 133/105 | 100% |

Table 7.20: *Discussion Sample: Analysis of the Use of Cognitive Processes and Semantic Relations*

| DISCUSSION | | | | |
|---|--------------|----------------------------|----------------------------|--------------------------------|
| | Model | Native sp. Teachers | Native sp. Students | Non-native sp. Students |
| Cognitive processes¹⁷ | | | | |
| Temporo-contigual | 46% | 29% | 30% | 22% |
| Associative | 27% | 20% | 18.5% | 17% |
| Logico-deductive | 26% | 51% | 51% | 61% |
| | | | | |
| Semantic relations¹⁸ | | | | |
| Reason-Result & Grounds-Conclusion | 26% | 32% (+6%) | 31% (+5%) | 50% (+24%) |
| Means-Purpose & Means-Result | 22% | 23% (+1%) | 27% (+5%) | 8.5% (-18.5%) |
| Concession-Contraexpectation | 19% | 12% (-7%) | 10% (-9%) | 12% (-7%) |
| Overall (+ and -) variation from model | | 14 | 19 | 49.5 |

In the case of Discussion RT, all three groups have a significant imbalance in relation to the model in terms of the proportion of the three different cognitive processes. However, both the native-speaking teacher group and the native-speaking student group are relatively close to the model in terms of the actual proportion of identified semantic relations.

The findings in relation to cognitive processes show that all three groups have a significantly lower proportion of Temporo-contigual relations (29%/30%/22%) than the model (46%) and a significantly higher proportion of Logico-deductive relations (51%/51%/61%) than the model (26%), although all three are relatively close (within 10% - at 20%/18.5%/17%) to the model (27%) in the case of Associative relations.

¹⁷ Bonding relation included in the calculations

¹⁸ Bonding relation excluded from the calculations

For semantic relations, the overall points variation from the model (counting + and – values equally) indicates that the native-speaking teacher group is closer to the model (14 points overall variation from the model), than the native-speaking student group (19 points variation), which is closer than the non-native-speaking student group (49.5 points variation).

The most significant semantic relational variations from the model appear to be:

- In the case of the non-native-speaking student group, Reason-Result and Grounds-Conclusion (50%) is almost twice as common as in the model (26%);
- In the case of the non-native-speaking student group, Means-Purpose and Means-Result have a significantly lower proportion of occurrence (8.5%) than in the model (22%).

Finally, to establish categories of prototypicality in the use of semantic relations in the sample of Discussion RT responses, a descriptor number was assigned to each response in relation to its overall use of the cognitive processes and semantic relations of the model. The descriptors were calculated on the basis of texts in the corpus of between 200 and 250 words containing approximately 16 semantic relations (including Bonding) and 11 semantic relations if Bonding is removed. Applying the corpus findings in relation to cognitive process and semantic relational frequencies, the following table was employed to assign a prototypicality descriptor to each response of the Discussion RT sample.

Table 7.21 Discussion RT Prototypicality Descriptors for Semantic Relations

| Descriptor 1 (Most prototypical) | Descriptor 2 | Descriptor 3 | Descriptor 4 | Descriptor 5 (Least Prototypical) |
|--|---------------------|---------------------|---------------------|--|
| 2 or 3 Means – Purpose and/or Means Result 3 Reason – Result and/or Grounds – Conclusion 1 Concession Contraexpectation | 5 of these | 4 of these | 3 of these | 2 or fewer of these |

The results of assigning a prototypicality descriptor to each response are presented in *Table 7.22* following.

Table 7.22: Discussion Rhetorical Type: Prototypicality in the Use of Semantic Relations

| Sample | | 1 2 or 3 Means – Purpose and/or Means Result 3 Reason – Result and/or Grounds – Conclusion Concession Contraexpectation | 2 5 of these | 3 4 of these | 4 3 of these | 5 2 or fewer of these |
|---|---|--|------------------------|------------------------|------------------------|---------------------------------|
| Native-Speaker Teacher Group | Number of scripts | 13 | 8 | 3 | | |
| | Percentage of Teacher Group of 24 | 54% | 33.5% | 12.5% | | |
| Native-Speaker Student Group | Number of Scripts | 12 | 9 | 1 | 1 | 1 |
| | Percentage of Native-speaker Student Group of 24 | 50% | 37.5% | 4.17% | 4.17% | 4.17% |
| Non Native-Speaker Student Group | Number of Scripts | | 1 | 7 | 7 | 9 |
| | Percentage of Non-native-speaker Student Group of 24 | | 4.17% | 29.17% | 29.17% | 37.5% |

7.6.1.4 Discussion: Overall ratings of prototypicality of the sample

In the previous analyses, each response was examined for its use of the three component knowledge types (gestalt structuring, discourse organisation and semantic relations), and given a descriptor score from a scale of 1 – 4 or 1 – 5. To establish an overall prototypicality rating for each script, the three descriptor scores were added together, and the following formula was applied.

| | |
|---|---|
| Descriptor 1 <i>highly prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 3 or 4 |
| Descriptor 2 <i>moderately prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the descriptor three scores is 5 or 6 |
| Descriptor 3 <i>less prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 7 or 8 |
| Descriptor 4 <i>not prototypical</i> | <i>Gestalt structuring, Discourse Organisation and Semantic Relations</i> – sum of the three descriptor scores is 9 or greater. |

The findings of the overall descriptor assignments are summarised in **Table 7.23** following.

Table 7.23: *Discussion Rhetorical Type Sample: Overall Ratings of Prototypicality*

| Overall Prototypicality Descriptors | 1 | 2 | 3 | 4 |
|---|----------|----------|----------|----------|
| Teacher Responses | 12 | 4 | 8 | |
| Native-speaker Student Responses | 7 | 1 | 9 | 7 |
| Non native-speaker Student Responses | | | | 24 |

7.7 Recount Rhetorical Type: The sample and the task

To test the hypothesised features of Recount RT (see *Table 7.1* p. 265), responses to a writing task were gathered from a sample of 75 writers (see *Appendix 11*), consisting of:

- 25 native-speaker language teachers who are graduates;
- 25 native-speaker students (13 final year secondary school students and 12 university students taking a first year course);
- 25 non native-speaker university students in the second week of a writing course specifically for non-native speaker students.

To ensure that there were the same number of response (25) from each writer category (teachers, native-speaker students and non native-speaker students), responses were gathered from six different groups on six separate occasions (see *Table 7.2*, p. 269.- Groups 2, 3, 7, 10, 11 and 12), following a standard set of supervision instructions (see *Appendix 10*)

The task (see *Appendix 9*) involves writing a response in relation to a collection of questions and answers in note form concerning significant events which occurred during the economic history of post-war Japan. The events referred to are presented in a random order with no indication as to their relative importance. The task instruction was: “Using the information provided, write a paragraphed recount about the development of the Japanese economy (up to 200 words).”

7.7.1 Recount: Findings

7.7.1.1 Recount: Gestalt structuring

Recount RT is concerned with the presentation of information that is essentially sequential or chronological. The model for this RT predicts that the content information of the responses will be structured in terms of an overall SOURCE PATH GOAL schema. (see *Chapter 6, Section 6.3.4*, p. 230). This schematic structure for the organisation of knowledge (in Recount RT) is proposed as a prototype. In order to grade scripts in relation to this prototype, a descriptor from the following scale was assigned to each script to describe its degree of adherence to the proposed schematic structure:

1. The response adheres strictly to the RT model with most of the response information organised according to a SOURCE PATH GOAL structure;
2. The response generally adheres to the RT model with much of the response information organised according to a SOURCE PATH GOAL structure;
3. The response contains elements of a PATH sequence, but is lacking a clear outline of either SOURCE or GOAL;
4. There are no clear elements of a SOURCE PATH GOAL schematic structure.

The findings are presented in *Table 7.24* following.

Table 7.24: *Recount Rhetorical Type Gestalt Structuring: Summary of Findings*

| Sample | | 1 The response adheres strictly to the RT model with most of the response information organised according to a SOURCE PATH GOAL structure | 2 The response generally adheres to the RT model with much of the response information organised according to a SOURCE PATH GOAL structure | 3 The response contains elements of a PATH sequence, but is lacking a clear outline of either SOURCE or GOAL | 4 There are no clear elements of a SOURCE PATH GOAL schematic structure |
|----------------------------------|--|---|--|--|---|
| Native-Speaker Teacher Group | Number of scripts | 21 | 2 | 2 | |
| | Percentage of Teacher Group of 25 | 84% | 8% | 8% | |
| Native-Speaker Student Group | Number of Scripts | 13 | 9 | 3 | |
| | Percentage of Native-speaker Student Group of 25 | 52% | 36% | 12% | |
| Non Native-Speaker Student Group | Number of Scripts | | 4 | 17 | 4 |
| | Percentage of Non-native-speaker Student Group of 25 | | 16% | 68% | 16% |

Overall, 65% of the responses followed the SOURCE PATH GOAL gestalt pattern, being assigned either Descriptor 1 or Descriptor 2. Responses not included within this percentage group still mostly employed a chronological structure in their organisation, but tended to omit the SOURCE section (in the case of the native-speaker responses), or the GOAL section (in the case of the non-native-speaker student responses). The teacher group showed a close degree of adherence to the prototype, with 84% of responses being assigned Descriptor 1. Furthermore, a high percentage of both native-speaker groups used all three parts of the gestalt (being assigned either Descriptors 1 or 2), with 92% of teachers and 88% of students' responses following the pattern. The non-native-speaker group's degree of adherence to the prototype was considerably lower than the other two

groups. There was no evidence in the sample of the anticipated rhetorical move into Report RT.

7.7.1.2 Recount: Discourse organisation

For Recount RT, the model predicts a *Problem - Solution* discourse pattern, sometimes referred to as *Situation - Response* (Hoey, 1983, pp. 43-59) - see *Chapter 6, Section 6.4.4*, p. 242. In order to grade the written responses in relation to this prototypical structure, each script was assigned one of the following numbered descriptors:

1. The whole text closely adheres to *Problem - Solution* patterns;
2. Most of the text uses *Problem - Solution* patterns;
3. At least one *Problem - Solution* pattern appears in the text;
4. The text has no features of a *Problem - Solution* discourse pattern.

Table 7.25: *Recount Rhetorical Type Discourse Organisation: Summary of Findings*

| Sample | | 1 The whole text closely adheres to <i>Problem - Solution</i> pattern | 2 Most of the text uses a <i>Problem - Solution</i> pattern | 3 At least one <i>Problem - Solution</i> pattern appears in the text | 4 The text has no features of a <i>Problem - Solution</i> discourse pattern |
|----------------------------------|--|--|--|---|--|
| Native-Speaker Teacher Group | Number of scripts | 20 | 3 | 2 | |
| | Percentage of Teacher Group of 25 | 80% | 12% | 8% | |
| Native-Speaker Student Group | Number of Scripts | 14 | 7 | 4 | |
| | Percentage of Native-speaker Student Group of 25 | 56% | 28% | 16% | |
| Non Native-Speaker Student Group | Number of Scripts | | 3 | 13 | 9 |
| | Percentage of Non-native-speaker Student Group of 25 | | 12% | 52% | 36% |

Some occurrence of the discourse pattern - Problem Solution - was employed in 88% of the responses of the Recount sample, with 47% of all responses being assigned Descriptor 1. The teacher group produced 24% more Descriptor 1 responses than the native-speaker student group. Furthermore, compared with the native-speaker student group, the responses of the non-native-speaker student group received ratings that were markedly less prototypical, the majority showing only one occurrence of the Problem – Solution discourse pattern.

7.7.1.3 Recount: Semantic relations

The model for Recount RT predicts the following occurrences of cognitive processes and semantic relations.

| Cognitive Processes (calculations include Bonding [Coupling]) | Semantic relations ¹⁹ (Bonding [Coupling] removed): only relations with 10% or more included |
|--|--|
| Tempero-Contigual (60%); Associative & Logico-Deductive (approx 20% each) | Means-Purpose & Means-Result combined (approx. 19%); Amplification (approx. 17%); Chronological Sequence (approx. 15.5%); Grounds-Conclusion & Reason-Result combined (approx. 14.5%) |

In the sample of written responses for Recount RT, 16 semantic relations from Crombie’s taxonomy were identified (Crombie, 1987, p. 102). These are presented and analysed in the two tables – *Tables 7.26 and Table 7.27* – following.

Table 7.26 provides a summary of the overall frequency of occurrence of cognitive processes and semantic relations in each of the sub-groups of the sample

¹⁹ Because of the high occurrence of Bonding in all RTs, and because of the fact that there is a roughly equivalent percentage of this relation in all cases, the percentage calculations for the other relations was done after the effect of this relation was removed. In other words, the percentage occurrence of each relation recorded here is a percentage for the total occurrences of all relations other than Bonding.

(native-speaker teachers, native-speaker students and non-native-speaker students).

The next table, *Table 7.27* presents the analysed findings from the three sample groups of Recount RT responses alongside the proposed Explanation RT model. The findings are then discussed, in terms of both cognitive processes and semantic relations, noting the differences in the use of these by the three groups of the sample.

Table 7.26: Recount Sample: Overall Occurrences of Semantic Relations

| Semantic Relation | Native-Speaker Teacher Group | | Native-Speaker Student Group | | Non Native-Speaker Student Group | |
|-----------------------------------|------------------------------|---------------------|------------------------------|---------------------|----------------------------------|---------------------|
| | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total | Number in the Sample | Percentage of Total |
| Associative | 71 | 13.7% | 63 | 14% | 23 | 12% |
| Simple Contrast | 5 | 1.4% | 8 | 2.6% | 2 | 1.6% |
| Comparative Similarity | | 1 | 1 | 0.3% | 1 | 0.8% |
| Statement-Affirmation | | | | | | |
| Statement-Exception | | | | | 3 | 2.3% |
| Statement-Exemplification | | | 1 | 0.3% | | |
| Denial-Correction | | | | | 1 | 0.8% |
| Concession-Contraexpectation | 26 | 7.3% | 10 | 3.2% | | |
| Supplementary Alternation | | | | | | |
| Contrastive Alternation | | | | | | |
| Paraphrase | | | | | 1 | 0.8% |
| Amplification | 40 | 11.2% | 43 | 13.8% | 15 | 11.8% |
| Logico-deductive | 183 | 35.3% | 151 | 34% | 51 | 28% |
| Condition-Consequence | 5 | 1.4% | 5 | 1.6% | 2 | 1.6% |
| Means-Purpose | 27 | 7.5% | 26 | 8.4% | 14 | 11% |
| Means-Result | 53 | 14.8% | 31 | 10% | 8 | 6.3% |
| Reason-Result | 94 | 26.3% | 89 | 28.6% | 27 | 21.3% |
| Grounds-Conclusion | 4 | 1.1% | | | | |
| Tempero-contigial | 266 | 51% | 232 | 52% | 110 | 60% |
| Chronological Sequence | 104 | 29% | 96 | 31% | 53 | 41.7% |
| Temporal Overlap | 2 | 0.5% | 1 | 0.3% | | |
| Bonding | 160 | | 135 | | 57 | |
| TOTALS (with and without Bonding) | 518/358 | 100% | 445/311 | 100% | 184/127 | 100% |

Table 7.27 *Recount Sample: Analysis of the Use of Cognitive Processes and Semantic Relations*

| RECOUNT | | | | |
|---|--------------|----------------------------|----------------------------|--------------------------------|
| | Model | Native sp. Teachers | Native sp. Students | Non-native sp. Students |
| Cognitive processes²⁰ | | | | |
| Temporo-contigual | 60% | 51% | 52% | 60% |
| Associative | 20% | 14% | 14% | 12% |
| Logico-deductive | 20% | 35% | 34% | 28% |
| Semantic relations²¹ | | | | |
| Means-Purpose & Means-Result | 19% | 22% (+3%) | 18% (-1%) | 17% (-2%) |
| Amplification | 17% | 11% (-6%) | 14% (-3%) | 12% (-5%) |
| Chronological Sequence | 15.5% | 29% (+13.5%) | 31% (+15.5%) | 42% (+26.5%) |
| Reason-Result & Grounds-Conclusion | 14.5% | 27% (+12.5%) | 29% (+14.5%) | 21% (+6.5%) |
| Overall (+ and -) variation from model | | 35 | 34 | 55 |

In the case of Recount RT, the native-speaking student group is slightly closer to the model (34 points variation) than the native-speaking teacher group (35 points), and both are significantly closer than the non-native speaking student group (55 points).

The findings in relation to cognitive processes show that the non-native speaking student group is closer to the model in terms of proportion of relations representing the three types of cognitive process than the other two groups (although all three groups are relatively close to the model).

For semantic relations, the overall points variations from the model (counting + and – values equally) indicate that the native-speaking student group is slightly closer to the model (34 points overall variation from the model), than the native-

²⁰ Bonding relation included in the calculations

²¹ Bonding relation excluded from the calculations

speaking teacher group (35 points variation), and both of these groups are significantly closer to the model than the non-native-speaking student group (55 points variation).

The most significant semantic relational variations from the model appear to be:

- The proportion of Associative relations in relation to Logico-deductive relations for the three groups is 28.5%/71.5% (native-speaking teacher group); 29%/71% (native-speaking student group), and 30%/70% (non-native-speaking student group) as opposed to 50%/50% in the model;
- In all three cases, the percentage of Chronological Sequence relations is significantly higher than the model, something that is particularly marked (42% as opposed to 15.5%) in the case on the non-native-speaking student group.

In all cases (native-speaking teacher group, native-speaking student group, non-native-speaking student group), the first three relations (or relational combinations) in terms of percentage occurrence are the same as is the case in the model (except that the order in which they occur is different).

Finally, to establish categories of prototypicality in the use of semantic relations in the sample of Recount RT responses, a descriptor number was assigned to each response in relation to its overall use of the cognitive processes and semantic relations of the model. The descriptors were calculated on the basis of texts in the corpus of between 200 and 250 words containing approximately 16 semantic relations (including Bonding) and 11 semantic relations if Bonding is removed.

Applying the corpus findings in relation to cognitive process and semantic relations frequencies, the following table was employed to assign a prototypicality descriptor to each response of the Recount RT sample.

Table 7.28 *Recount RT Prototypicality Descriptors for Semantic Relations*

| Descriptor 1 (Most prototypical) | Descriptor 2 | Descriptor 3 | Descriptor 4 | Descriptor 5 (Least Prototypical) |
|---|---------------------|---------------------|---------------------|--|
| 2 Means – Purpose and/or Means Result | 7 of these | 6 of these | 5 of these | 4 or fewer of these |
| 2 Amplification | | | | |
| 2 Chronological Sequence | | | | |
| 2 Reason – Result and/or Grounds – Conclusion | | | | |

The results of assigning a prototypicality descriptor to each response are presented in **Table 7.29** following.

Table 7.29: *Recount: Prototypicality in the Use of Semantic Relations*

| Sample | | 1 2 Means – Purpose and/or Means Result 2 Amplification 2 Chronological Sequence 2 Reason – Result and/or Grounds – Conclusion | 2 7 of these | 3 6 of these | 4 5 of these | 5 4 or fewer of these |
|----------------------------------|--|---|------------------------|------------------------|------------------------|---------------------------------|
| Native-Speaker Teacher Group | Number of scripts | 9 | 10 | 6 | | |
| | Percentage of Teacher Group of 25 | 36% | 40% | 24% | | |
| Native-Speaker Student Group | Number of Scripts | 10 | 8 | 7 | | |
| | Percentage of Native-speaker student Group of 25 | 40% | 32% | 28% | | |
| Non Native-Speaker Student Group | Number of Scripts | | 2 | 4 | 7 | 12 |
| | Percentage of Non-native-speaker Student Group of 25 | | 8% | 16% | 28% | 48% |

7.7.1.4 Recount: Overall ratings of prototypicality of the sample

In the previous analyses, each response was examined for its use of the three component knowledge types (gestalt structuring, discourse organisation and semantic relations), and for each it received a descriptor score from a scale of 1 – 4 or 1 – 5. To establish an overall prototypicality rating for each script, the three descriptor scores were added together, and the following formula was applied.

- Descriptor 1** *highly prototypical* *Gestalt structuring, Discourse Organisation and Semantic Relations* – sum of the three descriptor scores is 3 or 4
- Descriptor 2** *moderately prototypical* *Gestalt structuring, Discourse Organisation and Semantic Relations* – sum of the descriptor three scores is 5 or 6
- Descriptor 3** *less prototypical* *Gestalt structuring, Discourse Organisation and Semantic Relations* – sum of the three descriptor scores is 7 or 8
- Descriptor 4** *not prototypical* *Gestalt structuring, Discourse Organisation and Semantic Relations* – sum of the three descriptor scores is 9 or greater.

The findings of the overall descriptor assignments are summarised in **Table 7.30** following.

Table 7.30: *Recount Rhetorical Type Sample: Overall Ratings of Prototypicality*

| Overall Prototypicality Descriptors | 1 | 2 | 3 | 4 |
|---|----------|----------|----------|----------|
| Teacher Responses | 16 | 6 | 3 | |
| Native-speaker Student Responses | 11 | 7 | 7 | |
| Non-native-speaker Student Responses | | | 3 | 22 |

7.8 Study 1: Conclusions and discussion

This section will first consider the overall findings of Study 1 in relation to each of its three aims, and then, on the basis of the findings, present some general conclusions in relation to the cognitive structuring of academic prose and make some preliminary suggestions as to how this may inform the teaching and learning of academic writing.

7.8.1 Study 1: Aim 1

Aim 1 was to determine the extent to which the organisational features present in samples of writing conform to those identified in proposed prototype models of the four rhetorical types.

The prediction that, given the rhetorical purpose of a particular RT, written discourse that seeks to fulfil that purpose will employ the organisation features of that RT model appears to be confirmed. The findings indicate the operation of a “prototype effect” (Rosch, 1975). That is, the responses can be classified on a continuum - from being more typical (displaying close adherence to the features of the RT model) to less typical (displaying less frequent use of features of the RT model). This operation of a prototype effect in relation to the use of RT procedural knowledge in the organisation of written discourse appeared consistently throughout the four different samples. It is evident in each of the separate ratings for the use of each of the three different knowledge types of the RT model (gestalt structuring, discourse patterns and semantic relations), and also in the combined, overall prototypicality ratings. The prototypicality ratings for the four samples (showing the prototype effect), are summarised in *Table 7.31* following.

Table 7.31: Total Overall Prototypicality Ratings for Each Sample

| Overall Prototypicality Descriptors | 1 Highly Prototypical | | 2 Moderately Prototypical | | 3 Less Prototypical | | 4 Not Prototypical | |
|-------------------------------------|--------------------------|----------------------|------------------------------|----------------------|------------------------|----------------------|-----------------------|----------------------|
| | Number of responses | Percentage of sample | Number of responses | Percentage of sample | Number of responses | Percentage of sample | Number of responses | Percentage of sample |
| Report (sample of 75) | 4 | 5.5% | 20 | 26.5% | 28 | 37.5% | 23 | 30.5% |
| Explanation (sample of 69) | 9 | 13% | 27 | 39% | 19 | 27.5% | 14 | 20.5% |
| Discussion (sample of 72) | 19 | 26.5% | 5 | 7% | 17 | 23.5% | 31 | 43% |
| Recount (sample of 75) | 27 | 36% | 13 | 17.5% | 13 | 17.5% | 22 | 29% |

Whether or not the closer adherence of a response to the hypothesised prototype and its features (such as in the responses that were assigned Descriptor 1 – highly prototypical) provides evidence of greater experience in writing was the focus of the second and third parts of the study.

7.8.2 Study 1: Aim 2

Aim 2 was to determine whether, and to what extent, the organisational features identified in the models differ in the case of texts written by more experienced and less experienced native-speaker writers of English.

In all four samples, the experienced writer groups (teachers) produced responses that were closer to the prototype (RT) model than those of the less experienced (native-speaker student) groups. The difference between the responses of the two groups to the four tasks is shown in *Table 7.32* following (indicating the overall prototypicality ratings assigned to the responses).

Table 7.32: Comparison of the Overall Prototypicality Ratings of Teachers and Native-speaker Students

| Overall Prototypicality Descriptors | | 1 Highly Prototypical | | 2 Moderately Prototypical | | 3 Less Prototypical | | 4 Not Prototypical | |
|-------------------------------------|---------------|--------------------------|----------------------|------------------------------|----------------------|------------------------|----------------------|-----------------------|----------------------|
| | | Number of responses | Percentage of sample | Number of responses | Percentage of sample | Number of responses | Percentage of sample | Number of responses | Percentage of sample |
| Report | Teachers (25) | 4 | 16% | 13 | 52% | 8 | 32% | | |
| | Students (25) | | | 5 | 20% | 10 | 40% | 10 | 40% |
| Explanation | Teachers (23) | 6 | 26% | 14 | 61% | 2 | 9% | 1 | 4% |
| | Students (23) | 3 | 13% | 12 | 52% | 6 | 26% | 2 | 9% |
| Discussion | Teachers (24) | 12 | 50% | 4 | 16.5% | 8 | 33.5% | | |
| | Students (24) | 7 | 29% | 1 | 4.5% | 9 | 37.5% | 7 | 29% |
| Recount | Teachers (25) | 16 | 64% | 6 | 24% | 3 | 12% | | |
| | Students (25) | 11 | 44% | 7 | 28% | 7 | 28% | | |

7.8.3 Study 1: Aim 3

Aim 3 was to determine whether, and to what extent, the organisational features used by inexperienced writers differ in the case of native and non-native speakers of English.

The findings from the analyses of the three types of organisational knowledge and their combined overall prototypicality ratings indicate that, in all four samples, the native-speaker student groups produced responses that were closer to the prototype (RT) model than those of the non native-speaker student groups. In the case of Report RT, the degree of adherence to the prototype model by the two groups was close than for the other three Rhetorical Types. A possible reason for the closer degree of adherence to the Report RT by the non native-speaker group could be the fact that almost all members of the group had taken the IELTS test as a means of entry to university. Their preparation for the first writing task of the test may have influenced their response to the Report RT Task. The overall

prototypicality ratings showing the difference between the responses of the two groups are indicated in *Table 7.33* following.

Table 7.33: *Comparison of Prototypicality Ratings of Native-speaker(NS) Students and Non-native-speaker (NNS) Students*

| Overall Prototypicality Descriptors | | 1 Highly Prototypical | | 2 Moderately Prototypical | | 3 Less Prototypical | | 4 Not Prototypical | |
|-------------------------------------|-----------------|--------------------------|----------------------|------------------------------|----------------------|------------------------|----------------------|-----------------------|----------------------|
| | | Number of responses | Percentage of sample | Number of responses | Percentage of sample | Number of responses | Percentage of sample | Number of responses | Percentage of sample |
| Report | 25 NS Students | | | 5 | 20% | 10 | 40% | 10 | 40% |
| | 25 NNS Students | | | 2 | 8% | 10 | 40% | 13 | 52% |
| Explanation | 23 NS Students | 3 | 13% | 12 | 52% | 6 | 26% | 2 | 9% |
| | 23 NNS Students | | | 1 | 4% | 11 | 48% | 11 | 48% |
| Discussion | 24 NS Students | 7 | 29% | 1 | 4.5% | 9 | 37.5% | 7 | 29% |
| | 24 NNS Students | | | | | | | 24 | 100% |
| Recount | 25 NS Students | 11 | 44% | 7 | 28% | 7 | 28% | | |
| | 25 NNS Students | | | | | 3 | 15% | 22 | 88% |

7.9 Conclusions

The findings from Study 1 appear to indicate that cognitive, organisational structures (procedural knowledge) that are related to rhetorical purpose and content knowledge appear to operate in consistent ways in the structuring of the writing of certain types of academic prose in English. In the samples of responses to each of the four tasks, patterns consistent with the proposed RT model were apparent in the overall structuring of ideas, the structuring of larger sections of text and the choice of semantic relationships. Furthermore, the idea that the features of each RT model constitute an actual prototype is supported by the fact that mastery of these cognitive patterns appears to relate to experience and levels of proficiency in writing. Evidence for this is provided by the fact that different levels of prototypicality in relation to the tasks were indicated in the responses of

the three sample groups. Generally, experienced writers produced responses that were closer to the prototype than inexperienced writers, and inexperienced native-speaker writers produced more prototypical responses than inexperienced non-native-speaker writers.

If, as the findings from Study 1 in relation to RT knowledge appear to indicate, there are underlying cognitive frameworks that operate in different types of written discourse, it is possible that a conscious awareness of such knowledge may help to inform the development of discourse competence in learner writers (both native-speakers and non-native-speakers). In relation to the pre-writing stage of planning and organising ideas, learner-writers could be made aware of the gestalt patterns employed to organise discourse that aim to communicate certain types of content knowledge. In structuring larger sections of actual written text, knowledge of discourse patterns that relate to the Rhetorical Types could provide a framework within which writers are able to organise larger sections of paragraphs and text. Furthermore, in relation to cohesion, knowledge of the principal interpositional relations that relate to a particular RT could provide teachers, course planners and materials writers with indicators of salient structures and cohesive devices which should be included in instructional materials related to specific types of discourse. As an example, knowledge of the particular causal relations (*Means – Result*, *Reason – Result*, *Means – Purpose* and *Condition Consequence*) and the linguistic devices that are commonly used to encode these relations could bring a useful refinement to teaching and learning. Commonly, these different categories of relational coherence are treated under a single heading – cause and effect.

The findings from Study 1 would seem to indicate that RT knowledge plays a considerable role in the structuring of different types of academic prose. However, if this is the case, and if this knowledge can contribute to the development of discourse competence, the issue then arises as to how such RT knowledge can be integrated into course design and instructional materials. These and related issues are discussed in *Chapter 8*.

7.10 Study 2

Study 2 had the following aim:

To determine the extent to which a global assessment of responses to each of the four tasks correlates with the prototypicality ratings of the same responses that were established in Study 1.

In this study two raters familiar with the requirements of university writing tasks were asked to grade a small sample of 20 task responses from Study 1. The raters were two university faculty members from the fields of applied linguistics and English literature at the level of senior lecturer or professor, neither of whom had any knowledge of the RT model proposed in this thesis. They were asked to use a four point scale to grade each response in terms its effectiveness in fulfilling the requirements of the related task (see *Table 7.34* following).

Table 7.34: Raters' Grades

| Grade | Descriptor |
|-------|--------------------|
| 1. | Excellent |
| 2. | Some good features |
| 3. | Few good features |
| 4. | Poor |

The expert writers' ratings of the responses were then compared with the prototypicality rating for each response (assigned in Study 1) in order to determine the extent of the correlation between the two sets of ratings.

7.10.1 Rater information and guidelines

The following information was given to each rater:

1. The four tasks (see *Appendix 9*);
2. 20 scripts – five responses to each of the four tasks (see *Table 7.35* following);

3. The four grade descriptors to assign (see *Table 7.34* above)

The following instructions were given to the two raters as guidelines for assigning the global ratings to the scripts:

- Familiarise yourself with requirements of a task;
- Rate the five responses to that task, assigning one of the four grades (see *Table 7.34*) to each script; and,
- Write the grade you assign on the script and also on the attached grade sheet beside the script number. Also, beside the grade, write a brief comment explaining your reason for awarding that particular grade.

7.10.2 Selection of scripts

All of the scripts in Study 1 were sequentially numbered (sample number) beginning with the teacher group, followed by the native-speaker student group, followed by the non-native-speaker student group. The responses for Study 2 were then selected by using the randomised function of a scientific calculator²² and rounding the first five random numbers generated to the nearest whole number.

Table 7.35: Study 2 Sample

| Scripts | Task 1 (75 scripts) | Task 2 (69 scripts) | Task 3 (72 scripts) | Task 4 (75 scripts) |
|---------|------------------------|------------------------|------------------------|------------------------|
| | Sample Number | Sample Number | Sample Number | Sample Number |
| 1. | 28 | 5 | 27 | 30 |
| 2. | 35 | 18 | 37 | 34 |
| 3. | 3 | 22 | 7 | 8 |
| 4. | 12 | 32 | 54 | 39 |
| 5. | 17 | 55 | 70 | 71 |

²² Casio fx-82w

7.10.3 Comparison: Prototypicality scores and raters' grades

In *Table 7.36* following, the ratings of the randomly selected scripts by the two raters are shown alongside the prototypicality scores established in Study 1 (see *Table 7.31*, p. 307). In *Tables, 7.37 - 7.40*, the raters' comments about each script are reproduced..

Table 7.36: *Comparison of the Overall Prototypicality Scores and Raters' Grades*

Task 1

| Sample No. | Script Number | Prototypicality Scores | Rater 1 Grade | Rater 2 Grade |
|------------|---------------|------------------------|---------------|---------------|
| 17 | A36 | 2 | 2 | 3/4 |
| 28 | A03 | 3 | 2 | 3 |
| 12 | A31 | 3 | 4 | 1 |
| 3 | A22 | 4 | 4 | 1 |
| 35 | A10 | 4 | 3 | 2 |

Task 2

| Sample No. | Script Number | Prototypicality Rating | Rater 1 Grade | Rater 2 Grade |
|------------|---------------|------------------------|---------------|---------------|
| 5 | 2C05 | 1 | 2 | 3 |
| 18 | 2C19 | 2 | 1 | 2 |
| 22 | 2C24 | 2 | 3 | 1 |
| 32 | 2C35 | 4 | 4 | 1 |
| 55 | B209 | 4 | 4 | 4 |

Task 3

| Sample No. | Script Number | Prototypicality Rating | Rater 1 Grade | Rater 2 Grade |
|------------|---------------|------------------------|---------------|---------------|
| 07 | B33 | 1 | 2 | 2 |
| 37 | B14 | 3 | 4 | 3 |
| 27 | B03 | 3 | 3 | 3 |
| 70 | C226 | 3 | 3 | 2 |
| 64 | C219 | 4 | 4 | 4 |

Task 4

| Sample No. | Script Number | Prototypicality Rating | Rater 1 Grade | Rater 2 Grade |
|------------|---------------|------------------------|---------------|---------------|
| 08 | D33 | 1 | 1 | 1 |
| 30 | D07 | 1 | 1 | 2 |
| 34 | D14 | 3 | 2 | 3 |
| 39 | D42 | 3 | 3 | 2 |
| 71 | D71 | 4 | 3 | 4 |

Table 7.37: Task 1: Comparison of the Raters' Grades and Comments

| Sample No. | Prototype Score | Grade: Rater 1 | Comments: Rater 1 | Grade: Rater 2 | Comments: Rater 2 |
|------------|-----------------|----------------|---|----------------|---|
| 17 | 2 | 2 | Good, clear introduction (scene setting) paragraph except that it doesn't include overall number of road deaths. The final paragraph could have been tighter and more focussed. | 3/4 | Doesn't move beyond the basic facts. |
| 28 | 3 | 2 | Begins well. Good introductory paragraph. The use of percentages aids understanding of data. Some information is missing-especially the age distribution of passenger deaths. | 3 | Competent use of percentages and significant groupings. Basic interpretation. |
| 12 | 3 | 4 | Confusing. Too long. Unclear introduction and unsupported conclusion. It strays much too far from the task. | 1 | Excellent processing, mature style. Good, crisp, sound conclusion. |
| 35 | 4 | 3 | Some good points, but it strays quite a long way from the task. It appears more like a commentary than a report. It should have set the scene more clearly in the third paragraph where the reader should have been told what the data were about. Some of the information in the third paragraph could have been in the first paragraph and the final paragraph could have related more closely to the data rather than drawing a very general conclusion. | 2 | More analytical than 28 – inferential skills. |
| 3 | 4 | 4 | Good introductory paragraph, but the information in paragraph 3 could have been presented earlier. it strays from the task into opinion and guess work (e.g. <i>who was presumably a farm boy</i>) and is much too long. | 1 | Sophisticated style of writing and higher level of analysis in processing of facts. |

7.10.3.1 Discussion of Task 1

In terms of the raters' assignment of grades in relation to the prototypicality score, Rater 1 (applied linguistics) assigns grades that are either the same as the prototype score or 1 grade different from the prototype score. Rater 2 (English literature) assigns grades up to two points below and above the prototype score. The reasons for this difference between the grading of the two raters become apparent when examining their comments about the responses, comments that appear to reflect their differing expectations of how the tasks should be fulfilled. In relation to the instruction "Write a report . . .", Rater 1 (applied linguistics) appears to value organised, factual presentation of the data, and does not appear to place a high value on interpretative comment. This is most evident in his/her evaluation of Scripts 12 and 35 of the sample, both of which are said to "stray" from the task. On the other hand, Rater 2 (English literature) values interpretative comment and the drawing of inferences from the data. As a result, Rater 2 positively evaluates scripts 12 and 35, using words, such as "analytical", "inferential" and "higher level of analysis".

What is interesting here also is that, although the comments of Rater 1 are generally about the organisation of material, there are also comments about content omissions (e.g., "some information is missing", "doesn't include overall number of road deaths") and elaborations ("opinion and guess work", "unsupported conclusion"). The rating appears, therefore, to be based on a combination of prototype factors and content/information.

Table 7.38: Task 2: Comparison of the Raters' Grades and Comments

| Sample No. | Prototype Score | Grade: Rater 1 | Comments: Rater 1 | Grade: Rater 2 | Comments: Rater 2 |
|------------|-----------------|----------------|---|----------------|---|
| 5 | 1 | 2 | Good overall. Clear, well organised. However I can't see how being aware of competitors helps control level of stock. It loses the plot in places. | 3 | Basic verbal gloss of model – questionable logic |
| 18 | 2 | 1 | Good overall organization. Good introductory and concluding paragraphs. | 2 | Interprets model and order topics usefully with categories. |
| 22 | 2 | 3 | Some reasonable material, but confusing. Adds things (e.g. <i>employing a minimum of staff</i>). Doesn't stick to the task. Doesn't really discriminate in terms of relationship between main points and related ones. | 1 | Covers everything and very mature expression. |
| 32 | 4 | 4 | Too long. No clear introductory section. Gives examples that are not included in the original and are not particularly helpful. Ordering is curious. Why choose location before finding out about customers? It's all over the place really but the writer does attempt to order by categories. | 1 | Impressive prising of implications from facts. |
| 55 | 4 | 4 | Too short. Reasonable introductory paragraphs then falls apart. | 4 | Doesn't go beyond paraphrase. |

7.10.3.2 Discussion of Task 2:

In terms of a comparison of the raters' assignment of grades and the prototypicality score, Rater 1 (applied linguistics) assigns grades that are the same as, or one point different from the prototypicality scores for the five scripts, the same pattern as his/her rating the responses to Task 1. Rater 2 (English literature) assigns grades that are above (two scripts), below (two scripts) and the same as (one script) the prototypicality score with up to three points difference.

Again, as was the case in the rating of Task 1, the reasons for the difference of rating become apparent in the raters' accompanying comments, particularly in relation to two scripts - 5 and 32. Rater 1 (applied linguistics) says that Script 5 it is "clear, well organised" whereas Rater 2 (English literature) complains that it is a "basic verbal gloss of the model". Similarly, of script 32, Rater 1 observes that it "gives examples that are not included in the original and are not particularly helpful", whereas Rater 2 praises the response for an "impressive prising of implications from the facts". Again, it appears that different ratings come about because of very different expectations of the responses to the task.

Table 7.39: Task 3: Comparison of the Raters' Grades and Comments

| Sample No. | Prototype Score | Grade: Rater 1 | Comments: Rater 1 | Grade: Rater 2 | Comments: Rater 2 |
|------------|-----------------|----------------|---|----------------|--|
| 07 | 1 | 2 | Reasonable introduction and concluding paragraphs. Paragraphs 2 and 3 argue in favour, but the reasons given are weak. Paragraph 4 argues against but the reasons here are also very weak. The writing is too long and the lexical choices and expression are very often odd (e.g. <i>if they have the right requisites.</i>) | 2 | Expression good, logic questionable. |
| 37 | 3 | 4 | Very confusing. No clear introduction, conclusion or line of argument. Too short. | 3 | Low in coherence. |
| 27 | 3 | 3 | Tries to set the scene in paragraph 1 (but the attempt is not very successful). Does attempt 2 contrasting paragraphs, but the first one is unclear in terms of perspective and the supporting argument is weak. The second paragraph has at least one odd argument. (<i>restricting the numbers of graduates would leave graduates to obtain suitable employment opportunities</i>). | 3 | ½ summary; ½ doubtful obscure logic |
| 70 | 3 | 3 | Reasonable introductory and concluding paragraphs (in spite of the actual language used.) The two middle paragraphs both take the same point of view although paragraph 3 begins with ' <i>on the other hand</i> '. | 2 | Expression mediocre but has merit of deeper argument than most, especially para 3. |
| 64 | 4 | 4 | No clear introductory or concluding paragraph. moves away from the point into a personal gripe. Can't detect any clear line of argument. | 4 | Unclear / expression very poor. |

7.10.3.3 Discussion of Task 3:

In terms of a comparison of the raters' assignment of grades and the prototypicality score, there is somewhat less variation in the grades assigned than was the case with the Task 1 and 2 responses. Rater 1 (applied linguistics) rates three responses the same as, and two below the prototype scores. Rater 2 (English literature) rates three the same as, one below and one above the prototype score. In relation to the comments of the two raters, there is also more agreement about the scripts of this sample, except in the case of script number 70. Rater 1 observed that this script did not present the contrasting argument, whereas Rater 2 observed that it contained "deeper argument than most".

Table 7.40: Task 4: Comparison of the Raters' Grades and Comments

| Sample No. | Prototype Score | Grade: Rater 1 | Comments: Rater 1 | Grade: Rater 2 | Comments: Rater 2 |
|------------|-----------------|----------------|---|----------------|--|
| 08 | 1 | 1 | Clear structure based on sequence of events from end of WW2 but lacks an introductory paragraph giving an overall framework. | 1 | Amplifies the facts in a mature style. |
| 30 | 1 | 1 | Good introductory paragraph. Clear organization. Some unsupported conclusions for example, the final paragraph, which assumes that there will be renewed economic growth. | 2 | Organizes facts but doesn't add / interpret |
| 34 | 3 | 2 | The introductory paragraph fails to take account of the situation from 1990. Attempts a clear sequential structure but runs out of steam a little Some odd working e.g. <i>the Japanese economy was on starvation rations.</i> | 3 | Basic arrangement of facts. |
| 39 | 3 | 3 | Only 2 paragraphs. The introductory paragraph is OK but fails to capture the entire movement of the economy overall. The text gets muddled about the period following 1990 and has nothing about reconstructions. The text is confused but does try to sequence the response. | 2 | The facts crisply summarised. |
| 71 | 4 | 3 | Only 1 paragraph. The first sentence does capture the essence of the situation. The text moves back and forward a bit (<i>world War 2 At the end of World War 2</i>) but does have some reasonable sequence. Does not deal with reconstruction. | 4 | Organization of facts almost equal to D14 but expression poor. |

7.10.3.4 Discussion of Task 4

In terms of a comparison of the raters' assignment of grades and the prototypicality score, both raters rate three responses the same as, and two one point different from the prototype scores. In terms of their comments, Rater 1 (applied linguistics) appears to place a high value on chronological presentation of the historical information from the task, whereas Rater 2 (English literature) is looking for the response to "add / interpret" (sample 30) or "amplify" (sample 08). Despite this, there still appears to be more agreement between the raters in relation to the responses for this task than there was for Tasks 1 and 2.

7.11 Study 2: Discussion and preliminary conclusions

Perhaps the key point to emerge from Study 2 is the variation in the grades assigned by the raters to the responses to Task 1 and 2. For these two tasks, Rater 1 (applied linguistics) generally rated responses the same as, or one point different from, the prototype score. Rater 2 (English literature) showed considerable variation in terms of the grades awarded to the same responses. Underlining the difference in grading, the raters' comments revealed their differing expectations of the responses. However, the grades that both raters assigned in the case of Tasks 3 and 4 appear to align more closely with the prototypicality ratings. Between the two raters themselves, there was also more agreement in evaluating the responses to these two tasks.

There would appear to be some difficulty in reconciling the results of the initial stages of this study (Tasks 1 and 2) with the more consistent rating of Tasks 3 and 4. In particular, Rater 2 does not appear to see the requirements of Tasks 1 and 2 in terms of RT structures. A possible reason for this is that university faculty,

because of the nature and requirements of their particular discipline, tend to create and evaluate discourse principally in terms of one or two of the RT. That is, they have *prototype bias*. For example, Rater 2 (English literature) assigns grades the same as (three), or close to (two) the prototype scores for responses to Task 3 (Discussion RT). This may be because this is the RT that this rater most frequently encounters and employs and, therefore, values. The result of this may be a tendency to evaluate most academic writing in terms of the features of this particular prototype. To investigate this possibility, three scripts were selected, one from the Task 1 (Report RT) and two from Task 2 (Explanation RT). They were scripts to which Rater 2 had assigned grades that were one or two points above the prototype score. These three scripts were then analysed in terms of the Discussion RT model, the Task 3 RT, and prototypicality scores for this RT were assigned to the three scripts.

Table 7.41: *Discussion RT Analysis of Three Responses*

| Response | Gestalt | Discourse Pattern | Semantic Relations | Overall Prototypicality |
|--------------------------|----------------|--------------------------|---------------------------|--------------------------------|
| Task 1, Sample 3 (A22) | 2 | 4 | 3 | 4 |
| Task 2, Sample 22 (2C24) | 4 | 3 | 2 | 4 |
| Task 2, Sample 32 (2C35) | 4 | 3 | 1 | 4 |

In each case, although not being strongly prototypical overall in terms of Discussion RT, these scripts contain some elements of that RT prototype. In the case of the Task 1 response, the gestalt structure resembles Discussion RT. The response first presents the data, and then makes a clear rhetorical move by challenging the statistical validity of the data just presented. In the case of the two Task 2 scripts, the semantic relations more frequently employed in these responses are the causal relations that are characteristic of Discussion RT. While

not being conclusive, this small piece of analysis appears to indicate a bias towards evaluating academic discourse generally in terms of Discussion RT in the case of Rater 2.

If it is the case that Rhetorical Types are employed in the cognitive organisation of academic prose, they may provide a basis for the investigation of discipline-specific discourse communities in terms of their differing expectations of academic writing and the most frequently occurring RT that occur in the particular social genres that they employ (see Currie, 1994, p. 76). As an inter-disciplinary discourse concept, the RT construct may be also be useful in uncovering the discourse biases and preferences of specific discourse communities and this, in turn, may help to inform the induction of new members into such communities.

CHAPTER 8:

OVERVIEW OF THE RESEARCH AND ITS IMPLICATIONS FOR THE TEACHING AND LEARNING OF ENGLISH AS A SECOND LANGUAGE

8.0 Introduction

This chapter provides an overview of the research, including further discussion of the implications of the findings of the studies reported in *Chapter 7*.

8.1 Recapitulation of the Rhetorical Type model and overview of the research

This section will review the two studies reported in *Chapter 7*. This will include a review of the Rhetorical Type model and its theoretical basis, the research findings and the limitations of the two studies.

8.1.1 Study 1

Four categories of written, academic discourse, called Rhetorical Types, are proposed. They are: Report, Recount, Explanation and Discussion. Each Rhetorical Type is related to a single purpose:

- the presentation of data that is non-sequential (Report RT);
- the presentation of sequential data (Recount RT);
- the presentation of data with a focus on means (Explanation RT); and,

- the presentation of data in relation to possible outcomes, conclusions or choices (Discussion RT).

The proposed Rhetorical Types involve cognitive patterns which operate at what Chafe (1994, p. 29) refers to as a “peripheral or semi-active level of consciousness”, involving prototypes (or templates) of procedural knowledge that competent writers use automatically when creating extended discourse.

As stated in *Chapter 1*, the basis for proposing this type of categorisation within academic writing is:

- the need to identify discourse categories as a basis for instruction in extended academic writing;
- the need to identify discourse categories that are not discipline-specific (cognitive rather than social genres) for use in the instruction of groups of students preparing for studies in a variety of disciplines;
- the need to accommodate the notion that human categorisation (including categorisation of discourse) is based on *prototypes* or *family resemblances*, with more and less typical members of categories (Wittgenstein, 1953/1963; Rosch, 1973, 1975; 1978; and Rosch & Mervis, 1975);
- the need to accommodate the notion that categorisation generally relates to intention (Barsalou, 1983; Murphy & Medin, 1985) and purpose - different types of “rhetorical problem need” (Bereiter & Scardamalia, 1987; Hinkel 2002);

- the need to take account of historical approaches to cognitive genre categorisation (Campbell, 1776; Bain, 1871);
- the need to take account of more recent pedagogic taxonomies of cognitive genres, taxonomies that are motivated by different types of rhetorical or communicative purpose (Longacre, 1976; Macken et al, 1989; Derewianka, 1990; Knapp & Watkins, 1994; and [especially] Quinn, 1993); and,
- the need to accommodate those corpus-based studies of text types, which identify those text types most frequently associated with academic prose (Biber, 1988, 1989).

The Rhetorical Type proposal for the internal categorisation of complex knowledge at different levels comes from:

- the notion in cognitive psychology that complex knowledge, such as that found in written discourse, is organised hierarchically (Brown, 1958; Rosch, Mervis, Gray, Johnson and Boyes-Braem, 1976);
- the notion in discourse theory that discourse is organised hierarchically in terms of levels of meaning, and that written discourse has “more elaborate rule structures [than spoken discourse] at the upper end of the hierarchy, at the level of whole discourse” (Miller, 1984, p. 162);
- the notion in cognitive psychology that metaphor is used at the higher levels of language and discourse organisation (Lakoff & Johnson, 1980; Lakoff, 1987), and that at the highest levels of the organisational hierarchy humans, through metaphor, may employ gestalts to organise complex

knowledge (Bower, 1972; Van Dijk, 1981; Lakoff, 1987; Pearce & Conklin, 1979);

- the concept from discourse analysis that written, monologic discourse commonly employs organisational patterns (Hoey, 1979, 1983, 1994); which are “culturally popular” (Hoey, 2001, p. 119).
- the theory of *inter-propositional semantic relations* which proposes that meaning within discourse is organised in terms of a finite number of binary, semantic relations (Crombie, 1985), and that each of these relations may be realised linguistically in a number of different ways.

The findings of Study 1 are that writers (particularly experienced writers) demonstrate a considerable degree of conformity to the proposed model, a conformity appearing to demonstrate the operation of a *prototype effect* (Rosch, 1975). The responses were graded in terms of their degree of closeness to, or distance from, the prototype in relation to the extent to which they displayed the various features of the Rhetorical Type model. The experienced writers generally produced RT features in their writing that were closer to the prototype than the inexperienced writers. Furthermore, less experienced non-native-speaker writers produced responses that were more removed from the prototype than less experienced native-speaker writers.

The cognitive features (schematic, discoursal and semantic relational) that were identified in the model seem to be largely confirmed by the task responses. The results appear to support the following hypotheses:

- there are prototypical cognitive patterns in written discourse, patterns that can be described in terms of a variety of inter-related types of knowledge ; and,
- the ability to control these patterns is an important aspect of proficiency in academic writing.

However, any claims made on the basis of Study 1 need to be balanced against the limitations of this research, limitations that relate to nature of the tasks, the selection of the subjects and the nature of the analysis.

In relation to the tasks themselves, one limitation is that Study 1 involved only one task for each of the four Rhetorical Types (four tasks overall). Gathering and analysing responses to a range of tasks for each Rhetorical Type may have provided more robust evidence for the proposed RT constructs and their characteristics. However, this would have required considerably more time and resources than were available.

A further limitation in relation to the tasks was that they assumed a degree of real-world knowledge that some of the subjects may have lacked. For example, it could be argued that the Explanation task assumes knowledge of such business-related terminology as: foot traffic, pricing strategy and marketing plan. Similarly, the Recount task assumed some knowledge of recent world history, such as the dates of World War 2, the fact that Japan was a defeated power, and the fact that Japan is a powerful world economy. Although factors such as these were considered in the

construction of the tasks, the groups selected were thought likely to have the relevant background knowledge.

The analysis of the writing samples was performed by only one person, the writer as the researcher. Analysis by a number of independent raters would have produced more robust findings.

Finally, the subjects who completed each of the four tasks were not randomly selected from a larger population, but were selected on the basis of convenience. This involved different teacher and student groups in a number of institutions who were willing to complete the tasks.

8.1 2 Study 2

Study 2 was a small-scale exploratory investigation which involved two expert raters who were unfamiliar with the model. They were asked to rate a small part of each overall sample (five scripts relating to each Rhetorical Type) in terms of a four point global ratings scale. These ratings were then used to examine to what extent (if any) the global ratings of the responses correlated with prototypicality ratings.

In Study 2 there was considerable variation in the grades assigned by the raters to the responses to Tasks 1 (Report RT) and 2 (Explanation RT). While Rater 1 assigned grades to responses (to Tasks 1 and 2) that were the same as or one point different from the prototype score, Rater 2 showed considerable variation in terms of the grades awarded to the same responses. In the comments accompanying their grades,

the two raters revealed significant differences in their expectations of the responses to the two tasks, differences of expectation that appeared to relate to their respective academic disciplines – applied linguistics and English literature. In particular, Rater 2 (English literature) required more creative responses involving inference-drawing and the establishment of a personal standpoint in relation to the material of the Tasks 1 and 2. However, the grades that both raters assigned to Task 3 (Discussion RT) and Task 4 (Recount RT) related more closely to the prototypicality ratings. Furthermore, in evaluating these two tasks, there was more agreement between the raters themselves, both in terms of the grades that they awarded and the comments they made about their expectations of the responses.

The differences between the two raters in respect of their grading of responses to Tasks 1 and 2 appear to indicate that academics from different disciplines vary in their expectations of certain writing tasks. This appears to be supported by the findings of Pearson-Casanave and Hubbard (1992) in comparing the different approaches to the evaluation of student writing by staff from different disciplines. It also accord with the views of those working in the *academic literacies movement* (see Lea & Street, 1998, 1999; Jones, Turner & Street, 1999; Stierer, 2000). Lea & Street (1998) suggest that “what makes a piece of writing appropriate [within a particular discipline] has more to do with issues of epistemology than with surface features of form . . . [and] underlying, often disciplinary assumptions about the nature of knowledge affect the meaning given to the terms *structure* and *argument*” (p. 162). This is also supported by Hyland (2000, p. 11), who accounts for interdisciplinary differences in academic writing in terms of epistemological view and the role of the

disciplinary community and its practices, including: “[discipline] community-recognised ways of adopting a position and expressing stance As a result, the rhetorical conventions of each text will reflect something of the epistemological and social assumptions of the author’s disciplinary culture”. Pearson-Casanave (2002, p. 134), when discussing the writing requirements of postgraduate courses in different disciplines, points to “the multiplicity of genres and subgenres, the social and political aspects of learning to participate in the literate practices of specialized communities in local settings, and the influence of teacher and student personalities on the demands and expectations of particular programmes”.

What emerges from Study 2 is the possibility that the differing disciplinary expectations of academic writing, such as those relating to epistemological view and rhetorical conventions, may actually be able to be described in terms of a *prototype bias* – discourse may be evaluated by academics from a particular discipline in terms of only one or two of the RT prototypes, those being predominant prototypes employed within the discourse community of his/her particular discipline. This was suggested by the comments of Rater 2 (English literature) when evaluating responses to Tasks 1 and 2, in which the requirement to draw inferences and establish a standpoint for argument appeared to frame the evaluation of both sets of responses.

The limitations of Study 2 include the small size of the sample (a total of 20 scripts with only five responses for each of the four tasks). Clearly, a larger sample would have been needed to provide more robust findings. Also, to increase the robustness of the evaluations of the responses, a variety of raters from a range of academic

disciplines (evaluating the same sample) would have been required. This would have allowed for investigation of the possibility of RT bias in raters from certain disciplines. A further limitation relates to the fact that raters are inevitably influenced by vocabulary choice, grammatical accuracy and stylistic features, none of which is relevant to the prototypicality scores. One possible way of overcoming this difficulty would have been to ask raters to pay attention only to overall organisation without revealing anything about the prototypicality model.

8.2 Cognition, language and Rhetorical Types

While this thesis has not been centrally concerned with the operational processes involved in acquiring and using procedural knowledge (to create academic discourse), the Rhetorical Types proposed here may play a role in these processes and could, therefore, be considered in relation to acquisition models, such as for example, the dual-processing model proposed by Widdowson (1989), who argues that:

[Communicative competence] is not a matter of knowing rules for the composition of sentences and being able to employ such rules to assemble expressions from scratch as and when occasion requires. It is much more a matter of knowing a stock of partially pre-assembled patterns, formulaic frameworks, and a kit of rules, so to speak, and being able to apply the rules to make whatever adjustments are necessary according to contextual demands. Communicative competence in this view is essentially a matter of adaptation, and rules are not generative, but regulative and subservient. (Widdowson, 1989, p. 135)

Widdowson suggests that much of what a native speaker knows of his/her language is in the form of adaptable, lexical chunks. He notes that this can be related to the proposal by Pawley and Syder (1983, p. 192) that a native speaker of English draws on several hundred thousand of what they refer to as refer to as “lexicalised sentence stems”. For the second aspect of the dual processing model, Widdowson suggests that the rules of grammar are applied to fit lexical chunks into certain contexts.

Skehan (1996) reviews a range of cognitive approaches to language learning, approaches which he suggests also appear to support the dual-processing model that Widdowson (1989) proposes. In dealing with the issue of whether learning takes place consciously or unconsciously, he notes that there appears to be “accumulating evidence” (see review in Carr and Curren, 1994) that explicit learning of structured material is generally superior to implicit learning, suggesting that awareness of the learning itself and of what is to be learned confers advantages. In reviewing the issue of how second-language learners actually learn language, Skehan (1996) draws attention to studies that indicate that this involves both the induction of underlying abstract rules and the learning of exemplars, citing the studies of Matthews, Buss, Stanley, Blachard-Field, Cho and Druhan (1989) and Carr and Curren (1994), which point to both structured learning and exemplar-based learning operating synergistically.

In considering the issue of how knowledge of language is fluently applied in situations of actual use, Skehan (1996, p. 44) says that:

[Instance-based] approaches (Logan, 1988; Robinson & Ha, 1993) regard fluency as performance which is based not on rules which are applied more quickly nor on rules which are more efficiently organized, but on contextually-coded exemplars which function as units. Such units (which may be significantly longer than a word) are the product of previous rule applications that are now stored in exemplar form, and so require far less processing capacity because they are retrieved and used as wholes. On this view, learning is the result of instance creation, and performance (and the ensuing fluency) the result of instance use.

If the learning of structured material is advantageous in second language acquisition, as the studies of Matthews, Buss, Stanley, Blachard-Field, Cho and Druhan (1989) and Carr and Curren (1994) appear to suggest, it would seem that the Rhetorical Type model may provide a framework which can be employed in pedagogic contexts. This would be consistent with the dual processing model of language acquisition and use. Furthermore, Devine (1993), in considering the role of *metacognition* in the area of second language writing, suggests that there is a need to:

[Expand the knowledge base to] provide explicit information about the role of metacognition in second language writing. First, since the ability to monitor any task depends in large part on the extent and appropriateness of the knowledge base, L2 writing researchers might direct more attention to that knowledge base (Devine, 1993, p. 118).

The Rhetorical Type model proposed here, may provide the type of metacognitive knowledge that Devine refers to as *procedural* (Paris, Lipson and Wixon, 1983, in Devine 1993), and defines as “knowledge about how strategies can be employed” (p. 106).

Similarly, Wenden (2001) includes in her description of the types of metacognitive knowledge employed by second language users a category called *task knowledge*, in which category she includes “knowing about a task’s demands” which “includes knowing what knowledge and skills are required to do a particular task; how to go about doing it; its anticipated level of difficulty; and awareness of the learning plan that is the outcome of their analysis of the task’s demands” (p. 46). This is also supported by Hinkel (2002, pp. 261-262) who, on the basis of an extensive corpus investigation of the writing of non native-speaker university students, proposes that such writers need a greater conscious awareness of the “essential features of academic discourse and text” and should be provided with opportunities for writing practice in the use of such features. A similar view is expressed by Reid (2001, p. 153), who, in advocating a genre-based approach for the teaching of academic writing, says that for NESB students “the need is critical because they often have little or no acquaintance with such functions and forms by which writers fulfill the linguistic and rhetorical expectations of the academic audience.”

Two approaches to implementing this type of metacognitive approach in the teaching of writing are those proposed by Flowerdew (1993) and Badger and White (2000). Flowerdew (1993, p. 309) suggests a range of activities encouraging student analysis

of (social) genres in order to develop a conscious awareness of and proficiency in the use of genre knowledge in their writing output. Badger and White (2000) put forward which they term *a process genre approach*. This involves the use of genre knowledge as the basis for writing instruction, such knowledge being presented by means of “a demonstration by a teacher or other skilled writer, possibly accompanied by a commentary attempting to explain the mental processes that underlie the exercise of the skill” (pp. 159-160).

In relation to the stored exemplar-based knowledge related to cognitive genres, the discursal and propositional structures of the Rhetorical Types could be learned and retrieved in relation to their respective types of rhetorical purpose. In relation to the induction of underlying abstract rules, the range of structures for realizing the predominant semantic relations within a rhetorical type could provide the focus for the linguistic content - grammar, syntax and means of achieving cohesion within discourse. Thus, for example, Discussion RT, which has the rhetorical purpose of organising knowledge in relation to possible outcomes, conclusions or choices, could inform the planning of courses and the creation and selection of course materials, relating to discursive argument. The cognitive detail from the RT research would indicate that arguments are grouped, that written discourse employs a Generalisation-Example structure (and its constituent elements), and that the grammar and syntax could be drawn from suitable linguistic realisations of the semantic relations *Reason Result* and *Means Result*.

Thus, in terms of one recent approach to language learning and processing-related cognition (the dual-processing model), RT knowledge may provide a basis for deconstructing and reconstructing exemplar texts to uncover and practise procedural knowledge in relation to academic writing and, thereby, contribute to the kind of metacognitive knowledge base that Devine (1993) suggests is necessary to advance the teaching of second-language writing.

8.3 Rhetorical Types and curriculum design

As outlined in *Chapter 1, Section 1.0* (p. 1), the one aim of this thesis is to inform the teaching of academic writing to NESB students, students who are preparing to study at an English-medium university. This section discusses issues related to the design of courses whose purpose is to prepare students to meet the requirements of academic writing, and proposes the Rhetorical Type construct as the basic unit around which such courses may be designed.

In categorising so-called *English for Specific Purposes* (ESP) courses, Widdowson (1983) differentiates between *narrow angle* and *wide angle* courses, depending on the degree of specificity of the aims of the course: “By aims I mean the purposes to which learning will be put after the end of the course” (Widdowson, 1983, p. 7).

Narrow angle courses are essentially a training exercise to “provide learners with a restricted competence to enable them to cope with clearly defined tasks” (p. 6). The specific types of language usages required to fulfil the tasks become the aims of the course. On the other hand, a *wide-angle course* is closer to general-purpose English

courses, which “seek to provide learners with a general capacity to enable them to cope with undefined eventualities in the future” (p. 6).

In describing the underlying types of knowledge and skills that are the focus of ESP courses, Widdowson (1983) also makes a distinction between what he calls *competence* and *capacity*. He defines competence as “the speaker’s knowledge of the language system . . . his knowledge also of social rules which determine the appropriate use of linguistic forms” (p. 7). *Capacity*, on the other hand, is defined as “the ability to create meanings by exploiting the potential inherent in the language for continual modification in response to change” (p. 8). Widdowson suggests that narrow angle courses that require a restricted repertoire of language are essentially a training exercise in developing a competence in the use of formulaic language to perform specific purposes. An example of this could be English for air traffic controllers. In contrast, wide angle courses give far more attention to developing a capacity to exploit the social and linguistic aspects of language competence in ways which cannot be specifically identified in the aims:

The purposes in ESP are arranged along a scale of specificity with training at one end and education at the other. As one moves along the scale in the direction of education, one has to account increasingly for the development of capacity, and at the same time, one has to take into consideration the pedagogic problem of establishing objectives which are projections of final aims. At the training end of the scale, objectives and aims will converge into close correspondence and will seek to impart restricted competence. At the education end of the scale will cluster courses of English for academic

purposes which require the development of communicative capacity and which will call for pedagogic decisions in the formulation of objectives. At this end of the scale, ESP shades in GPE (Widdowson, 1983, pp. 10-11).

Essentially, Widdowson is proposing that there are different aspects to be considered in syllabus and course design. Under *competence*, he groups the linguistic system, as well as the social rules for its appropriate use; under *capacity* he places the procedural knowledge required to exploit the competence elements effectively in a constantly varying range of contexts calibrated to constantly changing communicative purposes and uses:

With wide angle course design, the need to account for the procedural aspect of learning and use is more self evident. Here, the intention is obviously not to get students to internalize the topical realizations, but to use them for learning. It is the process of relating these particular realizations to more general schematic structure which is the central concern and the process must . . . involve procedural activity (Widdowson, 1983, p. 90).

A further issue that confronts designers of any language course is the level or unit of language around which they are to be constructed. For example, many syllabuses are organised around grammatical items, “based on the premise that learners acquire one grammatical item at a time and that they should demonstrate their mastery of one thing before moving on to the next” (Nunan, 1993, p. 101). Widdowson terms this kind of syllabus as a *synthetic syllabus*, where “one presents language as analysed

units to be synthesized in the process of learning” (1990, p. 134). He points out that the synthetic approach not only characterises syllabuses and courses that focus on teaching the structures of a language in a linear fashion, but also syllabuses concerned with “the realizations of meaning which are usually claimed to characterize the notional/functional syllabuses” (p. 136).

Therefore, the synthetic syllabus, be it structural or notional/functional, would appear to assume that language learning is a systematic and cumulative process. However, as Nunan points out:

[Learners] do not learn one thing perfectly, one item at a time, . . . the rate of growth is determined by a complex interplay of factors related to speech processing constraints (Pienemann and Johnston, 1987), pedagogical interventions (Pica 1985), acquisitional processes (Johnston 1987) and the influence of the discursal environment in which the items occur (Nunan, 1993, p. 102).

A further problem with the synthetic syllabus approach is also the complexity of language itself, complexity in terms of the multiplicity of inter-related systems that are engaged in any situation of authentic language use. Among others, these systems may include elements that are described in terms of pragmatics, semantics, phonology or orthography, morphology and syntax. Underlining this idea of language as a complex and multi-faceted whole, Widdowson says:

To identify something as a component is to recognize the operational complex as a whole in which it functions as a part. If analysis isolates elements from this complex, then it must deny them the functional features which alone can give them their component status (Widdowson, 1983, p. 84).

In order to overcome the atomistic nature and artificiality of the *synthetic syllabus*, Widdowson (1990) proposes another type of syllabus which he terms an *analytic syllabus* which “presents language as synthesised units to be analysed in the process of learning” (p. 134). Thus:

An analytic syllabus, on the other hand, would not be bottom-up but top-down. That is to say, it would present language in the form of larger textual units and set tasks of different kinds which would direct the learners’ attention to specific features, formal or functions, of the language they were exposed to. Analysis would then be induced by means of controlled procedural work. (Widdowson, 1990, p. 136)

Rather than follow the conventional linear, synthetic approach to language course design, Widdowson proposes that designers “look for ways of defining the aims of our students in communicative terms by devising a means of analysis which preserves the essential discourse features of language use” (Widdowson, 1983, p. 90), this being essential to the development of syllabus and course materials that aim to develop the discourse competence of students in relation to academic writing. This need to retain language components as functioning features of a larger system, and to

avoid atomistic approaches to language teaching has been the rationale for the various *genre*-based approaches to language course design and teaching (see Paltridge, 2001; 2002). As Paltridge (2001) observes:

[A] genre-based approach to language program development aims to incorporate discourse and contextual aspects of language use that are often underattended to in programs based only on the lower-level organizational units of language, such as structures, functions, or vocabulary (p. 6).

However, the crucial issue (and one that gives rise to much confusion) is whether it is a *social genre* or *cognitive genre* construct (see *Chapter 1, Section 1.2* pp. 4-8; *Chapter 4, Section 4.4.4*, pp. 172-173) that should provide the basic unit of a genre-based syllabus, such as one designed for an academic writing course. While adopting an analytic, top-down approach to syllabus design based on social genres may ensure that the contextual and discursal elements of language are included, such as in the *text-based* approach to syllabus design of Burns and Joyce (1997) and Feez (1998), it is possible that the outcome may still be *narrow angle* competence-building (in terms of language usage for situation-specific outcomes and purposes). For example, Burns and Joyce (1997, pp. 77-79), in approaching the issue of social genre based syllabus design for courses involving speaking skills, use a top-down approach that may be implemented without overtly incorporating a procedural, capacity-building element. If the syllabus or course is a narrow angle one, such an approach to course design may be entirely appropriate. However, if the course seeks to develop a more general 'capacity', one that is not situation-specific or discipline-specific, such as, for example, an academic writing course, a wide-angle approach is required, that is, an

approach that includes a cognitive capacity-building element. This also suggests that there needs to be a reconciliation of “the opposing principles of synthesis and analysis” (Widdowson, 1990, p. 136). As an example of this reconciliation, Widdowson (pp. 136-137) points to Crombie’s (1985) *relational* approach to syllabus design. This approach, which includes macro-patterning as well as semantic relational structuring, involves a combination of top-down and bottom-up focus (something that would appear to be necessary if a cognitive loop is to be an inbuilt feature of syllabus design).

In a wide-angle, academic writing course, the focus is on the development of the communicative capacity in relation to the development of a discourse competence. This inevitably involves the use of procedural knowledge in the case of academic writing. Furthermore, if such a course is discourse-based (with units constructed around whole texts), it needs to focus on a genre construct that is not socially-recognised and discipline-specific. In support of the development of this type of interdisciplinary ESP course, Bhatia, (1998) notes that “to master the power of generalisations across disciplinary boundaries . . . one needs a system of linguistic analysis which is powerful enough to account for the intricacies of academic genres across disciplines” (Bhatia, 1998, pp. 26-27). Similarly Widdowson, in proposing the wide-angle, capacity developing nature of EAP courses, says:

The challenge for a wide angle approach to ESP, then is to ensure that topics that have no direct bearing on aims are selected and presented in such a way that, despite their lack of specificity, they will activate the capacity for language use and learning (Widdowson, 1983, p. 91).

All of this suggests the need for a discourse-focused approach to syllabus and course design that relates to cognitive genres, one that is not discipline-specific, and one that combines top-down and bottom-up approaches in order to develop capacity as well as competence (encouraging learners to reapply knowledge in varying situations and forms).

In *Chapter 3*, two existing theories of genre employed in pedagogical contexts are reviewed extensively and the conclusion reached is that a theory of discourse that is able to be used as a basis for syllabus and course design must take into account the three elements of social conventions, procedural knowledge and linguistic forms. *Chapter 5* proposes an hierarchy for the organisation of knowledge in written academic discourse (see *Figure 5.1*, p. 204), including the three elements of social genre, rhetorical type (as procedural knowledge) and linguistic realisation. The Rhetorical Type construct is proposed in *Chapters 5* and *6* as a mediator between the socially recognised genre and its realisation in the actual systems of language. The Rhetorical Type construct is, in effect, a proposal for procedural knowledge as it relates to the creation of written academic discourse to fulfil all or part of some socially recognised purpose.

An example of the use of the Rhetorical Type construct as a basis for an academic writing course is that of Bruce (2002), in which a top-down approach is employed in an online writing course based around the Report Rhetorical Type model.

8.4 Final comments and areas for future research

In the context of an article (that compares the discourse patterns employed in two different academic disciplines – plant biology and highway engineering – in relation to the writing of masters dissertations in each of the two fields), Dudley-Evans (1993, p. 147) claims that “an approach to the teaching of academic writing that implies that there are common patterns of organisation that will always apply in all disciplines is, in my opinion, dangerously misleading”. This claim is made on the grounds that “the differences in the **social** [my emphasis] roles of writing in the two departments can be seen in the organisational patterns of the key section of the dissertation, that is, the discussion section” (1993, p. 146). Dudley-Evans’ comments about whether the focus of writing instruction should be discipline-specific or general purpose summarise a debate which has been ongoing among those who are concerned with the teaching of academic writing to NESB learners (see Ferris, 2001, pp. 298, 300). Although it is certainly true that what are referred to as *social genres* in this thesis cannot provide a basis for a *common core* approach to the teaching of academic writing, the argument here is that what are referred to as *cognitive genres* can do so because cognitive genres draw on non-discipline specific procedural knowledge. Furthermore, those social genres that occur in discipline-specific academic writing (such as essays, case studies, research articles, and dissertations) are amenable to examination in terms of (a) the selection and use of Rhetorical Types, and (b) the effect of the selection of Rhetorical Types on the higher-level organisational elements of gestalt organisation and discourse patterns as well as on cognitive processes, semantic relations and by, extension, linguistic selection.

Leki (2000, p 108) emphasises that future research related to second language literacy needs to explore further the social context of writing and she speculates that “the next decade will bring about greater attention to the multiplicity and complexity of literacy acquisition, at least partly through more detailed, ‘thicker’ descriptions of individual acquirers within specific contexts”. As part of the ‘multiplicity’ and ‘complexity’ of context-specific social genres that have to be acquired and mastered, examination of social genres in terms of their selection of combinations of Rhetorical Types could provide a fruitful area of research that may help to uncover a little more of that complexity.

APPENDIX 1: FURTHER STUDIES OF PROTOTYPE EFFECTS:

ROSCH (1975)

APPENDIX 1: FURTHER STUDIES OF PROTOTYPE EFFECTS: ROSCH (1975)

Rosch (1975) reports a series of nine experiments in cognitive psychology, which further examined various aspects of the prototype-effect in categorisation. Most of the experiments involved the use of a prime, a superordinate category name, which was then followed by a second noun to examine the nature of cognitive representation of categories.

Experiment 1

Experiment 1 investigated judgments on the internal structure of semantic categories of nouns. Subjects were asked to rate (on a seven point scale) the extent to which each idea or instance (of a noun) represented the subjects' idea or image of the category term. Subjects found the task meaningful and there was a high degree of agreement among them in their rankings of the prototypicality of the nouns.

Experiment 2

Experiment 2 measured the processing time taken by subjects which occurred between being shown a prime (a superordinate category name) and the classification of a subsequent stimulus in terms of membership of the category. The significant findings were that the recognition of prototypical category members took a shorter time than the recognition of peripheral category members.

Experiment 3

Experiment 3 was largely the same as Experiment 2 except that peripheral category members were replaced by items from obviously different categories. For none of the types of pairs (identical, same category or different category), did any of the effects (priming or goodness of example) achieve significance.

Experiment 4

Experiment 4 involved presenting the category prime (a superordinate category name) and a visual stimulus for a category member (a picture) simultaneously. The only significant effect from this experiment was the level of goodness of example. More central members were identified more readily than peripheral members of a category when presented simultaneously with the superordinate name of the category.

Experiment 5

Experiment 5 used the same procedures as Experiment 2, except that "same" was to mean physically identical instead of the same category. All items which were not physically identical to the prime were to be classed as different. Half of the subjects made judgments about words and half about pictures. The results were that the use of a superordinate category word as a prime to make judgments about identical or different appearance had no significant effect for either pictures or words. Compared with the findings of Experiments 2 and 4, the findings would suggest that the less concrete aspects of the category name constitute the information which was used by subjects to selectively facilitate the perception of stimuli

Experiment 6

The purpose of Experiment 6 was to show that in the same / different matching paradigm used in the series of experiments, stimuli are encoded as meaningful items under the same category instructions, but not under physical identity instructions. The priming and stimulus procedures used were the same as Experiment 2 for the same-category condition, and Experiment 5 for the physical identity condition. At the end of the priming part of the experiment, the subjects were given a piece of paper, and asked to write down all of the objects which s/he had seen. The results were that memory for items under physical identity instructions was minimal, giving significantly improved recall only for the same category instruction condition.¹ Thus, the main hypotheses of the experiment were confirmed. Under physical identity instructions, stimuli appear to be processed at a level sufficiently lacking in meaning that items are difficult to recall. Experiment 6 provided the convergent evidence that it was not the representation of visual images but which affected the encoding of physically identical pairs in Experiment 2.

Experiment 7

A category name generates a representation that affects our perceptions of physically identical pairs. What is the nature of this representation? it may be that it is an abstract, ordered series of inclusion possibilities represented by:

1. general meaning common to words and pictures
2. in a set of pictorially possible items in the picture condition and very

¹ Pictures were recalled better than words.

general word possibilities in the words condition. (single versus dual coding hypothesis)

In this experiment each pair appeared four times: once as a pair of primed pictures, once as a pair of unprimed pictures, once as primed words and once as unprimed words. None of the interactions between words and pictures together versus words and pictures separately reached significance. These results tend to support for the idea that representation is not entirely specific to either pictorial or verbal mode, but is some abstract set of possibilities of items that can represent the meaning of a category in either mode.

Experiment 8

In Experiments 2 & 7, a two second time interval occurred between the prime and the presentation of the stimulus pair. Experiment 8 was set up to observe the effects on systematic reduction of the time between the prime and the stimulus. The stimuli consisted of set 1 for Experiment 2. Five intervals of time between the prime and the presentation of the pair were used: 500 msec, 400 msec, 300 msec, 200 msec and 100 msec. For each of the five time intervals, 10 subjects were tested under the words only condition, 10 subjects were tested under the pictures only condition and 10 matched pairs of subjects under the words plus pictures condition.

When the prime is reduced below a certain minimum (probably 600 or 700 msec) an element of differentiation in the representations of words and pictures is revealed by differences in the time intervals required to generate

representations. The tentative conclusion was that, while there is considerable similarity in the depth meaning of superordinate categories, the less time required for pictures suggest very tentatively that pictures may be closer to the nature of the underlying representations than are words.

Experiment 9

The purpose of this experiment was a comparison between semantic categories and colour categories. The experiment showed that the internal structure of semantic categories, although consistent and pervasive in the processing of natural categories can, unlike the internal structure of colour categories, be readily altered by practice and task demands. A natural categorisation effect obtained with semantic categories can be eliminated when experimental structure changes those categories into artificial categories.

(summarized from Rosch, 1975, p.197-224)

Key Findings

There are three key findings that emerged from these experiments:

1. the internal structure of a category representation appeared to affect the perception of subsequently represented stimuli when it was activated / primed by a category name. When activated, it was more effective in facilitating the recognition of central members of the category than peripheral ones;
2. the effect of category representation appears due to the abstract representation of the category's name, rather than by concrete physical

features associated with the category; the meaning of superordinate categories are not specifically coded in terms of words or pictures, but the fact that less time is needed to classify pictures may suggest that pictures may be closer to the underlying meaning than words

**APPENDIX 2: FURTHER STUDIES OF PROTOTYPE EFFECTS: ROSCH
AND MERVIS (1975)**

APPENDIX 2: FURTHER STUDIES OF PROTOTYPE EFFECTS: ROSCH AND MERVIS (1975)

Family Resemblances

As a development from the experiments which identified "prototype-effect" within categories, Rosch and Mervis (1975) then proceed to investigate how the internal structure of categories arises. Anecdotal information and some indications from the previous study (Rosch, 1975) indicated that the identification of prototypes develops through learning. Rosch and Mervis, however, did not intend to provide a processing model for learning or developing knowledge of prototypes. Rather, their intention was to research "one of the major structural principles which . . . may govern the formation of the prototype structure of semantic categories" (p. 574). The principle of *family resemblances* from philosophy (Wittgenstein, 1953) is investigated. Rosch and Mervis state

the basic hypothesis was that members of a category come to be viewed as prototypical of a category as a whole in proportion to which they bear a family resemblance to (have attributes which overlap those of) other members of the category (p. 575).

This is similar to Reed's (1972) *cue validity* processing model. Rosch and Mervis define *cue validity* as "a characteristic of a category depends on its "total frequency within a category and its proportional frequency in that category relative to contrasting categories" (p. 575). In their study, Rosch and Mervis prefer the term *family resemblance* to cue validity. This is because they were describing the structural principles of categories rather than developing a processing model for categories.

Three types of noun categories were used in the study: *superordinate categories* (such as 'furniture' and 'vehicle') *basic level categories*, (such as 'car' and 'chair') and *artificial categories* formed from sets of letter strings. For each type of category, the two aspects of the family resemblance hypothesis were examined: "that the most prototypical members of categories are those with (a) most attributes in common with other members of the category, and (b) are those with least attributes in common with other categories" [ref!!]

Superordinate Categories

Experiment 1

Subjects were asked to assign characteristics to concrete nouns from six common categories in English (20 items per category). 400 subjects were assigned six words. Each word was rated by 20 subjects. Using the subjects' data, two raters eliminated obviously false attributes and scored the others from 1 to 20 according to the number of words in the category which were assigned the attribute by different subjects. The measure of family resemblance for a category for each word was the sum of weighted scores for the attributes that had been listed for that word. The family resemblance ratings were then correlated with prototypicality ratings which had already been established for each category by Rosch (1975). High levels of significance in all six categories were demonstrated by the family resemblance / prototypicality correlations.

Experiment 2

This experiment explored the hypothesis that the most prototypical members of one category would share the least number of characteristics with other categories. Subjects were each given some of the nouns used in Experiment 1 and asked to assign three categories to each one. Categories listed in the first position for each noun were scored with three points, second place were given two points, and third place, one point. The selection of a common dominant category for each item proved significant.

Basic-level Categories

Experiment 3

This experiment applied the same hypothesis as Experiment 1 to basic-level categories - that prototypicality ratings and degree of family resemblance are positively correlated. the six basic-level categories were: 'car', 'truck', 'airplane', 'chair', 'table', 'lamp'. Fifteen pictures of objects in each category were shown to two groups of subjects. One group were asked to rank on a seven point scale how prototypical each object was of in terms of the category to which it belonged. The other group was asked to list attributes for six of the pictures. To establish prototypicality, the means of the rankings of 32 subjects were used to rank each item. For family resemblance attributes, ten subjects listed attributes for each picture. For all of the six categories, the correlation between prototypicality and family resemblance was found to be significant.

Experiment 4

The same hypothesis as for Experiment 2 was employed -"the most prototypical members of a category are those with least resemblance to, or membership in other

categories" (p 589). Some subjects were asked to identify categories for a set of six basic-level objects. The most consistent contrast categories were for chair - sofa, stool, cushion, and for car - truck, bus, motorcycle. Fifteen pictures of types of cars and chairs were shown to subjects who were asked to list their attributes for the contrasting categories. These were compared with their family resemblance ratings in their original categories which were established in Experiment 3. "It was confirmed that the more prototypical of a category that a picture had been rated, the fewer attributes it shared with categories in direct contrast with that category" (p. 591).

Artificial Categories

Experiment 5

Artificial categories of items consisting of consonants and number combinations were set up. The subjects, after being shown two different items and being told that each signified a separate category, had to match 15 other items which contained some of the category name's letters in varying combinations. At the end, subjects were shown six cards, each with items from one of the categories and asked to rank the items for prototypicality. Items with more common or overlapping characteristics were learned more rapidly, and, when familiar through the matching activity, were judged as more prototypical members of a category.

Experiment 6

Using the same artificially constructed items which were used in Experiment 5, Experiment 6 set out to prove that items are more prototypical in one category to the extent that they do not overlap - share characteristics with - another category. The

degree of family resemblance within one category, and lack of overlap with contrasting categories were, once again, significantly correlated.

Discussion

In this study, family resemblance was defined in terms of discrete attributes. Family resemblance appears to be a major factor in category formation, although family resemblance in this research was "a descriptive, not a processing principle" (p. 600). The family resemblance account of prototypes relates to the distributions of attributes, rather than simply to their frequency (as in cue validity, Reed (1973)). It is distribution, of attributes rather than frequency over contrasting categories that is important; the experiments showed a high correlation between family resemblances and previously established ratings of prototypicality.

**APPENDIX 3: THE FOUR FUNCTIONS OF SCHEMATA: RUMELHART
AND ORTONY (1977)**

APPENDIX 3: THE FOUR FUNCTIONS OF SCHEMATA: RUMELHART AND ORTONY (1977)

Rumelhart and Ortony propose that schemata have four functions. They are *comprehension, remembering, inferencing* and *actions*.

Comprehension

They suggest that comprehension is a matter of analogical reasoning. Given a situation or information which requires understanding, a subject selects a schema which matches the input, “on having found a set of schemata which appear to give a sufficient account of the information, the person is said have ‘comprehended the situation’ ” (Rumelhart and Ortony, 1977, p.120). They propose that there are not specific schemata for every situation which we may encounter, but rather generic schemata which can be applied to some aspects of a situation to help achieve comprehension, such as a ‘problem-solving schema’. Thus comprehension is based on generic knowledge applied to sensory input.

Memory

Whereas comprehension involves *generic knowledge* which is the “memory we have of concepts”, memory of events involves *episodic knowledge*: “those memories for particular events which we have directly or indirectly experienced” (Rumelhart and Ortony, 1977, p. 116). Episodic memory stores a record of the instantiated schema or fragments thereof; “[understanding involves] the imposition of an interpretation primarily on incoming “sensory” fragments,” and [remembering involves] the

imposition of an interpretation primarily on “memorial fragments.” (Rumelhart and Ortony, 1977. p. 117).

Inferencing

Schemata are also an important device for making inferences. For example, a RESTAURANT schema contains sub-schemata, such as WAITER, MENU, ORDERING, EATING, and PAYING. Thus, the mention of a RESTAURANT schema, can activate the related sub-schemata and their parts for the purpose of making inferences. Similarly, the mention of a sub-schema or part, can also be the basis for inferring the whole. A further type of inferencing could involve filling in schematic values for variables which are not provided in a context when comprehending some kind of input or situation. The usual or generic values of the schema provide default values in order to instantiate a schema for the purposes of comprehension. For example, if someone talks about going to eat at a restaurant, listeners will usually infer the normal default values of waiter, menu, ordering and paying for a meal.

Actions

The knowledge needed to perform actions can involve schemata. For example, juggling involves a TRANSFER schema which contains subschemata of TOSS, TRAJECTORY, APEX and CATCH schemata. To carry out actions successfully can involve the interaction of more abstract schemata, such as plans, problem solving or reflection in order to achieve an action or improve performance, as well as those related more directly to movement.

APPENDIX 4: CONCEPTUAL DEPENDENCY THEORY SCHANK (1975)

APPENDIX 4: CONCEPTUAL DEPENDENCY THEORY SCHANK (1975)

In partial response to the how people encode thoughts into natural language strings, Schank and Abelson point to *conceptual dependency theory* (Schank, 1975), according to which, the meaning propositions that underlie language can be reduced to a series of (eleven) 'primitive acts'. These relate, in part, to active and stative verbs, although the acts are not descriptions of verb types, but rather "elements of action" (Schank and Abelson, 1977, p. 14). In conceptual dependency theory, primitive acts appear as the encoding of single propositions. These propositions might, for example, contain an agent and an action. Relationships between propositions are all explained in terms of *causality*. The following range of causal links are used in their representations:

- an ACT results in a STATE;
- a STATE enables an ACT;
- a STATE or ACT initiates a mental STATE;
- a mental ACT is the reason for a physical ACT;
- a STATE disables an ACT;
- an ACT results in a STATE which enables an ACT;
- an ACT or STATE initiates a thought which is the reason for an ACT.

(Schank and Abelson, 1977, p.30-31)

The focus of the causality relationships within conceptual dependency theory seems to be reason-result and means-result relationships. However, relationships such as contrast, comparison, alternation, temporality and amplification are, presumably, equally important. How, or whether, relationships such as these could be

accommodated is unclear. Schank and Abelson's artificial intelligence programmes are mainly concerned with simple narratives, simple narratives of the type encoded by their SAM computer programme. For narratives of this type, the relationships outlined may be adequate. However, for more complex narratives, or for texts belonging to other genres, a much wider range of relationships than that which could conceivably be accommodated in the model as outlined would be required. It appears, therefore, that conceptual dependency theory is not sufficiently complex to deal with the matching of stored, standardized *episodes (scripts)* against new events or situations. This appears to be, in part at least, because it does not accommodate the range of relationships within and among propositions that have been identified by linguists (see Crombie, 1985a; 1985b).

Conceptual dependency has also been questioned by Dresher and Hornstein (1978) in terms of the amount of conceptual information that is encoded by the primitives. They claim that a conceptual dependency transcription which encodes only sentential information will not be well-formed conceptually. In the statement:

e.g. John ate the fish with a fork..

John PTRANS fish on a fork. John INGEST fish

John's movement of his hand to grasp the fork, which involved the brain activation of his arm and hand, followed by its subsequent movement to the fish, and the impaling of the fish on the fork is extralinguistic information, information that is not conveyed in terms of the theory as outlined by Schank and Abelson. There is, however, potential for a much more detailed description that will provide a complete conceptualisation of sentences. However, such a potential also creates the need for a means of distinguishing between salient and non-salient information, which may, in fact, be

accounted for by the constructs of foregrounding and backgrounding (see Chafe 1972; 1997).

**APPENDIX 5: ILLUSTRATION OF THE 'GOAL MONITORING
FUNCTION': SCHANK AND ABELSON (1977)**

APPENDIX 5: ILLUSTRATION OF THE 'GOAL MONITORING FUNCTION': SCHANK AND ABELSON (1977)

According to Schank and Abelson, plans fulfil goals. For example, we will, in listening to a story, have expectations. These expectations will relate to events and to goals. In the case of goals, our expectations will be generated from our belief systems; in the case of events, our expectations will be derived from our expectations in relation to goals. For the monitoring and tracking of underlying goals in discourse, Schank and Abelson propose a *goal monitor*: "an interrelated bundle of processes which recognizes when goals are triggered, interprets their nature, keeps track of their fate, and makes predictions about goal-related events" (p. 102). In dealing with a story, they suggest that the goal monitor should be able to deal with:

- . Goal Origin
- . Goal Specification and Substitution
- . Goal Suspension
- . Goal Embellishment.

In explaining this, Schank and Abelson cite a story of a professor who comes to a town to settle. He wishes to buy a certain type of house in the north part of the town for no more than a certain sum. As nothing is available within his price range, he searches in the south part. Then a colleague suggests a house in a third area. He is called away to his mother who is ill, and when he returns, this property in the third area has been sold. Finally he rents an apartment in the centre of the town. Relating to this story to a goal-centred approach involves the following:

- . Goal Origin - draws on the audience's knowledge of why a professor coming to a town may wish to buy a house.
- . Goal Specification and Substitution - the definition of the goal (getting a house) changes according to price, availability within certain areas.
- . Goal Suspension - the goal is temporarily abandoned when the professor goes away to visit his ill mother.
- . Goal Embellishment - adopting the substitute goal of renting an apartment.

Schank and Abelson distinguish between high level goals and lower-level goals. The following high-level goals can be identified in relation to the story above:

- . to settle in the town;
- . to preserve the health of his mother.

Lower-level goals are:

- . house in north part
- . house in south part
- . house in other area
- . get apartment

Schank and Abelson identify seven types of goal as follows:

S-goals satisfaction goals, such as **S-HUNGER**, **S-SEX**, **S-SLEEP**. Each of these often involves consumption of some kind;

E-goals enjoyment goals (which can co-occur with S-goals). Examples are **E-TRAVEL**, **E-ENTERTAINMENT**, **E-EXERCISE**, **E-COMPETITION**:

- A-goals** achievement goals which involve the achievement of some acquisition or social position. Examples are: **A-POSSESSIONS, A-POWER POSITION, A-GOOD JOB, A-SOCIAL RELATIONSHIPS, A-SKILL;**
- P-goals** preservation goals. **P-goals** are often connected with **A-goals** and involve preserving the condition of things or people;
- C-goals** crisis goals are a group of **P-goals**, and involve serious and imminent threat. Examples are **C-HEALTH, C-FIRE, C-STORM**. These are often realised by scripts, such as **\$AMBULANCE, \$FIRE EXTINGUISHER;**
- I-goals** instrumental goals are any goals which fulfil preconditions of other goals "but does not in and of itself produce satisfaction" (p. 117). The **P-goal** of protecting ones children involves the **I-goal** of getting a baby sitter;
- D-goals** Delta goals are similar to instrumental goals "except that general planning operations instead of scripts are involved in its pursuit" (p. 117)

Schank and Abelson propose a hierarchy or precedence rules for goals when more than one form of a goal is operating at one time. The precedence rules which they state are:

- a. **C-goals** take precedence over **S-goals**;
- b. **S-goals** take precedence over **A-goals**;
- c. **E-goals** and **P-goals** do not usually co-occur when **C-goals** are presented and when **S-goals** and **A-goals** are not important;

- d. I-goals take on the precedence level of the goal which they serve;
- e. A-goals often have a long period of activity, C-goals may be short-term, A-goals may be long-term.

The construct of goals seems to operate at an underlying level within discourse of any type. In transactional discourse, it may be that there is a greater density and more frequent change of underlying goals according to how events unfold. For such types, the issue of a goal monitor would seem a salient construct. Academic rhetorical discourse, such as the reporting of research, however, may only be concerned with one or two underlying goals which may be more long-term within the duration of the discourse. It would seem that the goal monitoring process, while present, may be less of a focal point, especially if the underlying goals of the discourse change little during its duration.

It appears that language users draw on a wide range of types of goals in inferring language information. This appears to be especially the case in transactional discourse or a narrative description of real-life events where there is a greater density and more frequent change of underlying goals as events unfold. In a transactional setting, it would seem that the idea of a goal monitor may be an integral aspect of the language decoding process. Language encoding or discourse creation is not specifically examined in Schank and Abelson's work on plans and goals, but they state at the beginning of their chapter on plans that plan creation is:

Plan creation is problem solving, and as usually studied, the problem domain is well-structured and limited to a small set of goals. Plan understanding, on

the other hand, involves very broad inferential knowledge of large numbers of actions and goals, without each much depth of calculation on each single goal pursuit. (Schank and Abelson, 1977, p.73).

Discourse creation, in particular the creation of written discourse would, therefore, appear to be an organisational / representational rather than an inferential process. While the goal monitoring process may be still present and active, it may be less of a focal point, especially if the underlying goals of the discourse change little during its duration.

**APPENDIX 6: THE READING PROCESS AND REFERENCING, SANFORD
AND GARROD (1981)**

APPENDIX 6: THE READING PROCESS AND REFERENCING, SANFORD AND GARROD (1981)

Sanford and Garrod (1981) see text comprehension as involving a contract between the writer and the reader:

A writer wishes to convey an idea to his readers. In essence, this means that he must establish in the mind of his reader a situational model which is the same as (or closely similar to) the one in his own mind (p. 8)

They propose the construct of the *scenario* to accommodate a number of aspects of this contractual relationship and suggest that "knowledge of settings and situations [can be thought of] as constituting the interpretative scenario behind a text" (p.110). Thus, for example, the decomposition of the meaning of a word may activate a possible domain of reference containing slots into which succeeding items within the same discourse may fit. This is supported by reading time experiments which demonstrate that the activation of inappropriate scenarios (as, for example, in the case of the misleading of a title) will considerably increase reading processing time.

In relation to referencing, Sanford and Garrod make a distinction between *explicit focus reference* (which is based on the structural features of a text) and *implicit focus reference* (which is reference to a scenario setting). In doing so, they refer to the construct of foregrounding (Chafe, 1972; 1994) which involves the assignment of greater prominence to certain parts of a text. Foregrounded elements in explicit focus are often presented as a noun phrase and subsequently referenced by pronominalisation. This type of foregrounding has been related to *sentence topic* (what a sentence is about) in terms of how it is represented in the memory of a reader

or listener (Broadbent, 1973; Havilland and Clark, 1974). In connection with this, Sanford and Garrod cite the memory studies of Purkiss (1978) which demonstrate that there are slower reading times where the antecedents of delayed pronoun references are first presented in object rather than in subject position. The heuristic rules which Sanford and Garrod offer for explicit focus pronominal reference are:

- the current topic is more likely to be an appropriate antecedent than others;
- proximal expressions are more likely antecedents than distant ones;
- repeated referenced prior concepts are more likely to be relevant antecedents (Sanford and Garrod, 1983, p. 141).

Sanford and Garrod discuss how explicit and implicit reference operate to achieve coherence within a text. They distinguish here between *principal actors* and *scenario-dependent entities*. *Principal actors* move through various situations and goals, and their progress is attended by changes in scenarios which are called up according to the content of the text. (Sanford and Garrod, 1981, pp. 145-146). *Principal actors* remain constantly foregrounded, and are likely to be referenced by pronominalisation. *Scenario-dependent entities* are wider frames of reference, which will contain scenario-dependent actors (like waiters in restaurants, sales assistants in shops).

In relation to reference, Sanford and Garrod examine Halliday's *given-new* construct and its development as *inferential bridging* (Havilland and Clark, 1977) in the context of reviewing approaches to reader-comprehension of text. Here, we are concerned with accounting for referential links between linguistic items and their anaphoric

antecedents. Where the connection between an item and its anaphorically related antecedent is not directly stated, we have inferential bridging. For example:

A. Mary unpacked the picnic things.

B. The beer was warm

The establishment of beer as one of the 'picnic things' is dependent on inference and this inference is fundamental to the anaphoric referencing.

Sanford and Garrod (1981) examine cases where the neither given-new model nor inferential bridging (which they say is 'data-driven' (p. 101)), can account for referential connections. In connection with these, they propose another type of reference which is *concept-driven*. Thus, in the example below, the antecedent for *window* is *room*. Making sense of this involves contextual knowledge (that is, that rooms often have windows).

A. Tom entered the room.

B. He walked over to the window.

This, they contend, requires that Clark's form of the given-new hypothesis needs to be extended to a context-driven process:

When interpretation is concept-driven . . . decisions, and sometimes potential inferences which could relate to the event, may even be made before the critical sentence is encountered (p.101).

Thus, Sanford and Garrod propose that the decomposition of the word 'room' includes the possibility of window slots so that "the domain of reference can be extended to include certain entities implied by the verb" (p. 105)

In the process of outlining their scenario-based approach, Stanford and Garrod review a number of other approaches to text representation, the main ones being:

- texts as hierarchies of propositions (Kintsch, 1974);
- a text-processing model (Kintsch and van Dijk, 1975).
- schema-based theories (Rumelhart 1975; Schank and Abelson, 1977);

Kintsch (1974) proposed that texts could be reduced to a series of propositions representing their content, propositions that are extrapolated from the language of a text and that make no reference to prior knowledge. On the basis of this proposal, Kintsch and van Dijk (1978) attempted to construct a text processing model that would account for the role of memory in processing. They argued that text-processing begins with the identification of propositional information within a text and that this identification takes place in the context of a *memory buffer* until that buffer reaches capacity. As more and more propositions are added, some are lost. However, a certain number are retained for the next cycle according to their importance or relatedness to gist. If propositions are selected more than once, they have a greater chance of being retained within long-term memory. Sanford and Garrod note, however, that the memory studies of Garnham (1979) and Anderson et al (1976) demonstrate that that what is remembered is neither sentences nor propositions, but idealised versions of situations. Thus, the reduction of texts to a series of propositional summaries based on the information as encoded linguistically will not necessarily be an accurate representation of what is recalled: it will, apart from other considerations, make no reference to the scenarios that guided interpretation.

In relation to schema-based theories of text, particularly the script-based approach propounded by Schank and Abelson (1977), Sanford and Garrod appear to be more positive in their evaluation. They see scripts as goal structures in which the overall goal is close to the overall gist of a text and observe that the research of Rumelhart (1975) and Thorndyke (1977) on story recall indicates that these higher-level elements (main goals) are precisely the ones that are most likely to be recalled. They observe, however, that the research of Bower et al. (1979) indicates that what is recalled overall may be an idealised version, including stereotypical events that were not included in the original and that could not, therefore, have played any role in planning.

In spite of the fact that there are aspects of a number of approaches to text representation that they dispute, Sanford and Garrod conclude that there are a number of features that are common to these approaches that are also supported by their own research. These are:

- main propositions in descriptions are nearer to the idea of gist than their dependents;
- main goals are nearer to the gist than are subgoals which form part of the instrument used to realize main goals;
- main actions in stereotyped situations are nearer the gist than details of the actions (Sanford and Garrod, 1981, pp. 84 & 85).

**APPENDIX 7: CORPUS STUDY: SELECTION METHOD, POPULATION
AND SAMPLE**

APPENDIX 7: CORPUS STUDY: SELECTION METHOD, POPULATION AND SAMPLE

The aim of the study (reported in *Chapter 6*) was to gather a small corpus of 20 academic journal articles from a range of academic disciplines and examine them for instances of the Rhetorical Types

Requests were made to (personally and by email) to 15 academic staff, each teaching in a different academic discipline, at the University of Waikato, Hamilton. Staff were asked to name the four or five academic journals that they were most likely to refer to. Responses were received from 11 staff from the subject areas of: applied linguistics, biology, computer science, education, English, general linguistics, history, law, business management, psychology and sociology.

From the journal titles (or other periodical publications) named by staff members, two or three articles were gathered from each of the journals named, from issues for the year 1999 or years closest to that year. Altogether the titles for nine articles were gathered for each of the eleven subjects areas, making a total population of 99 articles which were numbered 1 to 99. (The population is listed on pp. 390-397 following.) Using the random number function of a scientific calculator, 20 articles from the population were selected as the corpus (see p. 398 following for the corpus list, and Appendix 7 on the accompanying CD ROM for the actual corpus texts on electronic files).

Appendix 7b: The Population of 99 Academic Journal Articles

| Population No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|----------------|---------------------|---|-----------------------------|--|---|
| 1 | Applied Linguistics | Annual Review of Applied Linguistics | (1999), 19, pp. 32-42 | Cognitive approaches to Second Language Acquisition | Nick Ellis |
| 2 | Applied Linguistics | In Hasan, R. & G Williams. (eds.). <i>Literacy in Society</i> . Harlow, Essex, England: Addison Wesley Longman Limited. | (1996) | Technology and/or weapon: the discipline of reading in the secondary English classroom. i | Cranny-Francis, A |
| 3 | Applied Linguistics | Applied Linguistics | (1999) 20, 2 pp. 237-264 | Small Cultures | Adrian Holliday |
| 4 | Applied Linguistics | Applied Linguistics | (1999) 20, 3 pp. 341-367 | Academic attribution: Citation and the construction of disciplinary knowledge | Ken Hyland |
| 5 | Applied Linguistics | Applied Linguistics | (1999) 20, 4 pp. 460-480 | Item versus system learning | Rod Ellis |
| 6 | Applied Linguistics | ELT Journal | (1998) 52, 2 pp. 140-145 | ELT project planning and sustainability | Alastair Sharp |
| 7 | Applied Linguistics | ELT Journal | (1998) 52, 3 pp. 235-242 | Towards more humanistic English teaching | Jane Arnold |
| 8 | Applied Linguistics | TESOL Quarterly | (1999) 33, 1 pp 37-63 | Intonation in theory and practice revisited | John M. Levis |
| 9 | Applied Linguistics | TESOL Quarterly | (1999) 33, 2 pp 185-209 | Going beyond the native-speaker in language teaching | Vivan Cook |
| 10 | Biology | New Phytologist | (1999) 141, 3 pp. 401-409 | Generalities in the growth, allocation and leaf quality responses to elevated CO2 in eight woody species | J. H. C. Cornelissen, A. L. Carnell & T. V. Callaghan |
| 11 | Biology | New Phytologist | (1999), 142, 1 pp. 35-48 | Nitrogen uptakes by rhizomes of the clonal sedge <i>carex bigelowii</i> | R. W. Brooker, T. V. Callaghan & S. Jonasson |
| 12 | Biology | Nature | (1999), June 17 pp. 686-688 | Jasmonate-inducible plant defences cause increased parasitism of herbivores | J. S Thaler |
| 13 | Biology | Nature | (1999) Nov 11 pp. 191-195 | A plant regular controlling development of symbiotic root nodules | Leif Schauser, Andreas Roussis, Jiri Stiller & Jens Stougaard |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|------------------|---|---------------------------------|---|---|
| 14 | Biology | Science | (1999), 284, 5417 pp. 1177-1179 | Net primary production of a forest eco-system with experimental CO2 enrichment | E. H. Delucia, J. G. Hamilton, S. L. Haidu, R. B. Thomas & J. A. Andrews |
| 15 | Biology | Science | (1999). 284, 5418 pp. 1305-1307 | Is it time to uproot the tree of life? | Elizabeth Pannisi |
| 16 | Biology | Oecologia | (1999), 119, 2 pp. 149-158 | Protection against photoinhibition in the alpine plant <i>geum montanum</i> | N. Manuel, G. Cornic, S. Auber, P. Choler, R. Bligny & U. Heber |
| 17 | Biology | Oecologia | (1999) 119, 3 pp. 300-310 | Self shading, carbon gain and leaf dynamics: a test of alternative optimality models | David Ackerly |
| 18 | Biology | Plant Physiology | (1999), 119, 1 pp. | Adventitious root growth and cell cycle induction in deepwater rice. | Rene Lorbiecke and Margret Sauter |
| 19 | Computer Science | MIS Quarterly | (1999), 23, 2 pp. 145-158 | The implications of information technology infrastructure for business process redesign | Deborah Compeau, Christopher A. Higgins, Sid Huff |
| 20 | Computer Science | MIS Quarterly | (1999), 23, 1 pp., 67-94 | A set of principles for conducting and evaluating interpretative field studies in information systems | Heinz K Klein, Michael D Myers |
| 21 | Computer Science | International Journal of Human-Computer Interaction | (1999), 11, 1 p. 29 | Implication for design of computer interfaces for Chinese users in mainland China | Yee-Yin Choong, Salvendy, Gavriel |
| 22 | Computer Science | International Journal of Human-Computer Interaction | (1999), 11,4 p. 185 | Cognitive walkthroughs: Understanding the effect of task description detail on evaluator performance | Sears, Andrew; Hess, David J.. |
| 23 | Computer Science | IEEE Journals | (1999), 32, 3 pp. 80-87 | Using Distributed Objects to Build the Stanford Digital Library Infobus | Andreas Paepcke Michelle Q. Wang Baldonado Chen-Chuan K. Chang Steve Cousins Hector Garcia-Molina |
| 24 | Computer Science | IEEE Journals | (1999), 32, 5 pp. 32-37 | Data Mining-Guest Editors' Introduction: From Serendipity to Science | Naren Ramakrishnan, Ananth Y. Grama |
| 25 | Computer Science | Communications of the ACM | (1999), 42, 2 pp. 74-79 | The realities of software technology payoffs | Robert L. Glass |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|------------------|--|-----------------------------------|--|--|
| 26 | Computer Science | Communications of the ACM) | (1999) 42, 3 pp. 48-54 | Network agents for scientific computing | Tzevtan Drashansky, Elias N. Houstis, Naren Ramakrishnan, John R. Rice |
| 27 | Computer Science | Software: Practice and Experience. | (2000). 30, 9. pp 973-1002. | An index allocation tool for object-oriented database systems" | Bertin, B., Catania, B. & A Filippone. |
| 28 | Education | Science and Education | (1999) 8, 2 pp. 137-150 | Historical aspects in physics teaching: Using Galileo's work in a new Swiss project | Fritz Kubli |
| 29 | Education | Science and Education | (1999) 8, 6 pp. 633-644 | Seeing a world in a grain of sand: Science teaching in a multi-cultural context | David Wade Chambers |
| 30 | Education | International Journal of Science Education | (1999) 21, 5 pp. 499-514 | Global environmental priorities of secondary students Zabrze, Poland | Michael Robinson & Piotr Kalta |
| 31 | Education | International Journal of Science Education | (1999) 21, 11 pp. 1169-1185 | Empirical evaluation of an educational conservation programme introduced in Swiss secondary schools | Franz X. Bogner |
| 32 | Education | Research in Science Education | (1999) 29, 1 pp. 69-88 | Educating science teachers for the sociocultural diversity of urban schools | Kenneth Tobin, Gale Seiler and Mackenzie W. Smith |
| 33 | Education | Research in Science Education | (1999) 29, 2 pp. 227-245 | Meaning making in a community of learners: Struggles and possibilities in an urban science class | Maria Varelas, Barbara Luster and Stacey Wenzel |
| 34 | Education | Research in Science Education | (1999) 29, 4 pp. 457-477 | Assessing depth of socio-cognitive processing in peer groups' science discussions | Kathleen Hogan |
| 35 | Education | Journal of Research in Science Teaching | (1999) 36, 4 pp. 455-473 | Factors associated with students' intentions to engage in science learning activities | Malcolm B Butler |
| 36 | Education | Journal of Research in Science Teaching | (1999) 36, 9 pp. 977-1019 | Differences in graph-related practices between high school biology textbooks and scientific ecology journals | Wolff-Michael Roth, G. Michael Bowen, Michelle K. McGinn |
| 37 | English | SEL – Studies in English Literature | (1999) 39, 1 pp. 89-109 | Carew's response to Johnson and Donne | Scott Nixon |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|---------------------|-------------------------------------|----------------------------------|--|-----------------------------|
| 38 | English | SEL – Studies in English Literature | (1999) 39, 4 pp. 773-789 | Hardy and the imagery of place | William R. Siebenschuh |
| 39 | English | The Review of English Studies | (1999) 50, 197 pp. 22-31 | Shylock's sober house | Roy Booth |
| 40 | English | The Review of English Studies | (1999) 50, 198 pp. 155-165 | French and Italian sources for Raleigh's 'Farewell false love' | Jonathon Gibson |
| 41 | English | The Review of English Studies | (1999) 50, 200 pp. | Stevenson's "Sterling Domestic Fiction": "the Beach of Falese" | Roslyn Jolly |
| 42 | English | ELH | (1999) 66, 2 pp. 439-460 | Masks of the unconscious: Bad Faith and Casuistry in the Dramatic Monologue | W. David Shaw |
| 43 | English | ELH | (1999) 66, 4 pp.885-909 | Rehabilitating Coleridge: Poetry, Philosophy, Excess | Paul Youngquist |
| 44 | English | The Journal of Commonwealth Studies | (1999) 34, 3 pp. 67-87 | New Zealand (with the South Pacific Islands) | John Thomson |
| 45 | English | The Journal of Commonwealth Studies | (2000) 35, 1 pp. 121-129 | Children's Literature and British Child Emigration Schemes: A missed opportunity | Elwyn Jenkins |
| 46 | General Linguistics | Language | (1999) 75, 1 pp. 1-33 | Grammatical constructions and linguistic generalizations | Paul Kay & Charles Fillmore |
| 47 | General Linguistics | Language | (1999) 45, 3 pp. 451-485 | Agent focus and inverse in Tzotzil | Judith Aissen |
| 48 | General Linguistics | Language | (1999), 75, 4 pp. 653-677 | Structure, aspect and the predicate | T. R. Rapoport |
| 49 | General Linguistics | Journal of the Polynesian Society | (1995) 104, 2 pp. 181-194 | French images of Rapaniu (Easter Island) | Grant McCall |
| 50 | General Linguistics | Journal of the Polynesian Society | (1996) 105, 3 pp. 347-365 | The history of Moutoa gardens and claims of ownership | Paul Moon |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|---------------------|---|----------------------------------|--|-------------------------|
| 51 | General Linguistics | Oceanic Linguistics | (1999) 38, 2 pp. 231-269 | The lack of zero anaphora and incipient person marking in Tagalog | Nikolaus P. Himmelsmann |
| 52 | General Linguistics | Oceanic Linguistics | (2000) 39, 1 pp. 1-32 | Inclusory pronominals | Frantisek Lichtenberk |
| 53 | General Linguistics | Journal of Multilingual and Multicultural Development | (1999) 20, 3 pp. 194-208 | The discourse of official texts and how it can impede public service translations | Janet Fraser |
| 54 | General Linguistics | Journal of Multilingual and Multicultural Development | (1999) 20, 6 pp. 494-507 | Irish speakers in Northern Ireland and the Good Friday Agreement | M. Nic Craith |
| 55 | History | New Zealand Journal of History | (1998) 32, 1 pp. 59-69 | New Zealand's changing natural history | Paul Star |
| 56 | History | New Zealand Journal of History | (2000) 34, 2 pp. 197-225 | Irish Migration to the West Coast | Lyndon Fraser |
| 57 | History | Gender and History | (1999), 11, 2 p. 256 | 'Furies' and 'Die hards': Women and Irish Republicanism in the early twentieth century | L Ryan |
| 58 | History | Gender and History | (1999), 11, 3 pp. 419 | Women in nineteenth century America | C. Stansell |
| 59 | History | Health and History | (1999) 1, 2/3 pp. 101-111 | The use of patient records by historians | John Harley Warner |
| 60 | History | Health and History | (1999) 1, 4 pp. 274-297 | Keeping healthy in nineteenth-century Australia | Judith Rafferty |
| 61 | History | Australian Historical Studies | (1998) 29, 111 pp. 248-266 | Federalising the Aborigines? Constitutional reform in the late 1920s | Fiona Paisley |
| 62 | History | Australian Historical Studies | (1999), 30, 112 pp. 44-60 | Preserving Sydney's built heritage in the early twentieth century | Robert Freestone |
| 63 | History | Australian Historical Studies | (1999) 30, 113 pp. 251-266 | Dating Australia's Independence: National Sovereignty and the 1986 Australia Acts | Deborah Gore |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|------------|--|---------------------------------|---|-------------------|
| 64 | Law | The New Zealand Law Journal | (1999) February pp. 8-12 | EMU – Australian or European? | Geoff Harley |
| 65 | Law | The New Zealand Law Journal | (1999) April pp. 135-136 | World Trade Bulletin | Gavin McFarlane |
| 66 | Law | The New Zealand Law Journal | (1999) August pp. 278-280 | The shifting terrain of judicial review | Philip Joseph |
| 67 | Law | The New Zealand Journal of Taxation Law and Policy | (1999) 5 (April) pp. 48-61 | Taxation consequences of exchange gains and losses in Australia | Nibil (Bill) Orow |
| 68 | Law | The New Zealand Journal of Taxation Law and Policy | (1999) 5 (November) pp. 147-157 | Damages for lost earning capacity: Should they be based on gross or net earnings | Craig Priscott |
| 69 | Law | Human Rights Quarterly | (1999) 21, 2 pp. 342-363 | The African Human Rights Court: A two-legged stool | Makau Mutua |
| 70 | Law | Human Rights Quarterly | (1999) 21, 4 pp. 907-926 | Group rights and the Muslim Diaspora | William Barbier |
| 71 | Law | Harvard Journal of Law and Public Policy | (1999) 22, 2 pp. 523-604 | The Guilty and the 'Innocent': An Examination of Alleged Cases of Wrongful Conviction from False Confessions | Paul G. Cassell |
| 72 | Law | Harvard Journal of Law and Public Policy | (1999) 23, 1 p. 159 | Regulating network industries: A look at Intel | Randal C. Picker |
| 73 | Management | Business Communication Quarterly | (1999), 62, 1 PP. 10-28 | Writing and other communication standards in undergraduate business education | Melinda Knight |
| 74 | Management | Business Communication Quarterly | (1999), 62,3 pp. 46-53 | Correlating students personality types with their rating of topics covered in business communication classes | Bill McPherson |
| 75 | Management | Academy of Management | (2000), 43, 4 pp. 681-687 | Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy | S. Sharma |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|------------|--|-------------------------------|---|--|
| 76 | Management | Journal of Business Communication | (1999), 36, 3 | Negative messages as strategic communication | Winifred Crombie, Helen Samujh |
| 77 | Management | International Journal of Intercultural Relations | (1999), 23, 3 | Communicating information in conversations: A cross-cultural comparison | Han Zao Li |
| 78 | Management | International Journal of Intercultural Relations | (1999), 23, 2 pp. 199-214 | Setting the frame of mind for social identity | Ho-Ying Fu Sau-Lai Lee Chi-Yue Chiu |
| 79 | Management | Management Communication Quarterly | (1998), 11, 4 pp. 536-572 | A framework for the study of emotions in organizational contexts | Greg V. Fiebig Michael W. Kramer |
| 80 | Management | Management Communication Quarterly | (1999), 12, 4 pp. 544-574 | Topic management and turn taking in professional communication | Bertha Du-Babcock |
| 81 | Management | Asia Pacific Journal of Management, | (2000), 17, 62 p. 83 | Performance of US FDI in different world regions | G. Qian |
| 82 | Psychology | Neuropsychology | (1999) 13, 1 pp. 10-21 | Effects of divided attention on temporal processing I patients with lesions of the cerebellum or frontal lobe | Laurence Casini and Richard B Ivery |
| 83 | Psychology | Neuropsychology | (1999) 13, 3 pp. 389-405 | The effect of time course and context on the facilitation of semantic features | Ruth Ann Atchly, Curt Burgess, Maureen Keeny |
| 84 | Psychology | Brain and Cognition | (1999) 40, 1 pp. 171-246 | Semantic Proximity and Shape Feature Integration Effects in Visual Agnosia for Biological Kinds | Sophie Lecours, Martin Arguin, Daniel Bub, Stephanie Caille', and Sophie Fontaine† |
| 85 | Psychology | Brain and Cognition | (1999) 40, 3 pp. 464-478 | Cognitive Processing of Drawing Abilities, | Fanny Guérin, Bernadette Ska and Sylvie Belleville |
| 86 | Psychology | Journal of Experimental Psychology | (1999) 25, 2 pp. 376-381 | Evidence for sequential processing in visual word recognition | Peter J. Kwantes & Douglas J. K. Mewhort |
| 87 | Psychology | Journal of Experimental Psychology | (1999) 25, 4 pp. 965-975 | Infants' and adults' perception of scale structure | Sandra E Trehu, E. Glenn Schellenberg & Stuart B. Kamenetsky |
| 88 | Psychology | Journal of Experimental Psychology | (1999) 25, 6 pp. 1625-1640 | Action planning and the temporal binding of response codes | Gijsbert Stoert & Bernhard Hommel |
| 89 | Psychology | Psychological Review | (1999) 106, 3 pp. 491-528 | Phonology, reading acquisition and dyslexia: Insights from connectionist models | Michael W. Harm & Mark S. Seidenberg |

| Sample No. | Subject | Journal / Text | Volume, Number, Pages | Article | Author |
|------------|------------|--|---------------------------------|--|--|
| 90 | Psychology | Psychological Review | (1999) 106, 4 pp. 748-765 | Noun-phrase anaphora and focus: the information load hypothesis | Amit Almar |
| 91 | Sociology | The Social Policy Journal of New Zealand | (1998) 11, pp. 1-27 | A coat of many colours: Welfare reform round the world | Ross Mackay |
| 92 | Sociology | The Social Policy Journal of New Zealand | (1999) 12 pp. 53-70 | Changing expectations: Sole parents and employment in New Zealand | Kay Goodger Peter Larose |
| 93 | Sociology | The Social Policy Journal of New Zealand | (1999), 13, pp. 1-13 | Third Age – The Age of Reason: A gift and not burden | John Patterson |
| 94 | Sociology | Journal of Popular Culture | (1999) 33, 1 pp. 35-48 | Cooked to perfections: Cook's cottage and the exemplary historical figure | Maryanne McCubbin |
| 95 | Sociology | Journal of Popular Culture | (1999) 33, 3 pp. 39-47 | Latin America and country music | Don Cusic |
| | Sociology | Journal of Marriage and the Family | (1999) 61 pp. 21-37 | Transmission of emotions in the daily interactions of single mother families | Reed W. Larsen Sally Gillman |
| 97 | Sociology | Journal of Marriage and the Family | (1999) 61 pp. 638-650 | Status and income as gendered resources: The case of marital power | Veronica Jaris Tichenor |
| 98 | Sociology | New Zealand Population Review | (1997) 23, 1/2 pp. 19-44 | English language requirements and immigration policy in New Zealand | Anne M. Henderson Andrew D. Trilin Regina Pernic and Nicola North |
| 99 | Sociology | New Zealand Population Review | (1999) 24, 1/2 pp. 21-42 | In come of immigrant in New Zealand: An analysis of the 1991 census | Arvind Zodekar |

Appendix 7b: Academic Journals: Source of the Corpus Texts

| Corpus Sample | Population Item | Article |
|---------------|-----------------|---|
| 1. | 87 | Infants' and adults' perception of scale structure |
| 2. | 2 | Technology and/or weapon: The discipline of reading in the secondary English classroom |
| 3. | 25 | The realities of software technology payoffs |
| 4. | 45 | Children's literature and British child emigration schemes: A missed opportunity |
| 5. | 98 | English language requirements and immigration policy in New Zealand |
| 6. | 5 | Item versus system learning |
| 7. | 14 | Net primary production of a forest eco-system with experimental CO ₂ enrichment |
| 8. | 40 | French and Italian sources for Raleigh's "Farewell false love" |
| 9. | 73 | Writing and other communication standards in undergraduate business education |
| 10. | 32 | Educating science teachers for the socio-cultural diversity of urban schools |
| 11. | 31 | Empirical evaluation of an educational conservation programme introduced in Swiss secondary schools |
| 12. | 3 | Small cultures |
| 13. | 6 | ELT project planning and sustainability |
| 14. | 72 | Regulating network industries: A look at Intel |
| 15. | 69 | The African Human Rights Court: A two-legged stool |
| 16. | 27 | An index allocation tool for object-oriented database systems |
| 17. | 7 | Towards more humanistic English teaching |
| 18. | 81 | Performance of US FDI in different world regions |
| 19. | 75 | Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy |
| 20. | 22 | Cognitive walkthroughs: Understanding the effect of task detail on evaluator performance |

The Rhetorical Type Texts that were taken from the 20 articles of the corpus are reproduced in electronic files on the CD that accompanies this thesis.

APPENDIX 8: CROMBIE'S SEMANTIC RELATIONS WITH EXAMPLES

APPENDIX 8: CROMBIE'S SEMANTIC RELATIONS WITH EXAMPLES

| PROCESS | RELATION | DEFINITION | EXAMPLES |
|-------------|--|---|---|
| Associative | Simple Contrast | Involves the comparison of two things, events or abstractions in terms of some particular in respect of which they differ. | Churchill was British. Eisenhower was American. |
| | Comparative Similarity (Simple Comparison) | Involves the comparison of two things, events or abstractions in terms of some particular in respect of which they are similar. | The students were active in their opposition to the government, and so were the workers. |
| | Statement – Affirmation | The truth of a statement is affirmed. | A: We should continue. B: I agree. |
| | Statement-Exception | Involves a statement and an exception to that statement. | All of the directors voted to merge except for on. |
| | Statement-Exemplification | The first member provides a general statement and the second adds a proposition which is presented as an exemplification of the general statement in the first member. | All registered companies, take Allied Printing for example, are obliged to hold an annual general meeting for shareholders. |
| | Statement-Denial | Involves the denial of the truth of a statement or validity of a proposition. | Bush claimed to win the Presidential election, but Gore supporters dispute this.. |
| | Denial – Correction | Involves a corrective non-antonymic substitute for a denial. | She wasn't a lawyer; she was a doctor. |
| | Concession-Contraexpectation | Involves direct or indirect denial of the truth of an inference. | Although he campaigned vigorously for his wife's release from prison, he was unsuccessful. |
| | Supplementary Alternation | Involves two or more non-antithetical choices. | He neither cleaned his house nor tended his garden. |
| | Contrastive Alternation | Involves a choice between antitheses. | Either he takes a job or he remains unemployed. |
| | Paraphrase | Involves the same proposition expressed in different ways. | She campaigned vigorously for re-election; she visited neighbourhoods and addressed meetings. |
| | Amplification | Involves implicit or explicit repetition of the propositional content of one member of the relation in the other, together with a non-contrastive addition to that propositional content. | Someone knocked on his door. It was his mother. |

| PROCESS | RELATION | DEFINITION | EXAMPLES |
|------------------|-----------------------|---|---|
| Logico-deductive | Condition-Consequence | Involves a consequence which depends upon a realizable or unrealisable condition or hypothetical contingency. | Unless business improves, the company will have to close down. |
| | Means-Purpose | Involves an action that is/was/will be undertaken <i>with the intention of</i> achieving a particular result. | He studied diligently in order to please his mother. |
| | Reason-Result | Involves the provision of a reason <i>why</i> a particular effect came about or will come about. | Because of his past thriftiness, he enjoyed a comfortable retirement. |
| | Means-Result | Involves a statement of <i>how</i> a particular result is/was/will be achieved. | He earned his tuition fees by working as a cleaner. |
| | Grounds-Conclusion | Involves a deduction drawn on the basis of an observation. | |

| PROCESS | RELATION | DEFINITION | EXAMPLES |
|--------------------------|------------------------|---|--|
| Temporo-contigual | Chronological Sequence | Provides the semantic link between event propositions one of which follows the other in time. . | After entering the building, he went to his office. |
| | Temporal Overlap | The relation of Temporal Overlap links two events which overlap, either wholly or partly, in time. | While waiting at the airport, he telephoned his agent. |
| | Bonding | This is a non-elective, non-sequential relation between two conjoined or juxtaposed propositions. The second member adds at least one new proposition to the first and the members are not connected in an elective, comparative or sequential way. | The negotiator opened his documents and began the discussions. |

(based on Crombie. 1985, pp. 18-28, 1987, p. 102)

APPENDIX 9

STUDY 1: THE FOUR WRITING TASKS

WRITING TASK 1

The following table shows data about road deaths in New Zealand for one year.

Road Deaths in NZ - 12 months to April 1997

Type of Road User

| Age group | Driver | Passenger | Motorcyclist | Pedestrian | Cyclist | Unknown |
|--------------|------------|------------|--------------|------------|-----------|----------|
| 0-4 years | | 15 | | 5 | | |
| 5-9 years | | 7 | 1 | 7 | 3 | |
| 10-14 years | | 11 | | 4 | 4 | |
| 15-19 years | 31 | 44 | 13 | 5 | 3 | 1 |
| 20-24 years | 41 | 17 | 12 | 4 | | |
| 25-39 years | 83 | 39 | 18 | 12 | 2 | |
| 40-49 years | 52 | 18 | 5 | 6 | 2 | |
| 60+ years | 45 | 27 | 2 | 13 | 3 | |
| Unknown | 1 | | | 1 | | |
| Total | 253 | 178 | 51 | 57 | 17 | 1 |

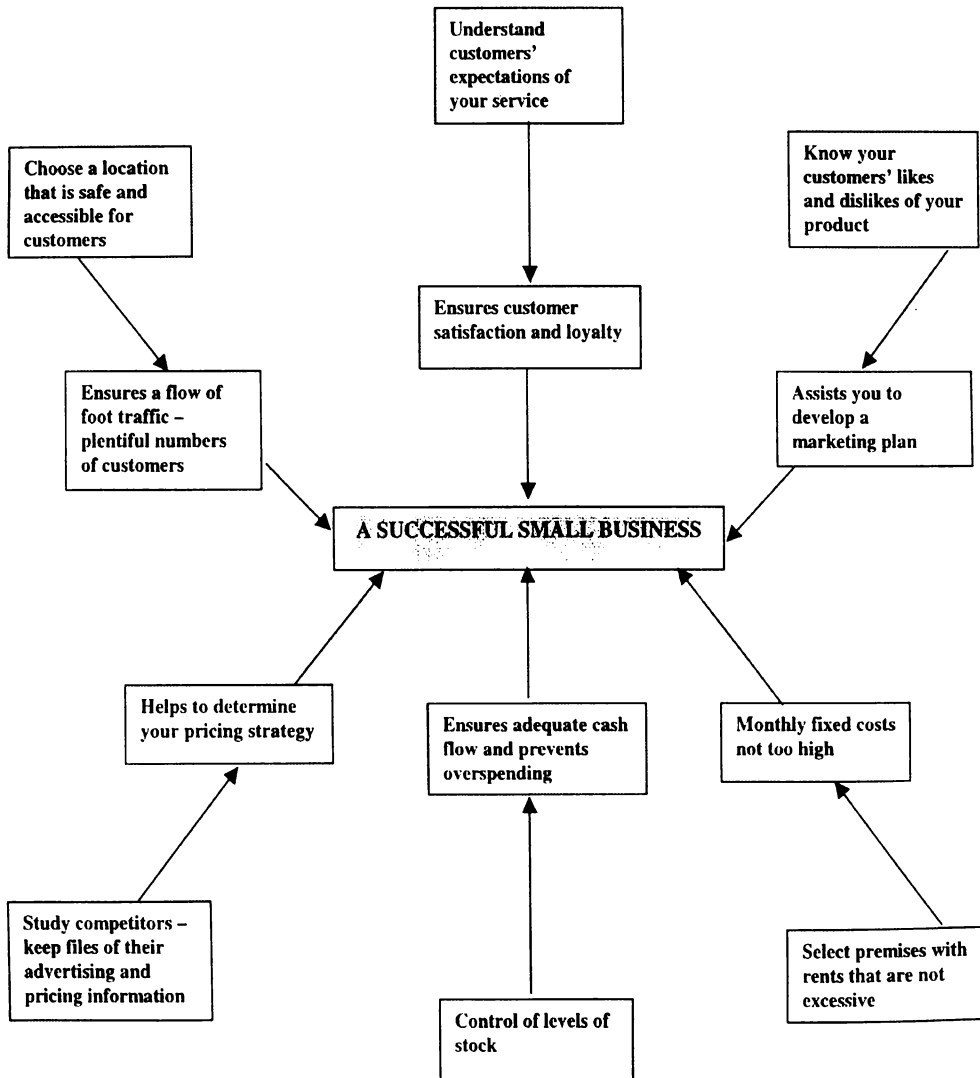
- *Write a brief report in paragraphs on the basis of the data in the table.*
(200 words)
- *Spend as much time as you wish on the task up to a maximum of 30 minutes*
- *Assume that the table accompanies your report and you are able to refer to it directly*

WRITING TASK 2

The following diagram shows advice to people who are starting a small business.

- Express the advice below in an explanation organised in paragraphs (approximately 250 words).
- Spend as much time as you wish on the task up to a maximum of 30 minutes
- Assume the diagram accompanies your explanation and you are able to refer to it.

KEY FACTORS IN RUNNING A SUCCESSFUL SMALL BUSINESS



WRITING TASK 4

Here is some information about the development of the Japanese economy since World War 2. The information is not organised in any particular way.

What is the likely future of the Japanese economy?

long slow restructuring

- loss of national confidence / identity (which is built on the economic success of the modern state).

What was the state of the Japanese economy in 1945, at the end of World War 2?

Starvation rations

- Japan's merchant fleet destroyed
- Japan was cut off from its food suppliers (China, Korea, Formosa)

What was the situation of the Japanese economy in 1990?

GDP¹ - second highest in the world

- twice that of Germany
- 70% that of the USA
- GDP per capita- third highest in the world

What is the state of the Japanese economy in the year 2000?

decade of stagnant performance

- since 1990 the government spent ¥20 billion in ten spending packages to simulate the economy in the present recession.
- the government gross debt 130% of GDP in 1999 (worst in the OECD²)
- incapable of growth, currently massive misallocation of capital, labour, and technology.

How did the Japanese economy develop during the Post War Period?

Development based on a social contract between the Government, banks, corporate sector, the people.

- Government directed banks to invest in strategic sectors
- Corporate sector promised lifelong employment
- People maintained high rates of savings

- *Write a paragraphed recount about the development of the Japanese economy (up to 200 words).*
- *Spend as much time as you wish on the topic up to a maximum of 30 minutes.*

¹ GDP = gross domestic product (the total value of the goods or services produced in a country)

² OECD = *The Organisation for Economic Cooperation and Development*. An organisation of the world's 24 developed countries.

**APPENDIX 10: INSTRUCTIONS FOR THE ADMINISTRATION OF THE
FOUR WRITING TASKS**

Instructions for Supervisors of the Writing Tasks

A Research Study by

Ian Bruce

Language Teacher

Centre for Foundation Studies

The University of Waikato

Please issue the scripts, and then read the following instructions

- **You will have 30 minutes to write an essay response to the task you have in front of you.**
- **Please write your response to the task on the lined paper attached.**
- **If you complete the writing task early, please indicate by raising your hand and both papers will be collected.**
- **Your essay will remain anonymous, but if you wish to claim your essay back in the future, please detach and keep the fold out number tab on the lined answer paper which you will need to show the researcher to claim back your script. He will retain a photocopy for his analysis.**
- **Please start now, you have 30 minutes.**

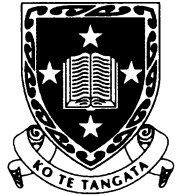
After allowing 30 minutes to perform the writing task, please say:

- ***Please stop writing and fill in the questionnaire. When you have finished the questionnaire please hand in your papers***

**APPENDIX 11: STUDY 1: SAMPLE PARTICIPATION REQUEST LETTER,
CONSENT FORM**

Department of General and

Applied Linguistics
The University of Waikato
P O Box 1317
Waikato Mail Centre
Hamilton, New Zealand



**The
University
of Waikato**
Te Whare Wānanga
o Waikato

Telephone: 64-7-838 4466
Extension: 6375
Room K.3.15

May 19, 2003.

Students in the Course *English. Confidence ENGL113-03A (HAM)*,
The Faculty of Arts and Social Sciences,
The University of Waikato.

Request for Participation in Writing Research Project:

Date & Time: Wednesday May 21, 1 p.m. (lasting approximately 30 minutes)

Room: KG.06

I am currently carrying out a doctoral research project relating to academic writing. This involves me gathering anonymous samples of writing to four different tasks, which I will then analyse.

If you agree to participate in the project, you will be asked to write a 200 word essay response to one of the tasks (30 minutes will be allowed for your writing).

Your name will not be required on either the essay or the questionnaire, and your confidentiality will be guaranteed. Your essay script will be numbered with a number on the paper and a detachable slip with the same number. To reclaim your writing later, you need to keep the detachable number and show it to your tutor in the next class.

The reporting of the information from the research will not identify you or your institutional affiliation. However, because the results of the research may be used in future publications, a copy of your script will be stored indefinitely under secure conditions.

If you are willing to participate in this project by doing the writing task answering the questionnaire, please fill in, sign the consent form that is attached, and return it to me.

Ian Bruce
Senior Tutor
Department of General and Applied Linguistics

Writing Research Project

Participant Consent form

I, a student in the course English.Confidence ENGL113-03A (HAM), agree to participate in the writing research project being conducted by Ian Bruce, linguistics tutor at the University of Waikato.

I understand that this will involve writing a short essay task.

Signed: _____

Date: _____

Email address (optional) to send out a reminder of the writing session:

APPENDIX 12: STUDY 1: THE FOUR ANALYSED SAMPLES

(The four analysed samples are included as an electronic file on the CD ROM that accompanies this thesis.)

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