Genre Pedagogy in Higher Education

The SLATE Project

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Sally Humphrey
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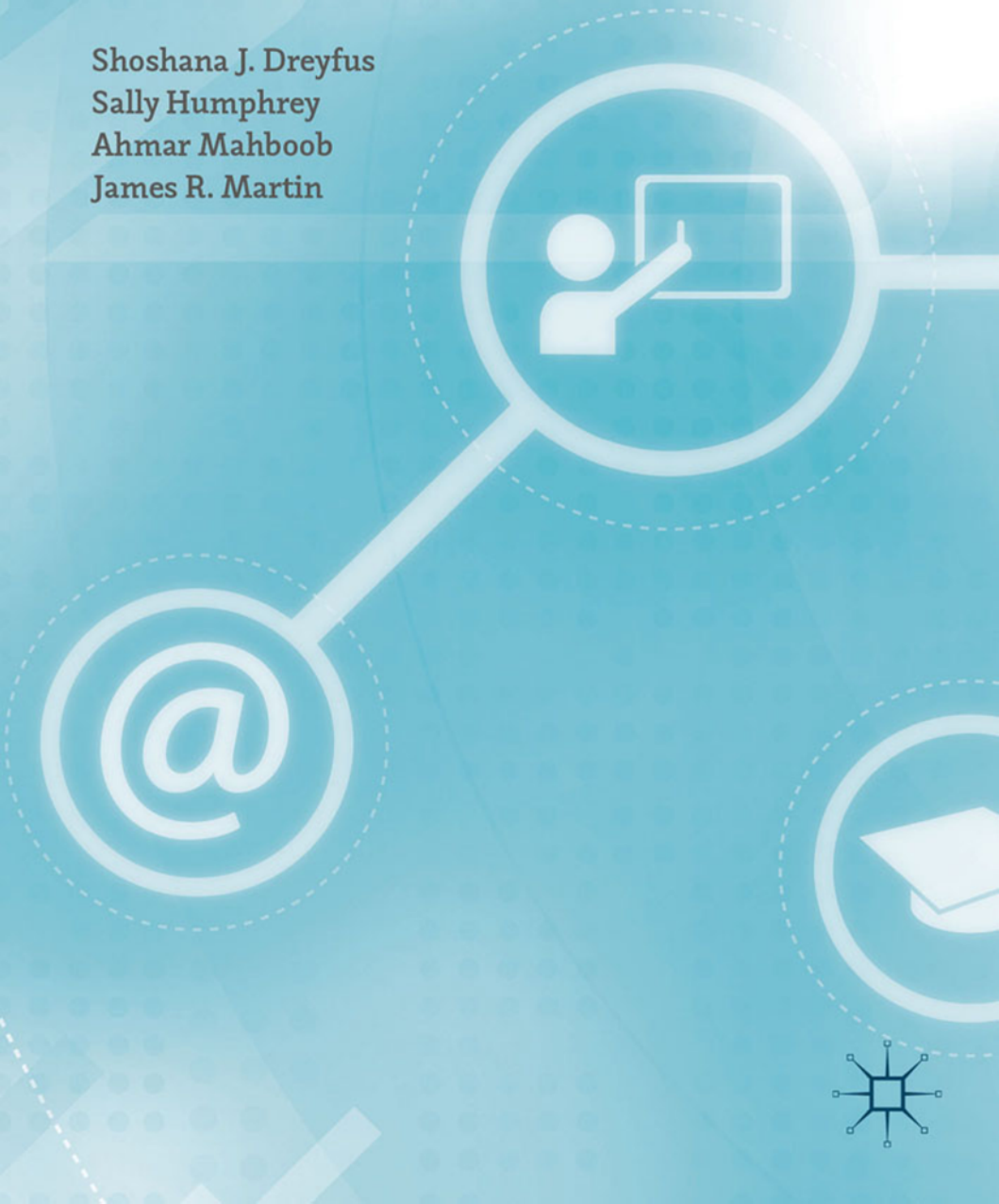

Genre Pedagogy in Higher Education

Also by Shoshana J. Dreyfus

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Genre Pedagogy in Higher Education

The SLATE Project

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Preface

This book reports on a collaborative project between The University of Sydney and City University Hong Kong (hereafter CityU). The project was instigated in 2008 by Jonathan Webster, then head of the Department of Chinese, Translation and Linguistics at CityU. He approached Jim Martin, from the Department of Linguistics at the University of Sydney, with a view to developing CityU's Language Companion Course by drawing on the educational linguistics work of Martin and his colleagues (i.e. the genre-based literacy programs generally referred to as the 'Sydney School'). Martin agreed on the collaboration, quickly involving his colleague Ahmar Mahboob (Coordinator of the Applied Linguistics program at the University of Sydney) in the project.

From the start the project was conceived as action research, simultaneously involving online literacy support for CityU undergraduate students alongside research into the reading and writing challenges students faced in their programs of study. CityU provided funding for a team of tutors based in Sydney, who were trained by Sydney University Department of Linguistics staff to participate in the program. With some support from the University of Sydney, CityU also funded the appointment of two post-doctoral fellows to the program, Shoshana Dreyfus and Sally Humphrey, who played a key role in training and research.

This action research came to be known as the SLATE project (Scaffolding Literacy in Academic and Tertiary Environments). A special issue of the journal *Linguistics and the Human Sciences* (Volume 7, 2013) reported on some of its findings. This book is the culminative report on this research, which wound down in 2010.

The authors are particularly grateful to Jonathan Webster for his instigation of the program and unwavering support during its implementation. We would also like to thank the many tutors who supported our program, and David Rose for his very helpful development of Sydney School interventions in his Reading to Learn programs.

Since this was a collaborative project and all chapters were co-edited by the book's co-authors, we have not credited chapters of the book

to individual authors. As far as feedback and queries are concerned it may be worth noting that initial drafts of chapters were composed as follows: Chapter 1 (Mahboob), Chapters 2 and 3 (Martin), Chapter 4 (Humphrey), Chapter 5 (Martin and Dreyfus), Chapter 6 (Dreyfus), Chapter 7 (Humphrey), Chapter 8 (Humphrey and Dreyfus), Chapter 9 (Humphrey), Chapter 10 (Dreyfus), and Chapter 11 (Mahboob).

Acknowledgements

The preface to *Meme Wars: the creative destruction of neoclassical economics* by Kalle Lasn (2012) has been reproduced by the permission of Seven Stories and Penguin Books Ltd.

1
An Introduction to the SLATE Project

1.1 Introduction

In many parts of the world today, English is seen as the language of higher education and knowledge production. For example, in countries and territories such as Hong Kong, India, Nigeria, Pakistan and the Philippines, a large number of universities and colleges use English as the medium of instruction, even though these countries have recognised national languages. These national languages are typically used in primary and secondary schools, but then replaced with English in tertiary education (although English is increasingly being introduced as a medium of instruction in primary and secondary schools, at least for some subjects). The choice of adopting English in tertiary education in such countries is a result of a combination of complex historical, political and attitudinal factors – historical in that the five countries listed were all colonised by English-speaking countries, political in that these countries are multilingual and English is seen as a 'neutral' language, and attitudinal in that a large proportion of the population believes that English is key to educational and scientific development. Regardless of the reasons for institutionalising English in tertiary education in these countries, the fact remains that English is the medium of instruction in institutions of higher education in many countries around the world, even though a large number of students who attend these universities have limited proficiency in English. Using English as the medium of instruction in such contexts raises many issues that need to be addressed by appropriate pedagogical models. This book is a study of one project, the Scaffolding Literacy in Academic and Tertiary Environments (SLATE) project, which provided online genre-based embedded language and literacy support for students at one university

in Hong Kong with a view to helping them develop their proficiency in academic English.

This book describes the linguistic and pedagogical dimensions of this large action research project, which deployed and extended the current work on genre-based literacy programs (Martin & Rose, 2012). In particular, the book sets out to elaborate on how genre-based pedagogy and curriculum can be extended to support students in tertiary educational institutions in non-English-speaking countries using online resources. In doing so, the book focuses on work with the Department of Chinese, Translation & Linguistics (CTL) and the Department of Biology and Chemistry (BCH), in addition to looking at the project more broadly. The book includes theoretically and practically oriented material that can serve as one baseline for other researchers and practitioners who work on literacy development with students in tertiary environments in both English-speaking and non-English-speaking countries.

1.2 Context of the project

The SLATE project was based at the City University of Hong Kong. Hong Kong enjoys a unique position in the context of East Asia: it is a part of China, but under the 'one country two systems' policy, it maintains a semi-autonomous political status (similar to that of Macau). Hong Kong was one of the only long-term British colonies in the East Asian region and has maintained English as an official language. English was the only official language of Hong Kong until 1974 and most of the educational institutions in Hong Kong were English medium. In 1974, Chinese was added as an official language of Hong Kong and introduced in all domains (except law, where English was maintained). Over time, more and more of the public educational institutions were made Chinese medium and, by 1996, when the British handed Hong Kong back to China, almost 75 percent of the schools were designated as Chinese medium (see Bolton, 2000, for a detailed discussion of this). However, in contrast to the public educational institutions, the medium of instruction in institutions of higher education remained English. Even today, six out of the seven public universities in Hong Kong are English medium. This situation creates a formidable challenge for many universities, where students enter the university with limited English language proficiency and need to adjust to the English medium tertiary environment (for discussion see Li, 2012; Poon, 2009). In some cases, such as at the City University of Hong Kong (the context of this study) or the Polytechnic University of Hong Kong, a large proportion

of the students who enter the university have only a grade of D or E in their A-level English exam. In spite of their low grades in English, they have to engage with university courses in English. While this situation is problematic, what is more worrisome is that even at the end of their English-medium university education, students have very limited English language proficiency. For example, in a review of English language proficiency conducted by the City University of Hong Kong (hereafter CityU) in 2009, a group of self-selected graduating students only scored an average of 6.4 on their IELTS, with their lowest score (5.8) in writing. This situation raises concerns about how these students engage with their studies in English while at the University and begs the question: what can be done to support them?

To explore the dynamics of how students who have low proficiency in English at CityU handle their educational contexts, we researched a number of academic courses and examined the material used in these courses in early 2009 (this was before the recent transition of Hong Kong universities from a three-year to a four-year curriculum). The results of this research showed that in order to accommodate for the language and literacy needs of the students, many lecturers shift their pedagogical approaches, use Cantonese in their lectures and use mostly multiple-choice or short-answer questions in course assessments (see also Flowerdew et al., 2000).

These practices allow students to progress relatively smoothly through the first two years of their university life, but they are challenged when they come to the third year and have to write an extended piece of writing (a short thesis, as is required by several of the departments). At this point, a number of students are unable to write on their own and resort to plagiarism (see also Li & Casanave, 2012) and/or barely achieve a passing grade for their thesis. The problems for these students do not end there. After graduation, these students are often unable to compete for public service jobs and jobs in multinational and other large companies which conduct competitive English tests and/or insist on a high level of English language proficiency. Because they are unable to meet the requirements of these workplaces, many of the graduates from these universities are forced to accept jobs that may not be directly related to their field of study and/or do not match the prospects of students graduating from elite English-medium institutions in Hong Kong (such as Hong Kong University). This observation raises the question of what can be done to improve this situation and to meet the challenges of English-medium universities in Hong Kong in order to give students access to appropriate linguistic and semiotic resources that will enable

them to be competitive and to make the most of their university life and beyond. The SLATE project was one attempt to meet this challenge. It adopts an 'appliable linguistics' approach to do so. Following Halliday (2006), Mahboob and Knight (2010) describe *appliable linguistics* as:

> an approach to language that takes everyday real-life language-related problems – both theoretical and practical – in diverse social, professional and academic contexts as a starting point and then develops and contributes to a theoretical model of language that can respond to and is appliable in the context. (p. 1)

In the present context, the problem identified was that students with limited English language literacy and proficiency were admitted to English-medium universities and graduated without demonstrating that their English language skills were sufficiently developed for them to have satisfied the English language literacy expectations of their university and future employers. In order to follow an appliable approach, the first step for us was to understand the current practices in supporting the students' English language needs.

Before we began our project, students at CityU were supported mostly through traditional English language courses offered by the English Language Centre at the university. Their program relied on a variety of traditional skill-based courses, as well as selected EAP approaches that provided support to first-year students. Students took their mainstream academic courses alongside these English language classes. This traditional language program did not, however, produce the expected results – as reflected in the low IELTS scores of graduating students discussed earlier. Accordingly, after our review of the current language support practices at CityU, as well as a survey of available options, we realised that there was a need to build an intervention that would make visible to students the genres and registers of their academic discourse requirements. These needed to be embedded within the core curriculum of the students' program to support their discipline-specific language and literacy needs. In order to do this, we drew on the work of 'Sydney School' genre pedagogy (see Rose & Martin, 2012). We chose this approach because: (1) it helped us identify the language and literacy needs of the students; (2) it provided us with tools and metalanguage to describe the language of the disciplines; (3) it helped us develop teaching material based on these descriptions; and (4) it guided us in building an appropriate approach to pedagogy for providing students with online literacy support. This book provides an overview of this

intervention and highlights the effectiveness of using an embedded literacy program for English-medium institutions in non-English-speaking countries.

1.3 Background of the project

The action research in focus here was initially conceptualised as the Language Companion Course (LCC) project and later, with the involvement of the team of educational linguists from the University of Sydney, evolved into the Scaffolding Literacy in Academic and Tertiary Environments (SLATE) project. Both these programs are briefly introduced below.

1.3.1 The Language Companion Course (LCC) project

The LCC was designed as a project in which students enrolled at CityU were provided with an online language tutor who provided language and literacy support. The LCC was developed by CityU staff and administration to improve the academic language skills of their students and to help students succeed in their studies. Lecturers across CityU were invited to join the LCC project on a voluntary basis. Students who enrolled in courses that participated in the LCC sent electronic copies of their draft assignments to online language coaches, who provided feedback to students using an online comment bank. The comment bank was comprised of an online collection of common errors and suggestions of how to fix these problems. The students used this feedback to improve their drafts, which were then submitted to their course lecturers for assessment.

In order to better facilitate the interaction between language coaches and students, the project adopted the software Turnitin, which was integrated into students' Blackboard platform. In an attempt to discourage students from plagiarising, all texts uploaded to Turnitin went through a plagiarism check before being forwarded to the language coaches. Figure 1.1 shows a screen shot of a dummy essay with comments inserted. Students could click on any of the text bubbles to read comments posted by their language coach or click on the numbers to access the comment bank.

After revising their drafts based on their coach's comments, students sent them to their lecturer for marking. This feedback cycle between the student and the tutor provided some support to the student and helped them achieve a quality of writing that they would not have been able to achieve independently. However, the support was provided only *after*

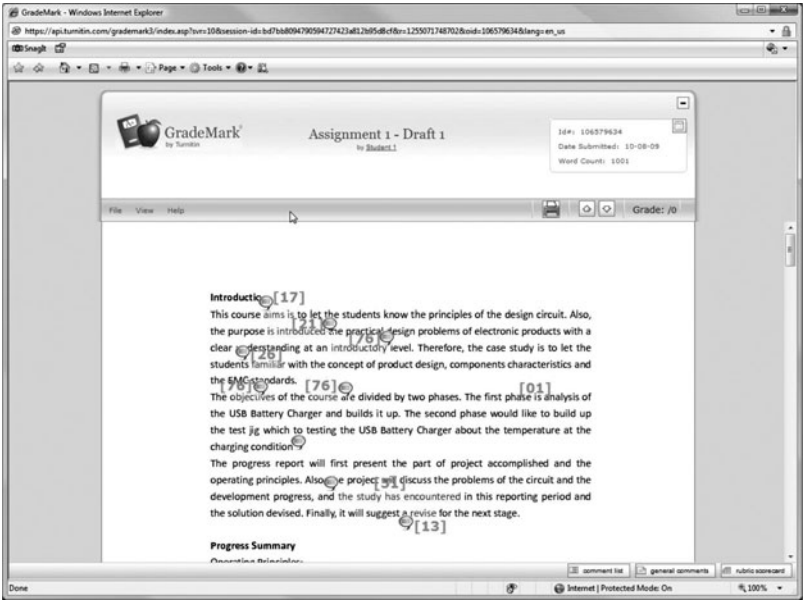


Figure 1.1 Screen shot of a dummy essay with comments inserted
Note: The text bubbles are open-ended comments and the numbers are links to the comment bank.

students had written a draft of their assignment. This feature of the LCC project was analysed, taken up and then extended in the SLATE project.

1.3.2 The Scaffolding Literacy in Academic and Tertiary Environments (SLATE) project

The SLATE project evolved from the LCC project as a fourth generation of Sydney School work (see Chapter 5 for a detailed introduction to Sydney School action research). This work drew on the lessons learnt by the SLATE team in the earlier generations of Sydney School work (in the *Language and Social Power*, the *Write it Right*, and the *Reading to Learn* projects; see Rose & Martin, 2012, for a review of these programs). These projects had identified the literacy practices crucial for success in schooling in Australia and made explicit the language resources needed to enact these practices, both for teachers and students. This work has influenced a number of international literacy educators, particularly those concerned with developing critical literacy practices for students from low socio-economic and non-English-speaking backgrounds

(e.g. Kalnin, 1998; Macken-Horarik, 1996; Schleppegrell, 2004; Schleppegrell & Colombi, 2002). The SLATE project adopted the principles developed and tested in the earlier projects and applied them to the tertiary education context in non-English-speaking contexts using online teaching–learning resources.

In developing its pedagogy of empowerment, the SLATE project incorporated aspects of genre theory (Martin & Rose, 2008), sociology of education (Bernstein, 2000) and socio-cultural theory (Vygotsky, 1978). Within Systemic Functional Linguistics (SFL) genre theory, genres are defined for practical purposes as 'staged goal-oriented social processes' which function in society as institutionalised discourse (Martin & Rose, 2008). Central to this understanding of genre in education, especially in teaching literacy and writing, is the idea that learners from all socio-economic, linguistic and cultural backgrounds need to be apprenticed into an understanding of and proficiency with these genres in order to succeed in institutional life – be this at university or in the workplace. Genre pedagogues argue that if genres are not effectively scaffolded for students, they will not be able to read and produce texts that are valued in their disciplines and workplaces and therefore not be able to fully benefit from their educational experience. It is this understanding of genre theory and its relevance to education that informs the SLATE project and its efforts to help students at CityU to develop the academic genres they need to succeed at CityU and beyond.

'Sydney school' genre pedagogy is underpinned by systemic functional linguistics (SFL). As often emphasised by Sydney School educational linguists, access to meaning-making resources in a society is not distributed equally by educational systems (Martin & Rose, 2008). This was certainly the case at CityU, where many students were disadvantaged because they did not have sufficiently developed proficiency in their medium of instruction, English – and thus did not have strong control over the semiotic tools preferred in their discipline. Based on understandings of how limited language proficiency impacts on academic performance, Sydney School genre theorists propose that in order to empower students from disadvantaged backgrounds we need to teach the genres of power explicitly through a socially oriented pedagogical approach. The SLATE project was developed on the basis of these understandings and thus drew on SFL (see Chapters 2 and 3 for a broad introduction to SFL, and Chapter 5 for an introduction to Sydney School genre pedagogy).

The research agenda of the SLATE project included two important aims: (1) to describe the language resources which students need to

access when learning in their curriculum areas (i.e. what to teach), and (2) to examine ways in which appropriate scaffolded teaching and learning support can be provided online (i.e. how to teach).

1.4 Foundations of the project

As pointed out above, in developing an online pedagogy that embeds literacy support, the SLATE project was greatly influenced by Sydney School genre theorists. Writing pedagogies developed within this tradition have been described as curriculum genres (Feez, 2002; Rothery, 1996). Figure 1.2 presents what is probably the best-known model, generally referred to as the Teaching Learning Cycle (TLC), which was developed in collaboration with teachers in the NSW Disadvantaged Schools Program (Rothery, 1996). The SLATE project adapted the TLC to scaffold students in an online environment, as will be discussed in detail in Chapter 5.

As shown in Figure 1.2, the TLC includes three steps: deconstruction, joint construction and independent construction. The first step of the TLC, deconstruction, involves analysing the structure and linguistic features of the target genre. Joint construction involves generating a new text in the target genre in collaboration with an expert writer (typically the teacher or tutor). Independent construction provides opportunity for students to produce additional texts individually or in small groups. As the TLC highlights, setting genres in their social context and building field (i.e. knowledge to write about) is critical in each step. In higher education contexts, deconstruction is widely practised across discipline areas (drawing more and less explicitly on knowledge about language and context) and a number of resources have been developed for online delivery (e.g. Drury, 2004; Ellis, 2004). Below, we will describe how we adapted the TLC for the SLATE project at CityU.

SLATE researchers and coaches developed a number of resources for supporting students in building field knowledge and deconstructing target texts over time. Crucial to this development was research into the nature of language, register and genre in the linguistics (Chapter 6) and biology (Chapter 7) undergraduate degrees as offered at CityU. Building field knowledge was supported by scaffolding students to read a range of published research articles (including primary research articles as well as review articles), textbooks and pedagogic videos.

Given the online nature of the SLATE project, real-time joint construction was a challenge, but we did identify ways in which this

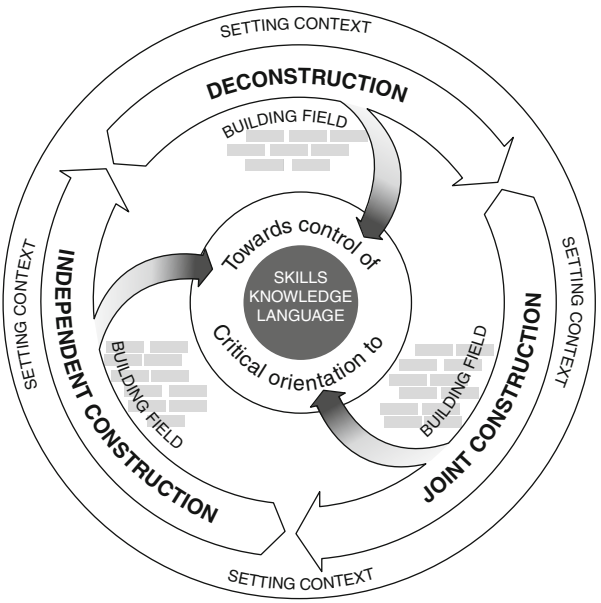


Figure 1.2 Sydney School genre Teaching Learning Cycle
Source: Rothery (1996).

can be done successfully (see Chapter 10 for a detailed discussion of joint construction).

Given the web-based nature of the SLATE project, the independent construction step of the TLC was operationalised as a 'negotiated independent construction' (see Chapter 11 for a detailed discussion of negotiated independent construction and feedback). Negotiated independent construction, like joint construction, also involves interaction between students and a tutor; however, Negotiated independent does not need to be synchronous. In the Negotiated independent step, students are asked to submit a first draft of the text, which is subsequently developed through negotiation with the tutor. In asking the students to develop a text first, negotiated independent construction incorporates some aspects of independent construction. In the SLATE project, negotiation happened when the language tutor used the feedback structure (see Chapter 8 for details about tutor training and protocols) to provide feedback to the student.

The students worked through this feedback and responded to it in their subsequent drafts.

This adaptation of Sydney School genre pedagogy in the SLATE project allowed us to work with students with limited English language proficiency through slow scaffolding into a more field-specific understanding of English. This support allowed students to both read and write texts in their disciplines and, over time, gave them the competence in English that they needed to succeed in an English-medium university.

1.5 Outline of the book

This book is designed to introduce the SLATE project in more detail and provide a comprehensive discussion of several theoretical dimensions of the project. As such, the book can be used by researchers, teachers, teacher educators and program developers to adopt or adapt aspects of the SLATE project in their own contexts. In order to do this, the book starts with a broad introduction to SFL: Chapter 2 focuses on the theoretical architecture underpinning Systemic Functional Linguistics, while Chapter 3 focuses on systemic functional knowledge about language. Specifically, SFL's modelling of language, register and genre is introduced (Martin & Rose, 2003/2007, 2008).

Building on the first two chapters, Chapter 4 sets up the linguistic toolbox, called the 3 × 3, which translated SFL linguistic theory into a practical tool for SLATE tutors, who were not necessarily experts in SFL. The 3 × 3 toolbox allowed us to engage with the tutors and train them to analyse and respond to student texts in a linguistically informed way. The 3 × 3 is designed as a transferrable resource and, once understood, can be adapted for use in other contexts as well (see, for example, Mahboob & Szenes, 2010).

Chapter 5 covers the history of the application of genre theory in educational contexts. It introduces the Teaching Learning Cycle (TLC) (Rothery & Stenglin, 1995), and describes the deconstruction, joint construction and independent construction steps of the TLC in detail.

Chapter 6 deals with research into the genre profiling of the discipline of linguistics that informed the development of the pedagogical materials for undergraduate linguistics students. It focuses on the extended written texts found in the undergraduate degree and explores the nature of the discipline of linguistics as it is recontextualised for tertiary study.

Chapter 7 extends this work on genre profiling to the discipline of biology. It describes the kinds of genres found in the undergraduate biology degree and examines the nature of literacy and knowledge-building scaffolding that occurs across the years of undergraduate biology. In particular, it focuses on the laboratory report and the way knowledge is constructed in different sections of the report.

Chapter 8 presents the resources and practices developed in the project to introduce and train tutors to develop an understanding of the linguistic and pedagogical tools needed in order to work with students in discipline-specific contexts. The chapter includes samples of the material developed and explains how this material can be used in teacher education programs in diverse contexts.

Chapter 9 reports on the work conducted within the first step of the Teaching Learning Cycle, namely deconstruction. It exemplifies how the genre profiling carried out by the SLATE researchers (Chapters 6 and 7) was used to develop support material for students. It focuses on the way texts were deconstructed for students so that they could learn to master the literacy requirements of their assessment tasks.

Chapter 10 reports on the online joint construction step of the Teaching Learning Cycle, with a focus on the joint construction lessons from linguistics. Conducted online and from a distance, this chapter examines the affordances of the online context for teaching and learning in this stage. The chapter reports on the analysis of the online lessons, and shows that, even with the limitations of online teaching, students were able to learn about the discipline-specific craft of writing in an expert-led writing lesson.

In Chapter 11, we look at the role of feedback in helping students to develop confidence in writing independently. The chapter describes how the independent construction step of the TLC was operationalised as negotiated independent construction in the SLATE project. The chapter draws on research on genre theory and feedback research (e.g. Ellis, 2009; Hyland & Hyland, 2006), and develops an understanding of feedback that allows us to see how it can be provided to enhance student learning. In doing so, the chapter situates the role of feedback within the Teaching Learning Cycle and provides examples of effective feedback.

In the final chapter of the book, we review the project as a whole from the perspective of theory, research and practice.

1.6 Concluding remarks

As pointed out at various points in this chapter, the SLATE project provided online embedded language and literacy support to students at the City University of Hong Kong. While this book describes the SLATE project in detail, it is written not just as a description of a project, but also to serve as a guide for replications and adaptations of the project in other contexts. Accordingly, as you read through the book, we invite you to consider how you might use the understandings shared in this book in your own contexts.

2
Modelling Language in Context – Systemic Functional Linguistics

2.1 Overview

In this chapter we introduce in general terms the model of language and context informing this monograph – namely systemic functional linguistics (hereafter SFL). Only foundational concepts are introduced here: stratification, axis, metafunction, and rank. A more detailed account of the understandings of language and context informing our research will be presented in Chapter 3. In this chapter we base our introduction of basic concepts on examples taken from the following text excerpted from Lasn's[1] *Meme Wars* (2012, p. iv), an engaging multimodal advocacy monograph composed as an appeal to economics students to liberate their discipline from neoclassical economic theory; the author of this excerpt is Luke Sherlock, from Oxford, UK.

Text 2.1

I was sitting in a cold, drab Oxford lecture room in my first year of university waiting for my prof, Marxist thinker Erik Swyngedouw. He finally burst into the room with a cup of coffee in his hand and asked in his distinctive Belgian accent, 'Can you see this coffee?' The obvious answer was, 'Yes, of course I can see the cup.' What, I wondered, was this guy getting at?

But it soon became clear that this wasn't going to be my usual dazed and drowsy experience of wallowing at the back of the lecture theatre. 'You can see the coffee, but can you see the fields of Guatemala? Can you see the EU tariffs? Can you see the coffee workers' pay slips?' I soon realised what he was getting at. The world as it is didn't just happen. It is the way it is because of people, because of laws, because of attitudes.

Then Swyngedouw asked, 'So, how many of you want to work in the Civil Service when you're older?' I thought for a second. The idea appealed, but my arms didn't leave my side. It was strange: As if by some magnetic force I was being kept in the system, the one that – for now – ruled the room. No other arms were raised; the question seemed absurd. 'So, how many of you want to go work in the City: Invest, trade, move money and make money?' Arms shot up all around me. It all became painfully clear: Why, oh why, would anyone want to contribute to society when they could focus on making money?

I think Swyngedouw's aim was to show us we don't have to give in to the system, and the accumulation of money in our hands doesn't automatically lead to happiness. He told us the ratio of raised arms would have been reversed in the 1970s, but people's mindsets had changed. It seems that we're all looking out for ourselves, convinced somehow that profits will bring economic benefit to us all. Mind you, I don't see accumulating money in itself as an evil act. Work hard, make money, sure – but don't make it your idol. Don't screw everyone, don't screw up the planet, don't isolate yourself, don't become an island. We're in this life together. [Luke Sherlock, Oxford, UK, *Adbusters* #85, Sep/Oct 2009]

2.2 Stratification 1 (levels of language)

Everyone involved in teaching academic writing recognises that students struggle with different dimensions of the task. For some students spelling, punctuation, layout, and formatting are an issue; for others, say from NESB backgrounds, there are basic grammar issues to be addressed; and for others, the organisation of paragraphs into sections and subsections has yet to be controlled. These dimensions reflect the basic organisation of language into levels of abstraction, or strata – the organisation of sounds and symbols (as phonology and graphology), the organisation of words and structures (lexicogrammar), and the organisation of texts (discourse semantics).

In Text 2.1 above, for example, we soon encounter a 'foreign' name, *Swyngedouw*, which seems to break the rules of English spelling, and for most of us looks unpronounceable. We learn it is a Belgian name, probably from the Flemish community there; and if we don't know Dutch, we find its graphology (the way it is written) and its phonology (the way we might pronounce it) strange. Like all languages, Dutch has its own distinctive sound system, and like languages that base their writing symbols on their sound system, it has evolved a distinctive graphology system for its written modes. Luckily, with the exception of a few

foreign names, which have to be memorised,[2] Dutch phonology and graphology is not a problem in Academic English – which of course has many spelling and pronunciation challenges of its own.

Moving up a level to lexicogrammar, Text 2.1 also draws attention to itself in relation to the grammatical parallelism Sherlock deploys as part of his appeal. He uses one triplet to replay what he learned about the cause of 'the way it is':

It is the way it is ***because of people, because of laws, because of attitudes****.*

And another triplet for a volley of Swyngedouw's questions:

… but can you see the fields of Guatemala? Can you see the EU tariffs? Can you see the coffee workers' pay slips?

He also marshalls one quintet – of prohibitions in the interest of a better world:

… but don't make it your idol. Don't screw everyone, don't screw up the planet, don't isolate yourself, don't become an island.

The repetition highlights the grammatical organisation of explanations, as realised through prepositional phrases (e.g. *because of people*), of questions, as realised through polar interrogative clauses (e.g. *can you …*), and of prohibitions as realised through negative imperative ones (e.g. *don't screw …*).

Moving up one level more, to the level we will refer to as discourse semantics, what is of interest here is the way in which Sherlock's parallelism moves beyond the sentence (beyond full stops and question marks as it were) – both for Swyngedouw's questions and his own prohibitions. It's not just grammar that's at stake, in other words, but the inter-sentential organisation of the text itself.

Another place where Text 2.1 foregrounds discourse patterns has to do with the reconstructed question–answer sequences Sherlock recounts. We've laid these out as question and response pairs below, the first involving a verbal response and the next two a gestural one. As these interactions flag, there's more to language than phonology/graphology and lexicogrammar; there's the organisation of phonology/graphology and lexicogrammar as discourse structure as well.

'Can you see this coffee?'
– The obvious answer was, 'Yes, of course I can see the cup.'

'So, how many of you want to work in the Civil Service when you're older?'
– … my arms didn't leave my side.

'So, how many of you want to go work in the City: Invest, trade, move money and make money?'
– Arms shot up all around me.

Putting this more technically, what is being foregrounded by Text 2.1 here are the different levels of organisation characterising linguistic systems as they have evolved in our species – phonology (graphology if we are writing, or gesture if we are signing), lexicogrammar (words and structures), and discourse semantics (the organisation of texts). In systemic functional linguistics these levels of language are commonly modelled as metaredundant strata, metaphorically visualised in diagrams such as that in Figure 2.1. Metaredundancy in this context refers to the way in which the model interprets lexicogrammar as an emergently complex pattern of phonological patterns, and discourse semantics as an emergently complex pattern of lexicogrammatical patterns. Technically, this relationship across levels of abstraction from

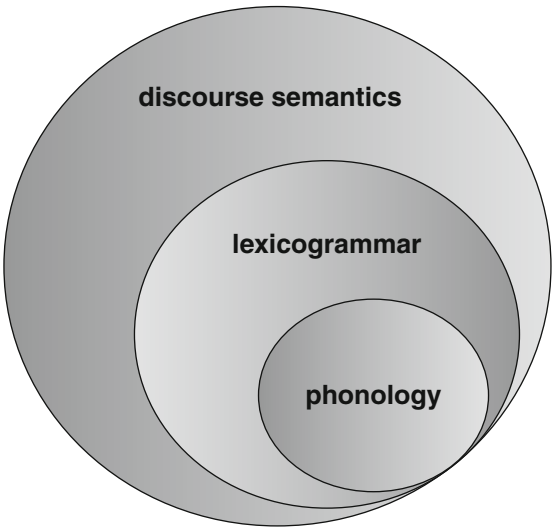


Figure 2.1 Stratification (levels of language)

phonic substance (i.e. soundings) is referred to as realisation. For the past six decades, SFL research has concentrated on these strata; in this book we rely in particular on the work compiled in Caffarel et al. (2004) (language typology), Halliday and Greaves (2008) (phonology), Halliday and Matthiessen (2014) (lexicogrammar), and Martin and Rose (2007) (discourse semantics).

2.3 Axis (chain and choice)

SFL is called 'systemic' because of the emphasis it places on seeing language as a network of choices rather than a list of rules. The verbal exchange we just considered, for example, has Swyngedouw choosing an interrogative clause and Sherlock imagining a declarative one in response:

'***Can you*** *see this coffee?'*
– 'Yes, of course ***I can*** *see the cup.'*

Speakers of English recognise the difference, which depends here on the sequence *can you* in the interrogative and *you can* in the declarative. And they recognise the difference between these two clauses and positive imperatives because the commands begin with a main verb telling people what to do:

Work *hard,*
make *money,*

The structure of the clauses, in other words, reflects the choices speakers make. In SFL descriptions of English, the nominal element which changes places with the verbal one in statements and questions is called the Subject, and the verbal element that changes places with the Subject is called Finite. As we have seen, both are missing in the commands above, which tend in English to leave the 'you' Subject as understood, and don't allow for any auxiliary verbs showing modality (e.g. *can* in *can see*) or tense (e.g. *was* in *was sitting*). We can accordingly label the structure relevant to these distinctions as follows:

polar interrogative		
Can	*you*	*see the cup*
Finite	Subject	…

declarative			
Yes, of course	*I*	*can*	*see the cup*
…	Subject	Finite	…

Text 2.1 includes a further option, when Swyngedouw asks about his students' futures and Sherlock wonders what his professor is up to. These interrogatives look for specific pieces of missing information, rather than simply asking for a response of *yes* or *no* (or something in between like *maybe*). As interrogatives, the examples below have the Finite function before the Subject (*was this guy, would anyone*); in addition they have what is called a Wh function, directing listeners to the missing content (*what, why*). In English this always comes first in the clause (which is why English has to break its Finite before Subject structure for interrogatives when looking for a missing Subject: e.g. *How many of you want to work …*).

What … was this guy getting at?
Why … would anyone want to contribute to society when they could focus on making money?

We can analyse the structure of the wh interrogatives as follows:

wh interrogative			
What	*was*	*this guy*	*getting at*
Wh	Finite	Subject	…

We now have a set of grammatical choices (declarative, polar interrogative, wh interrogative and imperative) and some distinctive structure to realise them. In SFL the choices are modelled as system networks, and the structural consequences of choices are annotated next to the names of choices as realisation statements. The relevant systems and structures are set out using SFL symbolism in Figure 2.2. In this diagram the horizontal arrows point to choices in systems (e.g. declarative vs interrogative), and the downward slanting arrows show the structural consequences of choices made (e.g. +S for insert a Subject). The right-facing square brackets are logical 'ors'; they mean, for example, that if you choose indicative you can choose declarative or interrogative but not neither, and not both. In the realisation statements specifying structure, S^F means sequence Subject before Finite and #^Wh means put the Wh function first.

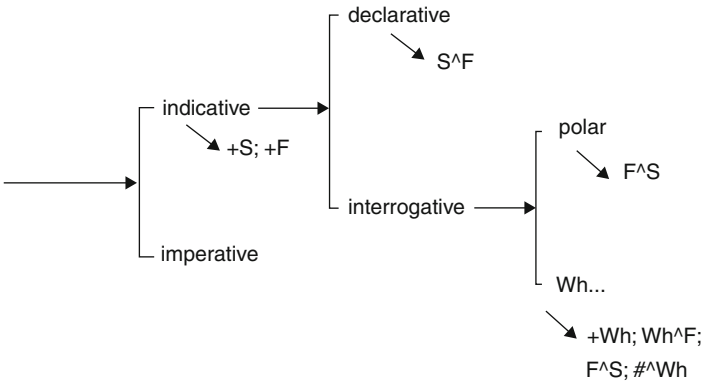


Figure 2.2 Basic English MOOD systems (and related structure)

What matters at this point is not the technical details of this formalism but rather the way it relates systems to structures. Putting this more technically, what matters is the way the formalism foregrounds paradigmatic relations and derives structure from them. SFL, in other words, privileges system over structure along these lines, modelling language as a network of choices as it does so. The name for the clause systems outlined above is MOOD.

2.4 Metafunction (kinds of meaning)

Choosing MOOD isn't of course the only kind of choice shaping Text 2.1. There are, for example, several different kinds of events going on. Swyngedouw is speaking:

*and **asked** in his distinctive Belgian accent,*
*Then Swyngedouw **asked**,*
*He **told** us the ratio of raised arms would have been reversed in the 1970s,*

And he asks his students whether they can see things:

*'Can you **see** this coffee?'*
*'Yes, of course I can **see** the cup.'*
*'You can **see** the coffee,*
*but can you **see** the fields of Guatemala?*

*Can you **see** the EU tariffs?*
*Can you **see** the coffee workers' pay slips?'*

He also asks what they want:

*So, how many of you **want** to work in the Civil Service …*
*'So, how many of you **want** to go work in the City: Invest, trade, move money and make money?'*

This makes Sherlock think:

*What, I **wondered**, was this guy getting at?*
*I soon **realised** what he was getting at …*
*I **thought** for a second.*
*I **think** Swyngedouw's aim was to show us we don't have to give in to the system …*
***convinced** somehow that profits will bring economic benefit to us all.*

And he thinks amidst a number of more physical goings on:

*I was **sitting** in a cold, drab Oxford lecture room in my first year of university*
***waiting** for my prof, Marxist thinker Erik Swyngedouw.*
*He finally **burst** into the room*
*but my arms didn't **leave** my side.*
*Arms **shot up** all around me.*

Alongside these various doings and happenings, both inside and outside Sherlock's mind, Text 2.1 describes the scene and some of his reactions to it:

with a cup of coffee in his hand
*But it soon **became** clear*
*when you**'re** older*
*It **was** strange:*
*the question **seemed** absurd.*
*It all **became** painfully clear:*
*We**'re** in this life together.*

And Sherlock reformulates one thing as another:

*The obvious answer **was**, 'Yes, of course I can see the cup.'*
*that this **wasn't going to be** my usual dazed and drowsy experience …*
*Swyngedouw's aim **was** to show us we don't have to give in to the system …*

The basic choices here have to do with events vs relationships:

He finally burst into the room
vs
with a cup of coffee in his hand

And amongst the events we have things going on in Sherlock's mind vs around him:

The idea appealed,
vs
but my arms didn't leave my side

Outside we have doings vs sayings:

He finally burst into the room
vs
… and asked in his distinctive Belgian accent

Inside we have perception vs cognition vs affection:

Can you see the coffee workers' pay slips?'
vs
I soon realised … I thought for a second.
vs
The idea appealed,

And we can break relationships down into those that classify and describe (attributives) vs those which identify one thing with another:

But it soon became clear
vs
that this wasn't going to be my usual dazed and drowsy experience …

This range of choices for construing experience is outlined in Figure 2.3; technically the system is referred to as TRANSITIVITY. The choice 'inside' below is generally named 'mental' in SFL; the choice 'outside' groups 'material' and 'verbal' together, but there is no general term for material

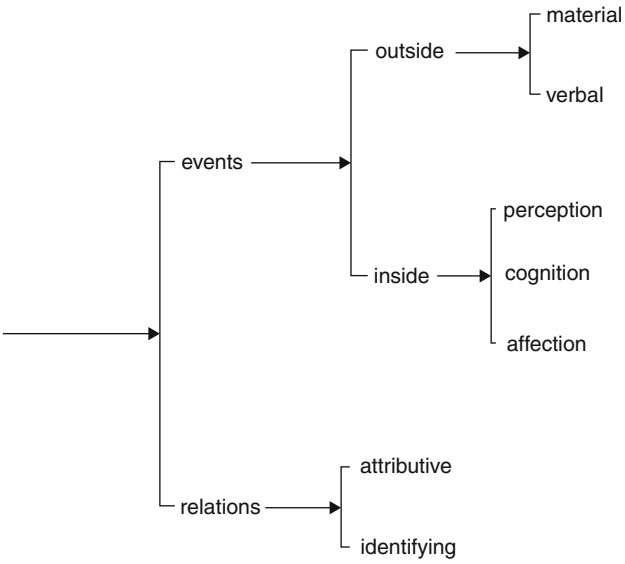


Figure 2.3 Basic English TRANSITIVITY systems

and mental processes together (nor for events in general). The 'relations' choice is generally referred to as 'relational'.

The distinctive structures realising these options are illustrated below, using standard SFL function labels.

material		
my arms	*didn't leave*	*my side*
Actor	Process	Goal

verbal			
He	*told*	*us*	*the ratio of raised arms would have been reversed …*
Sayer	Process	Receiver	→ locution[3]

mental perception		
I	*can see*	*the cup*
Senser	Process	Phenomenon

mental cognition		
I	*realised*	*what he was getting at*
Senser	Process	→ idea

mental affection		
the idea	*appealed*	*to me*
Phenomenon	Process	Senser

relational attributive		
you	*are*	*older*
Carrier	Process	Attribute

relational identifying		
Swyngedouw's aim	*was*	*[[to show us …]]*
Value	Process	Token

As we can see, Text 2.1 involves two sets of choices – MOOD choices for interacting and TRANSITIVITY choices for what interlocutors are interacting about. And these freely combine. Relationships, for example, can be declarative or imperative:

it was strange
vs
don't become an island.

Declaratives can be mental, material or relational:

I thought for a second.
vs
but my arms didn't leave my side.
vs
the question seemed absurd.

And so on. The choices for MOOD in other words cross-classify choices for TRANSITIVITY, and so speakers can't mean one thing without the other. Simultaneous systems of this kind are often illustrated through paradigms – i.e. tables like the one below in which the columns

represent one set of choices (MOOD below) and the rows another (TRANSITIVITY below).

	declarative	**interrogative**	**imperative**
material	*arms shot up*	*what was this guy getting at*	*work hard*
mental	*I thought for a second*	*can you see this coffee*	*think about it*
relational	*it was strange*	*was it clear*	*don't become an island*

This way of thinking about grammar, systemically, shows us that grammar is a resource for combining meaning. The bundles of meaning it combines are referred to in SFL as metafunctions. So far we've been considering choices comprising aspects of the interpersonal metafunction; interpersonal meaning has evolved to negotiate our social relationships with one another. We've also looked at aspects of the ideational metafunction; ideational meaning has evolved to give us ways of talking about the physical, biological, and communicative environment through which we live. System networks use a right-facing brace to model this combinatorial potential; the brace is a logical 'and'. So in Figure 2.4, the brace means that we choose from MOOD systems **and** from TRANSITIVITY systems, not just one or the other or neither.

To round out the picture, we now need to consider choices for integrating interpersonal and ideational meaning in discourse. For clause grammar, these resources organise the flow of information – from the beginning of the clause to its end. To see how this works, let's consider how certain active and passive clauses are used in Text 2.1. The key clauses here have to do with students voting on possible futures – in the Civil Service or the City. In Sherlock's class, there were no votes for the Civil Service but many for the City, whereas an earlier generation of students had voted the other way round. Regardless of how or when the students voted, their arms are the first piece of content in the voting clauses:

*but **my arms** didn't leave my side.*
***No other arms** were raised;*
***Arms** shot up all around me.*
***the ratio of raised arms** would have been reversed in the 1970s,*

To achieve this the grammar takes advantage of its voice system, choosing active, then passive, then active, then passive again (*didn't leave*,

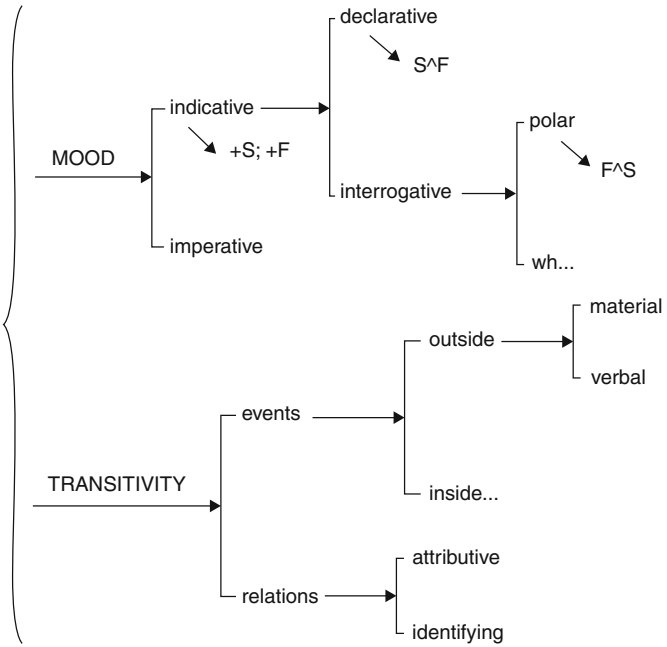


Figure 2.4 Basic MOOD and TRANSITIVITY options as simultaneous systems

were raised, *shot up*, and *would have been reversed*). In SFL terms this allows English to position the voting arms as Theme in first position in each clause. These repeated Theme selections sustain Text 2.1's concern with voting across the relevant phases of the text. Having sustained this orientation, the rest of each clause can then attend to its news – namely the results of the voting. In SFL the part of the clause delivering the newsworthy information is in fact called New; in English, as in many languages, it is highlighted through intonational prominence – normally extending left from the last salient syllable in the clause (the one that in an unmarked reading carries the major pitch movement).

but my arms ***didn't leave my side****.*
No other arms ***were raised****;*
Arms ***shot up all around me****.*
the ratio of raised arms ***would have been reversed in the 1970s****,*

In English the clause thus unfolds as a wave of information, beginning with content that tends to sustain our orientation to what is being

talked about and ending with content that expands upon what we have to say. Technically we are dealing here with the complementarity of Theme and New, as outlined below (the final salient syllable, carrying the major pitch movement in an unmarked reading, is highlighted in bold). The choice of active or passive voice helps us organise each clause the right way round.

Theme	**New**
but my arms	*didn't leave my* ***side***
no other arms	*were* ***raised***
Arms	*shot up all a****round*** *me*
the ratio of raised arms	*would have been re****vers****ed*

Voting aside, far and away the main orientation to what is being talked about in Text 2.1 is people (Sherlock, Swyngedouw, Sherlock's class, and in the final phase of the text, us, as readers). The clauses which diverge from this orientation are revealing. They by and large develop the rhetoric of revelation unfolding in Sherlock's mind in relation to Swyngedouw's teaching – including explicit reference to its rhetoric (*answer, idea, question, aim*) and to the economic point of the lessons (*a cup of coffee, world, it, the accumulation of money in our hands, profits*).

with a cup of coffee *in his hand*
The obvious answer *was, 'Yes, of course I can see the cup.'*
What*, I wondered, was this guy getting at?*
But it *soon became clear that this wasn't going to be my usual dazed and drowsy experience …*
The world as it is *didn't just happen.*
It *is the way it is because of people, because of laws, because of attitudes.*
The idea *appealed,*
It *was strange:*
As if by some magnetic force *I was being kept in the system, the one that – for now – ruled the room.*
the question *seemed absurd.*
It *all became painfully clear:*
Why, oh why*, would anyone want to contribute to society when they could focus on making money?*
Swyngedouw's aim *was to show us*

and the accumulation of money in our hands *doesn't automatically lead to happiness.*
It *seems that we're all looking out for ourselves,*
that profits *will bring economic benefit to us all.*

We won't go into more detail at this stage about the resources English clauses deploy for getting Theme and New the right way round. But we might note in passing just how far English grammar is prepared to stretch to adjust information flow. Puzzled by his compliance, at one point Sherlock uses an unusual structure to comment metaphorically on his inability to vote for a career in the Civil Service – positioning *as if by some magnetic force* as Theme.

As if by some magnetic force *I was being kept in the system,* ***the one that – for now – ruled the room***.

This phrase is not in fact a constituent of this clause, but rather one part of a prepositional phrase, the rest of which culminates the clause as New. We've put this discontinuous constituent back together below:

I was being kept in the system ***as if by some magnetic force, the one that – for now – ruled the room***.

Note that holding the prepositional phrase together means it must all be New, with Sherlock as Theme. But at this point in the text Sherlock is elaborating why he was voting as he was, and needs some metaphorical 'magic' at the front of the clause to sustain his concern with why he found his voting behaviour strange.

Technically speaking, the choices we are flagging here are referred to as THEME and INFORMATION, and they comprise aspects of the textual metafunction. Textual meaning has evolved to give us resources for mapping interpersonal meaning and ideational meaning onto one another in discourse in such a way that they are relevant to the way in which the discourse unfolds – both in terms of what has gone before and what is to come (and the 'extralinguistic' situation in which we find ourselves). Accordingly, we can't help when speaking or writing but to mean three things at once – negotiating social relations interpersonally, construing the world around us and within us ideationally, and all the while composing these meanings as coherent text. A crude outline of this complementarity is presented in Figure 2.5.

Figure 2.5 The complementarity of interpersonal, ideational, and textual metafunctions

2.5 Rank (parts and wholes)

To this point we have for the most part explored language from the perspective of clause systems and structures. And the structures we've considered divide the clause up into different parts, depending on the kind of meaning we are exploring (Subject and Finite, Actor, Process and Goal, Theme and New, etc.). Sometimes, in the examples we've looked at, these clause functions are realised by single words, especially with respect to what we called Subject and Theme (bold below):

'***You*** *can see the coffee,*
but can ***you*** *see the fields of Guatemala?*
Can ***you*** *see the EU tariffs?*
Can ***you*** *see the coffee workers' pay slips?'*
I *soon realised what* ***he*** *was getting at.*
I *don't see accumulating money in itself as an evil act.*

But what is seen in the examples above is much more varied. We find one or two pre-modifiers:

the *coffee*
the **EU** *tariffs*

And there may be a post-modifying phrase:

the fields ***of Guatemala***

Sometimes we find one nominal group inside another, as when *the coffee workers* is used to pre-modify *pay slips* (as their owner):

*[**the coffee workers**]' pay slips?'*

At one point what is seen isn't a group of nominals at all, but an event – so that we end up with one clause (*accumulating money*) embedded[4] inside another one (*I don't see … in itself as an evil act*).

*I don't see [[**accumulating money**]] **in itself** as an evil act.*

Pushing further, some of the words making up these groups and phrases have internal structure of their own. So we find the verbal suffix *-ing* in *accumulating*, the negative *-n't* suffix in *don't*, the possessive suffix[5] *-'* – linking coffee workers to their pay slips – and the *-s* suffix pluralising *fields*, *tariffs*, *workers*, and *slips*.

*accumulat-**ing***
*do-**n't***
*workers-**'***
*field-**s**/tariff-**s**/worker-**s**/slip-**s***

These patterns reflect the way in which grammatical choices sort themselves out according to the size of unit they classify. So technically speaking we have clauses, realised by one or more groups and phrases, realised by one or more words, realised by one or more morphemes. We've outlined this compositional pattern of part/whole relations in Figure 2.6. The diagram sketches out in basic terms the approach to constituency deployed in SFL, where the rungs in the hierarchy are referred to as ranks (e.g. clause rank, word rank, etc.). Units at all ranks, except of course the bottom one, morpheme, have parts; and their parts can be additionally labelled in terms of the role they play expanding that unit interpersonally, ideationally or textually (e.g. the verbal group in Figure 2.6 functions as Process and the nominal group as Attribute, from the

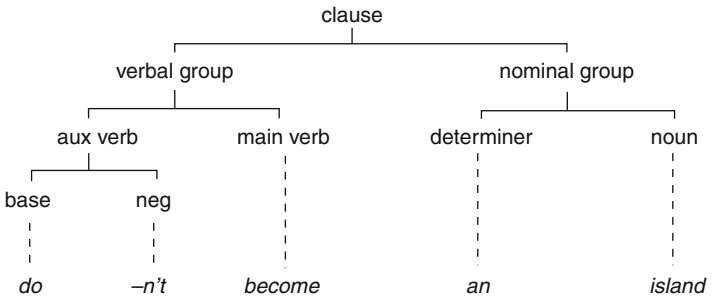


Figure 2.6 English ranks illustrated (clause, group/phrase,[6] word, and morpheme)

perspective of clause rank ideational meaning – i.e. TRANSITIVITY). But we won't take the step of adding on this additional labelling here (which would doubly label each place in the tree, for function and class – e.g. Process realised by verbal group, Attribute by nominal group, Deictic by determiner, Thing by noun, etc.).

2.6 Stratification 2 (levels of context – register and genre)

At this point we need to return to the theoretical dimension of stratification, and extend the idea of levels of language to include levels of context as well. In SFL, context is modelled as higher levels of meaning. We begin with the level we'll call register, which is the cover term for the contextual variables tenor, field and mode.

2.6.1 Register (tenor, field and mode)

As a first step we can use metafunctions as a bridge, reasoning that if language has evolved to make three kinds of meaning (interpersonal, ideational, and textual), then this must be because it has three kinds of work to do so we can live our lives. Interpersonally speaking, we are social animals, and have to negotiate our social relations with other people – both in terms of our degree of affinity with them and the status we bear in relation to one another. This dimension of context is referred to in SFL as tenor. Ideationally speaking, we are working animals, and engage in tasks of various kinds to survive – including domestic activity in the home, institutionalised apprenticeship, sport and recreation, hobbies, trades and crafts, administration, science, social science and humanities, the arts, and so on. This dimension of context is referred to as field. Textually speaking, we are communicative animals, and

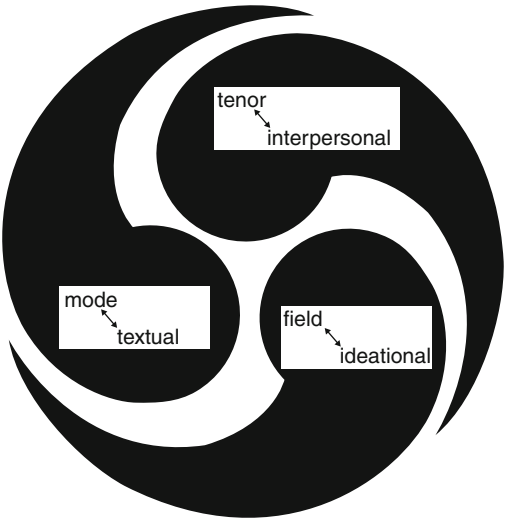


Figure 2.7 Metafunctions in relation to register variables (tenor, field, and mode)

exchange meaning with one another through various channels of communication – including face-to-face conversation, phoning, texting, e-mailing, posting, interviewing, commentating, lecturing, and so on. This dimension of contextual variation is referred to as mode.

These correlations are outlined in Figure 2.7. Note that what is being suggested here is that interpersonal meaning in language by and large enacts tenor, ideational meaning by and large construes field, and textual meaning by and large composes mode. Or, turning this around, tenor is by and large realised through interpersonal meaning, field through ideational meaning, and mode through textual meaning. Extrinsic functionality (i.e. register) and intrinsic functionality (i.e. metafunctions) in other words are 'naturally', not 'arbitrarily', related to one another.

Let's briefly illustrate these register variables as they are reflected in Text 2.1. As far as status is concerned, the teacher/student relationship is a hierarchical one. This is clearly indexed in the non-reciprocity of the behaviour of Swyngedouw and his students (including Sherlock) – e.g. Sherlock waits while Swyngedouw is running late; Swyngedouw asks questions whereas students reply; Swyngedouw reveals whereas Sherlock wonders then realises; once introduced, Swyngedouw is mainly referred to by his surname, Sherlock by *I*.

As far as affinity is concerned, Sherlock is dealing with a shift in values as he realigns, and seeks to realign us. Key tenets of neoclassical capitalism are explicitly denied:

*The world as it is did**n't** just happen.*
*we do**n't have to** give in to the system,*
*and the accumulation of money in our hands does**n't** automatically lead to happiness.*

And Sherlock urges a more balanced approach to financial life, telling us what not to value and how not to behave:

Work hard, make money, sure –
*but don't make it your **idol***
I don't see accumulating money in itself as an evil act.
*Don't **screw** everyone,*
*don't **screw up** the planet,*

The realignment unfolds through a rhetoric of revelation (in response to Swyngedouw's teaching), as Sherlock comes to see the light, and to position us to reaffiliate too:

*What, **I wondered**, was this guy getting at?*
*But **it soon became clear that** this wasn't going to be my usual dazed and drowsy experience of wallowing at the back of the lecture theatre.*
***I soon realised** what he was getting at.*
***It all became painfully clear: Why, oh why, would** anyone want to contribute to society when they could focus on making money?*

The text culminates with *We're in this life together*, Sherlock's contribution to the *Meme Wars'* solidary refrain.[7]

As far as field is concerned, Text 2.1 construes three of the walks of life we noted above. It replays the apprenticeship of institutionalised learning, in a lecture theatre at a well-known British university:

I was sitting in a cold, drab Oxford lecture room in my first year of university waiting for my prof … He finally burst into the room … and asked … The obvious answer … What … was this guy getting at? … my usual dazed and drowsy experience of wallowing at the back of the lecture theatre … but my arms didn't leave my side … the system, the one that – for now – ruled

the room … He told us the ratio of raised arms would have been reversed in the 1970s …

We get a taste of the content of the economics lectures then underway:

Marxist thinker … Can you see the EU tariffs? … Can you see the coffee workers' pay slips? … The world as it is didn't just happen. It is the way it is because of people, because of laws, because of attitudes … that profits will bring economic benefit to us all …

And we explore alternative futures, in financial administration, as agents of symbolic control – by either serving the state or making money out of money:

'So, how many of you want to work in the Civil Service when you're older?' … 'So, how many of you want to go work in the City: Invest, trade, move money and make money?' … Why, oh why, would anyone want to contribute to society when they could focus on making money? … we don't have to give in to the system, and the accumulation of money in our hands doesn't automatically lead to happiness … I don't see accumulating money in itself as an evil act. Work hard, make money …

Since, as Bernstein (1996/2000) posits, education is a pedagogic discourse involving a regulatory education discourse projecting one or another discipline (tertiary education projecting economics here), it's not surprising we find two fields. What is more unusual in Text 2.1 is the appearance of a third field having to do with employment upon graduation, which Swyngedouw brings into his lecture to impress on students the social implications of what they are studying for the kind of life they will one day choose to lead.

As for mode, the text recounts Sherlock's experience – looking back from the present to the past. Had we been with him at the time we might have heard a question response pair, with the pronouns *you* and *I* and the Deictic *this* referring outside the verbal text to people and things materially present in the lecture:

*Can **you** see **this** coffee?*
*– Yes, of course **I** can see the cup.*

But since we are not present, Sherlock reconstructs the conversation for us, using past tense (*asked*, *was*), metadiscourse (*answer*), and anaphoric

reference to participants previously introduced in the text (*a cup of coffee ← this coffee*; *my → prof, Marxist thinker Erik Swyngedouw ← He*):

my[8] *→* ***prof, Marxist thinker Erik Swyngedouw****. ← He finally burst into the room with* ***a cup of coffee*** *in ← his hand and asked in ← his distinctive Belgian accent, 'Can you see ← this coffee?' The obvious answer was, 'Yes, of course I → can see ← the cup.'*

At three points in the text, Sherlock shifts gears and tells us what he's learned from the interactions with Swyngedouw – generalising understandings inferred from the specific examples considered (i.e. the coffee, the fields of Guatemala, the EU tariffs, the coffee workers, their pay slips, the Civil Service, the City). To generalise he shifts to present tense (*is*, *is*, *don't*, *doesn't*, *don't*) and to generic participants (e.g. *people*, *laws*, *attitudes*, *money,*) events (*accumulating money*) and states (*happiness*).

It ***is*** *the way it* ***is*** *because of people, because of laws, because of attitudes.*
… we ***don't have to give*** *in to the system, and the accumulation of money in our hands* ***doesn't*** *automatically* ***lead*** *to happiness*
I ***don't see*** *accumulating money in itself as an evil act.*

The second of these understandings pushes the text to its most abstract level, with Sherlock realising that just because we make more money, we won't automatically be happy. But he doesn't express this in such terms, with one event clause the cause of a relational one – as we have just done. Rather he composes a single clause, with one nominal group (*the accumulation of money*) related by a verbal group (*doesn't lead to*) to another nominal group (*happiness*).

the accumulation of money in our hands doesn't automatically lead to happiness

Writing in this more 'abstract' mode, Sherlock takes over the experiential clause grammar we studied in Section 2.4 to construe what in everyday conversation we'd speak as two clauses related by a conjunction, each with their own nominal and verbal groups. The same pattern is used to construe an aspect of the discipline of economics below, with one technical term (*profits*) leading to another (*economic benefit*):

profits will bring economic benefit to us all

This gives us just a taste of the power of writing to code events and relationships as nominal groups (as if they were things) and relate them to one another inside the clause (rather than using conjunctions to connect clauses). We'll return to this dimension of mode in more detail in Chapters 3 and 4, and again and again throughout the volume because of the crucial role it plays in academic discourse.

2.6.2 Genre

As a final step in this brief introduction to basic concepts in SFL, we need to ask how it is that the choices for tenor, field and mode reviewed above are mapped onto each other in unfolding discourse. This takes us to the most abstract level of the model, genre, whose job it is to map the system of social processes through which we live our lives. Considered from this perspective, Text 2.1 is a kind of story. Sherlock sets the scene, tells us what happened, and then explains the significance of what went on. Because the point of the story has to do with ethical behaviour, we can interpret the story as an instance of the exemplum member of the family of story genres (Martin & Rose, 2007, 2008). The basic structure of exemplums is Orientation ^ Incident ^ Interpretation. The Orientation sets the story in time and place and introduces the main characters; then the Incident recounts the story's significant events as they unfold through time; finally, the Interpretation draws out the moral of the tale (and in doing so shows the relation between exemplums and other moralising tales such as parables and fables).

Orientation

I was sitting in a cold, drab Oxford lecture room in my first year of university waiting for my prof, Marxist thinker Erik Swyngedouw.

Incident

He finally burst into the room with a cup of coffee in his hand and asked in his distinctive Belgian accent, 'Can you see this coffee?' The obvious answer was, 'Yes, of course I can see the cup.' What, I wondered, was this guy getting at?

But it soon became clear that this wasn't going to be my usual dazed and drowsy experience of wallowing at the back of the lecture theatre. 'You can see the coffee, but can you see the fields of Guatemala? Can you see the EU tariffs? Can you see the coffee worker's pay slips?' I soon realised what

he was getting at. The world as it is didn't just happen. It is the way it is because of people, because of laws, because of attitudes.

Then Swyngedouw asked, 'So, how many of you want to work in the Civil Service when you're older?' I thought for a second. The idea appealed, but my arms didn't leave my side. It was strange: As if by some magnetic force I was being kept in the system, the one that – for now – ruled the room. No other arms were raised; the question seemed absurd. 'So, how many of you want to go work in the City: Invest, trade, move money and make money?' Arms shot up all around me. It all became painfully clear: Why, oh why, would anyone want to contribute to society when they could focus on making money?

Interpretation

I think Swyngedouw's aim was to show us we don't have to give in to the system, and the accumulation of money in our hands doesn't automatically lead to happiness. He told us the ratio of raised arms would have been reversed in the 1970s, but people's mindsets had changed. It seems that we're all looking out for ourselves, convinced somehow that profits will bring economic benefit to us all. Mind you, I don't see accumulating money in itself as an evil act. Work hard, make money, sure – but don't make it your idol. Don't screw everyone, don't screw up the planet, don't isolate yourself, don't become an island. We're in this life together.

For this instance of the exemplum genre we need to consider an additional layer of structure, to capture the way in which Sherlock's appreciation of Swyngedouw's teaching builds up towards his Interpretation. This means considering how the Incident stage unfolds in phases of event followed by reflection (Martin & Rose, 2008) – as things happen and Sherlock considers how they affect him. There are arguably four of these sequences, as outlined below. In the event phases Swyngedouw asks a pointed question; in the reflection phases Sherlock's growing awareness is coded through cognitive processes (*wondered*, *realised*, *thought*) and one relational state (*became … clear*), and his evaluative reactions are clearly described (*wasn't going to be my usual dazed and drowsy experience of wallowing*, *because of attitudes*, *was strange*, *seemed absurd*, *painfully clear*, *why, oh why*).

Orientation

I was sitting in a cold, drab Oxford lecture room in my first year of university waiting for my prof, Marxist thinker Erik Swyngedouw.

Incident

event

He finally burst into the room with a cup of coffee in his hand and asked in his distinctive Belgian accent, 'Can you see this coffee?' The obvious answer was, 'Yes, of course I can see the cup.'

reflection

What, I wondered, was this guy getting at? But it soon became clear that this wasn't going to be my usual dazed and drowsy experience of wallowing at the back of the lecture theatre.

event

'You can see the coffee, but can you see the fields of Guatemala? Can you see the EU tariffs? Can you see the coffee worker's pay slips?'

reflection

I soon realised what he was getting at. The world as it is didn't just happen. It is the way it is because of people, because of laws, because of attitudes.

event

Then Swyngedouw asked, 'So, how many of you want to work in the Civil Service when you're older?'

reflection

I thought for a second. The idea appealed, but my arms didn't leave my side. It was strange: As if by some magnetic force I was being kept in the system, the one that – for now – ruled the room. No other arms were raised; the question seemed absurd.

event

'So, how many of you want to go work in the City: Invest, trade, move money and make money?' Arms shot up all around me.

reflection

It all became painfully clear: Why, oh why, would anyone want to contribute to society when they could focus on making money?

Interpretation

I think Swyngedouw's aim was to show us we don't have to give in to the system, and the accumulation of money in our hands doesn't automatically lead to happiness. He told us the ratio of raised arms would have been reversed

in the 1970s, but people's mindsets had changed. It seems that we're all looking out for ourselves, convinced somehow that profits will bring economic benefit to us all. Mind you, I don't see accumulating money in itself as an evil act. Work hard, make money, sure – but don't make it your idol. Don't screw everyone, don't screw up the planet, don't isolate yourself, don't become an island. We're in this life together.

We'll give more examples of the staging and phasing of genres throughout this book. Standing back a little, what we are saying is that we live our lives through the genres our culture affords. Genre provides us with scaffolding for negotiating our social relations (tenor), construing our activity (field), depending on the channel of communication (mode); and tenor, field, and mode, as we have suggested, are in turn coded through the discourse semantic, lexicogrammatical, and phonological or graphological resources language makes available to us. An outline of this stratified view of language and context is presented in Figure 2.8.

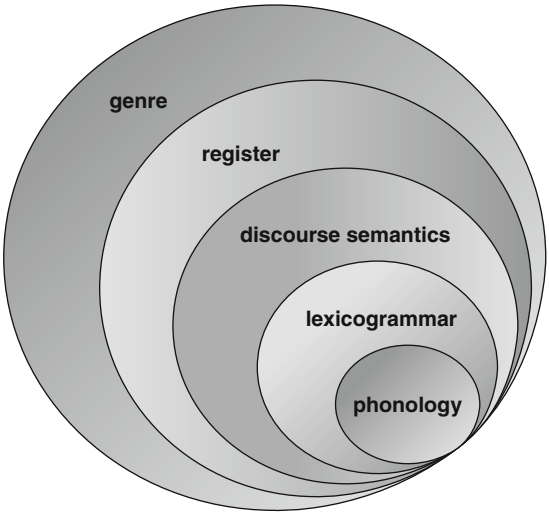


Figure 2.8 Stratification (levels of language and context)

Texts like the exemplum we have been considering here are the basic building blocks of the longer texts we so often encounter in everyday and professional life. We can think of them as elemental genres, each with a

few specific obligatory and optional stages that recur over and over again as we deploy the genre. In longer texts we combine these to accomplish broader goals. One way in which we do this is to embed one elemental genre in another – where the embedded genre functions as a stage in the genre it is embedded in. We might, for example, have expanded the Orientation stage above by embedding a generalised recount outlining step by step the habitual routine Sherlock follows on his way to university:

In my first year at Oxford, I'd get up everyday, grab my books and IPhone, and hop on my bicycle for the short ride to lectures. I'd often stop for coffee and a bite to eat along the way, and chat with friends at our favourite coffee shop. There I'd usually check my e-mail and text messages before heading off to class. And so it was I found myself sitting there one morning, in a cold, drab Oxford lecture room, waiting for my prof, Marxist thinker Erik Swyngedouw.

We illustrate this embedding of one elemental genre in another, in an experiment report from Biology in Chapter 7, Text 7.2.

Another way in which elemental genres are combined in longer texts involves stringing elemental genres together, one after another, until the work that needs to be done is accomplished. The exemplum considered above, for example, might set the stage for a discussion genre, in which an issue arising from the exemplum is introduced, various perspectives on the issue are canvassed, and some kind of recommendation suggested. In broad outline, such a discussion genre might be organised as follows:

Of course not everyone agrees that making lots of money is a good thing …

Ecologists point to the damage being done to our planet …
Social welfare groups point to the widening disparity between rich and poor …
And younger generations complain about the lack of opportunities afforded them in a world with depleted resources and highly concentrated wealth …

One way to address these concerns would be to …

In this case, the longer text doesn't involve one genre embedded as a stage in another but rather a transition from one elemental genre to another (i.e. from exemplum to discussion). In SFL, texts with genres related to one another in this way have been referred to as macro-genres.

2.7 SFL

In general in SFL our basic orientation to language is a 'top-down' one. This involves foregrounding system over structure (as far as axis is concerned), foregrounding more abstract levels over less abstract ones (for stratification), and foregrounding larger units over smaller ones (with respect to rank). This contrasts with our approach to metafunctions, where we take pains not to privilege any one metafunction over another. We won't try and introduce a diagram mapping all four basic theoretical concepts (i.e. strata, axis, metafunction, and rank) onto one another here; readers interested in a valiant effort can inspect the front cover of Halliday and Matthiessen (2004), where our colleagues have had a go.

For reasons of space and focus, two further theoretical parameters have not been introduced here, namely instantiation and individuation. These embryonic parameters are currently undergoing intensive development in SFL research (for discussion see Bednarek & Martin, 2010; Matthiessen & Halliday, 2009). Aspects of this ongoing work on the relation of system to text, and of communities to identity, will however be taken up as required in subsequent chapters.

Butt et al. (2012) and Eggins (1994) provide accessible introductions to SFL as a model of language and context. Martin (1984) is an often-cited chapter-length introduction to register and genre. For books dealing with the approach to context introduced here see Christie and Martin (1997), Martin (1992, 2012a, b), and Martin and Rose (2008).

3
Knowledge about Language (KAL)

3.1 Overview

In this chapter we provide a thumbnail sketch of the key English resources relevant to an understanding of academic discourse. In Chapter 2 we introduced the basic SFL concept of stratification and the way in which SFL sees context as a more abstract level of meaning realised through language. This conception is outlined in very general terms in Figure 3.1, which positions genre as made of meanings and thus 'realised' through language.

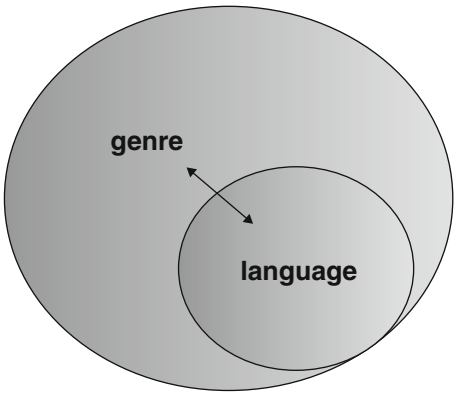


Figure 3.1 The realisation relationship of language to genre

As also noted in Chapter 2, in order to realise the range of genres we use to live our lives, language itself has evolved a comparable stratified 'realisation' strategy of its own (Figure 3.2), with text forming meanings (discourse semantics) realised through words and structures (lexicogrammar), and these are in turn encoded through the sounds we hear (phonology) or the images we view on a page or screen (graphology). In everyday terms we think of this series of levels as meaning realised as wording and manifested as sound.

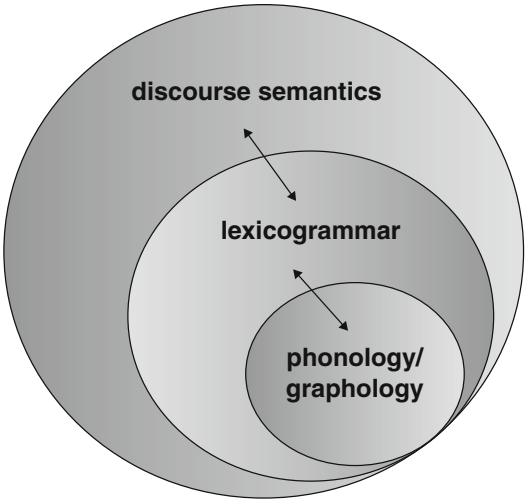


Figure 3.2 Levels of language (linguistic strata)

Below we concentrate on lexicogrammatical and discourse semantic resources, bringing phonology and graphology into the picture only where necessary to clarify the discussion.

3.2 Lexicogrammar: words and structures

3.2.1 Clauses

To work our way back in, we'll start with clauses, which in a sense function at the interface between grammar and discourse semantics in Figure 3.2. Many of our examples are drawn from a text by whistleblower Ron Ridenhour,[1] who is recounting an episode[2] from his tour of duty in Vietnam. Ridenhour's text would be considered primary source material in the academic discipline of history. As such it exhibits a wide range of

resources in a single text that are difficult to illustrate from a comparable text taken from the academic disciplines of biology and linguistics, which were the focus discipline of the SLATE project's research. In addition it lets us introduce linguistic resources using examples that are less abstract and technical than those characterising academic discourse, as a prelude to our focus on the language which biology and linguistics use to produce and reproduce their uncommonsense knowledge.

Text 3.1

We'd lifted off from Camp Baldy at daybreak that morning, nosed over and lifted out, floating high above the paddies towards the mountains to the west. Thirty miles from the coast we descended to the treetops and began to wind west along the side of a slender finger of low, jungled hills …

Our writing system in English has evolved to break this passage up in various ways. Words are separated by spaces, and sentences begin with an upper case letter and end with a full stop, question mark or exclamation mark (. ? !). In addition, sentences may be divided up into smaller parts with commas, semicolons, colons, and dashes (, ; : –). When considering academic discourse, however, we often need to focus on additional units of meaning that aren't usually explicitly grouped together in English writing. In Text 3.1', for example, braces, {…}, enclose groups of words which function together as parts of a clause but which English graphology does not explicitly group with one another.

Text 3.1'

We{'d lifted} off {from Camp Baldy} {at daybreak} {that morning}, nosed over and lifted out, floating {high above the paddies} {towards the mountains} {to the west}. {Thirty miles from the coast} we descended {to the treetops} and {began to wind} west {along the side of a slender finger of low, jungled hills} …

And two of these word groups have subgroups of their own:

{Thirty miles} {from the coast}
{along the side} {of a slender finger} {of low, jungled hills} …

Some of these word groups, the **Processes**, function as a kind of nucleus for other word groups – e.g. {*'d lifted*}, {*began to wind*}. Processes are a central unit in an English clause. And alongside these verb groups we find Processes realised by single verbs which function as action nuclei

in the same way: *nosed*, *lifted*, *floating*, *descended*. The Participants accompanying these processes in Text 3.1, and their settings in time and place, are presented in Table 3.1. In these tables we are highlighting the central role of the Process by placing it in the left-hand column. Depending on choices we make about information flow (see Section 3.3.1), Participants may either precede or follow the Process. Since we are focusing on Process, Participant and Circumstance relations at this stage, we begin simply with the layout below.

Table 3.1 Participants and circumstances involved in processes in Text 3.1

Process	**Participant**	**Circumstance/s (time/place)**
'd lifted	we	off; from Camp Baldy; at daybreak; that morning
nosed	(we)	over
lifted	(we)	out
floating	(we)	high above the paddies; towards the mountains to the west
descended	we	thirty miles from the coast; to the tree tops
began to wind	(we)	west; along the side of a slender finger of low, jungled hills …

In this passage Ridenhour refers to himself and his fellow patrol members as *we*, which he elides as 'understood' for four of the processes (noted as *we* in parentheses in Table 3.1). This is a common strategy across English sentences when there is more than one clause involving the same Participant. As we can see, Ridenhour develops this phase of his recount through six clauses, four in his first sentence and two in the next. Commas and conjunctions (bold below) do the work of distinguishing the Processes (along with their attendant Participants and Circumstances) from one another as steps in a sequence of events:

Text 3.1'

We'd lifted off from Camp Baldy at daybreak that morning,
nosed over
***and** lifted out,*
floating high above the paddies towards the mountains to the west.

Thirty miles from the coast we descended to the treetops
and *began to wind west along the side of a slender finger of low, jungled hills …*

When we divide a text up in this way, grouping Processes with the word groups (Participants and Circumstances) that belong with them, we are in effect breaking the sentences up into clauses. Here's a later phase of the same story, which we have broken up into clauses along the same lines (with their Processes highlighted in bold). This time we have five sentences. The first and the last two sentences are just one clause long; the second sentence has two clauses and the third has four.

Text 3.2

We ***were*** *out of the chopper in less than five seconds.*

Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, ***pounding*** *heavily through thigh-high grass,* ***lumbering*** *toward the relative safety of the jungle at the edge of the paddy.*

The sharks and trail ship ***circled*** *once,*
the insertion bird ***lifted*** *up*
to ***join*** *them*
and all four ***peeled*** *out back toward the sea.*

It ***was*** *still less than an hour after daylight.*

It ***had been*** *a nearly perfect insertion – except for one thing*

The function of the word groups in each clause of this phase of discourse is outlined in Table 3.2.

The simple sentences in this text differ from the complex ones with more than one clause in another way – their Processes express relationships rather than events (using various forms of the verb *be*). The first, *we* ***were*** *out of the chopper in less than five seconds*, states the number of seconds that had passed by the time Ridenhour's Long Range Reconnaisance Patrol (LRRP) were in position on the ground outside the helicopter; we can contrast this description of the state they were in with an event-focused version such as *we* ***climbed*** *out of the chopper in less than five seconds*. The next simple sentence in Text 3.2 establishes the time of the landing (*less than an hour after daylight*), and the final one evaluates it (*as a near perfect landing*). In functional grammar,

Table 3.2 Participants and Circumstances involved in processes in Text 3.2

Process	Participant	Circumstance/s (time/place)
were	we	out of the chopper; in less than five seconds
pounding	six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs	heavily; through thigh-high grass
lumbering	(we)	toward the relative safety of the jungle at the edge of the paddy
circled	the sharks and trail ship	
lifted	the insertion bird	up
Join	it (= … bird); them (= … sharks …)	west; along the side of a slender finger of low, jungled hills …
peeled	all four	out; back toward the sea
was	it (= the time); less than an hour after daylight;	less than an hour after daylight
had been	it (= the landing); a near perfect insertion;	except for one thing

clauses with action Processes are referred to as **material**, and clauses with being and having Processes are referred to as **relational**.

Material and relational process map the world of experience around us as involving change (action verbs) or relations (being and having verbs); the third major process type, **mental** process, maps the world of consciousness inside our heads. In Text 3.3, from the end of the letter Ridenhour wrote, which blew the whistle on the My Lai massacre, mental process of cognition (*know*, *convince*, *believe*, *think*) and desire (*hope*) predominate (highlighted in bold below). The function of the word groups in each mental process (bold below) of this phase of discourse is outlined in Table 3.3.

Text 3.3

Exactly what did, in fact, occur in the village of 'Pinkville' in March, 1968 I ***do*** *not* ***know*** *for certain, but I* ***am convinced*** *that it was something very black indeed. I remain irrevocably persuaded*[3] *that if you and I* ***do*** *truly* ***believe in*** *the principles, of justice and the equality of every man, however*

*humble, before the law, that form the very backbone that this country is founded on, then we must press forward a widespread and public investigation of this matter with all our combined efforts. I **think** that it was Winston Churchill who once said 'A country without a conscience is a country without a soul, and a country without a soul is a country that cannot survive.' I **feel** that I must take some positive action on this matter. I **hope** that you will launch an investigation immediately and keep me informed of your progress. If you cannot, then I **don't know** what other course of action to take.*

With this process type there is always one conscious Participant (the Senser), who perceives, conceives or reacts to things, events or ideas. In Text 3.3, Ridenhour is wrestling with ideas, and so the Participant which is being mentally processed is either itself a clause (*that it was something very black indeed*) or combination of clauses (*that you will launch an investigation immediately and keep me informed of your progress*) or an abstraction (*in the principles, of justice and the equality of every man, however humble, before the law, that form the very backbone that this country is founded on*) – as listed in the third column in Table 3.3.

In these respects mental processes resemble **verbal** ones in which someone tells someone else something. The following text uses several processes of this kind, since it is written as a procedural text instructing parents how to explain lightning and thunder to their children.

Table 3.3 Mental processes in Text 3.3

Process	**Participant**	**Participant**[4]
do … know	I	exactly what did, in fact, occur in the village of 'Pinkville' in March, 1968
am convinced	I	that it was something very black indeed
do … believe in	you and I	the principles, of justice and the equality of every man, however humble, before the law, that form the very backbone that this country is founded on
think	I	that it was Winston Churchill who once said 'A country without a conscience is a country without a soul, and a country without a soul is a country that cannot survive.'
feel	I	that I must take some positive action on this matter
hope	I	that you will launch an investigation immediately and keep me informed of your progress
do … know	I	what other course of action to take

Text 3.4 *Instructions*[5]

1 ***Explain*** *that warm air rises in hot clouds and encounters cold air, charging the particles in the cloud making them both positive and negative and this is called static electricity. …*
2 ***Tell*** *children that when enough positive and negative charges occur, they build up too much energy and explode in a flash of light that we call lightning. …*
3 ***Detail*** *the fact that sometimes the flash of light is movement within the cloud and sometimes it is movement between the atmosphere and the ground. …*
4 ***Impart*** *that the movement between the atmosphere and the ground is the reason that tall objects on earth like trees are struck by lightning.*
5 ***Describe*** *how light travels faster than sound, and because of this, we see the flash of lightning before we hear the clap of thunder. …*
6 ***Conclude*** *that thunder and lightning lasts only as long as is necessary to get all the electrical charges in the atmosphere back in balance.*

Since procedural genres involve commands, their 'sayer' is not made explicit – thus the parentheses around *you* in Table 3.4. The receiver of this advice, 'children', is explicitly mentioned just once, in step 2. Since the explanation is introduced into this text as reported speech, it involves clauses and clause complexes comparable to Ridenhour's projected thoughts in Text 3.3. The verb 'project' is the technical term used

Table 3.4 Verbal processes in Text 3.4

Process	**Participant**	**Participant**
explain	(you)	that warm air rises in hot clouds and encounters cold air, charging the particles in the cloud making them both positive and negative and this is called static electricity. …
tell	(you); children	that when enough positive and negative charges occur, they build up too much energy and explode in a flash of light that we call lightning. …
detail	(you)	the fact that sometimes the flash of light is movement within the cloud and sometimes it is movement between the atmosphere and the ground. …
impart	(you)	that the movement between the atmosphere and the ground is the reason that tall objects on earth like trees are struck by lightning.
describe	(you)	how light travels faster than sound, and because of this, we see the flash of lightning before we hear the clap of thunder. …
conclude	(you)	that thunder and lightning lasts only as long as is necessary to get all the electrical charges in the atmosphere back in balance.

to describe the relationship between mental and verbal processes and the sayings (i.e. locutions) and thoughts (i.e. ideas) they quote or report.

The sketch of clause structure presented here is directly relevant to the ideational meaning of the grammar section of the 3 × 3 matrix presented in Chapter 4 (Section 4.4). A passage of biology discourse[6] from Chapter 7 (Text 7.4) is outlined below. It features a range of mental (*experience*, *determine*), relational (*cause*, *call*, *have*, *mean*, *be*), and material processes (*transfer*, *pass*). It also features some very long Participants and Circumstances made up of or including embedded clauses (enclosed in double square brackets). This 'clause within clause' pattern is one of the distinctive features of academic writing (Table 3.5).

Table 3.5 Clauses in a passage of biology discourse (from Chapter 7, Text 7.4)

Process	**Participant**	**Participant**	**Circumstance/s**
experience		[[how an epidemic can spread]]	
determine		[[who started the epidemic]	
can cause	pathogenic bacteria and viruses	infectious diseases	
is transferred		a disease	from one person to another; at a rate [[that substantially exceeds the existing rate by direct or indirect contact]]
is called	an epidemic	It	
have	infectious diseases	different modes of transmission	
can be passed		the infection	by direct contact
means	which	[[an infected person directly touches an uninfected person]]	
is	indirect contact like transmission by infectious droplets of saliva [[through coughing or sneezing]]	very common	

3.2.2 Groups and phrases

In the previous section we considered groups of words in terms of the roles they play in clauses – as Processes, Participants and Circumstances. In this section we'll look at their own internal structure to see what roles words play in word groups of different kinds. Where possible, our examples will be taken from the extended versions of Texts 3.1–3.3 (below), and from Text 3.4 (above).

Text 3.1 extended

We'd lifted off from Camp Baldy at daybreak that morning, nosed over and lifted out, floating high above the paddies towards the mountains to the west. Thirty miles from the coast we descended to the treetops and began to wind west along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley. The valley, a huge green mouth that opened towards the coast until it looked like it might swallow the sea, progressively narrowed away from it, eventually melting into the mountains in the distance, a thin crack in the horizon. It was said to be a major route of gook[7] *infiltration west to the coast from the Ho Chi Minh trail.*

Text 3.2 extended

A few miles past where the first fingers of the mountains stretched east, our ships turned away from the valley floor, popped over a ridge, and dropped into the small rice paddy nested in the cup two-hundred feet below the hill's crest. We were out of the chopper in less than five seconds. Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, pounding heavily through thigh-high grass, lumbering toward the relative safety of the jungle at the edge of the paddy. The sharks and trail ship circled once, the insertion bird lifted up to join them and all four peeled out back toward the sea. It was still less than an hour after daylight. It had been a nearly perfect insertion – except for one thing.

Text 3.3 extended

Exactly what did, in fact, occur in the village of 'Pinkville' in March, 1968 I do not know for certain, but I am convinced that it was something very black indeed. I remain irrevocably persuaded that if you and I do truly believe in the principles, of justice and the equality of every man, however

humble, before the law, that form the very backbone that this country is founded on, then we must press forward a widespread and public investigation of this matter with all our combined efforts. I think that it was Winston Churchill who once said 'A country without a conscience is a country without a soul, and a country without a soul is a country that cannot survive.' I feel that I must take some positive action on this matter. I hope that you will launch an investigation immediately and keep me informed of your progress. If you cannot, then I don't know what other course of action to take.

I have considered sending this to newspapers, magazines and broadcasting companies, but I somehow feel that investigation and action by the Congress of the United States is the appropriate procedure, and as a conscientious citizen I have no desire to further besmirch the image of the American serviceman in the eyes of the world. I feel that this action, while probably it would promote attention, would not bring about the constructive actions that the direct actions of the Congress of the United States would.

We'll begin with nominal groups, the word groups which typically function as Participants in clauses. The simplest nominal groups consist of single words making reference to a person, place or thing. These include pronouns (*I*, *we*, *you*, *it*) and proper names (*Pinkville*, *March*, *Ridenhour*[8]). These short nominal groups have all the information we need to identify who we are talking about, and so don't have to be modified with words providing information of other kinds. The functional label for these simple nominal groups is **Thing**.

Thing
I, we, you, it
Pinkville, March, Ridenhour

With common nouns like *ridge*, *paddies*, *morning*, *ships* and *crest* we often do need more information to know who or what we are referring to. This may simply be a question of indicating which ridge, paddy or whatever we are talking about. The function of the element that introduces an entity or tracks one already identified is **Deictic** (or Pointer in teaching contexts where the Greek term is felt to be too unfamiliar to use as a label).

Deictic (Pointer)	**Thing**
a	ridge
the	paddies
that	morning
our	ships

In addition, we may wish to count, order or measure the people, places and things we are talking about. This function is referred to as **Numerative** (or more simply Number), and comes after the Deictic and before the Thing.

Deictic (Pointer)	**Numerative** (Number)	**Thing**
	thirty	miles
	five	seconds
	six	figures
the	first	fingers
a	few	miles

It is also possible to describe people, places or things with respect to their size, shape, colour and other qualities, and also our attitude to them. The **Epithet** (or more simply Describer) comes after the Numerative,[9] where there is one (e.g. *three slender fingers*, *two thin cracks*), and before the Thing. Whereas only one Deictic or Numerative is possible, there can be one or more Epithets (e.g. *huge green* and *low, jungled* below).

Deictic (Pointer)	**Epithet/s** (Describer)	**Thing**
a	slender	finger
a	huge	valley
a	thin	crack
a	major	route
the	relative	safety
	thigh-high	grass
	grenade-laden	web-belts
a	huge green	mouth
	low, jungled	hills
a	nearly perfect	insertion

Next in line is the possibility of subclassifying the Thing with one or more **Classifiers**. The Thing establishes the most general class of the person, place or thing we are talking about, and the Classifier/s narrow this down (e.g. *packs*, *field packs*, *army field packs*, *US army field packs*, etc.).

Deictic (Pointer)	**Epithet** (Describer)	**Classifier**	**Thing**
the		valley	floor
		gook	infiltration
a	small	rice	paddy
		boonie	hats
	full	field	packs
the		insertion	bird

As we can see, Deictic, Numerative, Epithet, Classifier and Thing functions in nominal groups are usually realised by single words. The exception above[10] was the attitudinal Epithet *nearly perfect*, which uses an adverb to qualify how perfect the landing was. Epithets can be sub-modified in this way (e.g. *rather small*, *quite full),* and this is one of their most important distinguishing characteristics (Classifiers, on the other hand, can never be graded – cf. **nearly valley floor*, **very gook infiltration*[11]).

Following the Thing in English we find longer modifiers, involving prepositional phrases and clauses. These are called **Qualifiers**. The epigram Ridenhour quotes from Churchill involves four nominal groups of this kind: '**A country without a conscience** is **a country without a soul**, and **a country without a soul** is **a country that cannot survive**.' In the first three, a prepositional phrase (discussed below) functions as Qualifier; and in the fourth, the Qualifier is a clause (referred to as a 'relative clause' in traditional grammar). By convention, we put single square brackets around the phrases in these examples to signal that we have one word group functioning inside another one (a prepositional phrase inside a nominal group), and double square brackets around the clause to signal that it is functioning inside a word group. Technically speaking, word groups and clauses which function in this way (i.e. inside a unit of the same size or smaller) are referred to as **embedded**.

Deictic	**Thing**	**Qualifier**
a	country	[without a conscience]
a	country	[without a soul]
a	country	[without a soul]
a	country	[[that cannot survive]]

Another place we find embedded word groups is at the front of the nominal group. These are found in 'possessive' nominal groups, which use a nominal group specifying the owner of the Thing (*Ron's car*), one of its relatives (*Ron's brother*), or the whole of which it is a part (*Ron's leg*) to identify it. These word groups are marked as embedded with the ending *'s*.

Deictic	Numerative	Classifier	Thing	Qualifier
[the hill] 's			crest	
[Lt. Calley] 's			platoon	
[her life] 's			work	
[Americal Division] 's		LRRP	company	
[some grunt] 's			idea	
[Charlie Company] 's	first		sweep	[through the hamlet]
[Mike Terry] 's			revelations	[to me]

Embedded word groups are also used at the front of a nominal group to direct our attention to the aspect of it we are interested in. This **Focus** function commonly deals with perspective (*side of …, edge of …, sound of …)* or measure (*weeks of …, miles of …, hundreds of …*) and is linked to the rest of the nominal group by *of*.[12] Note in the examples below that the Thing in the embedded nominal group in the Focus function (e.g. *side*, *edge*, *weeks*, *version*) is not the main person, place or thing we are talking about. The Focus is simply orienting us to the person, place or thing (in the penultimate column in the table) that we are mainly concerned with (*valley*, *paddy*, *occurrence*, *massacre*, etc.).

Focus	Deictic	Epithet	Classifier	Thing	Qualifier
[the north side] of	a	huge		valley	
[the edge] of	the			paddy	
[a slender finger] of		low, jungled		hills	
[the audible sound] of			human	agony	
[a few weeks] of	its			occurrence	
[hundreds] of			American	soldiers	
[the remaining 7 months] of	our			tours	[in Vietnam]
[a couple of versions] of	the			massacre	
[what other course] of				action	
[a major route] of			gook	infiltration	
[a Nazi kind] of				thing	
[some variation] of	a	Vietnam-style	counter-insurgency	campaign	

In academic discourse nominal groups can become very complex. Below we analyse some complicated examples from the extended texts above, using single square bracket to enclose embedded nominal groups and prepositional phrases, and double square brackets to enclose

embedded clauses. The depth[13] of the embedding is one measure of the complexity of the language involved.

a stinking, abandoned, overgrown rice paddy [[$_1$ cupped into [$_2$ the wrinkle [$_3$ beyond [$_4$ [$_5$ the crest $_5$] of the ridge $_4$] $_3$] $_2$] $_1$]]

[$_1$ [$_2$ the side $_2$] of a slender finger $_1$] of low, jungled hills [[$_1$ that wandered along [$_2$ [$_3$ the north side $_3$] of a huge valley $_2$] $_1$]]

the small rice paddy [[$_1$ nested in [$_2$ the cup [[$_3$(that was) [$_4$ two-hundred feet $_4$] below [$_5$ [$_6$ the hill $_6$] 's crest $_5$] $_3$]] $_2$] $_1$]]

the principles, [$_1$ of [$_2$ justice and the equality [$_3$ of [$_4$ every man, [[$_5$ however humble $_5$]] $_4$] $_3$] $_2$], [$_6$ before the law $_6$] $_1$], [[$_7$ that form the very backbone [[$_8$ that this country is founded on $_8$]] $_7$]]

The sketch of clause structure presented here is directly relevant to the ideational meaning: grammar section of the 3 × 3 matrix presented in Chapter 4 (describing and classifying) and to textual meaning: grammar section (tracking participants). The nominal groups in the passage of biology discourse analysed in Section 3.2.1 (Text 7.4) are presented below. An ellipsed Thing (person) has been filled in and placed in parentheses to show the ellipsis; and embedded groups and phrases are enclosed in single square brackets. The passage features Classifier Thing structures construing the uncommonsense taxonomies characterising scientific discourse.

Table 3.6 Nominal groups in a passage of biology discourse (from Chapter 7, Text 7.4)

Focus	Deictic	Epithet	Classifier	Thing	Qualifier
	an			epidemic	
	the			epidemic	
			pathogenic	bacteria and viruses	
			infectious	diseases	
	a			disease	
	one			person	
	a(n) …	… other		(person)	
	a			rate	[[that substantially exceeds the existing rate]]

(*continued*)

Table 3.6 Continued

Focus	Deictic	Epithet	Classifier	Thing	Qualifier
	the	existing rate			
		direct or indirect		contact	
				it	
	an			epidemic	
			infectious	diseases	
[different modes] of				transmission	
	the			infection	
			direct	contact	
	an		infected	person	
	an		uninfected	person	
			indirect	contact	[like transmission by infectious droplets of saliva] [[through coughing or sneezing]]
		very common			

We'll turn now to verbal groups, the word groups which function as Processes in clauses. Like simple nominal groups, simple verbal groups may consist of just one word, which is called the **Event**. The term Event is used for the verb expressing the type of process and is used across all process types – including material, mental, verbal and relational.

Event	
[material]	lifted, nosed, descended, wandered, opened, dropped …
[mental]	recalled, guess, know, convince, believe, think, feel, hope …
[verbal]	assured, said, relate, explain, tell, detail, impart, describe, conclude …
[relational]	was, were, looked, seemed, became, turned, had, got, mattered …

We can explore more complex verbal groups by moving leftwards from the Event. The first possibility that opens up is for a passive verbal group instead of an active one (all the simple verbal groups just illustrated were active voice). To form the passive voice we put some form of the verb *be* next to the Event and make sure that the Event is in the appropriate -ed or -en[14] form. So to contrast *the choppers lifted out the troops* with *the*

troops were lifted out by the choppers, we change *lifted* to *were lifted* (i.e. the verb *be* in its past tense form *were*, followed by *lift +-ed*):

[active]	*lifted*
[passive]	*were lifted*

The different process types all form passive in the same way and can be analysed as Passive followed by Event structures:

Passive	**Event**
were	*lifted*

[material passives]	was drafted, was killed, are struck, was taken …
[mental passives]	am convinced, were believed, was felt, was hoped …
[verbal passives]	was said, is explained, was described, was assured …
[relational passives]	is called, was symbolised, is spelled, is translated …

Note that these active and passive verbal groups all have some indication of time as well as PROCESS TYPE and VOICE. With simple verbal groups time is expressed on the Event itself, as present (*guess*, *know*, *believe*, *am*, *is*, *are*, *become turn* …) or past (*lifted*, *nosed*, *descended*, *recalled*, *assured*, *was*, *were*, *became*, *got* …). With passive verbal groups time is expressed by the verb *be* (***are*** *struck*, ***am*** *convinced*, ***was*** *drafted*, ***were*** *believed*).

When they are negated, or used to form questions, or made emphatic, what would otherwise be simple verbal groups add the verb *do* in order to express time. These structures can be analysed as Tense (or more simply Time) followed by Event structures.

Tense (Time)	**Event**
did	lift

[negative]	did (not) open, does (not) believe, did (not) tell, did (not) matter …
[question]	did (it) open, does (he) believe, did (she) tell, did (it) matter …
[emphatic]	did open, does believe, did tell, does matter …

In general then, as we can see, time is expressed through the initial verb in the verbal group. In English, there are no special verb endings for future; rather future is expressed through a separate Tense function (e.g. *will go*, *shall do*).

Tense Event
will launch, will have
is landing, are leaving
was talking, was doing
have considered, have landed
'd lifted, had known …

The exception to this time initial pattern is verbal groups beginning with modal verbs. These verbal groups bring considerations of obligation, inclination and ability, or of probability and usuality into play. In Text 3.3 extended above, Ridenhour urges on his readers with respect to what their obligations are:

… if you and I do truly believe in the principles, of justice and the equality of every man, however humble, before the law … then we ***must press*** *forward a widespread and public investigation of this matter with all our combined efforts.*

And he then speculates on the probable consequences of such an investigation:

I feel that this action, while probably it ***would promote*** *attention,* ***would*** *not* ***bring*** *about the constructive actions that the direct actions of the Congress of the United States* ***would****.*

These verbal groups can be analysed as Modal followed by Event structures.

Modal	**Event**
must	press

[obligation]	must press, must take, can be, can alleviate …
[probability]	may be, might swallow, would promote …

Sometimes, as texts unfold, additional tense resources are needed to sort out the timing of one event in relation to another. For more complicated kinds of time relation, additional verbs are added so that time is developed up to the optional expression of Passive and the obligatory Event function. In Text 3.5 below, a sequence of past events is built up in which Ridenhour's LRRP patrol is told what was about to happen to

them: *our pilots told us, we **were going to be dumped** there for the night*. We can build this verbal group up in steps, beginning with the bare Event (*dump*), making it passive (*be dumped*), adding future time (*will be dumped*) and then adding more time[15] by fitting the verbal group into the past tense of Ridenhour's recount (*were going to be dumped*):

Event
dump

Passive Event
be dumped

Tense (future) Passive Event
will be dumped

Tense (past ^ future) Passive Event
were going to be dumped

Text 3.5

*When the choppers finally scooped us up on the fifth day, it was nearly dark again. We did not make it back to the coast that night, either. We'd been in the air only a few minutes when the pilot changed direction and headed for the nearest firebase, a primitive forward camp that had been gouged into the mouth of the valley. A circle of bunkers and barbed wire less than a quarter mile across, it was the U.S. Army's point fort in the grand plan to staunch the flow of gooks through the valley. The battle on the south side of the valley was part of the plan. Now, our pilots told us, we **were going to be dumped** there for the night while they headed off as makeshift medevacs. There were some wounded who had to be gotten out now, while there was some light left.*

We won't go into the more complex tense forms[16] used in English to sort out the timing of one event in relation to another, but simply treat everything up to the Passive and Event parts of the verbal group as Tense. But we point out here that extra time can also be added to modalised verbal groups, where needed:

Modal	**Tense**	**Passive**	**Event**
might	*have*	*been*	*dumped*

Sometimes its takes more than one Event to realise a material, mental, verbal or relational process. This happens when we need to add some meaning that has to do with phase or cause[17] (e.g. *begin to wind*, *stopped*

coming). These qualifying Events express tense and modality in verbal groups of this kind, but the process type and active or passive voice are expressed in relation to the main Event, which comes last. We can analyse these combined verbal groups as follows:

Event	**Event**
stopped	*attacking*

Modal	**Tense**	**Event**	**Passive**	**Event**
might	*have*	*stopped*	*being*	*attacked*

The qualifying events expand the meaning potential of processes by adding secondary verbal groups, an expansion process similar to what we saw in nominal groups, which expanded their meaning potential through embedding (in the Focus, Deictic and Qualifier functions). Some further examples are listed below. Note that more than one qualifying verbal group can be added (e.g. *began to try to stop smoking*).

began to wind, trying to figure out, continued to be, happen to be, kept going, stopped coming, helps balance

The verbal groups realising Processes in the passage of biology discourse analysed above were presented in Table 3.6. These are reviewed below, adding in embedded verbal groups. There are in fact four non-finite verbal groups, which do not have tense or modality:

to experience, (to) determine;
coughing, sneezing

Three of the verbal groups are modalised (including one passive):

can spread, can cause, can be passed

The remaining include 6 active and 2 passive verbal groups:

started, exceeds, have, means, touches, is
is transferred, is called

All except one (*started*) of the active verbs are present tense. These verbal groups, alongside the modalised and non-finite ones, highlight the 'timeless' generalising perspective characterising academic discourse. Note that present tense here means not just now, but always.

We turn now to adverbial groups and prepositional phrases, the word groups which function as Circumstances in clauses. Adverbial groups usually consist of just one word, and as far as Circumstances are concerned, express the manner in which a process is undertaken. Ridenhour uses one of these in Text 3.2 extended, to describe his patrol moving into the jungle:

Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, pounding ***heavily*** *through thigh-high grass, lumbering toward the relative safety of the jungle at the edge of the paddy*.

Here are some more examples, along with the processes they modify:

progressively *narrowed,* ***steadily*** *saying, speak* ***badly****, pacing* ***deliberately****, flopping* ***spasmodically****,* ***eagerly and stupidly*** *accepted, moving* ***steadily and quickly***

Adverbial groups may involve more than one word, when the manner in which a Process is undertaken is modified (e.g. *rather heavily*, *quite badly*, *very deliberately*). When they are comparative (e.g. *more heavily*), an embedded phrase or clause specifying the standard of comparison can be included (e.g. *more heavily* [*than previous patrols*], *less quickly* [[*than was wise*]]). For structure analysis we could use the terms Degree, Manner and Standard to label the structure.

Degree	**Manner**	**Standard**
	heavily	
quite	heavily	
more	heavily	[than previous patrols]
less	quickly	[[than was wise]]

Circumstances of manner can be alternatively realised in clauses through prepositional phrases. We might, for example, rephrase Ridenhour's tramp through the jungle as *running* ***with heavy steps*** or *moving* ***like a herd of elephants*** instead of *pounded*[18] *heavily*. Here are some more examples, some based on the *-ly* adverbial groups noted above:

happens in all kinds of ways, arguing in whispers, moving at a steady pace, accepted with great eagerness, speak in an inappropriate way, saying in a steady tone …

Unlike nominal, verbal and adverbial groups, prepositional phrases always have the same two-element structure. This is usually referred to in functional linguistics simply as P C (labels for phrasal Predicator and phrasal Complement respectively). The P function is expressed by a preposition, and the C function by an embedded nominal group. This structure is outlined below for *with heavy steps*, including an analysis of the embedded nominal group *heavy steps*.

P	**C**	
	[nominal group]	
	Epithet	**Thing**
with	*heavy*	*steps*

Prepositional phrases function very commonly as circumstances of location in space:

from Camp Baldry, at daybreak, above the paddies, towards the mountains, to the west, along the north side of the valley, away from it, into the mountains, in the distance, from the Ho Chi Minh trail, over a ridge, below the hill's crest, after daylight …

But they can play a variety of different roles which we can often probe with question words like *when*, *where*, *why*, *how*, *how long*, *how far*. Here are a few examples of the variety of circumstantial meanings that can be added to a clause with prepositional phrases:

[time]	the choppers finally scooped us up **on the fifth day**
[extent]	they fought **for five days**
[manner]	he cried **like a baby**
[cause]	they ran **out of**[19] **fear**
[purpose]	they prepared **for the battle**
[condition]	it was a near perfect insertion **except for one thing**
[accompaniment]	they arrived **with the medics**
[role]	he graduated **as a lieutenant**
[angle]	**according to Ridenhour** something had to be done
[matter]	they chatted **about the war**

Now that we've worked our way through the basics of clause and group and phrase structure, we can round off the discussion of grammar with reference to word classes (traditionally referred to as 'parts of speech'). Basically, words are classified according to the potential they

have to express the structure of groups and phrases – what roles they can play in other words. In the propositional phrase *with heavy steps*, for example, the **preposition** *with* realises P, the **adjective** *heavy* realises the Epithet, and the **noun** *steps* the Thing:

P	**C**	
	[nominal group]	
	Epithet	**Thing**
preposition	adjective	noun
with	*heavy*	*steps*

As we exemplified in our discussion of nominal groups in Section 3.2.2, the Thing in nominal groups can be expressed by a noun (*steps*), **proper name** (*Vietnam*) or **pronoun** (*we*); the Numerative in nominal groups often involves **numerals**, both cardinal (*one*, *two*, *three*, etc.) and ordinal (*first*, *second*, *third*, *fourth*, and so on); and the Deictic can be realised by **determiners** – including definite and indefinite articles (*a*, *the*, *some*), demonstratives (*this*, *that*, *these*, *those*), and possessive pronouns (*my*, *your*, *his*, *her*, *its*, *our*, *their*). Because a given function is not always expressed by the same word class, and the same word class can express different functions, in fuller grammars a careful distinction is made between clause, group and phrase functions and the kinds of words, word groups or clauses which realise them. Table 3.7 outlines some of this variation for English nominal groups.

In verbal groups a distinction is sometimes made between **lexical verbs** (e.g. *won*), **auxiliary verbs** (*be*, *have*), and **modal verbs** (*must*, *should*, *could*, etc.). These correlate with verbal group functions as follows:

verbal group function	**verb class**
Modal	modal verb
Tense	auxiliary verb
Passive	auxiliary verb
Event	lexical verb

Conjunctions are used to link clauses, groups and phrases, and words. The examples below illustrate the additive (*and*), temporal

Table 3.7 The expression of nominal group functions and their realisations as word class

Nominal group function	**Question word/s**	**Class**
Focus		[nominal group]^of
Deictic	which	determiner: article (*a*, *the*, *some*) determiner: demonstrative (*this*, *that*, *these*, *those*) determiner: possessive pronoun (*my*, *our*, *their* …) [nominal group]^'s ([*his sergeant*]*'s rage*)
Numerative	how many/much	numeral: cardinal (*3*, *xiv*, *forty-four*) numeral: ordinal (*sixth*, *21st*) measure adjective (*few*, *several*, *many* …)
Epithet	what like	adjective: descriptive (*slender*, *huge*) adjective: attitudinal (*perfect*, *major*) verb (*jungled hills*, *swaying branch*)
Classifier	what kind	noun (*merlot wine*, *grape vine*) verb (*mulled wine*, *sparkling wine*) adjective (*red wine, dry wine*) numeral (*2006 shiraz*, *third prize*)
Thing	what	noun (*wine*, *beer*, *spirits*) pronoun (*he*, *you*, *they* …) proper name (*Ron*, *Laos*, *Google*)
Qualifier	what like/which	[prepositional phrase] (*safety* [*at the edge*]) [[clause]] (*a country* [[*that cannot survive*]])

(*when*), causal (*if/then*), and comparative (*as*) connections that can be made between clauses:

We'd been in the air only a few minutes
***when** the pilot changed direction*
***and** headed for the nearest firebase,*
***as** we had done on several patrols before.*

The conjunctions highlighted below connect groups:

*{the sharks **and** trail ship} circled once*
*{a circle of bunkers **and** barbed wire …}*
*the principles, of {justice **and** the equality of every man}*

And the conjunctions highlighted below connect words:

*a {widespread **and** public} investigation*
*if {you **and** I} do truly believe*

Adverbs have a wide range of functions. We looked at their role in realising circumstances of manner above (*pounding **heavily***). They are also used to sub-modify adjectives and numerals:

***totally** freaked out, **especially** upset, **mortally** wounded, **nearly** perfect, **intensely** religious, **determinedly** innocent, **nearly** dark, **relatively** safe, **perfectly** obvious …*

***roughly** forty women and kids, **nearly** 400 inhabitants, **only** six survivors, **almost** every day …*

They can also be used to express a writer's attitude to what he is saying:

***truly** believe, **allegedly** happened, **simply** manned, **basically** learned, **literally** made …*

And they provide additional resources for adjusting time and probability:

***eventually** melting, had **previously** told me, **finally** break out, **frequently** it was, **usually** we'd kill, reassigned **temporarily** …*

***probably** would, **certainly** hadn't, **maybe** will, **assuredly** said …*

Word classes can be usefully separated into those with a lot of members (nouns, proper names, numerals, adjectives, adverbs and lexical verbs), which form what are called open sets, and those with only a few (determiners, pronouns, prepositions, modal and auxiliary verbs, and conjunctions), which form closed sets. The ratio of the open system content words to the closed system function words gives a rough measure of the **lexical density** of a text – another measure of the complexity of the language of a spoken or written text (alongside the depth and amount of embedding noted above). This is measured for two texts below, with content words in bold face.

Text 3.6

Understanding** that **sure took** the **uncertainty** out of **things**. You could **kill** 'em all, if you **wanted**. Well, not **literally**, at least not **literally most** of the **time**. **Sometimes**, like at **My Lai**, you really could just **waste** 'em all. **Usually**, though, you did have to be more **selective**. And you did have to **say grace** over the **dead**, of course. **Looked** like a **VC** to me, sir. **Went

*for **something**. **Figured** it was a **grenade**. **Zapped** 'im. Not **everybody** was **doing** that, but there were **plenty** who were. **Everybody** who **knew** them, **knew** what was **happening**. Within a **few weeks** of its **occurrence**, for instance, **hundreds** of **American soldiers knew** about **My Lai**. Within **three months, thousands knew**.* 47/119 (39% content words)

[from Text 3.3 extended] *I have **considered sending** this to **newspapers, magazines** and **broadcasting companies**, but I **somehow feel** that **investigation** and **action** by the **Congress** of the **United States** is the **appropriate procedure**, and as a **conscientious citizen** I have no **desire** to further **besmirch** the **image** of the **American serviceman** in the **eyes** of the **world**. I **feel** that this **action**, while **probably** it would **promote attention**, would not **bring** about the **constructive actions** that the **direct actions** of the **Congress** of the **United States** would.* 36/84 (42% content words)

A much better measure of the lexical density of a text considers the number of content words per clause (more specifically the number of content words in each clause that is not embedded, including content words in any clauses embedded in it). This alternative computation is undertaken for Texts 3.6 and 3.3 extended below (with content words in bold and embedded clauses in double square brackets). This style of analysis now shows Text 3.6 to be about half as lexically dense as Text 3.3. This is a more effective method of showing the extent to which a text is more like the spoken discourse familiar to all students or more like the written academic discourse they may be struggling to learn.

*[[**Understanding** that]] **sure took** the **uncertainty** out of **things**.* 5
*You could **kill** 'em all,* 1
*if you **wanted**.* 1
*Well, not **literally**,* 1
*at least not **literally most** of the **time**.* 3
***Sometimes**, like at **My Lai**, you really could just **waste** 'em all.* 4
***Usually**, though, you did have to be more **selective**.* 2
*And you did have to **say grace** over the **dead**, of course.* 3
***Looked** like a **VC** to me, sir.* 2
***Went** for **something**.* 2
***Figured** it was a **grenade**.* 2
***Zapped** 'im.* 1
*Not **everybody** was **doing** that,* 2
*but there were **plenty** who were.* 1

Everybody *[who* ***knew*** *them],* ***knew*** *what was* ***happening****.* 4
Within a ***few weeks*** *of its* ***occurrence****, for instance,* ***hundreds*** *of* ***American soldiers knew*** *about* ***My Lai****.* 9
Within ***three months, thousands knew****.* 4
47/17 (2.76 content words per non-embedded clause)

I have ***considered [[sending*** *this to* ***newspapers, magazines*** *and* ***broadcasting companies****,]]* 6
but I ***somehow feel*** 2
that ***investigation*** *and* ***action*** *by the* ***Congress*** *of the* ***United States*** *is the* ***appropriate procedure****,* 7
and as a ***conscientious citizen*** *I have no* ***desire*** *[[to further* ***besmirch*** *the* ***image*** *of the* ***American serviceman*** *in the* ***eyes*** *of the* ***world****.]]* 8
I ***feel*** *that this* ***action****, <<…>>, would not* ***bring*** *about the* ***constructive actions*** *[[that the* ***direct actions*** *of the* ***Congress*** *of the* ***United States*** *would.]]* 10
<<while ***probably*** *it would* ***promote attention****>>* 3
33/6 (5.5 content words per non-embedded clause)

The biology passage analysed above has a comparably written lexical density of 5 content words per ranking (i.e. not embedded) clause:

To ***experience*** *[[how an* ***epidemic*** *can* ***spread****]]* 3
determine *[[who* ***started*** *the* ***epidemic****]]* 3
Pathogenic bacteria *and* ***viruses*** *can* ***cause infectious diseases****.* 6
When a ***disease*** *is* ***transferred*** *from one* ***person*** *to another at a* ***rate*** *that* ***substantially exceeds*** *the* ***existing rate*** *by* ***direct*** *or* ***indirect contact****,* 11
it is ***called*** *an* ***epidemic****.* 2
Infectious diseases *have* ***different modes*** *of* ***transmission****.* 5
The ***infection*** *can be* ***passed*** *by* ***direct contact****,* 4
which ***means*** *[[an* ***infected person directly touches*** *an* ***uninfected person****]].* 7
Indirect contact *like* ***transmission*** *by* ***infectious droplets*** *of* ***saliva*** *[[through* ***coughing*** *or* ***sneezing****]] is also very* ***common****.* 9
50/10 (5 content words per non-embedded clause)

Some academic discourse has a lexical density many times higher than that of casual conversation, which is one factor making it difficult to read for those whose experience of language mainly involves casual conversation and a range of written story genres.

3.2.3 Grammatical metaphor

Now that we have built up a sketch of English grammar, we can open up the topic of grammatical metaphor, which is probably the most important concern as far as academic discourse is concerned. Basically what we are concerned with here is the relationship between grammar and semantics outlined in Figure 3.2.

In order to talk about the relationship of discourse semantics to lexicogrammar we need to introduce distinctive terminology for each level of language. As far as discourse semantics is concerned we do most of this work in Section 3.3. At this point, however, we need to introduce some terminology for the ideational part of the semantics underlying the clause grammar introduced above. We'll use the term entity to name the meaning typically realised by nominal groups, event for the meaning typically realised through verbal groups, and setting for the meaning typically realised by prepositional phrases dealing with location in space and time. Combinations of entity, event and setting make up a figure, the meaning typically realised by a clause. The relation between these discourse semantic and lexicogrammatical categories is outlined below.

Semantic figure	**Grammatical realisation**	
entity	nominal group	*we*
event	verbal group	*descended*
setting	prepositional phrase	*to the treetops*

A discourse semantic figure thus stands in a whole to part relation to entities, events and settings just as a lexicogrammatical clause stands in a whole to part relation to Participants, Processes and Circumstances. When the relationship between discourse semantic figures and lexicogrammatical clauses is congruent, the various elements of discourse semantic figures map naturally onto corresponding parts of a clause (i.e. word groups). The entities (people, places and things) involved in figures are expressed as clause Participants (nominal groups); the events in which they participate and the states they are in are expressed as Processes (verbal groups); and their setting in time and place is expressed as Circumstances (adverbial groups and prepositional phrases). The distribution of the congruent realisation of a semantic figure is outlined in Figure 3.3.

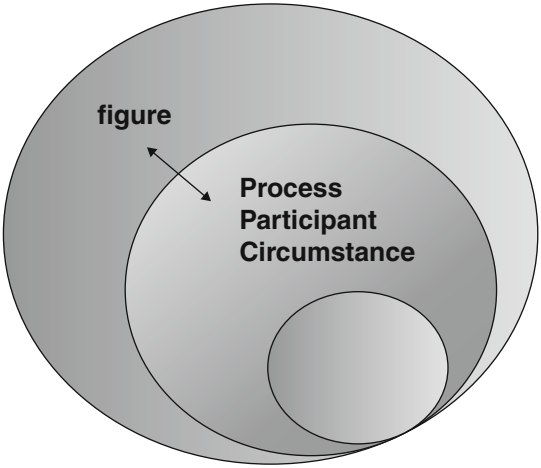


Figure 3.3 Discourse semantic figure (event, entity and setting) realised congruently as a clause (Process, Participant and Circumstance)

This is the normal pattern of realisation for Ridenhour's recount as exemplified in Texts 3.1 and 3.2 above. Here's a slightly edited example from another part of his story, with a congruently expressed figure:

Occasional lines of North Vietnamese soldiers were trudging along the trail below us.

Semantic figure	**Congruent grammatical expression**	
entity	Participant (nominal group)	*occasional lines of North Vietnamese soldiers*
event	Process (verbal group)	*were trudging*
setting	Circumstance (prepositional phrase)	*along the trail below us*

Less commonly in his recount, typically in the context of evaluation, Ridenhour expresses his semantic figures as clause participants (nominal groups). Below, for example, he refers to the trail below his outpost as *a major route of gook infiltration* … . In this case the semantic figure of the North Vietnamese soldiers trudging along the trail is expressed

grammatically as a Participant in a relational process, which comments on the significance of the trail under surveillance (*a **major** route*).

*It was … a major route of **gook infiltration west to the coast from the Ho Chi Minh trail.***

Semantic figure	**Incongruent grammatical expression**	
entity, event and setting	Participant (nominal group)	*gook infiltration west to the coast from the Ho Chi Minh trail*

Realised as a nominal group, the soldiers involved now function as a Classifier, the event as a Thing, and the setting as Qualifiers:

Classifier	**Thing**	**Qualifiers**
gook	infiltration	west, to the coast, from the Ho Chi Minh trail

We find the same kind of pattern at the end of Text 3.2 extended. The semantic figure of Ridenhour's patrol landing in the rice paddy and hurrying to the relative safety of the jungle is evaluated as *a nearly perfect insertion*. Expressing himself congruently, Ridenhour might have written that *the helicopters inserted the patrol almost perfectly*.

*It had been a nearly perfect **insertion** – except for one thing.*

Deictic	**Epithet**	**Thing**
a	nearly perfect	insertion

This step makes it possible to imagine an even more incongruent alternative, in which Ridenhour's evaluation of the landing is made Thing (and the *insertion* functions as Thing in a qualifying nominal group):

*{The near **perfection** of the insertion} surprised almost everyone.*

Deictic	**Epithet**	**Thing**	**Qualifier**
the	near	perfection	of the insertion

Here's another attitudinal example from Text 3.2 extended, with Ridenhour's evaluation of the jungle at the edge of the paddy expressed as a nominal group:

*Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, pounding heavily through thigh-high grass, lumbering toward the relative **safety** of the jungle at the edge of the paddy.*

Deictic	Epithet	Thing	Qualifier
The	relative	safety	of the jungle …

These alternative congruent and incongruent ways of expressing a discourse semantic figure as a clause or a Participant are outlined in Figure 3.4. The process of expressing figures as Participants within clauses is referred to as grammatical **metaphor** because:

i. there are two layers of meaning involved (e.g. the grammatical expression of the landing as a Participant, and underlying this the semantic configuration of an event along with the people, places and things involved);
ii. the two layers are in a figure/ground relationship, with grammar in the foreground (since the grammatical meaning is the one that is 'literally' there in what people say or write); and
iii. the discourse semantics is symbolised by the grammar and so recoverable (there is something[20] in other words about the grammar that tells us something more is going on).

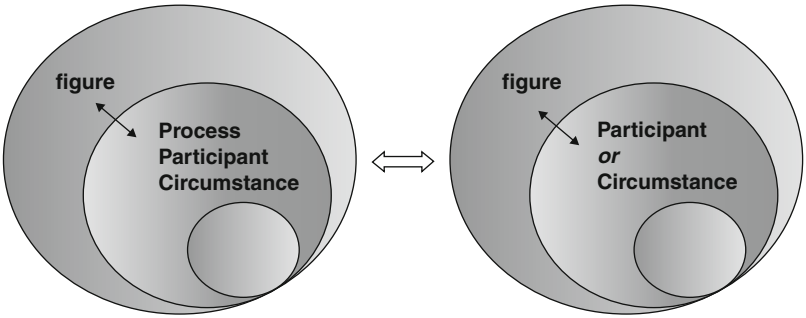


Figure 3.4 Alternative congruent and metaphorical realisations of a discourse semantic figure

With grammatical metaphor there is thus some tension between the semantics and its grammatical expression. The meaning the grammar makes cannot be taken simply at face value.

Events in texts like the Ridenhour excerpts we've been examining don't happen in isolation, but form activity sequences reflecting the goings on in one or another field. This can be seen in a sequence of events from Text 3.5 above, with temporal relations between most events and a causal explanation of why Ridenhour's patrol had to spend the night at the nearest firebase after evacuation from their observation post.

We'd been in the air only a few minutes
***when** the pilot changed direction*
***and** headed for the nearest firebase …*
***Now**, our pilots told us, we were going to be dumped there for the night*
***while** they headed off as makeshift medevacs.*
*(implicit **because**) There were some wounded who had to be gotten out now,*
***while** there was some light left.*

In texts of this kind, we observe a congruent relationship between discourse semantic sequences of events and their realisation, clause by clause, in grammar – with conjunctions (or simple juxtaposition) marking relationships of addition, comparison, time and cause between clauses. This 'natural' expression of a semantic sequence as a series of clauses is outlined in Figure 3.5.

Alternatively a sequence of figures can be expressed in a single clause. There are several ways of doing this. The basic strategy is to realise the logical relation between figures as a Circumstance or Process or Participant; each type of realisation is illustrated below. With Circumstances, a preposition codes the semantic link between figures, one of which is realised incongruently in the following nominal group: ***after our evacuation** we were dumped at the nearest firebase.*

Circumstance	**Participant**	**Process**	**Circumstance**
after our evacuation	we	were dumped	at the nearest firebase

When the logical relation between figures is expressed as a Process, then both figures are realised as Participants: *This **was followed** by our dumping at the nearest firebase.*

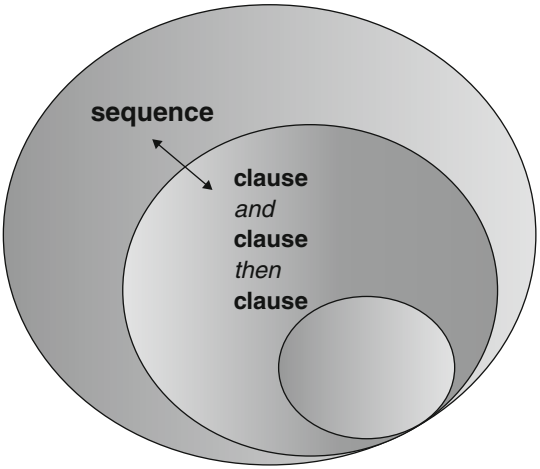


Figure 3.5 Congruent realisation of discourse semantic sequences to clauses linked by conjunctions

Participant	**Process**	**Participant**
This	was *followed*	by our dumping at the nearest firebase

Logical relations can also be expressed as Things in nominal groups realising figures: *the **follow-up** to this was our dumping at the nearest firebase.*

Participant	**Process**	**Participant**
The *follow-up* to this	was	our dumping at the nearest firebase

Comparable patterns are found for causal connections. The following examples incongruently paraphrase the relation between the patrol's landing at the firebase and the need to evacuate wounded soldiers:

[Circumstance] *This was **because of** the need to evacuate some wounded soldiers.*

[Process] *This **was caused** by the need to evacuate some wounded soldiers.*

[Participant] *The **reason** for this was the need to evacuate some wounded soldiers.*

As we can see, expressing a sequence incongruently within a single clause depends on expressing one or both of the figures involved incongruently as nominal groups. In Text 3.7, to give one further example, Ridenhour explains that jungle rot is caused by a combination of incongruent qualities (of being filthy, damp and wet) plus some kind of bacteria.

Text 3.7

Jungle rot, for those of you who don't know, is a kind of ulceration that appears on your skin and is caused by ***a combination of filth and dampness, wetness*** *and some bug, I'm sure. It begins as just a little small open sore and it just spreads and spreads and spreads and gets bigger and bigger and bigger and Bernhardt had these open wounds all over his legs, could barely walk. Two days after he went into the brigade aid station he was at 2nd Surgical Hospital in Chu Lai, which is where I was then and we were all ready to come home.*[21]

Realising cause as a Process between Participants opens up the possibility of introducing a wide range of causal relations which cannot be realised by conjunctions alone. Ridenhour draws on two of these (*promote*, *bring about*) to explain why he is not writing to the press and electronic media in Text 3.3 extended above.

I feel that this action, while probably it ***would promote*** *attention,* ***would not bring about*** *the constructive actions that the direct actions of the Congress of the United States* ***would (bring about).***

Realising figures as Participants also opens up the possibility of packaging up just the right information as causes and effects – e.g. *this action*; *attention*; and *the constructive actions that the direct actions of the Congress of the United States would (bring about)* above.

The biology passage analysed above also begins congruently, mapping figures as clauses:

To experience how an epidemic can spread and determine who started the epidemic

The discourse then shifts gears to include a number of nominalisations, highlighted below:

Pathogenic bacteria and viruses can cause infectious diseases. When a disease is transferred from one person to another at a rate that substantially

*exceeds the existing rate by direct or indirect **contact**, it is called an epidemic. Infectious diseases have different modes of **transmission**. The **infection** can be passed by direct **contact**, which means an **infected** person directly touches an **uninfected** person. Indirect **contact** like **transmission** by infectious[22] droplets of saliva through coughing or sneezing is also very common.*

None of these in fact involve the incongruent realisation of figures as nominal groups – because all are construing uncommonsense biological taxonomies. These taxonomies consist of relations among uncommonsense biological entities, not Processes ('direct vs indirect contact', 'infected vs uninfected person', 'infectious vs non-infectious droplets', 'modes of transmission', 'infection'). The nominalisations highlighted here may well have harboured live grammatical metaphors at some stage in their evolution, but they are all technical terms, and once they become a technical term, their metaphorical status dies out, as it were. We thus refer to examples like these as 'dead metaphors'. The prevalence of dead metaphors of this kind is a critical feature of scientific discourse, reflecting its technicality and the 'suicidal' role played by grammatical metaphor in expanding its uncommonsense view of the world.

Alongside its role in the genesis of technicality, grammatical metaphor is also crucial for biological reasoning. The examples below are taken from the biology texts in Chapter 7; the verbal groups and nominal groups realising causal connections are highlighted in bold.

*The cell cycle is an ordered series of events **leading to** replication of cells*

*Recent widespread litigation **has arisen out of** an unproved assertion that exposure to indoor moulds **causes** an ill-defined illness.*

*Therefore **the effects** of mycotoxins on human subjects are recognised as **the result** of ingestion.*

3.3 Discourse semantics: meaning beyond the clause

At this point we'll turn our attention to patterns of meaning beyond the clause – the outer discourse semantics level in Figure 3.2. Our aim is to build a working model of text organisation which can function as a bridge between words and structures (lexicogrammar) and the structure

of genres (social context). We begin with a discussion of information flow, since this aspect of discourse structure is very sensitive to stages and phases at the level of genre.

3.3.1 Information flow (PERIODICITY)

As noted in Chapter 2, with respect to textual meaning, discourse unfolds in phases – as waves of information. This makes it easier for us to digest meaning, one package of information at a time. Texts scaffold these waves in various ways in order to help us recognise a change of gears. They may, for example, comment prospectively on what is to come, as when Ridenhour introduces his patrol as *a strange lot* (Text 3.8).

Text 3.8

It was a strange lot, that first mission.

> *It was me and Juan and four guys who'd been in Lieutenant Calley's platoon at My Lai. Juan – through some confusion, I'm sure – had me take point. Walking point was a heavy responsibility. It was an honor, of however dubious sorts, to be the first man down the trail on a LRRP mission. I eagerly and stupidly accepted the assignment without question. When Juan learned later that day that my combat experience was all earned firing a machine gun from the skid of a chopper, his cheeks turned pale. My taking off without waiting for the rest of them was no accident. I was stupid. Point was too critical to be turned over to a cherry.*

Texts can also comment retrospectively on a phase of discourse as we saw above with Ridenhour's evaluating the patrol's landing (Text 3.9).

Text 3.9

We'd lifted off from Camp Baldy at daybreak that morning, nosed over and lifted out, floating high above the paddies towards the mountains to the west. Thirty miles from the coast we descended to the treetops and began to wind west along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley. The valley, a huge green mouth that opened towards the coast until it looked like it might swallow the sea, progressively narrowed away from it, eventually melting into the mountains in the distance, a thin crack in the horizon. It was said to be a major route of gook infiltration west to the coast from the Ho Chi Minh trail. A few miles past where the first fingers of the mountains stretched east, our ships turned away from the valley floor, popped over a ridge, and dropped into the small rice paddy nested in the cup two-hundred feet below the hill's crest. We were out of the chopper in less than five seconds. Six figures in camouflage, boonie hats, grenade-laden web-belts

and full field packs, pounding heavily through thigh-high grass, lumbering toward the relative safety of the jungle at the edge of the paddy. The sharks and trail ship circled once, the insertion bird lifted up to join them and all four peeled out back toward the sea. It was still less than an hour after daylight.

It had been a nearly perfect insertion …

The more self-consciously a text is composed, the more layers of explicit scaffolding we will find in it. In Text 3.10, a hortatory exposition defending American involvement in Vietnam, the then president Johnson introduces his issue, and subsequently prefaces each of his arguments with what traditional rhetoric refers to as a **topic sentence**.

Text 3.10

Why are these realities our concern? Why are we in South Vietnam?

We are there because we have a promise to keep.

Since 1954 every American President has offered support to the people of South Vietnam. We have helped to build, and we have helped to defend. Thus, over many years, we have made a national pledge to help South Vietnam defend its independence. And I intend to keep our promise. To dishonor that pledge, to abandon this small and brave nation to its enemy, and to the terror that must follow, would be an unforgivable wrong.

We are also there to strengthen world order.

Around the globe, from Berlin to Thailand, are people whose well-being rests, in part, on the belief that they can count on us if they are attacked. To leave Vietnam to its fate would shake the confidence of all these people in the value of American commitment, the value of America's word. The result would be increased unrest and instability, and even wider war.

We are also there because there are great stakes in the balance.

Let no one think for a moment that retreat from Vietnam would bring an end to conflict. The battle would be renewed in one country and then another. The central lesson of our time is that the appetite of aggression is never satisfied. To withdraw from one battlefield means only to prepare for the next. We must stay in Southeast Asia, as we did in Europe, in the words of the Bible: 'Hitherto shalt thou come, but no further.'

Another way of scaffolding waves of information is by using a Circumstance of location in space or time to signal a shift of gears. Ridenhour punctuates his helicopter journey from Camp Baldry to the landing zone in this way, breaking up his trip into three phases that begin with spatial Circumstances (Text 3.9').

Text 3.9'

We'd lifted off from Camp Baldy at daybreak that morning, nosed over and lifted out, floating high above the paddies towards the mountains to the west.

Thirty miles from the coast *we descended to the treetops and began to wind west along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley. The valley, a huge green mouth that opened towards the coast until it looked like it might swallow the sea, progressively narrowed away from it, eventually melting into the mountains in the distance, a thin crack in the horizon. It was said to be a major route of gook infiltration west to the coast from the Ho Chi Minh trail.*

A few miles past where the first fingers of the mountains stretched east*, our ships turned away from the valley floor, popped over a ridge, and dropped into the small rice paddy nested in the cup two-hundred feet below the hill's crest. We were out of the chopper in less than five seconds. Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, pounding heavily through thigh-high grass, lumbering toward the relative safety of the jungle at the edge of the paddy. The sharks and trail ship circled once, the insertion bird lifted up to join them and all four peeled out back toward the sea. It was still less than an hour after daylight.*

Temporal Circumstances serve a comparable function in Text 3.11 – a historical recount.

Text 3.11

In August 1945 *the French colony of Indo-China (Vietnam, Laos and Cambodia, now called Kampuchea) was occupied by British and Nationalist Chinese troops after the surrender of the Japanese who had seized it in 1941.*

In October 1945 *the French returned determined to re-establish their control, especially in Vietnam. French forces easily re-occupied the southern portion of Vietnam, but were faced in the north with a new communist regime which had been established in their absence by the communist leader Ho Chi Minh.*

During the war *Ho had led the resistance to the Japanese occupation of Vietnam, and after the war led a communist-dominated organisation which represented Vietnamese nationalist aspirations. Ho's organisation was known as the Viet-Minh. The French were determined to retake northern Vietnam*

and ***in 1946*** *began military operations against the Viet-Minh, thus triggering the first Indo-China War.*

The special effect of the placement of these Circumstances in initial position shows that the organisation of information inside clauses plays an important role in scaffolding discourse. For English, the key positions of prominence are first and last position. As far as clause beginnings go, as we have seen, initial Circumstances tend to signal a shift in orientation of some kind (e.g. in space or time above). The Participants that begin a clause (or follow an initial circumstance) on the other hand tend to sustain an orientation to what is being talked about. In Table 3.8, for example, initial Circumstances in part of Ridenhour's recount are placed in the marked Theme column and the first participant in a clause is treated in the next as unmarked Theme. As we can see, the unmarked Themes are relatively repetitive. The initial Participants refer first to the reconnaissance patrol (six times), then to the valley (three times), and then to the helicopters and the soldiers they are carrying (ten times). Several of these Participants are implicit, and shown in parentheses in Table 3.8; this reflects the fact that across languages unmarked Themes are made explicit when they have to be, to establish or re-establish an orientation to the field, but are left implicit when they can be, once that orientation has been established and is simply being sustained.

At the other end of an English clause we have what can be thought of as news – namely the new information building up the field. In Table 3.8 we've done a conservative reading of news (the minimal New column), including only the final word group in the clause. These, as we can see, are almost all Circumstances of location in space. This reflects the fact that this episode is tracking a journey, in which changes of direction and changing locale are the main items of news. A less conservative reading might have extended the news up to and including the Processes involved (*lifted off from Camp Baldry*, *nosed*, *lifted*, *floating high above the paddies*, *descended*, *began to wind west*, *narrowed*, *melting into the mountains in the distance*, *turned*, *popped*, *dropped*, *pounding heavily*, *lumbering*, *circled*, *lifted*, *join*, *peeled out*). The basic principle here is to start with clause final Circumstances, Participants or Processes and work towards the left, stopping at unmarked Theme; how far we go depends on the extent to which word groups following the unmarked Theme contribute new information to the discourse (i.e. the information that matters for our interpretation of the text, as recognised in Table 3.9).

Comparable patterns of information flow are found in factual texts such as Text 3.12, a taxonomising report on conducting substances. It begins with a higher level Theme or Topic sentence (technically a hyper Theme), announcing that there are two types of substances as far as conduction is concerned. It then describes the first group and, following this,

Table 3.8 Marked Theme, unmarked Theme, and minimal New in Ridenhour episode

Marked Theme	**Unmarked Theme**	**Minimal New**[23]
	we	at daybreak that morning
	(we)	over
	(we)	out
	(we)	towards the mountains to the west
thirty miles from the coast	We	to the treetops
	(we)	along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley
	the valley, a huge green mouth that opened towards the coast until it looked like it might swallow the sea	away from it
	it [= the valley]	a major route of gook infiltration west to the coast from the Ho Chi Minh trail
a few miles past where the first fingers of the mountains stretched east	our ships	away from the valley floor
	(our ships)	over a ridge
	(our ships)	into the small rice paddy nested in the cup two-hundred feet below the hill's crest
	we	in less than five seconds
	six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs	through thigh-high grass
	(six figures)	toward the relative safety of the jungle at the edge of the paddy
	the sharks and trail ship	once
	the insertion bird	up
	(the insertion bird)	them
	all four	back toward the sea
	It	still less than an hour after daylight

the second. Subsequently it uses an existential clause beginning with *there* to introduce a third group that was not predicted by the hyperTheme.

Text 3.12

As far as the ability to carry electricity is concerned, we can place most substances into ***one of two groups****.*

The first group *contains materials with many electrons that are free to move.*

These materials are called conductors because they readily carry or conduct electric currents. Conductors are mostly metals but also include graphite.

The second group *contains materials with very few electrons that are free to move.*

These materials are called nonconductors and are very poor conductors of electricity. Nonconductors can be used to prevent charge from going where it is not wanted. Hence they are also called insulators. Some common insulators are glass, rubber, plastic and air.

There are a few materials, such as germanium and silicon, called semiconductors.

Their ability to conduct electricity is intermediate between conductors and insulators. Semiconductors have played an important role in modern electronics.

The clause choices for marked and unmarked Theme and minimal New are outlined in Table 3.9. The text begins with a marked Theme, signalling the shift into the taxonomising report. Unmarked Themes then orient the three subsequent phases of the report to conducting, nonconducting and semiconducting substances. The News is mainly concerned with presenting the criteria on which the classification is based and on the technical terms for each subtype. In Table 3.9 the minimal New has been extended in clauses 4 and 10 (extension enclosed in braces), in order to capture the whole of the relevant classification criterion.

In Section 5.2.3 we briefly reviewed the importance of grammatical metaphor as far as building knowledge about causes and effects is concerned. The taxonomising report we are working on here draws our attention to another of its knowledge-building functions, this time in relation to establishing the criteria underpinning 'uncommonsense' classifications. The relevant criterion here is substances' ability to conduct electricity, which involves realising a figure as a Participant (the nominal group

Table 3.9 Marked Theme, unmarked Theme, and minimal New in conducting substances report

Marked Theme	Unmarked Theme	Minimal New
as far as the ability to carry electricity is concerned	we	into one of two groups
	the first group	materials with many electrons that are free to move
	these materials	conductors
	they [= these materials]	{readily carry or conduct} electric currents
	conductors	mostly metals
	(conductors)	graphite
	the second group	materials with very few electrons that are free to move
	these materials	non-conductors
	(these materials)	very poor conductors of electricity
	nonconductors	{can be used to prevent} charge from going where it is not wanted
	they [= nonconductors]	insulators
	some common insulators	glass, rubber, plastic and air
	there	a few materials, such as germanium and silicon, called semiconductors
	their ability to conduct electricity	intermediate between conductors and insulators
	semiconductors	an important role in modern electronics

the ability to conduct electricity). This incongruent realisation overcomes the limitation of expressing the figure as a clause and having to categorise substances simply as those which can or can't conduct electricity:

Participant	Process	Participant
some substances	**can** conduct	electricity
some substances	**can't** conduct	electricity

This *can* or *can't* way of talking about substances leaves no room for semiconductors. By realising the figure as a Participant, this problem is overcome – since we can now describe the ability of semiconductors to

conduct electricity as intermediate (*their ability to conduct electricity is **intermediate** between conductors and insulators*). As Table 3.9 reveals, the incongruent expression of this criterion is treated as a marked Theme, thereby, as noted above, highlighting the shift into a taxonomising report flagged by the hyperTheme it initiates. Later, the criterion functions as unmarked Theme by way of orienting readers to what is important about semiconductors. This shows that grammatical metaphor is not only an important resource for constructing knowledge, but also important as a tool for managing information flow, since it allows us to package up just the information we need to organise a text in relation to marked and unmarked Theme and New. The key realisations from Text 3.12 above are repeated below.

	Deictic	**Thing**	**Qualifier**
marked Theme	the	ability	to conduct electricity
unmarked Theme	their	ability	to conduct electricity

This text contrasts in a revealing way with Text 3.13 as far as managing information flow is concerned. Text 3.13 builds up the same taxonomy of substances, and at higher levels manages information flow in the same way. It begins with a macroTheme introducing the report, and follows with a paragraph for each type of substance, each introduced with a hyperTheme.

Text 3.13

macroTheme

If we connect a battery across a body, there is a movement of free electrons towards the positive end. This movement of electrons is an electric current. All materials can be classified into three groups according to how readily they permit an electric current to flow. These are: conductors, insulators and semiconductors.

hyperTheme

In the first category are substances which provide an easy path for an electric current.

All metals are conductors, however some metals do not conduct well. Manganin, for example, is a poor conductor. Copper is a good conductor, therefore it is widely used for cables. A non-metal which conducts well is carbon. Salt water is an example of a liquid conductor.

hyperTheme

A material which does not easily release electrons is called an insulator.

Rubber, nylon, porcelain are all insulators. There are no perfect insulators. All insulators will allow some flow of electrons, however this can usually be ignored because the flow they permit is so small.

hyperTheme

Semiconductors are midway between conductors and insulators.

Under certain conditions they allow a current to flow easily but under others they behave as insulators. Germanium and silicon are semiconductors. Mixtures of certain metallic oxides also act as semiconductors. These are known as thermistors. The resistance of thermistors falls rapidly as their temperature rises. They are therefore used in temperature-sensing devices.

When we look closely at unmarked Theme and New (Table 3.10), this time round, however, we can observe some important differences in the local management of information flow. In Text 3.13 the specific materials acting as conductors, insulators and semiconductors are regularly positioned as unmarked Theme (*all metals*, *some metals*, *manganin*, *copper*, *salt water*, *rubber*, *nylon*, *porcelain*, *germanium*, *silicon*, *metallic oxides*); the exception to this pattern is *carbon*, which is introduced as New. One effect of this is that in the conductors and insulators phases, conductors and insulators are regularly positioned as New, even though they are not extending the field. As a result, in the conductors and insulators paragraphs in particular, unmarked Theme involves a list of materials we haven't been prepared to expect and New is devoted to substance types already predicted by the text's hyperThemes and macroTheme. The EAP specialist who drew this text to my attention noted that his students found it hard to read. A close reading of its local information management reveals a least one reason why this is so.

Tables 3.9 and 3.10 highlight the importance of coordinating information flow inside the clause as Theme and New with information flow around the clause – anticipatory higher levels of Theme and retrospective higher levels of New. The overall pattern is outlined in Figure 3.6. Basically what we are looking at here is the same complementarity of Theme and New on different wavelengths (e.g. clause, phase, stage, whole text). Layers of Theme organise a text's method of development and scaffold the structure of a genre by predicting what is to come; layers of New manage the point of a text and accumulate the knowledge building up its field. Coordination across levels is very important since

Table 3.10 Marked Theme, unmarked Theme, and minimal New in alternative conducting substances report (Text 3.13)

Marked Theme	**Unmarked Theme**	**Minimal New**
if we connect a battery across a body	there	a movement of free electrons towards the positive end
	this movement of electrons	an electric current
	all materials	{into three types} according to how readily they permit an electric current to flow
	these (types)	conductors, insulators and semiconductors
in the first category	(there)	substances which provide an easy path for an electric current
	all metals	conductors
	some metals	{do not conduct} well
	manganin	a poor conductor
	copper	a good conductor
	it [= copper]	{widely used} for cables
	a non-metal which conducts well	carbon
	salt water	an example of a liquid conductor
	a material which does not easily release electrons	an insulator
	rubber, nylon, porcelain	insulators
	there	no perfect insulators
	all insulators	{will allow} some flow of electrons
	this (flow of electrons)	be ignored
	the flow they permit	so small
	semiconductors	midway between conductors and insulators
under certain conditions	they [= semiconductors]	{allow a current to flow} more easily
under others	they [= semiconductors]	{behave} as insulators
	germanium and silicon	semiconductors
	mixtures of certain metallic oxides	semiconductors
	these (mixtures …)	thermistors
	the resistance of thermistors	{falls} rapidly
	their temperature	rises
	they [= thermistors]	{used} in temperature-sensing devices

Figure 3.6 Layers of information flow in relation to genre and field

it is confusing when predictions are made but not fulfilled and claims are made that are not based on what has gone before. As noted above, the number of layers of Theme and New, and the explicitness of this scaffolding, depends on the length of a text and the amount of planning and editing that has gone on. So carefully crafted writing tends to have more layers and more explicit scaffolding than first drafts of unplanned discourse or casual conversation.

3.3.2 Conjunction

Alongside layers of Theme and New, the stages and phases of a genre can be further scaffolded with conjunctions. For factual texts in particular, especially those that don't unfold through a sequence of events, this can be an important resource for making explicit how stages and phases are related to one another. In this regard we can, for example, add stage-scaffolding conjunctions to a slightly edited[24] version of Johnson's exposition (Text 3.10 above), to distinguish his arguments from one another by highlighting the sequence in which he presents them (*firstly*, *second*, *finally*; Text 3.10').

Text 3.10'

Why are these realities our concern? Why are we in South Vietnam?

***First**, we are there because we have a promise to keep. Since 1954 every American President has offered support to the people of South Vietnam. We have helped to build, and we have helped to defend. Thus, over many years, we have made a national pledge to help South Vietnam defend its independence. And I intend to keep our promise. To dishonor that pledge, to abandon this small and brave nation to its enemy, and to the terror that must follow, would be an unforgivable wrong.*

***Second**, we are there to strengthen world order. Around the globe, from Berlin to Thailand, are people whose well-being rests, in part, on the belief that they can count on us if they are attacked. To leave Vietnam to its fate*

would shake the confidence of all these people in the value of American commitment, the value of America's word. The result would be increased unrest and instability, and even wider war.

***Finally**, we are there because there are great stakes in the balance. Let no one think for a moment that retreat from Vietnam would bring an end to conflict. The battle would be renewed in one country and then another. The central lesson of our time is that the appetite of aggression is never satisfied. To withdraw from one battlefield means only to prepare for the next. We must stay in Southeast Asia, as we did in Europe, in the words of the Bible: 'Hitherto shalt thou come, but no further.'*

Similarly, we can revise Text 3.12, explicitly contrasting conductors with insulators (*on the one hand*, *on the other*) and then flagging the addition of the third substance type (*in addition*) (Text 3.12').

Text 3.12'

As far as the ability to carry electricity is concerned, we can place most substances into one of two groups.

***On the one hand,** there are materials with many electrons that are free to move. These materials are called conductors because they readily carry or conduct electric currents. Conductors are mostly metals but also include graphite.*

***On the other,** there are materials with very few electrons that are free to move. These materials are called nonconductors and are very poor conductors of electricity. Nonconductors can be used to prevent charge from going where it is not wanted. Hence they are also called insulators. Some common insulators are glass, rubber, plastic and air.*

***In addition,** there are a few materials, such as germanium and silicon, called semiconductors. Their ability to conduct electricity is intermediate between conductors and insulators. Semiconductors have played an important role in modern electronics.*

The connectors that organise the presentation of discourse in this way have a rhetorical function – they are oriented to the organisation of the genre rather than to the relations among events and states in a field. Technically they are referred to as **internal conjunction**.[25] They are the main type of conjunctive relation found in abstract academic discourse, where, as we have seen, field-oriented relations between figures tend to be realised incongruently inside a clause (as Process, Participant or Circumstance) and not between clauses (as conjunctions). They are also found in informal conversational discourse, as speakers scaffold their turn-taking and adjust their moves in relation to the moves they or

someone else have made. Text 3.6 from above features two such moves as Ridenhour self-consciously adjusts his over-claim about his peers' behaviour – toning it down (*well*) and then toning it back up again (*at least*).

You could kill 'em all,
if you wanted.
***Well**, not literally,*
***at least** not literally most of the time.*

In texts where activity sequences are realised clause by clause, using congruent non-metaphorical realisations, conjunctions are used to build field. Inter-clause or inter-sentence connectors used in this way are referred to technically as **external conjunction**.[26] Text 3.5 above includes a sequence of events which is explicitly developed in this way with temporal (*when*, *now*, *while*) and additive (*and*) linkers:

We'd been in the air only a few minutes
***when** the pilot changed direction*
***and** headed for the nearest firebase ….*
***Now**, our pilots told us, we were going to be dumped there for the night*
***while** they headed off as makeshift medevacs.*
There were some wounded who had to be gotten out now,
***while** there was some light left.*

This text includes one implicit link between the second sentence and the third. If we join the two sentences together we can easily make this causal relation explicit (*because*). So instead of …

Now, our pilots told us, we were going to be dumped there for the night
while they headed off as makeshift medevacs,

… we could have this …

*(**because**) there were some wounded who had to be gotten out now,*
while there was some light left.

But if we kept the two sentences as they are, we'd have to make the connection explicit through an incongruent expression such as *the reason was ….*

Now, our pilots told us, we were going to be dumped there for the night
while they headed off as makeshift medevacs.
***The reason** was that there were some wounded who had to be gotten*
out now,
while there was some light left.

Text 3.1 extended above unfolds mainly through implicit temporal relations. There are only six explicit conjunctions and four of these are *and*. In spite of this, we can easily follow the sequence of events that we have made explicit by filling in the temporal connections (in parentheses) below:

We'd lifted off from Camp Baldy at daybreak that morning,
(then) nosed over
***and** (then) lifted out,*
(subsequently) floating high above the paddies towards the mountains to the west.
(later) Thirty miles from the coast we descended to the treetops
***and** (then) began to wind west along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley.*
*The valley, a huge green mouth that opened towards the coast **until** it looked like it might swallow the sea, progressively narrowed away from it,*
(before) eventually melting into the mountains in the distance, a thin crack in the horizon.
It was said to be a major route of gook infiltration west to the coast from the Ho Chi Minh trail.
(later) A few miles past where the first fingers of the mountains stretched east, our ships turned away from the valley floor,
(then) popped over a ridge,
***and** (then) dropped into the small rice paddy nested in the cup two-hundred feet below the hill's crest.*
We were out of the chopper in less than five seconds.
Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, pounding heavily through thigh-high grass,
(while) lumbering toward the relative safety of the jungle at the edge of the paddy.
(then) The sharks and trail ship circled once,
(then) the insertion bird lifted up
***to** join them*
***and** (then) all four peeled out back toward the sea.*
It was still less than an hour after daylight.

The general principle at work here is that once an activity sequence gets going in a story genre (or other chronologically-organised text), for a readership assumed to be reasonably familiar with what is going on, then explicit connections are in a sense redundant. Simply putting clauses next to one another or connecting them with *and* is enough to

keep things going. Explicit connections are made only where they are needed – to fine-tune a temporal relation (e.g. *until* above) for example, or to bring in another kind of connection (purposive *to* above).

External conjunctive relations can be divided into four main types – additive, temporal, causal and comparative. Several additive relations, realised by *and*, were illustrated above. Alternative relations can also be grouped in this category (*either … or* below):

{Our job was to fly over the village and to fly behind the village to see} if anybody was ***either*** *trying to ambush them* ***or*** *to flee*

In examining him in the aircraft that day, the kid wasn't even wounded, ***or*** *we didn't see any wounds, I'll put it that way.*

Temporal relations position clauses as taking place one after another or overlapping to some extent:

We went and got some food and talked to a few of the grunts who had just come back out of this battle. ***Then*** *Mike and I went off and found ourselves a bunker to lay up on top of for that night and sleep.*

After *he finished we just lay there for a couple of minutes and* ***finally*** *I said 'Mike, my God, Mike … don't you know that was wrong?'*

The resistance of thermistors falls rapidly ***as*** *their temperature rises.*

Thunder and lightning lasts only ***as long as*** *is necessary to get all the electrical charges in the atmosphere back in balance.*

Causal relations include relations of cause and effect, condition and purpose:

These materials are called conductors ***because*** *they readily carry or conduct electric currents.*

We are there ***because*** *we have a promise to keep.*

We shot this guy and didn't intend to. ***So*** *we were, we were pretty upset.*

We are also there ***to*** *strengthen world order.*

The insertion bird lifted up ***to*** *join them.*

***If** you and I do truly believe in the principles, of justice and the equality of every man, however humble, before the law, that form the very backbone that this country is founded on, **then** we must press forward a widespread and public investigation of this matter with all our combined efforts.*

*You could kill 'em all, **if** you wanted.*

Concessive relations can be included in this group since they function to cancel out a cause and effect relation we might otherwise have expected to hold:

*All insulators will allow some flow of electrons, **however** this can usually be ignored because the flow they permit is so small.*

*Under certain conditions they allow a current to flow easily **but** under others they behave as insulators.*

***Although** I knew he'd been there, I did not ask Mike about it right away.*

Comparative relations focus on relations of similarity and difference between events and states:

*we must stay in Southeast Asia, **as** we did in Europe,*

*He just stood there with big eyes staring around **like** he didn't understand*

*They pretty much stopped coming down the trail after that, **as if** someone had been watching*

*I feel that this action, **while** probably it would promote attention, would not bring about the constructive actions that the direct actions of the Congress of the United States would.*

***While** we did not yet know it, there would be plenty of time for judges in our lives.*

3.3.3 Participant tracking (IDENTIFICATION)

Alongside layers of Theme and New, and CONJUNCTION, a third resource available for scaffolding the stage and phases of a genre makes use of nominal groups to name and refer to surrounding discourse. The demonstrative *this* is used in this way in the following example, where

it refers back to the effect in the previous sentence by way of connecting that effect to its cause (*This was because …*).

Now, our pilots told us, we were going to be dumped there for the night while they headed off as makeshift medevacs.
***This** was because of some wounded who had to be gotten out now, while there was some light left.*

Johnson's exposition can be re-scaffolded using nominal groups to refer to his argumentation along similar lines. Once his arguments are referred to nominally as *reasons*, we can pick them up as his *first reason*, *second reason* and *third reason* before summing them all up as *these reasons* (Text 3.10'').

Text 3.10''

Why are these realities our concern? Why are we in South Vietnam? There are several reasons.

***The first reason** we are there is because we have a promise to keep. Since 1954 every American President has offered support to the people of South Vietnam. We have helped to build, and we have helped to defend. Thus, over many years, we have made a national pledge to help South Vietnam defend its independence. And I intend to keep our promise. To dishonor that pledge, to abandon this small and brave nation to its enemy, and to the terror that must follow, would be an unforgivable wrong.*

***The second reason** is to strengthen world order. Around the globe, from Berlin to Thailand, are people whose well-being rests, in part, on the belief that they can count on us if they are attacked. To leave Vietnam to its fate would shake the confidence of all these people in the value of American commitment, the value of America's word. The result would be increased unrest and instability, and even wider war.*

***The third reason** is that there are great stakes in the balance. Let no one think for a moment that retreat from Vietnam would bring an end to conflict. The battle would be renewed in one country and then another. The central lesson of our time is that the appetite of aggression is never satisfied. To withdraw from one battlefield means only to prepare for the next.*

*For all **these reasons** we must stay in Southeast Asia, as we did in Europe, in the words of the Bible: 'Hitherto shalt thou come, but no further.'*

Text 3.12 above was in fact scaffolded nominally along these lines. We've edited its semiconductors phase a little in Text 3.12'', to bring it

into line with the way in which nominal groups are used to track the phases of this report.

Text 3.12''

As far as the ability to carry electricity is concerned, we can place most substances into one of two groups.

***The first group** contains materials with many electrons that are free to move. These materials are called conductors because they readily carry or conduct electric currents. Conductors are mostly metals but also include graphite.*

***The second group** contains materials with very few electrons that are free to move. These materials are called nonconductors and are very poor conductors of electricity. Nonconductors can be used to prevent charge from going where it is not wanted. Hence they are also called insulators. Some common insulators are glass, rubber, plastic and air.*

*There is **a third group** with a few materials, such as germanium and silicon, called semiconductors. Their ability to conduct electricity is intermediate between conductors and insulators. Semiconductors have played an important role in modern electronics.*

The tracking function of these nominal groups, which are used here to refer to parts of texts, is in fact simply to implement in a more general way the role nominal groups play in keeping track of who is who, what is what, and where is where in discourse. Text 3.1 extended, for example, has to keep track of Ridenhour and his patrol, their helicopters and their location. Ridenhour is introduced as the author of the article which this phase of discourse was extracted from, 'Jesus was a Gook, Part I'. His sergeant and the other members of his patrol were similarly introduced earlier on. The relevant passages of preceding discourse are as follows:

Jesus Was a Gook, Part I

Ron Ridenhour, New Orleans, LA

I had a sergeant …

His name was Juan, Sergeant Juan …

It was a strange lot, that first mission. It was me and Juan and four guys who'd been in Lieutenant Calley's platoon at My Lai. …

We went into the landing zone led by a pair of shark gunships and followed by an empty slick. …

As we can see, the key parts of nominal group structure as far as introducing and keeping track of entities is concerned are the Deictic and Thing. Entities new to a discourse tend to be introduced in indefinite nominal groups (*a sergeant, four guys*); once introduced, they tend to be kept track of with definite nominal groups (*the sergeant*), proper names (*Sergeant Juan*), and pronouns (*he*). There is also a predictable interaction between entity tracking and information flow, with entities that are new to a discourse tending to be introduced at the end of a clause as New and then picked up in succeeding discourse at the beginning of the clause as Theme. The relevant sections of Text 3.1 extended are reviewed below (including the preceding material introducing members of the team). As above, parentheses are used to enclose elliptical entities where the Theme is recoverable from earlier in the sentence.

Unmarked Theme	**Minimal New**
Ron Ridenhour[27]	
…	…
I	**a sergeant**
his name	**Juan, Sergeant Juan**
…	…
	me and Juan and four guys …
…	…
we	at daybreak that morning
(**we**)	over
(**we**)	out
(**we**)	towards the mountains to the west
we	to the treetops
(**we**)	along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley
…	…
our ships	away from the valley floor
(**our** ships)	over a ridge
(**our** ships)	into the small rice paddy nested in the cup two-hundred feet below the hill's crest
we	in less than five seconds

The same kind of interaction pattern (introducing people, places and things indefinitely as New, and tracking them definitely as Theme) is

found for the helicopters, except that here Ridenhour's insertion *ship* is not explicitly introduced but simply implied by the activity sequence going on:

Unmarked Theme	**Minimal New**
(we)	by **a pair of shark gunships**
(we)	by **an empty slick**
…	…
our ships	away from the valley floor
(**our ships**)	over a ridge
(**our ships**)	into the small rice paddy nested in the cup two-hundred feet below the hill's crest
…	…
the sharks and trail ship	once
the insertion bird	up
(**the insertion bird**)	**them**
all four (**of the ships**)	back toward the sea

The valley they travel through displays the same pattern, but with one dimension of it, its floor, positioned as New. This is because it hasn't been explicitly referred to yet, but is realised definitely anyhow, since its identity can be inferred from the whole (i.e. the valley) of which it is a part (i.e. the floor).

Unmarked Theme	**Minimal New**
(we)	along the side of a slender finger of low, jungled hills that wandered along the north side of **a huge valley**
The valley, a huge green mouth that opened towards the coast until **it** looked like **it** might swallow the sea	away from it [= the sea]
it [= the valley]	a major route of gook infiltration west to the coast from the Ho Chi Minh trail
our ships	away from **the valley floor**

Closely related patterns are found in factual texts, although entity chains tend to be shorter than in story genres. This is because factual genres typically involve generic reference to all members of the entity referred to by Classifier/s and Thing (e.g. *conducting substances*). Since generic reference means that everything referred to by the Thing and any Classifiers is included as what is meant, these texts don't have to worry so much about sorting out and keeping track of one thing or another. In

Text 3.12, for example, the second mention of each type of conductor is an indefinite nominal group, just as it was for the first mention:

conductors – conductors

nonconductors – nonconductors

insulators – some common insulators

semiconductors – semiconductors

The indefiniteness signals generic reference in this generalising genre, not the introduction of a new entity. Conductors, both nonconductors and insulators, and semiconductors are all presented at the end of the clause as New, however, as each technical term is introduced. The interaction of IDENTIFICATION and information flow in this taxonomising report is reviewed in the table below, including the four short participant chains which do appear:

materials with many electrons that are free to move – these materials – they

materials with very few electrons that are free to move – these

materials – (these materials)

nonconductors – they

a few materials, such as germanium and silicon, called semiconductors – their ability to conduct electricity

Unmarked Theme	**Minimal New**
the first group	**materials with many electrons that are free to move**
these materials	conductors
they	{readily carry or conduct} electric currents
the second group	**materials with very few electrons that are free to move**
these materials	nonconductors
(**these materials**)	very poor conductors of electricity
nonconductors	{can be used to prevent} charge from going where it is not wanted
they	Insulators
There	**a few materials, such as germanium and silicon, called semiconductors**
their ability to conduct electricity	intermediate between conductors and insulators

3.3.4 Lexical relations (IDEATION)

The next resource we need to consider as far as discourse relations are concerned is lexical cohesion. This involves semantic relations between content words. As with internal conjunction and text reference, lexical cohesion can be used to help scaffold a genre, by naming stages and phases. Johnson, for example, might have termed the stages of his exposition *arguments* and kept track of them as in Text 3.12'''.

Text 3.12'''

Why are these realities our concern? Why are we in South Vietnam? There are several ***arguments*** *to consider.*

My first ***argument*** *is we are there because we have a promise to keep. Since 1954 every American President has offered support to the people of South Vietnam. We have helped to build, and we have helped to defend. Thus, over many years, we have made a national pledge to help South Vietnam defend its independence. And I intend to keep our promise. To dishonor that pledge, to abandon this small and brave nation to its enemy, and to the terror that must follow, would be an unforgivable wrong.*

My second ***argument*** *…*

Similarly the steps in a procedure about how to catch a fish, Text 3.14, might be scaffolded through naming along similar lines.

Text 3.14

There are several ***steps*** *involved in catching fish.*

The first ***step*** *is to put on your dirtiest clothes and bring with you a friend who knows how to fish.*

The next ***step*** *is to get your friend to help you bait your hook.*

The following ***step*** *involves letting him or her cast your line …*

Ridenhour, in his letter to Congress, in fact uses various terms to keep track of the evidence he has collected over the previous year (*report*, *story*, *account*, *tale*):

It was late in April, 1968 that I first heard of 'Pinkville' and what allegedly happened there. I received that first ***report*** *with some skepticism, but in the following months I was to hear similar* ***stories*** *…*

The circumstances that led to my having access to the ***reports*** *I'm about to relate need explanation ….*

After hearing this ***account*** *I couldn't quite accept it ….*

I became determined to ask them about 'Pinkville' so that I might compare their ***accounts*** *with Pfc Gruver's …*

Instead of contradicting 'Butch' Gruver's ***story*** *they corroborated it …*

What he told me verified the ***stories*** *of the others …*

This ***account*** *of Sergeant La Croix's confirmed the rumors that Gruver, Terry and Doherty had previously told me about Lieutenant Kally. It also convinced me that there was a very substantial amount of truth to the* ***stories*** *that all of these men had told …*

'Bernie' substantiated the ***tales*** *told by the other men I had talked to in vivid, bloody detail and added this.*

Terms like *argument*, *step* and *story* are sometimes referred to as **metadiscourse**, because they are words that refer to words – 'language turned back on itself' as the famous British linguist J.R. Firth once described it. By treating parts of a text as participants, they can be used to introduce ensuing phases and track preceding ones (e.g. *arguments – my first argument – my second argument*; *several steps – the first step – the second step* above). This interaction is important for building higher level Themes (hyperThemes and macroThemes) that introduce phases and higher level News (hyperNews and macroNews) that round them off (e.g. *something new to add* functioning prospectively and *this procedure* functioning retrospectively in Text 3.15).

Text 3.15

What he told me verified the stories of the others, but he also had ***something new*** *to add.*

> *He had been a witness to Kally's gunning down at least three separate groups of villagers. 'It was terrible. They were slaughtering villagers like so many sheep.' Kally's men were dragging people out of bunkers and hootches and putting them together in a group. The people in the group were men, women and children of all ages. As soon as he felt that the group was big enough, Kally ordered an M-60 (machine gun) set up and the people killed.*

La Croix said that he bore witness to ***this procedure*** *at least three times.*

As we have seen, as texts unfold, some of these terms get repeated (*argument* and *step* above) and some involve synonyms as well (*report*, *story*, *account*, *tale*). This turns our attention to different kinds of

relations between words that arise as a text builds field. In factual texts, especially those involving specialised and technical terms, lexical repetition is a very common relation. **Repetitions** in Text 3.16, an explanation of lightning, are listed below. Note that when making lists of this kind we include all forms of the word, whether singular or plural (e.g. *cloud – clouds* below), and whether the lexical item comes in its noun, verb, adjective or adverb form (e.g. *electricity – electrical*).

Text 3.16

Warm air rises in hot clouds and encounters cold air, charging the particles in the cloud making them both positive and negative and this is called static electricity. When enough positive and negative charges occur, they build up too much energy and explode in a flash of light that we call lightning. This flash of light helps balance out the number of negative and positive charges in the atmosphere. Sometimes the flash of light is movement within the cloud and sometimes it is movement between the atmosphere and the ground. The movement between the atmosphere and the ground is the reason that tall objects on earth like trees are struck by lightning. Light travels faster than sound, and because of this, we see the flash of lightning before we hear the clap of thunder. There is thus a direct relationship between thunder and lightning; they are not separate phenomenon. Thunder and lightning lasts only as long as is necessary to get all the electrical charges in the atmosphere back in balance.

air – air

clouds – cloud – cloud

charging – charges – charges

particles

positive – positive

negative – negative

electricity – electrical

flash – flash – flash

light – light – light

lightning – lightning – lightning – lightning – lightning

movement – movement – movement

atmosphere – atmosphere – atmosphere

ground – ground

thunder – thunder – thunder

Synonyms are less commonly found in this kind of text precisely because of the need to be precise and use technical terminology. They may, however, be used in explanations in order to form a bridge between everyday and specialised knowledge (e.g. *ground – earth* and *air – atmosphere*).

The opposite of synonyms is **antonyms**, which focus on contrasts in meaning:

hot – cold
positive – negative

The lightning explanation also has two examples of part–whole relations – which are referred to technically as **meronymy**:

cloud – particle
atmosphere – cloud

And there are two clear examples of class–subclass relations – which are referred to technically as **hyponymy**:

objects – tree
phenomenon – lightning/thunder

Meronymy and hyponymy relations are very important as far as the organisation of field is concerned since they both assume and construct the composition and classification taxonomies organising people, places and things in a field. We can illustrate this in more detail with reference to successive phases of Ridenhour's long range patrol recount (Text 3.17, an extended version of Texts 3.1 extended and 3.2 extended above).

Text 3.17 = 3.1, 3.2 extended extended

It was a strange lot, that first mission. It was me and Juan and four guys who'd been in Lieutenant Calley's platoon at My Lai. Juan – through some confusion, I'm sure – had me take point. Walking point was a heavy responsibility. It was an honor, of however dubious sorts, to be the first man down the trail on a LRRP mission. I eagerly and stupidly accepted the assignment without question. When Juan learned later that day that my combat experience was all earned firing a

machine gun from the skid of a chopper, his cheeks turned pale. My taking off without waiting for the rest of them was no accident. I was stupid. Point was too critical to be turned over to a cherry.

We went into the landing zone led by a pair of shark gunships and followed by an empty slick. The LZ was a stinking, abandoned, overgrown rice paddy cupped into the wrinkle beyond the crest of the ridge. A small finger forked north from the ridge there, away from the valley. We'd lifted off from Camp Baldy at daybreak that morning, nosed over and lifted out, floating high above the paddies towards the mountains to the west. Thirty miles from the coast we descended to the treetops and began to wind west along the side of a slender finger of low, jungled hills that wandered along the north side of a huge valley. The valley, a huge green mouth that opened towards the coast until it looked like it might swallow the sea, progressively narrowed away from it, eventually melting into the mountains in the distance, a thin crack in the horizon. It was said to be a major route of gook infiltration west to the coast from the Ho Chi Minh trail.

A few miles past where the first fingers of the mountains stretched east, our ships turned away from the valley floor, popped over a ridge, and dropped into the small rice paddy nested in the cup two-hundred feet below the hill's crest. We were out of the chopper in less than five seconds. Six figures in camouflage, boonie hats, grenade-laden web-belts and full field packs, pounding heavily through thigh-high grass, lumbering toward the relative safety of the jungle at the edge of the paddy. The sharks and trail ship circled once, the insertion bird lifted up to join them and all four peeled out back toward the sea. It was still less than an hour after daylight. It had been a nearly perfect insertion – except for one thing.

There was a cherry on point who didn't know what to do. When we reached cover at the edge of the landing zone, Juan, the second man out, stopped to gather the rest of the team and listen for a moment.

Not me. Nope. When we hit the bush I kept going, moving steadily and quickly, off-trail, toward the crest of the ridge, perhaps a quarter of a mile uphill to the south. I had not gone far, however, when one of the others caught me, and said wait for us, stupid.

Oh yeah, you guys.

It was less than a mile to where Juan wanted to set up our observation post. It was a small, clear spot on the edge of the hill, just over the crest. From it we could look south, into the valley and see a well-worn trail that wound along the base of the hills on the valley floor below us, a gook highway from the mountains to the sea. Perhaps two miles west of us the trail emerged from a line of forest, crossed a half mile of open rice paddies, and then went back into the woods as it wound east along the hill maybe two-hundred feet below us. Our mission

was to sit there for four days, maybe five, watch the trail, count the gooks that came down it, and call in some artillery on them – if we had the chance.

In story genres, too much repetition of content words may be seen as an indication of 'limited vocabulary' and poor control of the craft of story-telling. Writing as a mature prize-winning journalist, Ridenhour deploys a range of synonyms:

ships/chopper
shark gunships/sharks
route/trail/highway
forest/woods/jungle/bush
guys/man
slender/thin
look/see/watch

As far as classification is concerned, the main classification taxonomies implicated have to do with the helicopters (the airborne cavalry in action here) and the troops:

chopper – shark gunships – slick – ships – chopper – sharks – trail ship – insertion bird

guys – man – cherry – gook – figures – cherry – man – guys – gook – gooks

As for composition taxonomies, some attention is given to the soldiers and their equipment and much more attention to the setting of the expedition:

camouflage – boonie hats – grenade-laden web-belts – field packs

rice paddy – ridge – ridge – valley – paddies – mountains – coast – treetops – hills – valley – valley – coast – sea – mountains – horizon – mountains – valley floor – ridge – rice paddy – hill – grass – jungle – paddy – sea – bush – ridge – hill – hills – valley floor – mountains – sea – forest – rice paddies – woods – hill

trail – landing zone – LZ – route – trail – (off-)trail – observation post – spot – trail – highway – trail – trail

Ridenhour's rich description of the circumstances of his insertion also includes a number of words orienting us to one or other dimension of the environs:

crest – side – side – cup – crest – edge – edge – crest – edge – crest – base

And he uses several terms metaphorically to relate wholes to parts:

wrinkle – finger – finger – crack – fingers – line

The other lexical relation we should note in passing here is that between a term and a proper name indicating an instance of that term (e.g. *Camp Baldry*, *My Lai* as instances of places, and *Sargeant Juan*, *Lieutenant Calley*, *Ron Ridenhour* as instances of soldiers):

Juan – guys
Lieutenant Calley – man
Camp Baldry – spot
trail – the Ho Chi Minh trail

3.3.5 Evaluation (APPRAISAL)

In the previous section we concentrated on the lexical relations that build field – the taxonomies and activity sequences that constitute the content of a text. Alongside lexis of this kind, we also find words serving an evaluative function. Ridenhour includes several of these in the first paragraph of his extended recount (highlighted in bold in Text 3.8′). These words express his feelings about what was going on.

Text 3.8′

*It was a **strange** lot, that first mission. It was me and Juan and four guys who'd been in Lieutenant Calley's platoon at My Lai. Juan – through some **confusion**, I'm **sure** – had me take point. Walking point was a **heavy** responsibility. It was an **honor**, of however **dubious** sorts, to be the first man down the trail on a LRRP mission. I **eagerly** and **stupidly** accepted the assignment without question. When Juan learned later that day that my combat experience was all earned firing a machine gun from the skid of a chopper, his cheeks turned pale. My taking off without waiting for the rest of them was no accident. I was **stupid**. Point was too **critical** to be turned over to a **cherry**.*

Evaluative lexis is always positive or negative, and so is a common source of antonyms. The relevant oppositions from Ridenhour's opening paragraph are as follows:

***strange** – typical*
***confusion** – reason*
***sure** – unsure*
***heavy** – light*
***honour** – shame*

dubious *– certain*
eagerly *– reluctantly*
stupidly *– intelligently*
critical *– unimportant*
cherry *– veteran*

The attitudes expressed by evaluative lexis, both positive and negative, are of three main types – affect, judgement and appreciation. The affectual group concerns emotions and are highlighted in Ridenhour's description of the moment when Sergeant Juan, an American Pima Indian from Arizona, got fed up with being called by his nickname Gook (which was the derogatory term for Asians used by US troops during the Vietnam War; Text 3.18).

Text 3.18

A few days later, back on the beach of the South China Sea at Chu Lai, someone on the team called Juan by his nickname again. 'Hey Gook,' he said. Maybe it was Gruver. It could have been me. 'When we going out again?'

Juan turned. Real sudden. Not just ***pissed****. Really* ***pissed****.*

'Listen motherfucker,' he said, a ***furious****, steely* ***anger*** *in his voice, 'Don't you ever call me that again! You hear? Don't none of you motherfuckers ever call me that again!'*

We didn't. Clearly, it had the potential to be a killing offense. I was, strangely, almost as ***shocked*** *by Juan's burst of* ***anger*** *that day, in a certain way, as I was by Mike Terry's revelations to me a few days earlier. Perhaps I was a slow learner. It took me years to understand why.*

Judgement words evaluate the character and behaviour of people. In Text 3.19 Ridenhour introduces his Mormon buddy Mike Terry positively, as *religious*, *pure*, *determined* but not *sanctimonious*, explains that he didn't *cuss*, *lie*, *cheat*, *steal or speak badly* of anyone and characterises Mormons in general as *buoyant* and full of *optimistism*:

Text 3.19

My buddy Mike Terry and I were sharing a book, The Passover Plot, taking turns reading each successive chapter. Mike was an intensely ***religious*** *Mormon guy. He had also been the state wrestling champ in his high school weight class – which may have been as much as 133 pounds – and had gone on to a full scholarship at BYU, where he was drafted. He was nineteen. And he was* ***pure****. He didn't* ***cuss****, discuss women,* ***lie****,* ***cheat****,* ***steal*** *or speak* ***badly*** *of anyone. It was enough to make most people sick. It did, too. And he wasn't*

*even that **sanctimonious** about it. Just sort of determinedly **innocent**. And Mormon. People hated him for his **purity** – that and the fact that he seemed **determined** to convert every soul he met to the **buoyant**, white **optimism** of the Church of the Latter Day Saints.*

The affectual reaction of Terry's buddies to his character was very negative (*made most people sick*, *people hated him*).

Appreciation words typically focus on things rather than people, for example the significance of the trail Ridenhour's patrol is observing and the safety of the jungle into which they lumbered:

*It was said to be a **major** route of gook infiltration west to the coast from the Ho Chi Minh trail.*

*… lumbering toward the relative **safety** of the jungle at the edge of the paddy.*

But events can also be appreciated, as we have seen in Ridenhour's comment on the patrol's insertion (his retrospective hyperNew):

*It had been a nearly **perfect** insertion – except for one thing.*

At the end of his letter to Congress, Ridenhour evaluates what has and what needs to happen in related terms (in bold face in Text 3.3 extended).

Text 3.3 extended

*Exactly what did, in fact, occur in the village of 'Pinkville' in March, 1968 I do not know for certain, but I am convinced that it was something **very black** indeed. I remain irrevocably persuaded that if you and I do truly believe in the principles, of justice and the equality of every man, however humble, before the law, that form the very backbone that this country is founded on, then we must press forward a **widespread** and **public** investigation of this matter with all our **combined** efforts. I think that it was Winston Churchill who once said 'A country without a conscience is a country without a soul, and a country without a soul is a country that cannot survive.' I feel that I must take some **positive** action on this matter. I hope that you will launch an investigation immediately and keep me informed of your progress. If you cannot, then I don't know what other course of action to take.*

I have considered sending this to newspapers, magazines and broadcasting companies, but I somehow feel that investigation and action by the Congress

*of the United States is the **appropriate** procedure, and as a conscientious citizen I have no desire to further besmirch the image of the American serviceman in the eyes of the world. I feel that this action, while probably it would promote attention, would not bring about the **constructive** actions that the direct actions of the Congress of the United States would.*

Attitudinal words can all be graded in terms of how strongly an attitude is felt. This can be done by submodifying the feeling (***really** pissed*, ***steely** anger*, ***intensely** religious*, ***determinedly** innocent*, ***very** black* above). It can also be done through the choice of lexical item, since some are stronger than others (e.g. *pissed*, *angry*, *furious* above). The following two versions of the same murder contrast in terms of the degree of grading of the lexical items chosen.

*Looked like a VC to me, sir. Went for something. Figured it was a grenade. **Zapped** 'im.*

vs

*He recalled seeing a small boy, about three or four years old, standing by the trail with a gunshot wound in one arm. The boy was **clutching** his wounded arm with his other hand, while blood **trickled** between his fingers. He was **staring** around himself in **shock** and disbelief at what he saw. 'He just stood there with big eyes **staring** around like he didn't understand; he didn't believe what was happening. Then the captain's RTO (radio operator) put a **burst** of 16 (M-16 rifle) fire into him.']*

The source of feelings is also an important variable. Towards the end of his letter to Congress, as he changes gears from recounting what has happened to advocating an investigation, Ridenhour adds authority to his judgements by quoting Churchill:

*I think that it was **Winston Churchill who once said** 'A country without a conscience is a country without a soul, and a country without a soul is a country that cannot survive.'*

At the same time he strongly positions this and the rest of his evaluations as his own personal opinion. Mindful of not implicating his buddies in the course of action he is taking he makes it clear that he is not speaking on behalf of anyone else:

… I do not know for certain, but I am convinced … I remain irrevocably persuaded that if you and I do truly believe … I think … I hope … I don't know … I have considered … I somehow feel … I have no desire … I feel …

The only point at which he involves the feelings of others is in his appeal to the principles of the American constitution, but this is couched in a conditional clause reflecting the fact that Ridenhour is not at all sure who he has onside:

*I remain irrevocably persuaded that **if you and I** do truly believe in the principles, of justice and the equality of every man, however humble, before the law, that form the very backbone that this country is founded on, **then** we must press forward a widespread and public investigation of this matter with all our combined efforts.*

Ridenhour's final sentence indicates his lack of certainty about approaching his government but not the press. His concessive linker *while* acknowledges the effect of the alternative course of action, which would no doubt have been advised by some people:

*I feel that this action, **while probably** it **would** promote attention, **would** not bring about the constructive actions that the direct actions of the Congress of the United States would.*

3.4 Making meaning

Naturally in this chapter we have only been able to provide a sketch of the key linguistics resources at play in academic discourse. For comparable chapter-length introductions to lexicogrammar, see Gee (2005) and Ravelli (2000). There are a number of book-length introductions, among which we note here the following, roughly in order of complexity: Derewianka (1998), Droga and Humphrey (2002, 2003), Butt et al. (2012), Thompson (2014), Bloor and Bloor (2014), Lock (1996), Eggins (1994), Martin et al. (2010b), Halliday (1994), Halliday and Matthiessen (2014).

For an introduction to discourse semantics, see Martin and Rose (2007). APPRAISAL resources are presented in detail in Martin and White (2005). Schleppegrell (2004) provides a useful overview of the language of schooling.

4
Setting up a Toolkit for Academic Literacy

4.1 Overview

In this chapter we describe how we recontextualised the systemic functional linguistics (hereafter SFL) model of language presented in Chapters 2 and 3 as a bridging framework to support the analytic work of SLATE tutors. This framework, which was conceptualised as a 3 × 3 toolkit[1] (Humphrey et al., 2010), makes visible the metafunctional organisation of language but pragmatically simplifies SFL's model of stratification and rank as three 'levels of text'.

In the chapter we firstly outline the dimensions of the 3 × 3 framework with reference to the SFL concepts introduced in the previous chapters; we then illustrate its use by analysing relevant linguistic patterns of two texts produced by students in two different disciplines at CityU. Finally, we discuss the 3 × 3 as a foundation for developing rubrics for assessment and feedback in the independent step of the Teaching Learning Cycle. In Chapter 8, we provide an overview of how the framework was used to apprentice tutors into the model during initial professional learning.

4.2 Dimensions of the 3 × 3 toolkit

The framework is called 3 × 3 because it forms a nine-square matrix based on intersecting features of language from each of the three metafunctions (ideational, interpersonal and textual) with features at three levels of language. These levels of language are conceptualised from the perspective of strata (social activity, discourse semantics, and grammar and expression), and unfold from the level of whole text, through its phases (e.g. paragraphs) and on to clauses and smaller units

Table 4.1 Outline of 3 × 3 dimensions from the perspective of academic register

Metafunctions text levels	Genre and register (whole text)	Discourse semantic (phase/paragraph)	Lexicogrammar (clause, group and word)
Ideational meanings	Resources for constructing specialised and formal knowledge of discipline area (field)		
Interpersonal meanings	Resources for convincing the reader in critical yet authoritative ways (tenor)		
Textual meanings	Resources for organising clearly scaffolded abstract texts (mode)		

of grammar. Table 4.1 provides an outline of the dimensions of the 3 × 3, from the perspective of academic register.

The recontextualisation of the SFL model as a 3 × 3 toolkit was motivated initially by the need to rapidly train the language coaches or tutors who were to work directly with CityU students. Although most tutors had experience in TESOL, they did not all have a background in SFL or indeed, in some cases, in linguistics. In order to apply the research undertaken by SLATE researchers, all tutors needed to develop a metalanguage – a language for talking about language and its use, in the context of academic written discourse.

Simplifying SFL's model of strata and rank as three levels of text reduces the complexity of these SFL hierarchies but still encourages tutors to look beyond surface-level resources when considering the language resources at play in texts. At each level of text, the framework sustains an SFL perspective that is rich enough to build shared understandings of academic literacy practices and to provide a foundation on which further semiotic knowledge can be built.

4.2.1 A metafunctional perspective

A metafunctional perspective, represented by the vertical dimension of the 3 × 3 framework, recognises that any stretch of language functions simultaneously to enact three kinds of meaning. As discussed in Chapter 2, ideational meaning gives us ways of talking about the physical, biological and communicative environment through which we live, and can be mapped onto the register variable of field; interpersonal meaning allows us to negotiate our social relationships, thus by and large enacting tenor; textual meaning provides resources for mapping interpersonal meaning and ideational meaning onto one another, by and large composing mode.

Educational linguists working within SFL have identified various patterns of ideational, interpersonal and textual meanings that are valued in academic literacy (e.g. Coffin, 2006; Hood, 2010; Macken-Horarik, 1996; Martin, 2013). In terms of field, successful student writing in all academic disciplines construes specialised and formal uncommonsense knowledge; in terms of tenor, a critical perspective on knowledge is developed at the same time as a relatively authoritative voice is maintained; in terms of mode, academic texts are carefully organised in order to scaffold relatively dense abstract patterns of meaning in a digestible way. The 3 × 3 framework takes a metafunctional perspective at each of its levels. For example, the bounded parts or stages of genres can be seen as organisers of ideational meanings, while interpersonal meanings tend to be mapped across stages as prosodies that accumulate meaning. In written academic discourse, it is the textual meanings, organised periodically as waves of Theme and New, which organise texts into coherent pulses of information flow.

4.2.2 Recontextualising strata and rank as levels

While mapping strata onto constituent parts such as clauses and phases suggests a relationship of composition between levels (i.e. whole texts made up of parts of text), it is SFL's hierarchy of realisation that is most pertinent to the development of academic discourse. The realisation hierarchy presented in Chapter 2 reflects the basic organisation of language as five levels, or strata. At the most abstract level, two strata represent context (genre and register). At decreasingly abstract levels, three strata represent the organisation of language (discourse semantics, lexicogrammar and expression).

The 3 × 3 framework conflates the strata of genre and register within one level of context. This allows for two perspectives to be taken when populating the three cells related to 'whole text'. These cells may be populated with register descriptions that are to some degree shared across academic genres (i.e. language use as specialised and formal; impersonal and objective; organised and abstract). The cells may also to be populated according to structural patterns of a particular genre, influenced by particular register variables (i.e. unfolding as more bounded stages of ideational meanings, as diffused prosodies of interpersonal meanings or as periodic waves of textual meanings). The former perspective (register) offers a valuable 'way in' to the model in multidisciplinary tutor-training workshops. The latter perspective (genre) is needed to account for distinctive linguistic patterns of discipline-specific genres, including the variations that occur across stages. Sample 3 × 3 SLATE toolkits, populated from both perspectives, are included in Appendix 4.1-3.

Also combined within one level of the 3 × 3 are SFL strata of lexicogrammar and expression (i.e. phonology and graphology). This recontextualisation was based on our observation that expression-level features (such as paragraphing, spelling and punctuation), important though they are for creating meaning in academic writing, were already easily recognised by tutors when analysing and assessing students' writing. In designing the 3 × 3, we therefore focused on developing knowledge of more abstract but equally important tools at higher strata.

In summary, the metafunctionally oriented descriptors at three levels, which are framed by the 3 × 3, represent a toolkit from which resources can be selected and combined according to the demands of the particular analytical task. For SLATE tutors working with students across disciplines it was important to develop a shared metalanguage related to general features of academic registers. When supporting students through drafts of particular discipline tasks, 3 × 3 toolkits were populated from the perspective of global patterns of meanings across context variables.

In the next section we demonstrate the practical application of the 3 × 3 framework to analyse key dimensions of two academic genres. The analysis here is illustrative and we will refer back to relevant sections of Chapters 2 and 3 to provide additional explanation.

4.3 Applying the 3 × 3 as a toolkit for analytical work

The application of the 3 × 3 framework as an analytical toolkit focuses on two texts written by CityU students in response to different discipline tasks. While space prevents us from fully explicating resources from each metafunction here, for each text we will trace a pathway through the three levels – from the perspective of the meanings that make the most prominent contribution to the genre. Our focus is on demonstrating possible relationships of realisation afforded by the 3 × 3 in 'top-down' pathways through discrete metafunctions. Note, however, that in practical terms, resources from different metafunctions and levels are typically combined to explore how meanings are instantiated in a particular text or set of texts.

4.3.1 Building and scaffolding knowledge in a biological science explanation

Two texts, both produced by students at CityU, are used to illustrate the dimensions of the 3 × 3 framework and its use in framing resources in

two genres that are valued in academic contexts. We begin our application of the 3 × 3 by exploring ideational and then textual meanings in Text 4.1, working from the level of whole text to word and expression. This text, which was composed by an undergraduate student of Exercise Science, has been annotated to show the stages and the more delicate phases through which the field unfolds.

Text 4.1 Factorial explanation from Exercise Science

	How to improve the biological performance of athletes
Outcome	Athletes try their best to obtain the best result in a competition. They engage in training exercise every day to enhance their biological performances include muscular strength, stamina and explosive force. They can also improve their performance by assimilating suitable nutrients.
Factors ***Factor 1 (Training)*** *Training types*	Training exercises can be classified into aerobic exercises and anaerobic exercises. Aerobic exercise requires oxygen and a duration of training for more than 3 minutes. Most of the energy consumed in the exercises came from aerobic respiration. Endurance sports such as marathon running and long distance swimming are almost entirely aerobic. On the other hand, anaerobic exercises do not require oxygen, the duration of the exercise is usually less than a few minutes.
Aerobic training	Athletes who engage in regular aerobic trainings can enhance their cardiorespiratory endurance. Aerobic training enhances the ability of heart, lung and circulatory system to supply O2 and nutrients to working muscles efficiently. … In addition, aerobic trainings can increase the lung volume and capacities such that more oxygen can be inspirited and more carbon dioxides can be expired on the lung surface …
Anaerobic training	Other than stamina, athletes can increase their muscular strength and explosive force by anaerobic training. As anaerobic respiration operates much faster than aerobic respiration, it can therefore supply energy more rapidly. Anaerobic training can shorten the time for muscle actuating force. …
Factor 2 *(nutrients)* *ATP nutrients*	Apart from regular training, athletes can also ingest suitable nutrients to improve their biological performance. There are three nutrients that can be oxidized by respiration inside our body cells to release energy which is in the form of ATP (adenosine triphosphate). They are carbohydrates, protein and lipid. …
Carbohydrates	There are two types of carbohydrates including polysaccharides and monosaccharides. Polysaccharides such as glycogen are hydrolysed to monosaccharides before they are oxidized to form ATP. …

(*continued*)

Text 4.1 Continued

	How to improve the biological performance of athletes
Lipids	Like carbohydrates, lipids are a major energy source of our body. However, it will not be used to generate energy unless carbohydrates are sufficient in our body … As athletes consume more energy than others, they may lose their body fat after doing heavy exercises and their body weight may reduce …
Proteins	Although proteins can be used as a source of energy, they are seldom used to generate energy unless the diet is deficient in carbohydrate and fat. … During training muscle tissue inside our bodies is damaged. In order to repair the damage and shorten the time of recovery from light injury, it is important to ingest protein …
Minerals	Other than the three nutrients, athletes should also take some useful minerals to improve their performance …
Summary	In conclusion, athletes can engage in regular aerobic exercise to increase their stamina and anaerobic exercises to increase their muscular strength and explosive force. Athletes should get enough carbohydrates, lipids, proteins force energy source, maintaining body weight and muscle growth. They should also take sufficient amount of minerals to prepare a good body for competition.

From the perspective of genre, the social purpose of Text 4.1, explicitly announced through the word 'how' in the title, is to explain. More precisely, the text explains multiple contributing factors of a phenomenon (i.e. biological performance) and can thus be classified as a factorial explanation (Martin & Rose, 2008, p. 201). Although interpersonal meanings (such as the accumulation of stated 'facts') contribute to the overall function of giving information authoritatively, it is ideational and textual meanings that are foregrounded at each stratum of this genre, particularly in scientific disciplines.

4.4 Modelling ideational meanings of Text 4.1 across three levels

Because of their concern with construing discipline field knowledge in academic contexts, factorial explanations share many ideational resources with rhetorically organised reporting genres and often contribute to those macro-genres classified as arguing. Some features which have been found to be key to construing the field of science in these explanations are mapped in a pathway of realisation in Table 4.2.

Table 4.2 Ideational resources at three levels for Factorial Explanation

Metafunction	Social activity: Genre and Register (whole text)	Discourse Semantics (phases)	Grammar and Expression (clauses and sentences)
A. Ideational Meanings *(field – parts)*	• Ideas unfold as stages of Outcome ^ Factors to explain why and how discipline-specific events occur	• 'Factor' phases include implication sequences with visible and hidden causal relations between events	• Elements within noun groups classify specialised terms (e.g. classifiers, defining clauses)
	• Text structured orbitally with each 'factor' independently related to Outcome	• Entities within and between phases may create scientific taxonomies through lexical relations of parts of/types of	• Verb groups express processes to create classifying, cause/effect relationships)

4.4.1 Whole text level analysis

As assessment tasks at undergraduate level typically require students to demonstrate existing knowledge of their discipline, it is not surprising that field makes a dominant contribution to determining structure in academic genres such as factorial explanation. The importance of field is acknowledged in the 3 × 3 through the inclusion of the overall generic stages within the ideational meaning strand (see column 2 of Table 4.2). Text 4.1, for example, moves through two ideationally oriented stages of Outcome and Factors, with a final textually oriented stage of Summary. Each stage contributes to constructing knowledge that is relevant to the discipline of Exercise Science.

The global structure of factorial explanation can reflect the ideational relationship of its parts to the whole and is therefore included in the 3 × 3 at whole text level. From this perspective, the Outcome can be seen as the nucleus, with each factor contributing independently rather than as a series (Martin & Rose, 2008, p. 201). Figure 4.1 represents the orbital structure of Text 4.1.

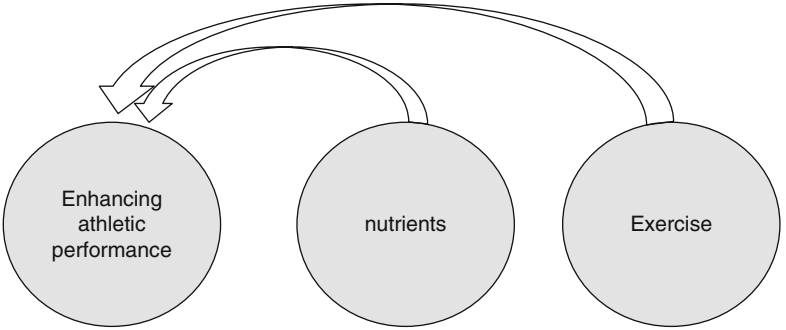


Figure 4.1 Orbital structure of Text 4.1

4.4.2 Phase level analysis

The middle column of Table 4.2 relates to ideational meanings as they unfold across phases of text. As noted in Chapter 2, phases have been distinguished as 'more variable segments within each stage, carrying pulses of field and tenor' (Rose, 2006, p. 187). Single genres such as causal and sequential explanations can be extended to become more complex factorial explanations by including phases within each stage. Following Martin & Rose (2012), the 3 × 3 recognises that phases are typically expressed graphologically as paragraphs, and that it is discourse semantic rather than grammatical meanings which are needed to identify phases.

Attention to phase is particularly important at undergraduate level, where extended texts frequently involve shifts in meaning within stages. For example, Text 4.1 shifts between phases of 'Factor 1' and 'Factor 2' within its Factors stage; a number of further shifts are evident between micro-phases within these phases (e.g. 'aerobic training' and 'anaerobic training' within 'Factor 1'). The 3 × 3 includes metalinguistic tools for analysing the shifts in meanings through the lens of semantic relations and logical relations. While both combine to explain 'how things are, or come to be the way they are' (Wignell et al., 1989, p. 382), we will first explore the work of semantic relations.

4.4.2.1 Semantic relations

In common with many factorial explanations used in science, the more 'visible' language patterns of the Exercise Science explanation (Text 4.1) are those which classify phenomena. As noted in Chapter 3

(Section 3.4.4), semantic relations of meronymy and hyponymy between technical entities are particularly important for organising scientific fields as taxonomies. These are referred to in the 3 × 3 respectively as 'parts of' and 'types of' relations.

In Text 4.1, relationships of hyponomy unfold through a number of phases to firstly classify types of training into 'uncommonsense' types of exercise (*aerobic and anaerobic*) and later types of nutrients (*ATPs and minerals*). Despite the technical entities in Text 4.1, the taxonomies within and across phases are quite visible. This is partly due to repetition of these entities across phases and, as we will see in Section 4.5, the co-articulation of resources of Theme to scaffold waves of information.

Relatively deep taxonomies are established in Text 4.1. For example, one of the types of nutrients (*nutrients releasing ATPs*) is further classified within this layered phase as *carbohydrates*, *lipids* and *proteins*, with separate paragraphs or sub-phases provided to explain how each contributes as a factor. Figure 4.2 illustrates these semantic relations of hyponomy in Text 4.1.

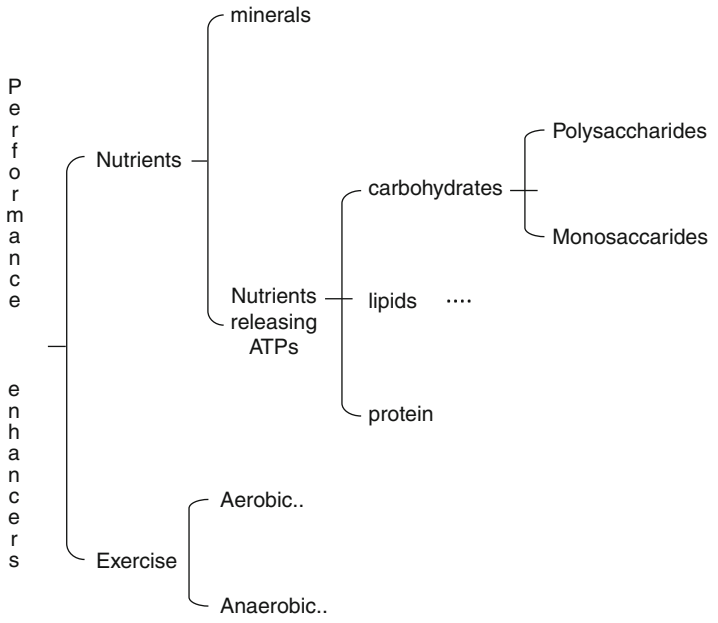


Figure 4.2 A taxonomy of entities in Text 4.1

4.4.2.2 Logical relations

For analysts who are not in the field of exercise science, such as SLATE tutors, it may be difficult to distinguish factorial explanations such as Text 4.1, which have such a visible and deep taxonomy, from a classifying report, which functions to subclassify members of a general class (Martin & Rose, 2008, p. 185). One reason for this is that the causal relations, which are crucial to explaining phenomena, are often hidden – embedded deeply within the 'Factor' phases. The 3 × 3 specifies crucial discourse semantic tools for recognising these logical relationships, in its consideration of 'implication sequences' and 'visible and hidden causal relations'.

In SFL, fields involve sets of activity sequences oriented to some general institutional purpose (i.e. cooking, building, studying and so on). In academic discourse, many of these sequences involve more than temporally successive expectations – one event in fact conditions another. The term implication sequence has been introduced to handle sequences of this kind, where implication sequences are defined as a type of activity sequence which explains 'how things are, or come to be the way they are' (Wignell et al., 1989, p. 382). They are formed by a combination of logical relationships of cause and effect. The following example is an implication sequence from the *Carbohydrate* micro-phase of Text 4.1, which explains how one of the types of carbohydrates, *polysaccharides*, comes to be, firstly a *monosaccharide* and then an *ATP*. In this example, causal relations are highlighted.

Example 4.1
Polysaccharides such as glycogen ***are hydrolysed*** *to monosaccharides before they* ***are oxidized to form*** *ATP*

Implication sequences are embedded within a number of phases of Text 4.1. In Figure 4.3, we show again the taxonomy of entities in Text 4.1; however, this time round we include representations of two implication sequences, embedded within the taxonomy of nutrients discussed above. The causal relations of the text (labelled in italics) are represented by arrows in the diagram.

A further reason why the explaining function of factorial explanations such as Text 4.1 may not be visible is because the causal relations are frequently expressed 'within' rather than 'between' clauses. In Chapter 3 (Section 3.2.3), we described the process of expressing logical relations in this incongruent way as a form of grammatical metaphor. In domestic fields and those described by Martin (1992, p. 544) as recreational, logical

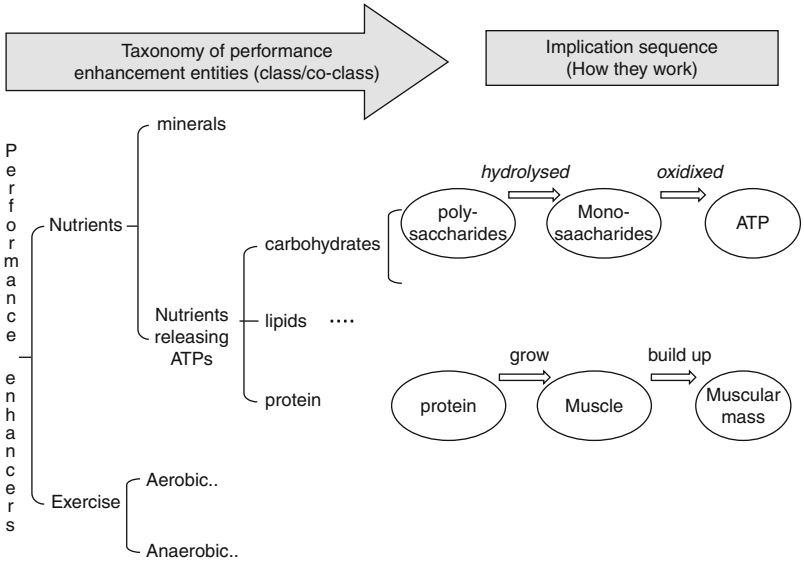


Figure 4.3 Taxonomy of entities in Text 4.1 with two embedded implication sequences

relationships are typically expressed through conjunctions (e.g. *so*, *because*, *and then*, *but*). However, in academic fields of study, such as science writing, metaphorical forms of these conjunctions are often used. These realisations involve prepositions (*because of*, *due to*), verbs (*cause*, *result in*, *lead to*), and nouns (*the cause*, *the effect*, *the consequence*). One affordance of realising cause as a Process is that it opens up a wide range of causal relations, which cannot be specified by conjunctions alone (e.g. *generate*, *increase*). The causal relations in the implication sequence from Text 4.1 (*are hydrolysed to*, *are oxidized to form*; *grow*, *build up*) are incongruent forms of this kind.

These 'hidden' incongruent causal relations are identified in the 3 × 3 as 'hidden' for two reasons, both of which take us into the area of lexicogrammatical realisation. Firstly, students who have more experience with English language use in domestic fields may only recognise logical relations when they are realised by conjunctions, which typically occur in more 'visible' positions between clauses or in first position of a sentence. Secondly, causal realisations such as *generate* and *hydrolysed* are not lexically related to the conjunction forms as are less discipline-specific terms such as 'cause' (because) and 'results in' (as a result). In Text 4.1, the terms carry a technically heavy experiential load in addition to their

logical meaning. It may be useful to think of the difference between hidden and visible relations on a continuum, taking into account the various combinations of resources that make the meanings more or less easily retrievable.

Incongruent patterns of causal relations are particularly important resources in the 3 × 3. These patterns have been explored as factors of 'Secret English' (Martin et al., 1986) – referring to registers such as scientific discourse, which, in the absence of explicit teaching, exclude disadvantaged groups. As Weekes (2014) has found in the context of Business Studies, unless the more 'hidden' causal relations are made visible to students, they may not be able to understand or construct the more ordered 'if/then' connections among sequences (Wignell et al., 1989, p. 382).

4.4.3 Clause level analysis

Following the top-down perspective taken in this chapter, the resources of lexicogrammar are presented in the 3 × 3 as resources for realising meanings at higher levels of text. For discipline lecturers and tutors, teaching the technical vocabulary of their field is 'core business'. Our 3 × 3 gaze encourages them to see technical vocabulary as one piece in an intricate pattern of meanings for building field (i.e. the content knowledge in a discipline). As we have already drawn attention to lexicogrammatical forms, such as the verbal groups realising logical meanings in academic discourse, in this section we focus on the role of nominal groups that are implicated in building the taxonomies discussed above. Nominal groups, which we introduced in Chapter 3 (Section 3.2.2), are referred to in the 3 × 3 as noun groups. Students at CityU and a number of tutors in the SLATE project had prior knowledge of traditional or formal grammars, and found such terminology (e.g. noun group, verb group, adverbial group) easier to work with.

As discussed in Chapter 3, noun groups can become very complex in academic discourse. From an ideational perspective, they play an important role in describing and classifying phenomena, either via Classifiers before the Thing or via Qualifiers after the Thing. The Thing establishes the most general class of the person, place or thing being written about, and the Classifier/s narrow this down (e.g. *training* (Thing only), *aerobic training* (Classifier^Thing)). Noun groups with Classifier^Thing relationships in Text 4.1 include ***muscular*** *strength,* ***anaerobic*** *training* and ***cardiorespiratory*** *endurance*.

Also important for classifying phenomena are longer modifiers that come after the Thing in expanded noun groups. These are called

Qualifiers and may include prepositional phrases and/or embedded clauses. It is conventional within SFL to code embedded clauses with double brackets ([[…]]) and embedded groups and phrases with single brackets ([…]) In the noun groups from Text 4.1 (shown below in **bold**), the Qualifiers specify the kind of Thing (shown by underlining).

Example 4.2
Sports or activities ***[[which rely on short explosive bursts of activities such as 100m race and weightlifting]]*** *are aerobic.*
The energy ***[[generated by cell respiration]]*** *is stored in the ATP.*

The nominalisations that were referred to as 'dead metaphors' in Chapter 3 (Section 3.2.3) also function ideationally within noun groups to distil technicality. Nominalisations of this kind are highlighted in the following noun groups, which also include the Classifiers that assist in construing the 'uncommonsense' taxonomies of Exercise Science:

aerobic ***exercise****; aerobic* ***training****, cardiorespiratory* ***endurance****; anaerobic* ***respiration***

Our tour of ideational meanings in the 3 × 3 has focused on one pathway of resources involved in structuring factorial explanations and for building and combining taxonomies. In the more fully populated framework in Appendix 4.2 we provide further metalinguistic resources that have been found to be crucial in supporting students to explain scientific phenomena through the factorial explanation genre.

4.5 Modelling textual meanings of Text 4.1 across levels

As discussed in Chapter 3 (Section 3.3.1), with respect to textual meaning, discourse unfolds in phases – as waves of information – which makes it easier for the reader to digest meaning, one package of information at a time. We referred in that chapter to the discourse semantic resources at stake as periodicity. Key resources in the 3 × 3 pathway developed to introduce tutors to this system are shown in Table 4.3. Populating this dimension of the 3 × 3 involved considerable recontextualisation to connect and build on prior metalinguistic knowledge of tutors and students in the SLATE project. In the table, terms that vary from the SFL metalanguage we used in Chapter 3 are shown in bold. The rationale for the use of this terminology will be discussed further below.

Table 4.3 Some textual resources in the 3 × 3 for scaffolding information in Factorial Explanation

Metafunction	**Genre and Register (whole text)**	**Discourse Semantics (phases)**	**Grammar and Expression (clauses and sentences)**
Textual Meanings *(mode – waves)*	• **Headings, abstracts, introductions** and **conclusions** used to scaffold and signpost global waves of information in written text	• Ideas developed within multiple phases (e.g. **paragraphs**) with **topic sentences** and **summaries** used to predict and summarise • …	• Choices of **topic markers** and **sentence Themes** predict the topic focus of the sentence • …

Recontextualising the SFL terminology of periodicity in the 3 × 3 framework was motivated by the fact that many SLATE tutors already shared, to varying extents, a textual metalanguage based on traditional rhetoric and related discourse descriptions (e.g. topic sentence, introduction, conclusion, headings, abstracts). Layers of scaffolding at whole text level are glossed in the 3 × 3 as 'abstracts' and 'introductions' (macroTheme) and 'conclusions' (macroNew); scaffolding resources at phase level are referred to as 'topic sentence/s' (hyperTheme) and 'summary sentence/s' (hyperNew); and at sentence level the 3 × 3 refers to 'topic markers' (marked Theme) and Sentence Theme (clause level Theme). In discussing the use of Theme across levels of Text 4.1, we will use both sets of terminology where possible, to ensure that the theoretical connection to SFL systems is maintained.

4.5.1 Whole text level analysis

In the relatively long texts produced at tertiary level, layers of Theme are essential to scaffolding waves of information. Typically, modelling of whole text structure in teaching contexts at undergraduate level focuses on the textual structure. For example, prior to SLATE professional development, a number of tutors were able to talk about essay structure in terms such as 'an Introduction tells the reader what the text will be about; the Body tells what it is about; the Conclusion tells the reader what the text has been about'. While this characterisation of text structure does not account for the contribution of ideational and interpersonal meanings and the resulting distinctiveness of genres, it does provide a useful start for making visible and scaffolding waves of information.

In the Exercise Science explanation (Text 4.1) shown in outline view in Table 4.4, the student writer previews the two factors (*training* and *nutrients*) in an introduction (or macroTheme) within the Outcome stage. The factors are then reviewed (as macroNew) in the final stage, which is named as Summary in view of its dominant textual function. Highlighted factors and components in the text below show how particular ideational meanings are brought to prominence across the text through the resources of periodicity.

Table 4.4 Layers of theme to scaffold unfolding information at whole text level

Layers of Periodicity	**Text excerpts from Text 4.1**
Introduction (macroTheme)	ATHLETES … ENGAGE IN **TRAINING EXERCISE** EVERY DAY TO ENHANCE THEIR BIOLOGICAL PERFORMANCES INCLUDE MUSCULAR STRENGTH, STAMINA AND EXPLOSIVE FORCE. THEY CAN ALSO IMPROVE THEIR PERFORMANCE BY ASSIMILATING SUITABLE **NUTRIENTS.**
Topic sentences (hyperTheme)	**TRAINING EXERCISES** CAN BE CLASSIFIED INTO **AEROBIC EXERCISES AND ANAEROBIC EXERCISES. AEROBIC EXERCISE** REQUIRES OXYGEN AND A DURATION OF TRAINING FOR MORE THAN 3 MINUTES. … ON THE OTHER HAND, **ANAEROBIC EXERCISES** DO NOT REQUIRE OXYGEN …
Topic sentence (hyperTheme)	Athletes who engage in regular **aerobic trainings** can enhance their cardiorespiratory endurance.
Sentence Theme (topical Theme)	**Aerobic training** enhances the ability of heart, lung and circulatory system to supply O_2 and nutrients to working muscles efficiently. …
Topic sentence (hyperTheme)	Other than stamina, athletes can increase their muscular strength and explosive force by **anaerobic training.**
Topic marker (marked Theme)	As **anaerobic** respiration operates much faster then aerobic respiration, it can therefore supply energy more rapidly. …
Topic sentences (hyperTheme)	APART FROM REGULAR TRAINING, ATHLETES CAN ALSO INGEST **SUITABLE NUTRIENTS** TO IMPROVE THEIR BIOLOGICAL PERFORMANCE. THERE ARE **THREE NUTRIENTS** THAT CAN BE OXIDIZED BY RESPIRATION INSIDE OUR BODY CELLS TO RELEASE ENERGY WHICH IS IN THE FORM OF ATP (ADENOSINE TRIPHOSPHATE). THEY ARE **CARBOHYDRATES**, **PROTEIN** AND **LIPID** ….

(*continued*)

Table 4.4 Continued

Layers of Periodicity	Text excerpts from Text 4.1
Topic sentence (hyperTheme)	There are two types of **carbohydrates** including **polysaccharides** and **monosaccharides**. ….
Sentence Theme (topical Theme)	**Polysaccharides** such as glycogen are hydrolysed to monosaccharides before they are oxidized to form ATP.
(resources of Theme not used)	Glucoses are the most common form of **monosaccharides** which can be …
Topic sentence (topic marker) (hyperTheme marked topical Theme)	Like carbohydrates, **lipids** are a major energy source of our body. … … Although proteins can be used as a source of energy, they are seldom used to generate energy unless the diet is deficient …
Topic sentence (hyperTheme)	OTHER THAN THE THREE NUTRIENTS, ATHLETES SHOULD ALSO TAKE SOME USEFUL **MINERALS** TO IMPROVE THEIR PERFORMANCE. …
Summary (macroNew)	IN CONCLUSION, ATHLETES CAN ENGAGE IN REGULAR **AEROBIC EXERCISE** TO INCREASE THEIR STAMINA AND A**NAEROBIC EXERCISES** TO INCREASE THEIR MUSCULAR STRENGTH AND EXPLOSIVE FORCE. ATHLETES SHOULD GET ENOUGH **CARBOHYDRATES, LIPIDS, PROTEINS** AS ENERGY SOURCES AND MAINTAIN BODY WEIGHT AND MUSCLE GROWTH. THEY SHOULD ALSO TAKE SUFFICIENT AMOUNT OF **MINERALS** TO PREPARE A GOOD BODY FOR COMPETITION.

4.5.2 Phase and clause level analysis

Between the textual peaks of prominence named in the 3 × 3 as Introduction and Summary (macroTheme and macroNew), the writer prefaces each of the factors and the specific components of those factors with what traditional rhetoric refers to as a topic sentence (hyper Theme). Text 4.1 has multiple layers of hyperTheme to scaffold the relatively deep taxonomy. These layers are not discriminated by terminology in the 3 × 3 (just as layers of hyperTheme are not differentiated nominally in SFL). However, where hyperThemes extend beyond one sentence, they are distinguished by the use of the plural form 'topic sentences'.

At the level of lexicogrammar, the 3 × 3 discriminates topic markers and sentence Themes (between marked and unmarked topical themes). Marked themes were discussed in Chapter 3 (Section 3.3.1)

and typically involve a circumstance (e.g. of location in space or time), in initial position in a clause (or a dependent clause positioned before the 'main' clause in a clause complex). In earlier iterations of the 3 × 3 (Humphrey et al., 2010), marked Themes were included at paragraph level to reflect their important role in signalling a shift of gears between phases. Examples of circumstances of location in time and space playing this similar role to hyperThemes are provided in Chapter 3. However, these resources have been included as lexicogrammatical units here for three reasons. Firstly, marked Themes are quite predictable in terms of grammatical realisation, typically expressed as a circumstance (e.g. *At the start of the war …*) or a dependent clause (e.g. *When the war began, …*). Secondly, the discourse semantic function of marked Themes in signalling a shift of gears between phases can also be played by the grammatical units of topical Theme, which are typically understood in terms of their position as first participant in a clause (e.g. *The start of the war came at a time when …*; *The final point in the argument …*) and indeed by textual Themes such as internal conjunctions (*In conclusion, …*; *Finally, …*). Thirdly, marked Themes can also be used to mark shifts of meaning that occur within sentences. In the following example, marked Themes are underlined.

Example 4.3
From the perspective of linguistics, knowledge is related to field; from a sociological perspective, knowledge is understood in terms of its structure as horizontal or hierarchical.

Marked and unmarked themes work as cohesive tools to 'pick up' information that has been introduced previously in the text. In implication sequences such as those that occur in factorial explanations, information from the end of the previous clause (in what is called in SFL the 'Rheme' position) becomes the Theme or topic of a new clause, thereby creating a pattern information flow that may extend across sentences. In the following example from Text 4.1, the information which is picked up as 'Given' in the (marked) Theme is highlighted. The marked Themes of both sentences are underlined.

Example 4.4
As athletes consume more energy than others, they may lose their body fat after doing heavy exercises and their body weight may reduce. In order to ***maintain their body weight*** *and keep stable performance, athletes should ingest suitable amounts of lipids.*

In the second sentence of this excerpt, the unmarked Theme, *athletes*, also plays a role in scaffolding information flow. By repeated references to athletes in Theme position throughout the text, the focus required by the overall topic *How to improve the biological performance of athletes* is maintained.

In addition to the resources of Theme, which we have focused on in this section, the 3 × 3 includes further discourse semantic and clause level resources that we introduced and modelled in Chapter 3 (Section 3.3.1). Interactions of Theme choices with the resources of grammatical metaphor were particularly important tools for SLATE tutors in supporting students to manage information flow in academic discourse. In addition to its role in representing logical relations discussed above, grammatical metaphor is used to create dense packages of information (which we refer to in the 3 × 3 as 'abstract terms'), making it more possible for ideas to be picked up by the Themes and carried through the text. In the following example from Text 4.1, the more congruent verb form *damaged* (highlighted) is used in the first sentence to present the New information. In the following sentence, nominalisation results in a change to the noun form, *the damage*, which is included in the foregrounded marked Theme position (underlined).

Example 4.5

During training muscle tissue inside our bodies ***is damaged****. In order to repair* ***the damage*** *and shorten the time of recovery from light injury, it is important to ingest protein …*

Packing up information in Theme position allows a causal relationship between damaged tissue and protein to be made 'within the clause'. It also allows information about athletes' behavior around the nutrient, i.e. *ingest protein* to be the point of the clause.

Also at lexicogrammar level, the 3 × 3 recognises the important role of passive voice in shifting 'given' information so that it can be 'picked up' in the Theme. The student writer of Text 4.1 has used passive voice in this way (*Training exercises can be classified into aerobic exercises and anaerobic exercises*); however, in the opening stage, active voice has kept the focus on the athlete (*Athletes*, *They*, *They*) rather than either the outcome (*improved biological performance*) or the contributing factors (*training*, *nutrients*). This student, like others participating in the SLATE, project could benefit from feedback using the 3 × 3 metalanguage related to textual meanings to better focus the reader's attention on the most relevant information. As will be discussed further in Chapter 8, a number of the pedagogical interventions were designed by SLATE researchers

to support students to create clearly scaffolded texts using the 3 × 3 metalanguage.

In summary, the analysis of ideational and textual resources in Text 4.1 makes visible some of the key resources and metalanguage which were able to be provided in SLATE professional learning for expressing and expanding ideas and scaffolding information in factorial explanations at various levels of text. While the 3 × 3 designed for factorial explanations (see Appendix 4.2) recognises that interpersonal meanings contribute to the genre at each level, it is to some extent the absence of interpersonal 'intrusions', such as explicit expressions of the writer's feelings and personal pronouns, which construe the authoritative and objective tenor of academic discourse. In the next section we will turn our attention to the interpersonal dimension of the 3 × 3.

4.6 Modelling interpersonal meanings of Text 4.2 across three levels

Recognising that interpersonal resources do more work in some genres than others, this dimension of the 3 × 3 will draw on a second 3 × 3 toolkit, this one designed to frame resources of a genre that responds critically to texts (Humphrey & Economou, 2015). The full 3 × 3 framework with a more complete account of interpersonal resources related to this genre is provided in Appendix 4.3. Some of the features that have been found to be key to construing a critical stance are mapped along a pathway of realisation in Table 4.5.

Table 4.5 Interpersonal resources in 3 × 3 for critical review

Metafunction	**Social activity: Genre and Register (whole text)**	**Discourse Semantics (phases)**	**Grammar and Expression (clauses and sentences)**
Interpersonal Meanings *(prosodies)*	Text moves its points or positions forward across the stages prosodically (e.g. by amplifying, justifying, reinforcing and acknowledging experts in the field)	• Aspects of text are evaluated objectively (e.g. implied through grading resources and according to assessments of text composition and value and judgements of author's capacity) • Explicit evaluations accumulate in Judgement stage	• Adverbs, adjectives and infused lexical items used to evaluate objectively

We will illustrate these interpersonal resources of the 3 × 3 by analysing a second text, Text 4.2, which was produced by an undergraduate sociology student at CityU. Text 4.2, which has been annotated below to show its stages and more delicate phases, is an example of a genre most commonly known in academic discourse as a critical review. In this text, annotations are also provided for explicit instances of evaluative lexis, which was introduced in Chapter 3 (Section 3.3.5) because of its important contribution to the interpersonal structuring of the genre. Explicit values are those where the evaluative meaning is 'written-in' or inscribed as the core 'dictionary meaning'. This lexis is highlighted and the accompanying wordings that indicate the positive or negative loading of the evaluation are provided in italics.

Text 4.2 Critical review from Sociology

Structural elements	**Critical Review**
Context Citation	Lin (2005)'s article 'Romance and Sexual Ideologies in SMS Manuals Circulating among Migrant Workers in Southern China', presents textual analysis of SMS (short message service) manuals and investigation of the romance and
Summary of aspects of the article	sexual ideologies, practices and gender relations among migrant workers in Southern China (p. 142). The author addresses the different types of messaging sent, with a descriptive commentary of the messages' content. The author also comments on … Lin suggests the functions of the SMS for the workers goes beyond informal collegial chat with colleagues, and is used as a courtship tool. The author provides numerous concrete examples …
Evaluation Positive	These illustrative examples (cut above) **clearly** show the differing ways workers connect with each other. Narrowing in specifically on sexual aspects, Lin also divides the group of sexual jokes into different sub-types which are: using narrative with a punch line, using linguistic form of a rhyme and using Chinese-English bilingual word puns (Lin, 2005, pp. 144–145). These sub-types give a **helpful** classification of messages and enable the reader to understand Lin's analysis in the article.
Evaluation Negative	However, the author only uses textual analysis of SMS manuals as the research method to examine the romance and sexual ideologies among migrant workers in Southern China and hence there is no evidence to show the textual analysis is applicable to the migrant workers. Other research methods, such as surveys and case studies, could have been used in this research to support the arguments in the textual analysis. For example, …

(*continued*)

Text 4.2 Continued

Structural elements	Critical Review
	In addition, the writer does not address the reasons why the male workers would send sexual SMS to female recipients. The motivation of senders is not dealt with. This particular article is primarily descriptive rather than analytical, which limits any **genuine** insights Lin can offer about the workers themselves. The article does make an attempt to link the overall trend of increased use of SMS as a type of deviant discourse within this particular group and again within the larger mainland Chinese context, but does so **inadequately.**
Judgement	To conclude, the author presents **clear** and **understandable** arguments in that an overall picture of the SMS manuals with illustrative examples are provided. However, the arguments in the article are based only on the contents of one type of data. Without other sources to validate Lin's findings, the persuasiveness of the arguments is reduced. The article then becomes *merely* an **interesting** descriptive analysis of SMS manuals, *rather than a more* **enlightening** examination of trends and motivations of SMS users in a particular strata of Chinese society.

In terms of purpose, Text 4.2 is characterised as a critical review to account for its function in challenging a perspective from an external knowledge source and positioning the reader to accept an authorial alternative or counter position (Humphrey & Economou, 2015). The text evaluates particular aspects of a scholarly article according to criteria established in the discipline, before coming to an overall judgement of the article.

4.6.1 Whole text level analysis

Although critical review genres such as Text 4.2 were not common in the subjects examined at undergraduate level at CityU, in the texts that do occur, interpersonal meanings were found to be vital in moving critique forward and achieving the text's purpose.

In their analysis of persuasive writing, Martin and White (2005, pp. 214–215) distinguish a 'line of evaluative positioning' from the 'line of actual argumentation' represented by the generic staging. The rhetorical structure and ultimate success in persuading, they argue, is realised by patterns of evaluative resources combined with ideational and textual resources that are organised prosodically across the text. At this point we will concentrate on explicit evaluative lexis to illustrate the global

prosodic development of Text 4.2. Supporting patterns, which are crucial to its rhetorical structuring, will be discussed more fully in Section 4.6.2.

Looking firstly at the constitutive stages of Text 4.2, the ideationally oriented Context stage functions to summarise key findings of the text under review (which we will refer to as the 'original' text). This allows the student writer to demonstrate their comprehension of the text. The substantial middle stage, Evaluation, where aspects of the text are evaluated from a positive and then a negative perspective, is crucial to the line of argumentation; it prepares the reader for the final position on the original text, which is provided in the Judgement.

While the perspective of constituent staging is a useful start when talking to students about how to build an evaluative and critical stance, evaluative meanings are not always bound to discrete stages; they regularly reverberate across texts as evaluative prosodies (Macken-Horarik, 2003) or 'traces' (Iedema, 2004). Significantly, the explicit evaluative lexis in Text 4.2 (which is referred to in SFL's APPRAISAL theory as inscribed ATTITUDE) all occur at textually prominent places in the text – within hyperThemes, hyperNews at paragraph level, and in the macroNew. Table 4.6 shows the interactions that occur between these resources of PERIODICITY and ATTITUDE.

The prosody created in Text 4.2 is one of domination (Martin & White, 2005, p. 28), where the evaluative load occurs at textually prominent positions. As shown in Table 4.6, four instances of evaluative lexis occur in the concluding macroNew. However, evaluative lexis is also used at points of textual prominence in both the 'positive' and 'negative' phases of 'Evaluation'; primarily in hyperNews of the evaluative phases. Martin and White (2005, p. 27) interpret this prosody of

Table 4.6 Periodic structure and inscribed ATTITUDE across stages of Text 4.2

Stages and phases of text	**Layers of Theme**	**Inscribed ATTITUDE including (co-text) to indicate negative loading**
Context		
Evaluation: positive aspects	hyperTheme hyperNew	clearly helpful
Evaluation: negative aspects	hyperNew	(limits) genuine Inadequately
Judgement	macroNew	
	• hyperTheme	Clear … understandable
	• hyperNew	(merely) interesting … (rather than) enlightening

domination as 'a co-option of periodic structure by a prosody'. The effect in academic argument is to scaffold the unfolding evaluative stance across the whole text.

4.6.2 Phase and clause level analysis

A number of interpersonal resources are available at discourse semantic level for creating an appropriate academic tenor to convince an expert reader. Within SFL, the discourse semantic systems of APPRAISAL allow for systemised descriptions of evaluative resources (Martin & White, 2005). APPRAISAL systems classify evaluative meanings into three broad systems: evaluative lexis (referred to as ATTITUDE), resources for grading lexis according to the strength of the evaluation (GRADUATION), and resources for negotiating positions within discourse by expanding or contracting dialogic space (ENGAGEMENT). Our discussion of the interaction of evaluative lexis and textual resources of periodicity has already provided evidence that resources from systems of APPRAISAL interact with other resources to build an appropriately critical yet objective evaluative stance in academic discourse.

4.6.2.1 ATTITUDE resources

The system of ATTITUDE includes a subsystem of APPRECIATION and a subsystem of JUDGEMENT, both of which have been found to be particularly important for building an evaluative stance in academic persuasive and critical writing (Coffin, 2006; Hao & Humphrey, 2012; Hood, 2010; Humphrey & Economou, 2015). The systems of APPRECIATION are sensitive to field. However, values of benefit, relevance, validity and significance within its valuation category, as well as values of clarity and completeness within its composition category, are found across disciplines. These are glossed in the 3 × 3 for critical review as 'assessments of text composition and value'. The JUDGEMENT categories included in the 3 × 3 to assess the original text composer or persons responsible for the research underpinning it are those of capacity (e.g. *competent*, *skilled*), propriety (e.g. *fair*, *ethical*) and veracity (e.g. *honest*, *credible*). Three important features of ATTITUDE values are: (i) they can be expressed explicitly (i.e. inscribed) or implicitly (i.e. invoked); (ii) they can be positive or negatively loaded; and (iii) they can be graded up or down.

4.6.2.2 Inscribed ATTITUDES

We begin our tour of ATTITUDE values in Text 4.2 by looking more closely at the inscribed values referred to in the 3 × 3 as explicit.

The student writer of Text 4.2 uses predominantly inscribed values of APPRECIATION composition and valuation to focus the evaluation on aspects of the original text. In the following excerpts, values are bold and the aspect is underlined.

Example 4.6: Excerpts from Text 4.2, showing explicit APPRECIATION resources

1. *T<u>hese illustrative examples</u> **clearly** show the differing ways workers connect with each other.*
2. *To conclude, the author presents **clear** and **understandable** <u>arguments.</u>*
3. *These sub-types give a **helpful** <u>classification of messages.</u>*
4. *This particular article is primarily descriptive rather than analytical, which limits any **genuine** <u>insights</u> Lin can offer about the workers themselves.*
5. *<u>The article</u> then becomes merely an **interesting** descriptive <u>analysis</u> of SMS manuals, rather than a more **enlightening** <u>examination</u> of trends and motivations of SMS users in a particular strata of Chinese society.*
6. *<u>The article</u> does make an attempt to link the overall trend of increased use of SMS as a type of deviant discourse within this particular group and again within the larger mainland Chinese context, but does so **inadequately**.*

For the most part, the student writer has chosen to 'stand back' from explicitly evaluating the skill, fairness, or credibility of the author in favour of evaluating aspects of the text. This focus, and the absence of expressions of emotion (i.e. AFFECT), contributes to the objectivity maintained by the student writer.

4.6.2.3 Invoked ATTITUDES

A significant finding of SFL discourse analysis research is that implicit evaluative choices are also crucial to building an evaluative stance in academic discourse (Hood, 2010). APPRAISAL offers a number of resources for invoking ATTITUDE, including contextual affordances and co-textual intrusions, which flag evaluative meanings (Martin & White, 2005, p. 86). To explore these resources in Text 4.2 we will look again at one of the examples above, which we repeat here, along with the two preceding sentences in the text. Here we highlight only the word which inscribes evaluation – *genuine*.

Example 4.7
In addition, the writer does not address the reasons why the male workers would send sexual SMS to female recipients. The motivation of senders is not dealt with. This particular article is primarily descriptive rather than analytical, which limits any ***genuine*** *insights Lin can offer about the workers themselves.*

In this example, the classification of the article as *descriptive* clearly invokes a negative evaluation of the article to an academic audience. In this context, as in the example, the term *descriptive* is frequently contrasted with the term *analytical* (e.g.Woodward-Kron, 2002). Courses and resources typically encourage students to produce 'more analytical' and 'less descriptive' texts.

Evaluative meanings are also invoked through interactions of experiential meanings with APPRAISAL choices from GRADUATION and ENGAGEMENT. In Text 4.2, it is the resources of ENGAGEMENT which, 'in the company' of the more explicit evaluation we have already identified, build the negative evaluation of the original text. The ENGAGEMENT system categorises many of its resources according to their dialogic function in expanding or contracting space for alternative perspectives. Contracting resources, such as deny (e.g. *no*, *not*) and counter-expectancy (e.g. *rather than*) function dialogically to exclude or reject alternative positions which have been introduced into the text. In the sample phase, which is reproduced below with inscribed and invoked resources of ATTITUDE highlighted and resources of contraction underlined, we can see that ENGAGEMENT plays a significant role in flagging the presence of negative APPRECIATION and in building a negative prosody of domination which radiates back from the textually prominent inscribed value.

Example 4.8
In addition, the writer does <u>*not*</u> *address the reasons why the male workers would send sexual SMS to female recipients. The motivation of senders is not dealt with. This particular article is primarily* ***descriptive*** <u>*rather than*</u> ***analytical****, which* ***limits*** *any* ***genuine*** *insights Lin can offer about the workers themselves.*

Evaluative meanings can be realised across grammatical units in academic writing. In the student text in 4.2, adjectives (i.e. Epithets) within noun groups (e.g. *a* ***clear*** *and* ***understandable*** *way*; ***genuine*** *insights*) play an important role. However, in the following excerpt from a computational linguistics text we use in Chapter 6 (Text 6.4), ATTITUDE values are expressed as adjectives (e.g. *suitable*, *simple*) but

are also expressed as nouns (highlighted) and verbs (highlighted and underlined).

Example 4.9
The case of 'cookie' also demonstrates the ***disadvantage*** *of the stemmer, that is, the resulting stem could be an ill-formed English word. In fact, if we consider more cases, we will find that the reduction rules might cause other* ***problems****. For instance, 'sing' would be stemmed to 's' after the removal of 'ing'. Nevertheless, the abundance of inflected verbs ending in 'ing' would still* ***benefit*** *from the same rule. The stemmer has the* ***advantage*** *of being relatively simple, requiring only a set of rules, as well as running fast. It is therefore suitable for certain language processing subtasks, such as indexing in information retrieval.*

In this section we have provided an overview of the dimensions of the 3 × 3 framework as it has been populated in two discipline genres. By including resources at each of three levels – whole text (genre), paragraph (discourse semantics) and sentence (lexicogrammar) – SLATE tutors were encouraged to lift their gaze from assessing texts at word and clause level to viewing them as instances of specific genres with functional stages and phases realised by particular language resources at the lexicogrammatical level. To facilitate tutors in their formal assessments of CityU student texts, the 3 × 3 was adapted to produce a metafunctional and stratally oriented ratings sheet. The next section introduces this rubric.

4.7 Developing a 3 × 3 assessment rubric

Based on the 3 × 3 framework discussed above, a ratings sheet, which was developed to guide the assessment of texts by tutors (see Figure 4.4), was designed to encourage a consideration of language in terms of its use across strata and metafunction. The ratings sheet maintains the focus on the top-down approach to text, with concerns about genre (Criteria A: Purpose and structure of text) distinguished from and preceding concerns about discourse or paragraph (Criteria B: Development of meaning across paragraphs), which are in turn distinguished from and preceding concerns at lexicogrammar or clause level (Criteria C: Grammar and expression). As can be seen from the colour coding in Figure 4.4, the ratings sheet intersects stratal concerns with metafunctional concerns, supporting SLATE tutors to also think about ideational, interpersonal and textual meanings in student texts.

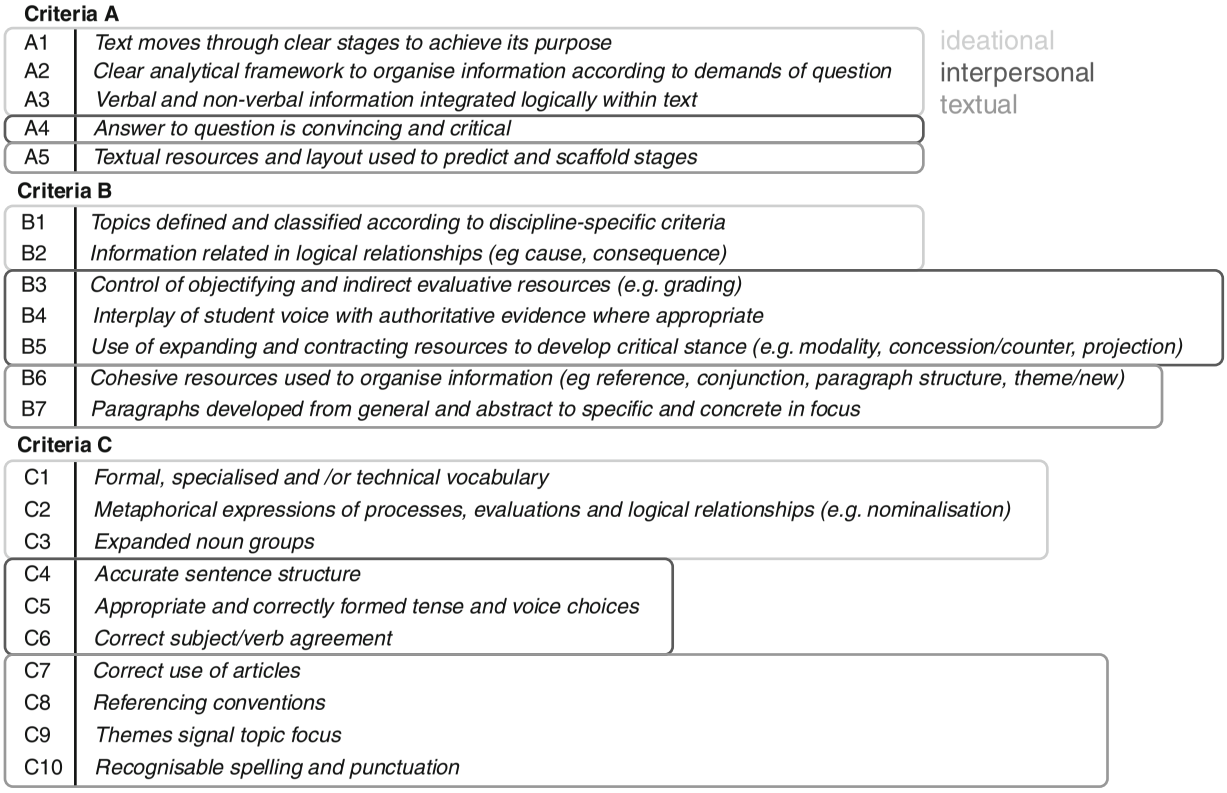


Figure 4.4 Ratings sheet with metafunctions identified

The top-down organisation of the ratings sheet encourages tutors to think about all three strands of meaning at the level of genre initially, before moving on to consider metafunctions at the discourse semantic level – concluding with a focus on the lexicogrammatical realisations of the higher level metafunctional meanings.

4.8 Conclusion

This chapter has introduced the 3 × 3 and the corresponding ratings sheet developed from it by the SLATE team in order to guide tutors into a particular orientation on text and language. Both the 3 × 3 and the ratings sheet are organised along stratal and metafunctional lines, enabling a view of language that is top-down – beginning with the larger units of meanings in texts, stages, before moving onto intermediate units of meaning, phases, which engage a discourse semantic perspective on text, and finally arriving at the smaller units of meaning within the lexicogrammar of clause, group and word. The 3 × 3 is unable to capture all of the complex relationships inherent in the SFL theories of strata and rank outlined in Chapter 2, but it did provide a useful heuristic to build a shared metalanguage amongst all participants in the SLATE project.

Appendix 4.1: A 3x3 Framework for analysing linguistic patterns of academic register

Metafunction	1. Social activity: genre and register (whole text)	2. Discourse semantics (phases)	3. Grammar and expression (clauses and sentences)
A. Ideational Meanings *(parts)*	i. Beginning, middle and end stages of the text build knowledge relevant to the discipline-specific topic and purpose ii. Language constructs the technical, specialised and formal knowledge of the discipline area (**field**)	i. Topics are grouped as phases which form a taxonomy according to discipline-specific criteria ii. Information is related in logical relationships (e.g. time, cause, consequence and comparison) iii. Tables, diagrams, lists, formulae, examples, and quotes are logically integrated with verbal text (e.g. to extend, report, specify, or qualify points) iv. Information is expanded within phases (e.g. in terms of general/specific; point/elaboration; evidence/interpretation; claim/evaluation)	i. Elements within noun groups effectively describe and classify specialised terms (e.g. classifying adjectives and defining clauses) ii. Verb groups express processes relevant to the genre (e.g. defining, classifying; cause and effect and reporting) iii. Well-formed circumstances (e.g. prepositional phrases) are used to specify location of time, place, etc. where necessary iv. Tense is consistent with genre and expressed through logically structured verbal elements v. Nouns are determined correctly in terms of mass/count; single/plural; and generic/specific vi. Vocabulary is discipline-specific and formal (e.g. no contractions or phrasal verbs)

B. Interpersonal Meanings *(prosodies)*	i. Text convinces reader by moving its points or positions forward across the stages (e.g. by amplifying, justifying, reinforcing and acknowledging experts in the field) ii. Language presents points and arguments in authoritative, impersonal and objective ways (**tenor**)	i. Interaction with the reader focuses on giving information (i.e. no questions or commands) ii. Subject matter is evaluated objectively (e.g. implied through grading resources and according to values such as relevance, validity and significance) iii. Patterns of evaluation build a convincing stance within and across phases iv. The writer support points with authoritative evidence v. The writer includes and controls the voices of external sources to develop points and guide the reader towards a preferred position	i. Mood choices realise information giving function (i.e. subject ^finite) ii. Subject and verb agree in number iii. Adverbs, adjectives and infused lexical items are used to evaluate objectively iv. Modal verbs, adverbs and interpersonal metaphors are used to negotiate opinions and recommendations objectively v. Source material is incorporated into student writing through correctly formed quotes, paraphrasing and summarising vi. Conjunctions and continuatives are used to monitor and adjust reader expectations vii. Sources are cited correctly (e.g. using projection) and referenced according to discipline specifications (e.g. MLA)

(*continued*)

Appendix 4.1: Continued

Metafunction	1. Social activity: genre and register (whole text)	2. Discourse semantics (phases)	3. Grammar and expression (clauses and sentences)
C. Textual Meanings *(waves)*	i. Content is previewed in the beginning stage (introduction) and reviewed in the end stage (i.e. conclusion) ii. Global headings and abstracts are used to signal layout of longer texts iii. Language constructs coherent, signposted and abstract texts (**mode**)	i. Ideas are developed within phases (e.g. paragraphs) with topic and summary sentences used to predict and summarise ii. There is a logical flow of information from sentence to sentence across phases iii. Entities and parts of text are tracked through cohesive resources (e.g. reference, substitution, and repetition) iv. Internal conjunctions are used to organise text v. Information flows from more dense abstract terms in topic sentences to expanded concrete terms in subsequent sentences	i. Choices of Theme predict the topic focus of the sentence ii. Grammatical metaphor is used to rework processes, qualities, and logical relations as abstract entities and relationships (e.g. using nominalisation to express processes as nouns rather than verbs) iii. Active or passive voice is used to adjust information focus iv. Articles and pronouns are used to keep track of participants v. Spelling, punctuation, bullets, paragraphing, and layout assist information structure vi. Abstract nouns are used to generalise and track ideas

Appendix: 4.2: A 3x3 framework for analysing distinctive linguistic patterns of factorial explanation

Metafunction	Social activity: genre and register (whole text)	Discourse semantics (phases)	Grammar and expression (clauses and sentences)
Ideational Meanings *(field – parts)*	• Ideas unfold as stages of Outcome ^ (multiple) Factors to explain why and how discipline-specific events occur • Text is structured orbitally with each 'Factor' phase independently related to Outcome	• Diagrams and examples logically are integrated with verbal text (e.g. to extend, specify or qualify points) • 'Factor' phases may include implication sequences with causal relations between events • Entities within and between phases may create scientific taxonomies (parts of/types of)	• Elements within noun groups effectively classify specialised terms (e.g. Classifiers and defining clauses) • Verb groups express processes relevant to the genre (e.g. defining, classifying, cause and effect and reporting) • Tense is consistent with field and expressed through logically structured verbal elements
Interpersonal Meanings *(tenor – prosodies)*	• Text convinces the reader by presenting information in authoritative, impersonal and objective ways	• Subject matter may be evaluated objectively (e.g. implied through grading resources of quantification) • Modality of probability used to…	• Mood choices realise information giving function (i.e. subject ^finite) • Subject and verb agree in number • Modal verbs and adverbs
Textual Meanings *(mode – waves)*	• Information is structured as waves to construct coherent, signposted and abstract text • Global headings, abstracts and conclusions are used to signal and review layout of longer texts	• Ideas are developed within multiple phases (e.g. paragraphs) with topic and summary sentences used to predict and summarise • Internal conjunctions are used to organise text • Information flows from more dense abstract terms in topic sentences to expanded concrete terms in subsequent sentences	• Choices of Theme predict the topic focus of the sentence • Grammatical metaphor is used to rework processes, qualities and logical relations as abstract entities and relationships (e.g. using nominalisation to express processes as nouns rather than verbs) • Active or passive voice is used to adjust information focus

Appendix 4.3: A 3x3 framework for analysing distinctive linguistic patterns of critical review

Metafunction	**1. Social activity: genre and register (whole text)**	**2. Discourse semantics (phases)**	**3. Grammar and expression (clauses and sentences)**
A. Ideational Meanings *(parts)*	• Ideas unfold as stages to achieve the purpose of text, i.e. * Context ^ * Analysis/Evaluation^ * Judgement • Two specialised fields are developed, i.e. * field of text (what's going on) * field of study of text (text/composer)	• information is related in logical relationships (e.g. cause, consequence and comparison) • Information is expanded within phases (e.g. point/elaboration; evidence/interpretation; and claim/evaluation)	• Elements within noun groups effectively describe and classify specialised terms and (e.g. classifying adjectives and defining clauses) • Elaborating clauses specify or describe meanings • Abstract verb groups refer to work of text/composer (e.g. depicts, portrays, employs, uses, and demonstrates) • Well-formed prepositional phrases and adverbs specify circumstances, including place in text • Present tense refers to 'timeless' events in field of text; work of text/composer; and evaluations in study of text

B. Interpersonal Meanings *(prosodies)*	• Text convinces the reader in authoritative, impersonal, and objective ways • Text moves its points or positions forward across the stages prosodically (e.g. by amplifying, justifying, reinforcing, and acknowledging experts in the field)	• Aspects of text are evaluated objectively (e.g. implied through grading resources and according to assessments of text composition and value and judgements of author's capacity) • Explicit evaluations accumulate in Judgement stage • Points are supported with authoritative evidence, including evidence from text • The writer includes and control the voices of external sources to develop points and guide the reader towards a preferred position	• Adverbs, adjectives, and infused lexical items are used to evaluate objectively • Modal verbs, adverbs, and interpersonal metaphors are used to negotiate opinions and recommendations objectively • Source material is incorporated into student writing through correctly formed quotes, paraphrasing, and summarising • Conjunctions and continuatives are used to monitor and adjust reader expectations
C. Textual Meanings *(waves)*	• In longer texts, content may be previewed in Context stage (introduction) and reviewed in Judgement (i.e. conclusion) • Information is organized cohesively as waves forming peaks of prominence	• Paragraphs with condensed topic sentences predict and organise layers of information, including evaluative meanings	• Choices of Theme predict the topic focus of the sentence • Grammatical metaphor is used to rework processes, qualities, and logical relations as abstract entities and relationships (e.g. using nominalisation to express processes as nouns rather than verbs) • Active or passive voice is used to adjust information focus

5
An Introduction to 'Sydney School' Literacy Programs

5.1 Introduction

This chapter introduces 'Sydney School' genre-based literacy programs, which form the theoretical underpinning for the pedagogic interventions of the SLATE project. Sydney School literacy programs involve a model of literacy teaching that aims to maximise all students' ability to read and write texts across a range of contexts by providing high levels of support. Based on sociocultural theories of learning (such as Vygotsky, 1978; Wood et al., 1976), language development (e.g. Halliday, 1975,2003; Painter, 1984, 1989, 1999), and language (as introduced in Chapters 2 and 3), the Sydney School model does not ask students to produce work independently until they have experienced at least one cycle of support and engagement with a target text, provided by a teacher or more knowledgeable other. This kind of approach can be informally characterised pedagogically as a 'prepare' model, and sits in contrast with 'repair' models, which give students little support prior to reading and writing, and which instead focus on providing feedback *after* students engage with or produce text. Sydney School genre pedagogy has two main foci – curriculum and pedagogy. In other words, the focus is on both *what* to teach and *how* to teach it.

5.2 Historical context for the development of Sydney School literacy programs

School genre literacy programs were developed in response to findings of a limited range of writing undertaken by students in 'process writing' programs, where students were encouraged to write in any form they liked on any topic they might choose with teachers playing a

non-interventionist facilitating role (Rothery, 1984). As a result, school students were not taught how to write the many genres needed for success in both school and life beyond school.

As a consequence of this initial research Martin, Rothery, and other colleagues (see volumes such as Christie & Martin, 1997), based in the Department of Linguistics at the University of Sydney and the Metropolitan East Region Disadvantaged School Program, began to map the genres needed for success in the early years of schooling ('Language and Social Power Project'), and develop a pedagogy for teaching those genres at the same time. With the addition of other colleagues and funding, this genre mapping and teaching project then continued with a focus on secondary schooling and the workplace ('Write it Right Project'). Meanwhile, other colleagues were working in areas such as English language teaching (Adult Migrant English Service) and tertiary education (Sydney University Learning Centre), mapping genres and developing pedagogy for their own contexts. The SLATE project was designed to extend this work in the tertiary sector. Sydney School literacy programs have also been developed in David Rose's Reading to Learn program, which includes a more explicit focus on reading and the design of the micro-interactions between teachers and students in different stages and phases of the pedagogy. This chapter focuses mainly on writing pedagogy, as these were what were implemented in the SLATE project. For a more detailed account of the development of Sydney School literacy programs, see Rose and Martin (2012), Chapters 2–4.

5.3 Foundational theory

Sydney School pedagogy is based on research into the way children successfully develop language in the context of the family environment, where parents, who are expert users of language, carefully scaffold their children's language learning (Halliday, 1975; Painter, 1984, 1999). Halliday (1975) argues that language is a meaning-making resource, in that in learning language, children are learning how to mean. Both Halliday and Painter demonstrate the crucial role the adult plays in the language learning process, highlighting the way parents extend, clarify, restate or repeat children's utterances, thereby scaffolding the continued development of children's language learning. Their research has documented how children at first rely heavily on the support of parents to help them construct language, but then very soon after, they are able to construct the same types of language on their own. Painter (1986)

points out that when children learn language, they are also learning the culture – the way to do things in life through language. A necessary feature of schooling is that it should teach children new ways to mean (Christie, 1991).

In addition to the insights into the ways parents support the successful language development of children, Sydney School genre pedagogy also draws on the sociocultural theories of Vygotsky and Bruner. Vygotsky's idea that children learn best when supported by an expert other in areas where they cannot function alone gave rise to his concept of the Zone of Proximal Development (ZPD). The ZPD refers to the space where learning occurs – a space where an expert other (an adult or more capable peer) supports a student to reach beyond what they can already do on their own in an extended space of supported learning. Bruner's notion of scaffolding (introduced in Wood et al. (1976) and popularised in Applebee and Langer (1983), who in fact draw an example of scaffolding from Halliday's work) is a central dimension of Sydney School genre pedagogy, which provides a series of scaffolds that are gradually withdrawn as students gain more confidence in reading and writing.

5.3.1 What to teach – understandings of genre in Sydney School genre pedagogy

Sydney School genre pedagogy generally operates with a working notion of genre as a 'staged, goal-oriented social process' (Martin, 1984)[1]: staged because it takes us a number of stages to work through the genre from beginning to end; goal-oriented because we enact genres to achieve certain goals; and social because we enact genres in interactive processes – by way of engaging with others in life, as was introduced in Chapter 2. Hyland (2007, p. 149) describes genres as 'abstract, socially recognised ways of using language', emphasising the fact that people in a given culture recognise and share common ways of using language. Sydney School research is generally characterised as genre-based because of the central informing role played by SFL genre theory (Derewianka & Jones, 2013; Martin & Rose, 2008). This functional linguistic approach to genre was inspired in part by Rothery's work in primary schools (Rothery, 1996), alongside key contributions by Plum on spoken story genres (Martin & Plum, 1997) and Ventola (e.g. 1987) on service encounters. Sydney School literacy programs take genre as their starting point and adopt a 'top-down' approach. Teaching writing involves situating a genre in its cultural context, exploring the stages the genre moves through, and making visible the language features that

realise those stages. To enable this kind of teaching, texts are analysed as per Chapter 4 (Text 4.1 and Table 4.2).

In addition to the language focus, the 'what' of SSGP foregrounds the development of field knowledge in learning to write. This is because students need something to write about. Thus, in addition to making explicit to students the genres, their structures and language features, so that students can develop understandings of the kinds of texts they are expected to read and write, Sydney School literacy programs privilege the link between the genres being taught and the field knowledge realised by those genres. The programs thus involve embedded literacy. This is the approach that was taken in the SLATE project, where SLATE literacy experts worked closely with subject lecturers at CityU to develop literacy interventions that were an integral part of the subjects being taught.

As far as tertiary education is concerned, Sydney School curriculum design naturally involves mapping the target genres for specific disciplines. This involves collecting a representative sample of texts, including subject outlines, reading material, assignment questions, and student assessment tasks (assignments, exams and project work). These texts are then analysed using relevant analytical tools provided by systemic functional linguistics (as outlined in Chapters 2 and 3). Genres are identified, and their stages and language features analysed, in order to make visible the language patterns that are to be taught to students (Chapters 6 and 7 of this volume focus on the results of the genre analyses conducted in the SLATE project and further develop the genres mapped thus far (see Martin & Rose, 2008, for maps of genres in disciplines such as history and science)).

5.3.2 How to teach – literacy pedagogy in the Sydney School

With respect to how literacy is taught, Sydney School genre pedagogy involves a pedagogic cycle of teaching and learning activities that supports students to learn about text and language, and to practise writing with their teachers using their newly developed understandings, before they set out to write on their own. Sydney School pedagogy is thus seen as instrumental to empowering students with the linguistic resources for successfully engaging in the social processes – both within schooling and beyond.

One influential model of the development of Sydney School pedagogy is outlined as the Teaching Learning Cycle (hereafter TLC) in Figure 5.1. This model has been used across a range of education contexts (primary and secondary school, and tertiary and TESOL contexts). The cycle

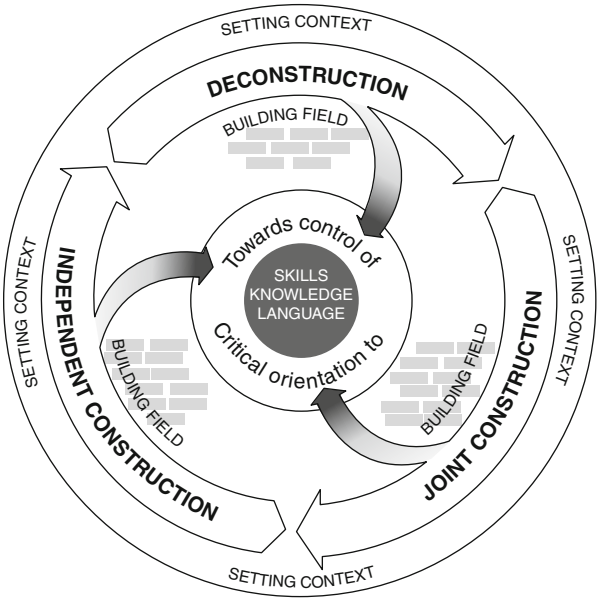


Figure 5.1 The Teaching Learning Cycle
Source: Rothery & Stenglin (1995).

consists of three main steps: deconstruction, joint construction and independent construction. As part of these three steps, two kinds of activity are highlighted. These are building the field (i.e. building up the field knowledge students will draw on in their writing) and setting the context (i.e. explaining the role of the focus genre in the wider culture, including schooling and beyond, and preparing students to shift fields while remaining in the same genre). The nucleus of the diagram indicates that the ultimate goal of the pedagogy is to give students both control of and a critical orientation to the genre, or target text.

5.3.3 Building the field and setting context

The aim of building the field and setting context is to critically orient students to the target text and build up their knowledge of the subject area so they will have something to write about (Rothery, 1996). This involves immersing students in the topics that will form the knowledge base for the writing, and familiarising them with social context and purpose of the target genre. Building the field is realised differently across the different sectors of the education system. In primary schools, the

teacher scaffolds field building by organising activities such as reading to children, talking about the topic or having guest speakers, showing films and other web-based texts or going on excursions. As students progress through schooling, students' reading, across print and electronic media, plays an increasingly central role in building the field. By the time students get to tertiary education, considerable independence on the part of the student is expected for building knowledge of the topic. In the SLATE project, we somewhat relied on the subject lecturers to take responsibility for field building, though we also scaffolded reading within the disciplines (see Chapter 7 for details of how reading was scaffolded in biology).

Setting the context focuses on the social purpose of the target genre and on building students' understandings of the register of each text within the genre; the aim here is to build understandings of the registerial configurations within different instances of the genre (i.e. configurations of interpersonal, textual, and ideational meanings).

5.3.4 Deconstruction

The deconstruction step of the TLC was called modelling in the primary school contexts and in the later years of schooling deconstruction (see, for example, Joyce & Feez, 2012; Rothery, 1996). The aim of this step is to make visible to students the stages of the target text and their functions in that text, as well as the key language features. In this step, students should become familiar enough with the genre that they can pull it apart and put it back together, understanding why particular bits go where they do, and how particular language features work to achieve the genre's purpose. This involves two types of activity. One is description of the text by the teacher. The other involves activities that help reinforce students' understanding of the genre. Such activities include highlighting modelled language features, reassembling segments of texts which have been cut up into stages or smaller units, replacing language features with new and similar ones, or completing cloze passages (where students have to fill in missing bits of text). For a more comprehensive list of deconstruction activities, see Joyce and Feez (2012) and Jones and Lock (2010).

Part of the teacher's job in the deconstruction step is to build up a shared metalanguage with students so they have a language to talk about language (i.e. the language of a text). Having a shared metalanguage enables teachers to not only teach about language and text, but also to structure assessment and feedback around the shared metalanguage, as was explained in Chapter 4, with reference to the 3×3 toolkit.

For students who have little experience writing the target genre, it is important to deconstruct texts that are prototypical examples of the target genre and which are produced in a similar context to the one that students will be writing in. It is also important, however, that model texts display a range of different wordings and structures in order to provide examples of diverse ways of making meaning within the one genre.

The SLATE project developed extensive deconstruction materials for students, encompassing both modelling of target texts and activities for students to complete either independently or, in some cases, upload in order to get feedback from SLATE tutors (see Chapter 8 of this volume for a detailed description of the tutor involvement with the SLATE project).

5.3.5 Joint construction

The joint construction step of the TLC involves the teacher and students building up a new topic in the field, typically related to the topic of the deconstruction text. The teacher then leads the students in the writing of an instance of the target text on either a black/white board, a piece of butcher's paper, or projecting an emerging text on a screen or smart board as it is scribed on a personal computer (desktop or laptop). This step is designed to make learning to write more like learning to talk, drawing on the principle of 'guidance through interaction in the context of shared experience' (Painter, 1986; cf. Gibbons, 2002, 2006, 2009; and Hammond, 2001, on scaffolding). The power of the pedagogy depends crucially on this step, which uses the metalanguage to build on students' newly developed understandings of language and text to give them a scaffolded turn at writing before they write alone (for further discussion, see Dreyfus et al., 2011; Dreyfus & Macnaught, 2011; Humphrey & Macnaught, 2011; Hunt, 1994; Macnaught et al., 2013; Martin & Dreyfus, 2015). For joint construction to work, students need access to relevant field knowledge (organised board notes can be very helpful), and understanding of basic genre structure so they do not have to think too hard about what's required as they contribute to writing a text with their teacher, using the metalanguage introduced previously. The teacher develops the jointly written text by soliciting contributions from students, which are scribed on the board by the teacher. This typically involves a good deal of teacher-led discussion about students' contributions, as s/he scaffolds students with respect to decisions on the appropriateness of the student offerings.

Because it was originally developed and enacted in a face-to-face classroom, this joint construction step presented a challenge to the SLATE team, who had to enact it in distance mode via the online platform. As is discussed in Dreyfus and Macnaught (2013), in adapting joint construction to the online environment, some adjustments needed to be made to account for the differences in virtual classrooms. Where Humphrey and Macnaught (2011) identified the three stages of Bridging, Text Negotiation, and Review in tertiary face-to-face joint constructions, Dreyfus and Macnaught (2013) identified the three stages of Set-up, Text Negotiation and Wrap-up (for more discussion of the enactment of joint construction in the SLATE project, see Chapter 10 of this volume).

5.3.6 Independent construction

For independent construction a third related topic is built up. Once consolidated, this final step of the TLC involves students writing an instance of the target text relatively independently. Opportunities for students to collaborate or consult with teacher can be provided before students have to submit their final draft. Alternatively, students might work in groups on a draft of the target text before doing a final version on their own. Independent construction in the SLATE project was organised to include post-writing support. As described in Chapter 11 of this volume, two cycles of tutor feedback were provided to students before they were required to submit their assignment to their subject lecturer, using the metalanguage provided in the tutors' professional learning (tutor training). As a result of the introduction of the TLC to CityU, with substantial scaffolding provided to students prior to having to write independently, the independent construction step was expanded to become a negotiated independent construction. In this step, tutors trained in SFL and Sydney School Genre Pedagogy (see Chapter 8 of this volume for discussion of the tutor training program) worked with students on drafts of their writing, helping students to develop deeper understandings about language and writing in their disciplines during the writing and drafting process.

The basic principle of the TLC is that teachers never ask students to write anything until they have: discussed a model of the target genre with them, jointly constructed another model of that genre with them, and decided they are ready for the independent writing task. Where students are not ready, further cycles of deconstruction and joint construction can be undertaken, with smaller groups of students. As students progress, the teacher carefully monitors their progress, gradually

reducing the support s/he provides to them. In the SLATE project, the additional support provided to students during the negotiated independent construction step meant that even while support was reduced as students progressed through the cycle, it was still formally structured into the writing process. Figure 5.2 shows the gradual release of responsibility across successive stages of the TLC.

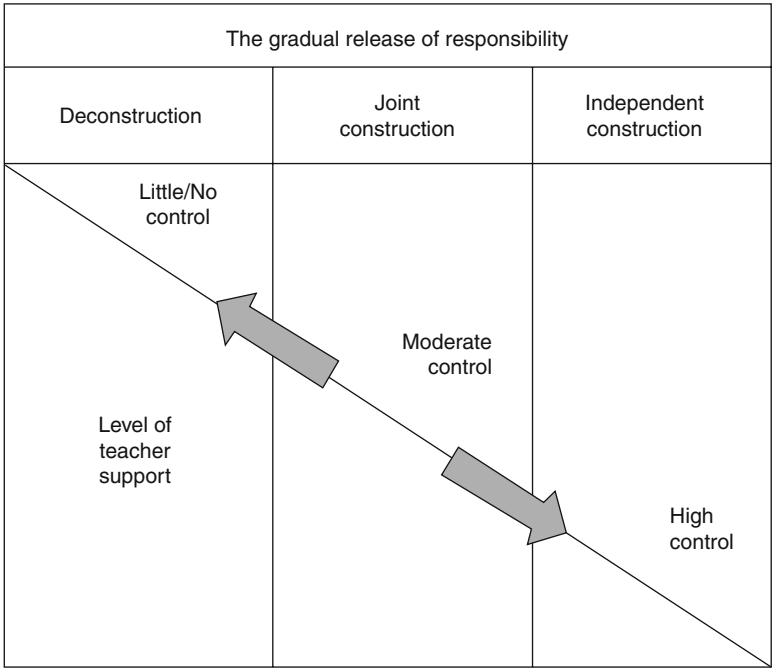


Figure 5.2 Gradual release of responsibility
Source: After Pearson & Gallagher (1983).

In Table 5.1 (after Hyland, 2004, pp. 10–16; 2007, p. 150), the benefits of genre pedagogy are identified and elaborated.

As argued in Rose and Martin (2012), these benefits align Sydney School pedagogy with the kind of teaching/learning that Hattie's (2009) meta-analysis on teaching and learning shows improves learning outcomes – that is, direct instruction. But in addition to this, what marks Sydney School as different from other visible pedagogies is its focus on the development of a metalanguage and the crucial role the metalanguage plays in the pedagogy.

Table 5.1 The benefits of genre pedagogy

Explicit	Makes clear what is to be learnt to facilitate the acquisition of writing skills
Systematic	Provides a coherent framework for focusing on both language and contexts
Needs-based	Ensures that course objectives and content are derived from students' needs
Supportive	Gives teachers a central role in scaffolding students' learning and creativity
Empowering	Provides access to the patterns and possibilities of variation in valued texts
Critical	Provides the resources for students to understand and challenge valued discourses
Consciousness-raising	Increases teachers' awareness of texts to confidently advise students on writing

Source: Hyland (2004).

5.4 Challenges to the enactment of Sydney School pedagogy in the SLATE project

In relation to the dialectic of theory and practice outlined above for Sydney School educational linguistics, the SLATE project faced a number of significant challenges. As far as curriculum is concerned, it was a large-scale project addressing literacy in under-explored disciplines in tertiary contexts and so had come to terms with undergraduate biology and linguistics as systems of genres. This naturally involved dealing with long texts featuring combinations of genres (textbooks and student research projects in particular), referred to by Martin (1995, 1996) as macrogenres. The segmental nature of a good deal of undergraduate teaching raised important questions about the possibility of proposing a spiral genre-based writing curriculum based on this research.

Turning to pedagogy, SLATE faced the challenge of re-contextualising the Teaching Learning Cycle for an online literacy environment. This meant not only preparing materials to support deconstruction activities (including support for reading), but experimenting with joint construction in not quite 'synchronous' online interactions. In addition, the role of feedback in response to individual construction was explored.

Alongside these pedagogic renovations, the project faced the familiar problem of a lack of shared knowledge about language, register and genre – and the resulting lack of a shared metalanguage. Our training of tutors (see Chapter 8) and the development of the 3×3 for use in all

steps of the TLC and in assessment constituted our attempts to address this problem. However, there were constraints of time and distance, which meant that sometimes only a little relevant metalanguage could be introduced to students, and there was little opportunity to keep their biology and linguistics lecturers in the loop. Constraints of time and distance also compromised the coordination of writing tasks and their support with the reading and assessment demands of courses.

As far as phases of Sydney School literacy programs are concerned, many of the innovations developed in Rose's Reading to Learn programs were not utilised for a number of reasons, such as the need to support students at tertiary level to create new texts from a synthesis of their reading across multiple sources, rather than to reproduce texts. Reading to Learn features innovative, carefully designed mentor/student interactions, especially in its preparing for reading, joint construction, detailed reading, and joint rewriting steps (see Rose & Martin, 2012). To date, the SLATE project has only begun the exploration of the possibilities of online joint construction (Dreyfus & Macnaught, 2013) and, as technology develops, other innovations can be trialed with teaching this step from a distance (see Chapter 10 for the achievements of Joint Construction in the SLATE project). In addition, although the NESB students in the project, by and large, needed to develop grammatical resources for academic discourse, we did not do a great deal of work at the grammatical form and expression level in the earlier steps of the TLC because we deliberately adopted a top-down approach to writing development. These were addressed more closely in the negotiated independent construction step. The possibility of providing online support in terms of adaptations of Rose's 'Sentence Making' and 'Sentence Writing' for senior students was not explored.

5.5 Conclusion

We can perhaps observe that something comparable to the more than three decades of action research in face-to-face teaching/learning contexts which have underpinned the development of Sydney School genre-based literacy pedagogy needs to be comparably resourced for online distance education environments. This is not just an issue of technology. For such a project to succeed, the full support of tertiary academic and administrative staff, cooperating with educational linguists over a number of years, is required. SLATE has built the foundations for this research and we all look forward to the next phase of genre-based web-based literacy programming in tertiary environments.

6
An Exploration of the Linguistics Program at CityU

6.1 Introduction

This chapter explores the findings from the research conducted into the undergraduate linguistics program at City University Hong Kong (hereafter CityU). The aim of this research was to gain an understanding of the discursive practices within the CityU linguistics program, through a study of the genres of the texts collected from the program. The genre profile arising from this work was used to inform the literacy interventions implemented in the SLATE project, as described in Chapters 9–11. The genre profile highlighted the fact that the linguistics program at CityU, like most around the world, comprises subjects from many different subfields within the field of linguistics, which gives rise to a diversity in literacy practice. This diversity indicates that the relation of genre to field is a complex one. In order to make sense of this complexity, this chapter examines the key genres students are required to write for the undergraduate program, detailing the differences in staging and linguistic patterns that realise field and mode.

6.2 The undergraduate linguistics program at CityU

At the time of this study, the undergraduate linguistics program at CityU was of three years duration (though it is now four). The three-year program mainly comprised coursework but the third year also functioned as an honours year, during which students were required to complete a piece of independent research and write a thesis of approximately 5,000 words on a linguistic topic of their choice. The subjects in the first two years covered many subfields of linguistics. There were core subjects from the subfields of phonetics and phonology, syntax, semantics,

sociolinguistics, psycholinguistics, and computational linguistics. In addition there were elective subjects from a broad range of subfields including corpus linguistics, rhetorical structure theory, systemic functional linguistics, machine translation and natural language processing, pragmatics and translation studies, as well as studies of other languages (such as Japanese and Korean). This chapter focuses on examples of the extended texts (half a page or longer) which students wrote in the core subjects in the first two years of the linguistics program.

6.3 Studies of linguistic discourse

While there is some systemic functional linguistics (SFL) research that explores the discourse of a number of fields as they are recontextualised for educational purposes (see, for example, Coffin, 1997; Macken-Horarik & Christie, 2011; Martin et al., 2010a; Rothery & Stenglin, 1997; Veel, 1997), there is very little research that explores the discourse of linguistics. The only specific study of linguistics of which we are aware is Humphrey and Dreyfus (2012), who used genre and register theory to describe one of the genres (linguistic interpretation) that students write in a postgraduate Applied Linguistics degree. The motivation for Humphrey and Dreyfus's research was to better support students' writing, particularly students from a non-English-speaking background (NESB), as many of these students seemed to struggle to produce the kind of linguistic interpretation valued in the Masters level linguistics program. This research provided a useful starting point for mapping the kinds of discursive practices involved in being a linguistics student, as the genre described by Humphrey and Dreyfus (2012) reflected the concerns of one subfield of linguistics and mapped out the language features of that genre.

Humphrey and Dreyfus's study showed that interpretation of meaningful language patterns is one of the practices valued in the subfield of systemic functional linguistics, and the purpose of linguistic interpretations is to explicitly document these patterns and interpret them according to various dimensions of SFL theory. For this subfield, language data (spoken or written, monomodal or multimodal) is analysed and interpreted. This gives rise to an interpretive genre with three stages: Research Context, Results/Discussion and Conclusion. It is in the analysis of the Results/Discussion stage that the findings of linguistic analysis are interpreted. Analysis of this stage revealed that it is constituted by a series of iterative phases and moves that are central to achieving the goals of the interpretation genre (see Table 6.1).

Table 6.1 Phases and moves in the Results/Discussion stage of a linguistic interpretation

Genre	**Stage**	**Phase**	**Move**
Linguistic interpretation	Research Context		
	Results/Discussion	'Signal'	
		'Theory'	
		'Point'	Findings
			Example
			Nub
	Conclusion		

Source: After Humphrey & Dreyfus (2012, p. 163).

The key phase in the Results/Discussion stage is called the 'Point'. In this phase, students need to identify a pattern in their language data (as identified in their analysis) and make a point about the significance of that pattern. Seeing a pattern in the analysis and making a point about it is seen to be fundamental to a systemic functional linguistic interpretation. To capture the way the point is made in these 'Point' phases, Humphrey and Dreyfus have included a unit of meaning below phase, which they have called move. This is contrasted with Swales's (1990) concept of move, which is a larger rhetorical unit that is not tied to a theory of language or lexicogrammatical realisations (Hood, 2010).

The moves that constitute the 'Point' phase are Signal, Findings, Example and Nub, each with a particular function. These are outlined in Table 6.2, which comes from a model text used for an assignment where students were required to compare the language features across three metafunctions in two texts, in order to make visible language patterns that contribute to the field, tenor and mode of the texts.

The Signal move is the hyperTheme for the 'Point' phase, and serves as an introduction to the point being made. In the example in Table 6.2, the Signal is about transitivity resources in the text under study. The Findings move is where the text reports on the findings of the analysis, in this case about the transitivity resources found in the text. The Example move provides an example of the findings, while the Nub is where the point is made about what those findings mean. Humphrey and Dreyfus (2012) reported that while NESB students had little trouble writing the Findings and Examples moves of a 'Point' phase, they often had difficulty writing Nubs.

Table 6.2 Excerpt of 'Point' phase from Master of Applied Linguistics assignment

Phase	**Move**	**Text sample**
'Point'	Signal	A great deal of information about the field of the text can be gained through an analysis of transitivity selections.
	Findings	As the analysis in Appendix 2a shows, grammatical selections from the transitivity system reveal that 'dogs' are the most frequent participants in this directive.
	Example	(e.g. all dogs are by instinct pack animals and must have a leader)
	Nub	These participants are generic, thus construing a generalised rather than particular field. Generalised fields are typical of institutionalised genres such as directives.

This description provided us with a foundation from which to further explore point making in linguistics subfields and genres. Making a point was found to be one of the ways that the subfields of linguistics are differentiated from each other, and this is explored in more detail in Section 6.5. Understanding how different subfields and genres make a point informed the development of pedagogical materials designed for the linguistics students participating in the SLATE project. The next section (6.4) details the genres found in the core subjects in the CityU linguistics program, focusing on the level of stage, and some of the salient language features of the stages. Section 6.5 revisits the genres from the point of view of phase and move.

6.4 Genres in undergraduate linguistics

In the CityU undergraduate linguistics program there are five subjects that offer students the opportunity for extended writing. These are *Language in Society*, which is an introduction to sociolinguistics; *Linguistics 1*, which is an introduction to theoretical linguistics; *Language and Mind*, which focuses on psycholinguistics, specifically language acquisition; *Computational Linguistics*, an introduction to natural language processing; and *Semantics*, which focuses on meaning from a formal, philosophy-influenced perspective. Our genre profile revealed that each subject requires students to write either a type of report or a factorial explanation, both of which are genres typically found in science (Martin & Rose, 2008; Veel, 1997). In this section each genre

is explored in turn, taking into consideration the aims of the subfield from which it comes, followed by an examination of how one makes a point in each genre. Other subjects within the program such as *Phonetics*, *Phonology* and *Syntax*, do not make use of extended writing tasks, preferring 'problem sets' which require short answer questions, or tasks where students must draw diagrams or draw on diagrams. These are not explored in this chapter.

6.4.1 Factorial explanations in first-year sociolinguistics

The first subfield and associated genre to be discussed is sociolinguistics. This subfield is the focus of the first-year subject *Language in Society*; it also features in students' work as part of the general introductory subject *Linguistics 1*. The textbook used at CityU (Holmes, 2008) for *Language in Society* sets out the concerns of sociolinguists as follows (our italics below):

> Sociolinguists study the relationship between language and society. They are interested in *explaining why* we speak differently in different social contexts, and they are concerned with *identifying* the social functions of language and *the ways* it is used to convey social meaning. (Holmes, 2008, p. 1)

It is the 'explaining why' part that we first emphasise here, as this accounts for why the genre of explanation is frequently found in undergraduate sociolinguistics. The family of explanation genres has previously been explored in both science (Martin & Rose, 2008; Unsworth, 2001a; Veel, 1997) and history (Coffin, 1997; Martin & Rose, 2008). Five explanation genres have been identified, which in Martin and Rose (2008) are termed sequential, causal, theoretical, factorial and consequential. The type found in sociolinguistics is typically factorial, and focuses on explaining linguistic events for which there are one or more causes or factors (Veel, 1997).

Secondly, we emphasise '*identifying* the social functions of language and the *ways* social functions are used to convey meaning'. This *identifying* accounts for the kinds of reports found in linguistics, where linguistic concepts are introduced and exemplified. These reports are discussed in Section 6.4.2 below.

Both the factorial explanations and the reports were found in texts that required students to identify something about language use that they found interesting and discuss it. The two assignment tasks from which these genres arose are given in Texts 6.1 and 6.2.

While there is little in either of these assignment tasks that points explicitly to an explanation genre, analysis of a number of the

Text 6.1 Assignment task from Introductory Linguistics subject

> A concise description of the linguistic phenomenon that rouses your curiosity (that data of yours are truly original is most appreciated) [sic]
> A brief literature survey about it (what other people have said about this, if any)
> Your discussion (linguistic analysis, trend of change, distribution, educational or other implication, relevance to your field of study etc.)
> Relevant reference materials

Text 6.2 Assignment task from *Language in Society*

> Describe your personal experience involving language use. It could be an incident you experienced or witnessed, or a phenomenon you noticed in your speech community. Give a brief comment on how that incident or phenomenon affected you or the people involved. (1–1.5 pages)

highest-ranking responses show a factorial explanation. In these factorial explanations, a language phenomenon is identified and reasons provided for its occurrence. They contain the typical stages of a factorial explanation, which are Phenomenon (where the phenomenon to be explained is introduced) followed by Factors (where two or more factors that explain why the phenomenon occurs are introduced). The Factors stage typically involves implication sequences (activity sequences which unfold through relationships of cause), using causal language features both within and between clauses. Table 6.3, which is a response to the first assignment task, shows a factorial explanation on the topic of code-mixing.

Table 6.3 Factorial explanation from linguistics

Stage	**Text**
Phenomenon	Code-mixing in Hong Kong In Hong Kong, which is a bilingual society, it is not surprised to hear people say sentences like: 「我地去 canteen 定係去又一城 food court 食 lunch 好? 」; or 「我今日去到 library 先諗起我無帶 Student Card, 又要行番 Hall 度攞。」 This linguistic phenomenon is called code-mixing. Code-mixing means using more than one language or variety during the same conversation. This phenomenon is particularly common in Hong Kong. Here, I will discuss whether code-mixing is a good linguistic circumstance, is it a linguistic deficiency or resource. First of all, I will discuss the reasons why people code-mix. Reason why people code-mix People code-mix because of many reasons:

(*continued*)

Table 6.3 Continued

Stage	Text
Factor 1	In Hong Kong, this efficient city, it is firstly because **code-mixing can reduce wordy sentences**; which means saving time and effort. Here is an example, 「我地 tea time 去左食 cake, 我叫左 Cheese cake, 佢叫左 Chocolate Mousse。」 「我地下午茶時間去左食蛋糕, 我叫左芝士蛋糕, 佢叫左朱古力慕絲蛋糕。」 Comparing the above sentences, the second sentence is wordier. By saying the first sentence, which is a briefer expression, time can be saved.
Factor 2	Furthermore, **people code-mix because it can avoid embarrassment**. Here is an example. 「吾好意思，我想去一去 toilet。」 In the above sentence, noticing people that one has to go to toilet is embarrassing. Therefore, instead of using the term 洗手間, people use another language to express the embarrassing term.
Factor 3	In addition, **people code-mix [in order] to show solidarity**. Here is one example. 「你甘 out 既，今年吾興 highlight 嫁啦!」 This reason also explains why this linguistic phenomenon is commonly appearing among Hong Kong teenagers. Since code-mixing is a trend in Hong Kong, teenagers think that it is a kind of group membership identification.
Factor 4	Moreover, in Hong Kong, **people code-mix [in order] to emphasise important points**. Like the following example. 「小姐, 吾好意思, 我地淨係收 cash, 吾收 card 嫁。」 Here, 'cash' and 'card' are the main points of the sentence. Using another language for some terms in a sentence can make people alert to the point.

The field in this text is construed without a great deal of technicality. While the term *code-mixing* can be construed as a somewhat technical entity, specifically an activity entity (an entity that construes an activity sequence in the field (Hao, forthcoming) – which in this case is the activity of people mixing language codes when they talk), the only other technical entity is *sentence*, which is more or less common parlance. A low level of technicality was found across the genres in sociolinguistics, unless they were engaging with another subfield of linguistics such as phonology.

There is, however, a range of causal resources in Table 6.3 typical of factorial explanations. Some of these are congruently realised as conjunctions (e.g. *because*, *in order to* …), whereas others are realised incongruently as causal verbs (e.g. *reduce*) and causal nouns (e.g. *reasons*). The verb forms proliferate:

> … *code-mixing can* ***reduce*** *wordy sentences* …
> … ***saving*** *time and effort* …
> … ***avoid*** *embarrassment* … and
> … ***make*** *people alert* …

and are all found at strategic locations in the text, such as in hyperThemes, functioning to make the point in each of the Factors (further analysis of the structure of 'Point' phases is presented in Section 6.5). These verbs do not carry a particularly heavy field load (in contrast to the two listed in Chapter 3, *hydrolysed* and *generate*, which come from a factorial explanation from the field of exercise science).

Additionally, within each factor there is an example to demonstrate the factor. As will be shown below, all genres that we examined in linguistics contain examples.

6.4.2 Instantiated concept reports in linguistics

The second type of genre we found in sociolinguistics is a subtype of descriptive report called an instantiated concept report. Instantiated concept reports function to identify, exemplify and build additive relationships between concepts, building the field, as it were, of sociolinguistics. As with the descriptive reports described in secondary school contexts (Martin & Rose, 2008), the instantiated concept report focuses on one class of phenomenon, and rather than describe its features, it firstly identifies an instance of its use, before identifying and then exemplifying the class of phenomenon. The phenomena being reported are linguistic in nature, and typically involve linguistics concepts. An instance of this genre can be seen in Table 6.4, which exemplifies how colour is used differently in different languages.

Table 6.4 shows an instantiated concept report with the stages of Phenomenon, Examples and an optional Conclusion. The Phenomenon stage has three phases that together introduce the phenomenon being reported on. The first phase, Signal, provides a context for the class of linguistic phenomenon, which in this case is the categorisation of colours. The second phase, Instance, identifies an instance of the phenomenon by recounting an incident about it. The third phase, Concept, describes features of the class of phenomenon firstly defining it and then describing further aspects of the concept.

Table 6.4 Exemplifying report from first-year sociolinguistics

Stage	Phase	Text
Phenomenon	*Signal*	Color categorization is an interesting topic. I have witnessed an incident which involved colors description; this makes me think about different language used in categorization.
	Instance	I went shopping with my friend in Sogo last week. As my friend would like to buy a lip gloss, we went to the cosmetic counters. When we got near of a counter of Shiseido, a woman asked the sales about the lipstick she wished to purchase. The woman wanted to buy a lipstick which was recommended by her friend, it is a color similar to rose red as she described 「朋友介紹我買那支玫瑰紅色o既唇糕。」. The sales could not figure which color she was mentioning but asked her to try the sample. I noticed that there is about 24 names describing red or pink like 'simmering red', 'red cool', 'brown red', 'real red'. In this incident, the woman was confused since she could not state the color precisely.
	Concept	According to Kovecses (2006, p. 33), culture is a crucial factor that determines the boundaries of the use of color terms. 'The ranges of the application of color terms may indeed vary from language to language, culture to culture.' Linguistic differences cause trouble in our daily life.
Examples	*Eg 1* *Black and white*	A language which is spoken in New Guinea, Grand Valley Dani, only use black and white to describe colors according to the example given by Fromkin (2007).
	Eg 2 *Red*	Besides, color symbolism is different throughout culture. For example, red represents good luck and success, and is commonly used in wedding ceremonies in China. While red is considered holy in some parts of Africa, women there are forbidden to wear red clothes.

(*continued*)

Table 6.4 Continued

Stage	Phase	Text
	Eg 3 Rainbow	On the other hand, considering the linguistic differences between Chinese and English, when describing colors of the rainbow, 'red, orange, yellow, green, blue, indigo, and violet' are used in English; while「紅、橙、黃、綠、青、藍、紫」are used in Chinese. There are differences in describing basic colors: 'indigo' in English and「青」in Chinese. *When* we want to express a color in between the basic colors, there are much more difficulties. New terms may be invented in English, like 'scarlet', a color term within the meaning of red; the term 'saffron', a color between orange and yellow. But in most cases, Chinese would express that with placing a modifier in front. For example,「緋紅色」,「淡黃色. However, there are some shared concepts between these two languages. For example, 'grass green' and 「草綠」; 'bloody red' and「血紅」. The question is: whether these two indicated colors (in the Chinese and English version) are exactly the same?
Conclusion		The boundaries of color terms are governed by cultural convention according to Kovecses (2006). These differences in color categorization cause confusions when we buy western products which color information are needed.

The second stage in this report is Examples. This involves phases of field-specific examples that demonstrate the concept and phenomenon instantiated in the first stage. This kind of presentation of a linguistic phenomenon or concept, followed by exemplification of that phenomenon or concept, seems to be present across a number of subfields in linguistics, as will be shown below, but in slightly different configurations.

The final stage, Conclusion, seems to be optional and was not found across all the reports in sociolinguistics. It functions to reiterate the concept or phenomenon described in the report.

One interesting feature of the linguistic patterns of the sociolinguistics instantiated concept reports relates to the use of technicality and abstraction, which we discussed in Chapter 3. Unlike genres found in other subfields of linguistics, these genres tend not to contain much technicality, though they do have abstraction at strategic points to control the flow of information. At the start of the report, the abstract activity entity (Hao, forthcoming) *colour* ***categorization*** captures and introduces the first part of the phenomenon; this is then carried forward into the macroTheme *linguistic* ***differences*** *cause trouble in our daily life*, which captures the second part of the phenomenon. Both are subsequently wrapped up in the macroNew: *These* ***differences*** *in color* ***categorization*** *cause* ***confusions*** *when we buy western products which color information are needed*. This packaging of information via grammatical metaphor is typical of academic discourse, as shown in Chapters 3 and 4.

6.4.3 Defining concept reports in Semantics

Concept reports were also found in the subject *Semantics*, whose aim is to study meaning in language (Riemer, 2010). The subtype of report in Semantics is called a defining concept report, which functions primarily to define concepts. While assignments in this course usually consisted of short answer questions, questions requiring longer answers were also found. This section focuses on the analysis of responses to a question that invited students to write up to 300 words on the linguistic concept of compositionality. The assignment prompt is as follows:

> Explain the idea of compositionality of meaning. Support your answer with examples.

This prompt has two requirements: to define the concept, and to provide examples of that concept. Table 6.5 shows one such defining concept report responding to the above prompt:

As is typical of reports (Martin & Rose, 2008), the first stage of this concept report, Definition, introduces and defines the phenomenon, in

Table 6.5 Concept report in *Semantics*

Stage	Phase	Text
Definition		It is known that linguistic meaning must be compositional. Compositionality is the property of being composed from parts. Complex expressions receive their meaning under the process of composition. The Principle of Compositionality states that the meaning of a complex expression is determined by the lexical meanings of its components, their grammatical meanings and the syntactic structure of the whole. Hence, the principle of compositionality of meaning refers to meaning of a complex expression which is determined by the meaning of its constituents and the rules used to combine them. This incorporates three separated claims: The meaning of a complex expression is completely determined by the meanings of its constituents. The meaning of a complex expression is completely predictable by general rules from the meanings of its constituents. Every grammatical constituent has a meaning which contributes to the meaning of the whole.
Exemplification	*Eg1* *Shakespeare*	Take, for example, the sentence 'Shakespeare was a famous English poet'. In order to understand the expression, someone must first find out the meanings of every lexicon. The meaning lexical items in this sentence are 'Shakespeare', 'famous', 'English' and 'poet'. After that, s/he has to figure out the compositional meanings of the sentence in its given form by adding grammatical meaning. The verb 'be' is used in the past tense 'was' indicating that this event happened in the past. Finally, the compositional meaning of the complex expression is determined after combining the lexical and grammatical meanings.
	Eg 2 *Visit to grandmother*	The sentence 'I will visit my grandmother this Saturday' can be used as another example in supporting the principle of compositionality of meaning. Someone should first understand the meanings of 'I', 'visit', 'my grandmother' and 'this Saturday' in the sentence. Since 'will' is inserted before the main verb 'visit'. It is known that the event is not yet happen but will be performed in the future. Finally, the complete meaning of the whole sentence is figured out by combining the lexical and grammatical meanings using syntactic rules.

this case the concept, using predominantly relational processes, which 'empty out' the verbal group and pack information into the nominal group. These processes are underlined in the following examples:

> *… linguistic meaning must be compositional …*
> *… Compositionality is the property of [[being composed from parts]] …*
> *… Every grammatical constituent has a meaning [[which contributes to the meaning of the whole]].*

There are many instances of abstraction and technicality in the Definition stage, serving to construe the technicality in the subfield of semantics. These are realised through grammatical metaphor: *compositionality*, *compositional meanings*, *lexical and grammatical meanings*; and technical entities: *syntactic structure*, *syntactic rules*, *constituents* and *lexicon*.

The second stage, Exemplification, exemplifies the linguistic concept with 'imagined' examples. As such, this stage is less abstract than the Definition stage, though abstraction comes in the hyperNews of the phases, to link the examples back to the linguistic concept:

> *Finally,* the compositional meaning of the complex expression *is determined after combining* the lexical and grammatical meanings.
> and
> *Finally,* the complete meaning of the whole sentence *is figured out by combining the* lexical and grammatical meanings *using syntactic rules*.

Technicality also features in the Exemplification stage, specifically as labels for entities that construe the field of linguistics, e.g. *lexicon*, *lexical item*, *verb*, *sentence*, and *syntactic rules*. These function to ground the examples in the technicality of the field, and thus substantiate the writer's point.

Both the defining concept reports from semantics and the instantiating concept reports from sociolinguistics are similar in that neither relies on the collection and analysis of primary data. This gives rise to particular configurations of 'Point' phases, as is discussed in Section 6.5 below. In contrast, the next genre to be discussed is a data-driven genre, where students are required to use tools of analysis to examine a body of data.

6.4.4 Experiment reports in first-year language acquisition

The genre of experiment report (which is a mini research report) was found in the assignment for the first-year subject *Language and Mind*. This subject comes from the subfield of developmental psycholinguistics, and focuses on children's abilities in the areas of phonology,

morphology, syntax and semantics. The assignment requires students to analyse and describe the similarities and differences in the morphology, lexis, and syntax of the spoken English of two (or four) young children, using data selected and downloaded from an international database.

Martin and Rose (2008) list similar genres from the field of science under the family of procedural recounts, which are foundational to genres conducted by research scientists. Subtypes of procedural genres include technical notes, research articles and experimental reports. The experiment report found in linguistics is also similar to those found in the 'doing' genres (Veel, 1997, p. 167) from school science, where students complete experiments and report on the results. Similar to the laboratory reports from undergraduate Biology at CityU (see Humphrey & Hao, 2013; and Chapter 7 of this volume), students in *Language and Mind* are provided with the headings to structure their report. The headings provide a scaffold for the target genre, making clear to students what is required of them. These are listed in Text 6.3.

Text 6.3 Headings for language acquisition report

Title:
Morphological, lexical and syntactic acquisition of two (or four) (English, Cantonese or Mandarin speaking) children

Main Text:
1. General description
Background of the children and sources of data … etc.
2. Data analyses and discussion
2.1. Similarities of language development of the two (four) children
2.1.1. Morphological and lexical development
2.1.2. Syntactic development
2.2. Differences between language development of the two (four) children
2.2.1. Morphological and lexical development
2.2.2. Syntactic development
3. Conclusion
A reference list is put after the main text. An appendix is put after the reference list. The appendix includes data samples and frequency tables etc.

The experiment reports found in CityU linguistics have similar staging to those described by Martin and Rose (2008), which are Introduction (purpose, equipment and materials), Method, Results and Conclusion/Discussion. The only stage that differs is the Method, which is almost non-existent, because in our data, this is provided by the teacher. Instead, brief information about the method is included in the Introduction stage.

Table 6.6 Excerpt of research report from *Language and Mind*

Stage	**Text**
Introduction	This report analyzes similarities and differences between two English speaking children regarding morphological, lexical and syntactic acquisitions of their mother tongue. Two data files of conversational interaction with mother and investigator for each child are downloaded from childes.psy.cmu.edu, a website of CHILDES Database, and examined. Anne and Becky are the two target children in this report. They are both from Manchester, United Kingdom. Files 'anne34a, cha' and 'anne34b.cha' are selected from Anne, while 'becky34a/cha' and 'becky34b.cha' are selected from Becky to undergo analysis. Anne was two years, nine months and ten days old when being investigated, while Becky was two years, 11 months and 15 days old when being investigated. Similarities of language development of the two children are going to be discussed first followed by differences between them.
Results (excerpted)	Some common morphemes are found in both children's sentences from their conversational transcripts and listed in Table 6.1, which shows the frequencies and examples of some morphemes used by the two target children. As illustrated with examples in the table, inflectional morphemes like (i) present progressive -*ing*, (ii) regular plural -*s*, (iii) regular past -*ed*, (iv) irregular past (e.g. *did*, *got*, *fell*), (v) possessive -*s*, (vi) regular third person -*s* and (vii) irregular third person (e.g. *is (be)*, *has*) are produced by both Anne and Becky. For example, in Anne's speech: *CHI: I'm <u>pushing</u> my train. (anne34b.cha) *CHI: better get some steps (anne34b.cha) *CHI: I moved (anne34b.cha) *CHI: I did this yesterday (anne34b.cha) *CHI: mine [/] mine's [*] is broken (anne34b.cha) *CHI: this stays on there (anne34b.cha) *CHI: it's a pig (anne34b.cha)
Discussion/ Conclusion	To conclude, morphological, lexical and syntactic acquisitions of two two-year-old English speaking children, Anne and Becky, are being analyzed. Similarly, inflectional morphemes and free morphemes are produced by both children, while some common derivational morphemes are not. They use more concrete words than abstract words due to the easiness of perceive and use for expression. Generalization errors resulted from the children's using of incorrect grammatical rules are found in both children's utterances. The children are at the same MLU-defined stage in which they are learning to modulate the meaning of their utterances by the use of grammatical morphemes. Different kinds of grammatical errors are also produced by both children as they are still at early developmental stage. On the other hand, differences of morphological development are found between the two children. Comparative -er morpheme is only found in Becky's utterances, and derivational morphemes -ly is only found in Anne's utterances.

Table 6.6 presents an excerpt of a high-ranking experiment report written by a student in the subject *Language and Mind*.

Key to a successful rendition of this genre is a number of language features that are primarily oriented to managing the technicality of the field. There are many examples of technicality in the above report, for example technical terms such as *morpheme*, which is classified into two types, *inflectional* and *derivational*. Inflectional is further classified into *free* and *bound* (though *bound* is not mentioned in this excerpt of the text) (Figure 6.1).

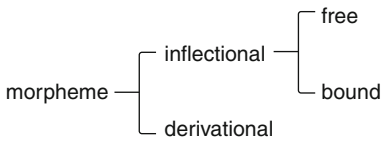


Figure 6.1 Example of taxonomy of technical concepts from experiment report in *Language and Mind*

As per the concept reports, experiment reports also feature abstraction via grammatical metaphor, derived from processes and qualities. As discussed in Chapters 3 and 4, grammatical metaphors are used to package meanings, building and managing the development of knowledge in an academic and technical field.

And finally, because experiment reports frequently require students to compare phenomena, logical relations of comparison are found. In Table 6.6, the language development of two children is compared. The logical resources are realised across many language classes such as nouns (*similarities and differences*), conjunctions (*similarly*), and adjectives (***common*** *morphemes*, ***both*** *children*, ***difference*** *kinds*).

6.4.5 Experiment reports in Computational Linguistics

Experiment reports in *Language and Mind* are also found in the *Computational Linguistics* subject at CityU. In this subject students are required to conduct experiments using natural language processing programs and discuss the results of such experiments. Like other procedural recounts, this genre has the stages of Introduction, Method, Data, Results and Discussion and Conclusion. Table 6.7 shows an instance of an experiment report.

Language features of experiment reports from *Computational Linguistics* also function to construe technicality in the field of computational linguistics. The technicality includes specialised entities such as *stemmer*,

Table 6.7 Experiment report from *Computational Linguistics*

Stage	**Text**
Title	Report on Practical 1: Lemmatisation and Stemming
Introduction	Objectives The aim of this practical is to implement and test a stemmer based on Paice's (1977) algorithm. The algorithm was thoroughly studied and the missing fragments in the given Java program were filled in. The completed program was tested on a set of words.
Method	The Stemmer A stemmer is used to reduce a given word form to its root word, like a lemmatiser reducing a word to its lemma. However, a lemmatiser is expected to always give a linguistically valid word as the result, and it therefore consists of a set of reduction rules with a dictionary to check whether the result is a proper word. This is not necessary for a stemmer, which only requires a set of reduction rules. For example, a rule like 'ATIONAL → ATE' would replace the word-ending 'ational' with 'ate'. Thus a word like 'relational' would be reduced to 'relate' by a stemmer. The current implementation was based on the algorithm and reduction rules described in Paice (1977). There were 26 rules. The rules were listed in a plain text file, as in the following examples: - ies y ARY ARY ary - finish The first rule above deals with the ending 'ies', which would be removed and then replaced with 'y', and the program would jump to the rule with label 'ARY' and continue the process. The second rule has the label 'ARY' and deals with the ending 'ary', which would simply be removed. The main program would thus traverse the rules one by one, try to match with the ending of the input word, and perform the necessary action accordingly. Hence, if the input word is 'dictionaries', it will first be reduced to 'dictionary' by replacing 'ies' with 'y', and then to 'diction' by removing 'ary'. The completed program fragment is shown below.
Data	Test Data The following words were used to test the stemmer: *cook*, *cooked*, *cookie*, *cookies*, *cooking*, and *cooks*.

(*continued*)

Table 6.7 Continued

<table>
<tr><th>Stage</th><th>Text</th></tr>
<tr><td>Results</td><td>Results and Discussion[1]
Table 1 shows the stemming results for the test words.
<table><tr><td>Word</td><td>cook</td><td>cooked</td><td>cookie</td><td>Cookies</td><td>cooking</td><td>cooks</td></tr><tr><td>Stem</td><td>cook</td><td>Cook</td><td>cooki</td><td>Cooky</td><td>cook</td><td>cook</td></tr></table>Table 1 Stemming Results</td></tr>
<tr><td>Discussion</td><td>The words ‘cook’, ‘cooked’, ‘cooking’ and ‘cooks’ were all stemmed to ‘cook’, which is also linguistically correct. However, ‘cookie’ and ‘cookies’ were reduced to ‘cooki’ and ‘cooky’ respectively, which is linguistically incorrect. This idiosyncrasy comes from the final -e deletion and ies-to-y rule respectively. However, considering the majority cases in English, the ies-to-y rule has its importance. It is quite common for nouns that end with ‘y’ to have ‘ies’ for their plural forms (e.g. ‘story’/‘stories’), and verbs that end with ‘y’ to have ‘ies’ for their third person singular present tense (e.g. ‘try’/‘tries’).
The case of ‘cookie’ also demonstrates the disadvantage of the stemmer, that is, the resulting stem could be an ill-formed English word. In fact, if we consider more cases, we will find that the reduction rules might cause other problems. For instance, ‘sing’ would be stemmed to ‘s’ after the removal of ‘ing’. Nevertheless, the abundance of inflected verbs ending in ‘ing’ would still benefit from the same rule. The stemmer has the advantage of being relatively simple, requiring only a set of rules, as well as running fast. It is therefore suitable for certain language processing subtasks, such as indexing in information retrieval.
It was also observed that the order of applying the reduction rules would be an important factor affecting the results. For example, if the rule removing ‘ing’ is placed before the one removing ‘ly’, the stemming of many adverbs (e.g. ‘interestingly’ and ‘willingly’) and many inflected verbs (e.g. ‘flying’ and ‘relying’) would be adversely affected.</td></tr>
<tr><td>Conclusion</td><td>Conclusion
The conclusions from the implementation and testing the Paice Stemmer are as follows: The order of the rules is important and although the string of characters resulting from stemming might not always form a real word, the simplicity of stemmers only needing a set of rules and their speed mean they are widely used in some language applications.</td></tr>
</table>

lemmatiser, and *java program*. Abstraction is also important in packaging the field, realised through generic abstract entities (e.g. *idiosyncrasy*, *disadvantage*, and *factor*) and abstract entities from grammatical metaphor (e.g. *importance*, *abundance*, *information retrieval*, and *implementation*). These features function to build the field and organise the text with the layers of explicit scaffolding of crafted text referred to in Chapter 3. The overarching grammatical metaphors of *Lemmatisation* and *Stemming*, which can be construed as activity entities (Hao, forthcoming), begin the report and set up the focus of the topic, which then unfolds through layers of hyperTheme and culminates with a macroNew at the end (See Figure 6.2).

In summary, the two subjects of *Language and Mind* and *Computational Linguistics* offer students the opportunity to write genres that reflect the more 'scientific' aspect of linguistics, based on primary data and analysis, and using the technicality and abstraction of these particular subfields of linguistics.

6.4.6 A summary of genres in the undergraduate linguistics program at CityU

From our survey of the genres in the CityU linguistics program, we can group them into those that:

- explain language phenomena (factorial explanations),
- describe language phenomena and concepts (concept reports),
- investigate language phenomena (experiment reports).

As can be seen in Figure 6.3, the describing genres are divided into two types of concept report, instantiating and defining.

These genres can also be classified according to whether they are data driven or not, as in Figure 6.4.

As can be seen in Figure 6.4, in the field of linguistics as it is recontextualised for undergraduate study at CityU, non-data-driven genres predominate. Within the non-data-driven subjects two genres were found: factorial explanations and concept reports. In the one data-driven genre, experiment report, students have the opportunity to investigate language phenomena through data analysis and interpretation. For each of these genres, we have identified different social purposes and generic structures, as can be seen in Table 6.8.

This diversity in genre shows the variations in disciplinary practice in the field of linguistics, as it is recontextualised for study at undergraduate level in one university in Hong Kong. However, regardless of genre

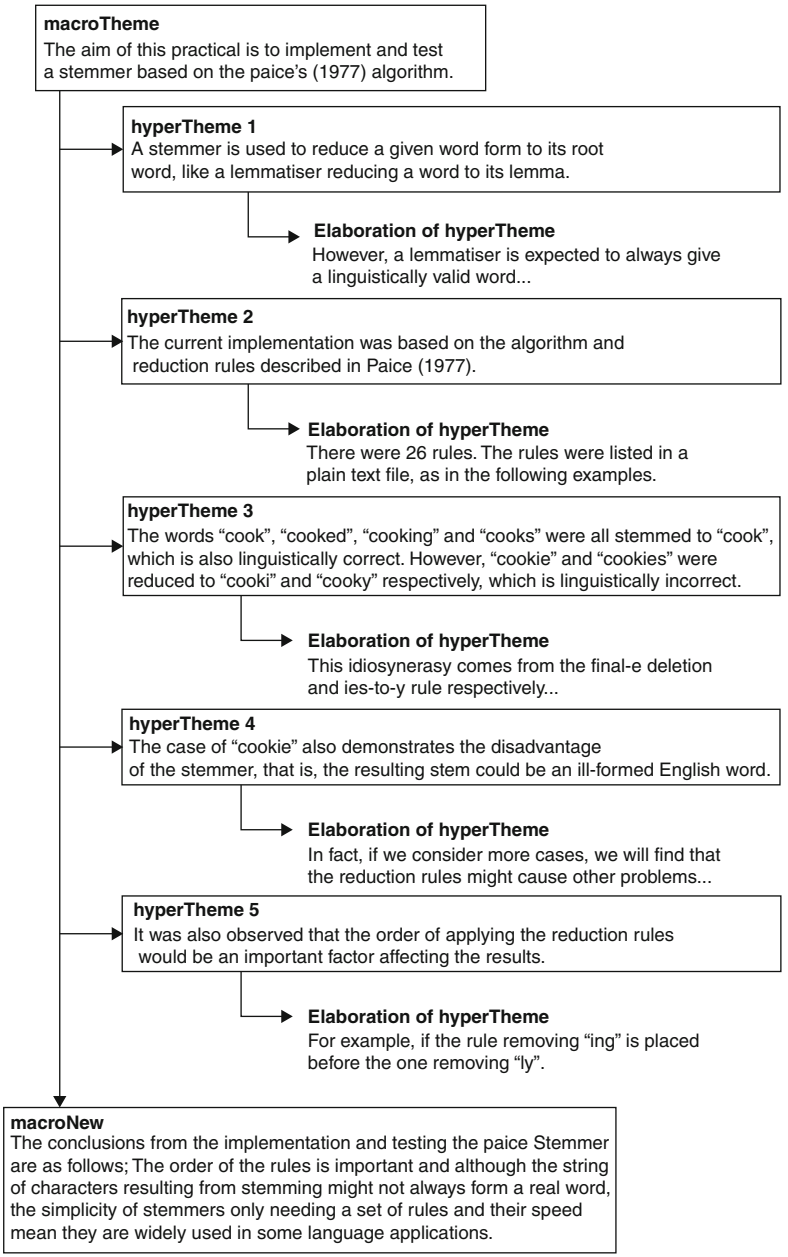


Figure 6.2 Layers of Theme unfolding across computational linguistics report

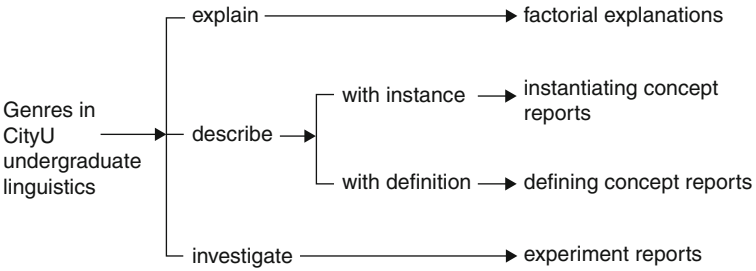


Figure 6.3 Genres of extended texts in core subjects of undergraduate linguistics at CityU

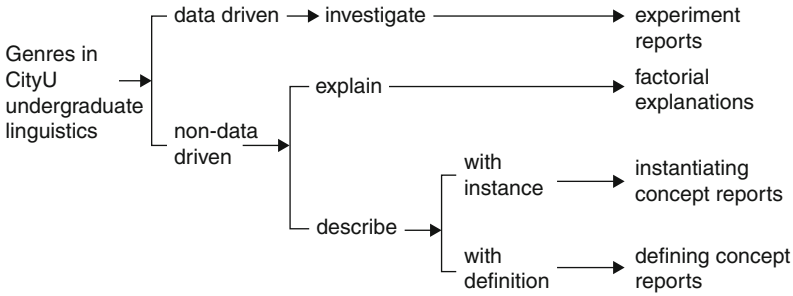


Figure 6.4 Data-driven and non-data-driven genres in core subjects of undergraduate linguistics at CityU

Table 6.8 Social purpose and generic structure of genres in core subjects of CityU linguistics

Genre	Social purpose	Stages
Factorial explanation	to explain language phenomena	Phenomenon ^ Factors
Concept report (with instance)	to describe and instantiate linguistic concepts or phenomena	Phenomenon (instance) ^ Exemplification
Concept report (with definition)	to describe and define linguistic concepts or phenomena	Phenomenon (definition) ^ Exemplification
Experiment report	to report on the findings of analysis	General Description ^ Results ^ Conclusion

type, all genres contain examples. The use of examples is discussed in the next section.

6.5 Making a point in the different linguistics genres

In all the genres examined for this research, there is a main stage that involves interpreting language as an object of study via making a point about some aspect of language, yet the way the point is made differs across the genres. In this section we discuss the structure, functions and some of the salient language features of point making. As was discussed in Section 6.2, making a point in Masters of Applied Linguistics interpretations, which are based on the analysis and interpretation of meaning in language patterns, involves the three moves of Findings, Examples, and Nub (Humphrey & Dreyfus, 2012). Each genre described in this chapter involves different combinations and configurations of these three moves.

As discussed by Humphrey and Dreyfus (2012), Findings moves report on the findings of analysis. These moves are found in data-driven genres only and typically contain technical terms of the particular linguistic theory being used for analysis. Example moves have an exemplifying relation and often contain the explicit conjunctive *For example*, as well as language samples from the text under analysis. Nub moves make a point about the findings via interpretation that is typically expressed through relationships of cause. These causal relations can include the congruent resources of conjunctions such as *in order to …*, and incongruent resources of causal verbs, e.g. *construe*, and causal nouns, e.g. *reasons*. These causal relations function to explain or provide reasons for linguistic phenomena and, as with examples, were found across the 'Point' phases of many genres in undergraduate linguistics. The Nub connects the language choices to relevant theoretical perspectives and thus often engages with theory (or uncommonsense knowledge in Bernsteinian terms) and uses technicality. The Nub also explains the meaning of the language choices. The uncommonsense knowledge in Nubs differs depending on the subfield of linguistics.

6.5.1 Making a point in sociolinguistics

As factorial explanations from sociolinguistics are non-data-driven, the 'Point' phases have no Findings moves. Instead, they contain the two moves Example and Nub. This can be seen in Table 6.9, which shows one such 'Point' from the Factors stage of the sociolinguistics explanation.

Table 6.9 'Point' phase in Factors stage of sociolinguistics factorial explanation

Nub	In Hong Kong, this efficient city, it is firstly because code-mixing can reduce wordy sentences; which means saving time and effort.
Example	Here is an example, 「我地 tea time 去左食 cake, 我叫左 Cheese cake, 佢叫左 Chocolate Mousse。」 「我地下午茶時間去左食蛋糕, 我叫左芝士蛋糕, 佢叫左朱古力慕絲蛋糕。」

The Nub in this 'Point' has the incongruent causal process *reduce*, to explain one of the effects of code-mixing:

code-mixing	*can reduce*	*wordy sentences*
Actor	Process: causative material	Goal

It also talks about what that language choice means, using the relational process *means*:

which	*means*	*saving time and effort.*
Carrier	Process: relational	Attribute

Each 'Point' begins with a Nub, is followed by an Example, and then concludes with a more specific Nub that elaborates the explanation of the example. Each of the Factors stages of the sociolinguistics factorial explanation comprises one such 'Point' and there are four of these in the text, as can be seen in Table 6.10.

Thus, explaining linguistic phenomena, or 'why we speak differently in different social contexts' (Holmes, 2008), yields an explanation genre that has linguistic phenomena as its object of study. These phenomena are not analysed systematically with linguistic tools of analysis, but rather interpreted or explained using both congruent and incongruent causal resources. Thus 'Point' phases in this genre consist of Nubs and Examples only.

6.5.2 Making a point in first-year Semantics

As instantiating concept in *Semantics* are also non-data-driven genres, the 'Point' phases have the same combination of moves as those in the sociolinguistics factorial explanations – Examples and Nubs but no Findings. However, as shown in Table 6.11, the order of the moves is different with the Example preceding the Nub.

The Example move has the exemplifying *for example*, while the Nub begins with the causative conjunction *In order to* …. The Nub reaches

Table 6.10 Iterative 'Point' phases comprising Nubs and Examples in sociolinguistics factorial explanation

'Point'	Nub	In Hong Kong, this efficient city, it is firstly because code-mixing can reduce wordy sentences; which means saving time and effort. Here is an example,
	Example	Here is an example, 「我地 tea time 去左食 cake, 我叫左 Cheese cake, 佢叫左 Chocolate Mousse。」 「我地下午茶時間去左食蛋糕, 我叫左芝士蛋糕, 佢叫左朱古力慕絲蛋糕。」
	Nub	Comparing the above sentences, the second sentence is wordier. By saying the first sentence, which is a briefer expression, time can be saved.
'Point'	Nub	Furthermore, people code-mix because it can avoid embarrassment.
	Example	Here is an example, 「吾好意思，我想去一去 toilet。」
	Nub	In the above sentence, noticing people that one has to go to toilet is embarrassing. Therefore, instead of using the term 洗手間', people use another language to express the embarrassing term.
'Point'	Nub	In addition, people code-mix [in order] to show solidarity.
	Example	Here is one example. 「你甘 out 既, 今年吾興 highlight 嫁啦!」
	Nub	This reason also explains why this linguistic phenomenon is commonly appearing among Hong Kong teenagers. Since code-mixing is a trend in Hong Kong, teenagers think that it is a kind of group membership identification.
'Point'	Nub	Moreover, in Hong Kong, people code-mix [in order] to emphasise important points.
	Example	Like the following example. 「小姐, 吾好意思, 我地淨係收 cash, 吾收 card 嫁。」
	Nub	Here, 'cash' and 'card' are the main points of the sentence. Using another language for some terms in a sentence can make people alert to the point.

Table 6.11 'Point' phase in *Semantics* concept report

'Point'	Example	Take, for example, the sentence 'Shakespeare was a famous English poet'.
	Nub	In order to understand the expression, someone must first find out the meanings of every lexicon. The meaning lexical items in this sentence are 'Shakespeare', 'famous', 'English' and 'poet'. After that, s/he has to figure out the compositional meanings of the sentence in its given form by adding grammatical meaning. The verb 'be' is used in the past tense 'was' indicating that this event happened in the past. Finally, the compositional meaning of the complex expression is determined after combining the lexical and grammatical meanings.

out to the field of semantics to make its point, using technical terms such as *compositional meanings*, *grammatical meaning*, *verb*, *past tense* and *complex expression*.

6.5.3 Making a point in Language and Mind and Computational Linguistics

As shown in Sections 6.4.2 and 6.4.3 above, in *Language and Mind* and *Computational Linguistics*, the genre required of students is experiment report. This genre is a data-driven genre, engaging with the collection and analysis of primary data. Engaging with data in this way means that 'Point' phases have moves that report on the findings of the data analysis, and these are the Findings moves. Additionally, the findings of the analysis tend to be exemplified so Example moves often accompany Findings moves. This type of 'Point' phase can be seen in Table 6.12, excerpted from the experiment report.

The Findings move in this 'Point' phase reports on the analysis, via projecting verbs such as *found*. Passive voice is also used in this move, enabling the focus to be on the findings of the research while the role of the researcher, the 'finder', is backgrounded:

Some common morphemes ***are found*** *…*
As ***illustrated*** *with examples …*
inflectional morphemes like … ***are produced*** *by both Anne and Becky.*

Table 6.12 'Point' phase from Results stage of *Language and Mind* experiment report

Stage	**Phase**	**Move**	
Results (excerpted)	'Point'	Findings	Some common morphemes are found in both children's sentences from their conversational transcripts and listed in Table 6.1, which shows the frequencies and examples of some morphemes used by the two target children. As illustrated with examples in the table, inflectional morphemes like (i) present progressive *–ing*, (ii) regular plural *–s*, (iii) regular past *–ed*, (iv) irregular past (e.g. *did*, *got*, *fell*), (v) possessive *'s*, (vi) regular third person *–s* and (vii) irregular third person (e.g. *is (be)*, *has*) are produced by both Anne and Becky.
		Example	For example, in Anne's speech: *CHI: I'm pushing my train. (anne34b.cha) *CHI: better get some steps (anne34b.cha) *CHI: I moved (anne34b.cha) *CHI: I did this yesterday (anne34b.cha) *CHI: mine [/] mine's [*] is broken (anne34b.cha) *CHI: this stays on there (anne34b.cha) *CHI: it's a pig (anne34b.cha)

The Example begins explicitly with the exemplifying conjunction *For example*. The 'Point' phases in this stage have no Nubs. However, as is common in experimental reports, there is a separation of the Discussion stage from the Results stage (Martin & Rose, 2008). It is the Discussion stage that contains Nubs, which are related to the Findings. Table 6.13 shows the Discussion stage from the *Language and Mind* experiment report with iterative 'Point' phases that contain Nubs plus summaries of the findings that are reported on in the Results stage.

As Table 6.13 shows, the Discussion stage has no Example moves. This is because it presents a summary of the findings. These Findings moves are identified by the use of monoglossic processes in passive voice of the: *are produced* (two instances), *are found* (four instances). Relational processes, which state the way things are, also contribute to reporting findings:

*The children **are** at the same MLU-defined stage …*

Table 6.13 Iterative 'Point' phases from Discussion stage of *Language and Mind* experiment report

Phase	**Move**	**Text**
'Point'	Signal	To conclude, morphological, lexical and syntactic acquisitions of two two-year-old English speaking children, Anne and Becky, are being analyzed.
	Findings	Similarly, inflectional morphemes and free morphemes are produced by both children, while some common derivational morphemes are not.
	Findings	They use more concrete words than abstract words.
	Nub	due to the easiness of perceive and use for expression.
'Point'	Findings + Nub	Generalization errors resulted from the children's using of incorrect grammatical rules are found in both children's utterances.
'Point'	Findings	The children are at the same MLU-defined stage in which they are learning to modulate the meaning of their utterances by the use of grammatical morphemes. Different kinds of grammatical errors are also produced by both children.
	Nub	as they are still at early developmental stage.
'Point'		On the other hand, differences of morphological development are found between the two children. Comparative –er morpheme is only found in Becky's utterances, and derivational morphemes -ly is only found in Anne's utterances.

The Nubs use a variety of causal resources. Incongruently these include circumstances:

They	*use*	*more concrete words than abstract words*	***due to the easiness of perceive and use for expression.***
Actor	Process: material	Goal	Circumstance: cause: reason

and processes (though in this case inside an embedded clause – due to the difficulties with written English):

*Generalization errors [[**resulted** from the children's using of incorrect grammatical rules]]*	*are found*	*in both children's utterances.*
Scope	Process: material	Circumstance: location: place

and congruently as conjunctions:

***as** they are still at early developmental stage.*

Thus, in the data-driven genre of experiment report where findings of analysis are presented, points are made about those findings in a separate Discussion stage.

6.6 Summary of 'Point' phases in the genres of undergraduate linguistics

Table 6.14 shows the differences in the constitution of 'Point' phases across the three genres in undergraduate linguistics.

Table 6.14 Constitution of 'Point' phases in undergraduate linguistics genres

Genre type	**Genre**	**Moves in 'Point' phases**	**Stage**
Secondary	factorial explanation instantiating concept report (sociolinguistics)	Nubs + Examples Nubs + Examples	Factors Exemplification
	defining concept report (Semantics)	Examples + Nubs	Exemplification
Primary	experiment report	Findings + Examples Findings + Nubs	Results Discussion

As can be seen in Table 6.14, the main difference between the 'Point' phases across genres relates to the inclusion of Findings moves. In data-driven genres, 'Point' phases include a Findings move that reports on the findings of that analysis. In the non-data-driven genres, which in a sense involve reporting other people's findings, Examples are paired with Nubs, where the point is made about the Example. In the sociolinguistics instantiating concept reports, it is typically the Nub that comes first. In the *Semantics* defining concept reports, it is typically the Example that comes first.

Table 6.14 also shows two similarities across the 'Point' phases in all genres: first, all have Example moves in their 'Point' phases, except the experiment report, which has no Examples in its Discussion stage. Instead, the examples are contained within the Results stage.

This separation of discussion from examples is also found in longer pieces of data-driven texts, such as honours theses (which are not explored in this chapter), and is indicative of the move towards lengthier and more typical scientific genres. Regardless of place, the inclusion of examples in all genres and most 'Point' phases indicates a consensus across the subjects/subfields of linguistics about grounding theory and practice in an object of study; about using examples as evidence to demonstrate a point. Exemplification is clearly part of the discursive practice across the subfields of linguistics.

The second similarity is that the 'Point' phases in all genres contain Nubs. Nubs are where interpretation of language phenomena occurs through the use of causal resources. Interpreting linguistic findings and observations is clearly a concern for all subfields of linguistics and perhaps points to a feature of linguistics as a disciplinary field overall. More research into other subfields and genres is necessary to confirm this finding.

6.7 Conclusion

This chapter has sought to describe the diversity in genre and interpretation found in the extended texts collected from the linguistics program at CityU Hong Kong. Understandings of this diversity informed the literacy interventions designed for linguistics students participating in the SLATE project. Literacy materials always began with a genre focus, modelling for students the stages and phases of the different genres they were writing in. To reduce students' cognitive load, a limited number of discourse and language features were modelled for each genre, as well as genre staging. Literacy support in linguistics thus focused on making explicit broad patterns of the diverse genres, in contrast to Biology, where the focus was on a more extensive exploration of genres within one key genre family, as will be explored in the following chapters.

7
A Focus on Biology

7.1 Introduction

This chapter continues the report of our research into the literacies of the particular disciplines involved in the SLATE research project at Hong Kong City University (referred to as CityU). Here we focus on describing the key genres used for both reading and writing across four courses of undergraduate Biology and the way these genres build knowledge cumulatively across these courses. Our findings complement those from the discipline of linguistics, which were provided in Chapter 6.

7.2 Analysing the literacy demands of undergraduate Biology

The focus of support provided to undergraduate Biology students in the two-year SLATE project was on four core courses from the Biology program. At first-year level, these were BCH 2001: Organisms and the Environment and BCH 2002: Cells and Micro-organisms; and at second-year level, they were BCH 3013: Microbiology and BCH 3012: Genetics. As with linguistics, in the third compulsory Honours year of the program, the students were required to conduct a research project and write up their research in an extended scientific report. To understand and describe the nature of the literacy curriculum needed to support students through these courses and to prepare them for their research, we were informed by discussions and feedback from Biology teaching staff at CityU, analysis of course materials and students' writing in undergraduate courses and the findings of the research described in earlier chapters of this book. Motivating the research was the concern of CityU teachers that the literacy practices of the core courses did not

prepare students adequately for responding to and creating extended texts for either their Honours project or for participation in professional employment.

In the first section of this chapter we report on the findings of our analysis of course readings and students' writing from a linguistic perspective. The focus of our analysis was on the extended texts across the core courses of the undergraduate program. We report first on analysis of the research articles students were required to read and respond to in order to build a critical understanding of both the field of biological knowledge (called 'the object of study') and the field of research in biology (called 'the study'). We then turn our attention to the extended texts (called macro-genres) which students are expected to write in order to generate their own scientific activity – laboratory reports and research reports. This analysis contributes to an understanding of how the knowledge embodied in written texts in undergraduate biology moves from more contextualised and straightforward understandings to those that are less dependent on context, more technical and that involve more complex evaluation. As a result of the analysis, SLATE researchers were able to design a curriculum to support students in building, critiquing and extending scientific knowledge across the undergraduate years.

7.3 Linguistic analysis of texts

The description of macro-genres students were required to read and write in each of their core courses takes as a starting point the analyses of genres and their registers conducted by linguists working on school science (Halliday & Martin, 1993; Martin & Rose, 2008; Veel, 1997), science industry (Rose et al., 1992) and scientific research (Dudley-Evans, 1986; Hood, 2010; Swales, 2004). To begin we provide a review of the findings of this prior research.

7.3.1 Foundational research in scientific literacy

Understanding language and learning in biology and other scientific fields has been a long-standing concern of researchers working from linguistic perspectives. With respect to reading, researchers from the English for Specific Purposes (ESP) tradition have provided descriptions of genres used to report results of research, which they term research articles (Swales, 2004). ESP researchers have by and large categorised research articles according to field – according to whether the studies are theoretical or empirical, and to whether the reports are concerned with single or multiple studies. These researchers also recognise the

importance of understanding visual displays in reading science and here too have created categories for assisting analysis of meaning-making in science texts (Myers, 1990). Categories of visual display include photographs, drawings, maps, graphs/models/tables and figures.

Researchers working within systemic functional linguistics (SFL) have drawn on the analytical tools of genre and register to categorise the texts students need to read in terms of linguistic development across meta-functions. Of particular value for our research are the descriptions of macro-genres found in discipline textbooks at secondary level (Martin & Rose, 2008). Macro-genres include sequences of elemental genres that build knowledge and engage students in specialised scientific activity. In order to support students in accessing knowledge of their field, SFL researchers stress the importance of understanding image displays and other semiotic systems in scientific genres. In research articles produced by experts, links are made between the verbal and visual modalities (Guo, 2004) and students' abilities to both read these and include them appropriately in their own writing.

To inform our analysis of students' written texts, SLATE researchers drew on a large body of SFL analysis of both elemental and macro-genres in school and research contexts (Hood, 2004). SFL descriptions of elemental genres in secondary school science (Christie & Derewianka, 2008; Martin & Rose, 2008; Unsworth, 1997a–c; Veel, 1997) were essential foundations for exploring the written genres of undergraduate students at CityU. Veel (1997) provides a map of science genres that were found to be of particular relevance to learning in secondary school, including descriptions of elemental genres for doing, reporting and explaining in school science. These genres are organised as a taxonomy (see Figure 7.1) to show their relationship to broader systems of genres and to those genres that are similar in terms of social purpose, generic structures and linguistic features.

While Veel emphasises that such taxonomies do not account for all written work in secondary science, those included recur in published materials students are expected to read and are also required in high stakes assessment tasks. In addition to descriptions of elemental genres in terms of social purpose, staging and linguistic features (though primarily from the perspective of field and mode), Veel also developed a genre pathway for secondary students – moving from genres that enable scientific activity (i.e. procedure and procedural recount), to those that have the potential to challenge science (i.e. exposition and discussion). Between these poles are genres that explain events scientifically and those that organise scientific organisation.

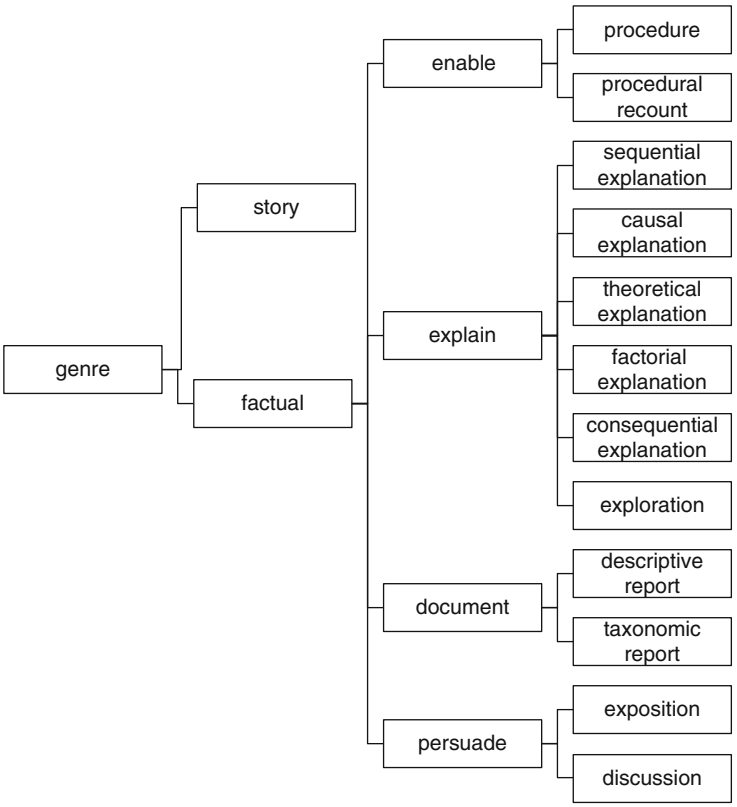


Figure 7.1 Taxonomy of genres in secondary school science
Source: Veel (1997, p. 171).

SFL descriptions of elemental genres and their linguistic realisations in secondary science enabled us to describe the short field-building texts provided on lecture slides in all biology units as well as the short-answer responses they were required to write in exams. However, the secondary school descriptions and the hierarchy developed for supporting students' literacy development in secondary science do not readily account for all the reading and writing demands of the undergraduate program. First, they do not take into account the complex multimodal macro-genres that have been found to construe meanings in science; in addition, they do not sufficiently account for the evaluative stance that is necessary to engage in scientific enquiry. As Veel notes, the

recontextualised 'doing' genres of secondary science are geared towards reproducing scientific knowledge and are quite distinct from those used by scientists to extend scientific knowledge, which justify, challenge, and renovate scientific practices and understandings.

In the tertiary context, work by Hood (2004, 2005) on the development of an evaluative stance in the introductory sections of research reports was particularly valuable. Hood distinguishes the introduction section of research reports as a macro-genre called 'research warrant', to capture its evaluative function (Hood, 2010, p. 39). Hood identifies two fields in research warrants according to what is evaluated. These are the 'field of the object of study', referring to 'the set of phenomena (entities and/or activities) that constitute the object of study', and the 'field of research', dealing with 'the construction of the process of research itself, the entities and activities to do with the process of enquiry and knowledge building' (2010, p. 121). Hood found that more explicit evaluative resources were used when referring to phenomena that constitute the object of study than when dealing with the process of research itself (2010, p. 121). These resources show academic discourse to be 'objective' in nature (p. 131). To account for development in field, SLATE researchers used 'field of study' as a superordinate term, which includes the 'field of experiment' and the 'field of research'.

In summary, the research of both Sydney School and ESP genre theorists described above provided essential methodological and theoretical tools for SLATE analyses of written texts in undergraduate-level biology courses. In the following sections, we report on how SLATE researchers deployed and extended ESP categorisations of research articles and further developed SFL descriptions of macro-genres at undergraduate level. We focus on the development of linguistic features of experimental and research macro-genres across core courses of undergraduate biology. This perspective allowed for a linguistically informed pathway to be developed to support students' writing as they progressed through the program.

7.3.2 Reading to build and extend knowledge

The data collected to analyse the extended texts in the four core biology courses included print- and web-based textbook chapters and practical manuals set for each of the core courses and research articles which students were required to read and review with the support of SLATE tutors. Powerpoint slides provided in lectures and tutorials were also collected and analysed from the perspective of genre and register. Initial analysis of the linguistic patterns of these slides indicated that

the majority could be classified in terms of the elemental genres and genre families described by Sydney School genre researchers for school science, and thus further analysis was not undertaken.

Of special concern to teachers and researchers were the macro-genres students needed to read, both to further develop their knowledge of biological phenomena and to examine and critically evaluate research of those phenomena. Macro-genres, in the form of print and digital textbook chapters, videos and research articles, were used in each of the core courses; students were required to respond to these texts through tasks such as summaries and reviews. With the exception of textbooks, students had had little experience reading these extended texts or considering how individual sections were combined and staged to achieve an overall purpose. Accordingly, ten exemplars of these macro-genres were collected and analysed from the perspective of genre and register.

As discussed above, each of the ten extended texts included a number of elemental genres and included images. In terms of field, all texts also included both specialised and technical knowledge of biological phenomena. From the perspective of tenor, it was possible to classify the texts into two broad groups: those produced by experts to apprentice students into the hierarchy of biological knowledge (pedagogic macro-genres) and those produced by experts to publish findings of research to fellow experts (research articles). An outline of the macro-genres and a summary of their social purposes are provided in Table 7.1. Key linguistic features that distinguish these macro-genres will be discussed more fully in the next section.

7.3.2.1 Analysis of macro-genres

The macro-genres that were provided as reading materials in the core courses of the undergraduate biology program families included macro-reports, which were produced as print- or web-based textbook chapters and experimental procedures, which were provided within laboratory manuals in each course. Both macro-genres were found to include a number of the genres of school science.

7.3.2.1.1 Macro-reports

Macro-reports produced as textbook chapters typically include descriptive, classifying and compositional reports, and sequential explanations. The explanations are often supported by diagrams. These elemental genres are typically related to one another through a relationship of elaboration; that is to say, they either specify biological knowledge in greater detail or, in the case of diagrams, through reinstantiating the

Table 7.1 Macro-genres and macro-genre families used for reading in undergraduate biology

Macro-genre family	Subtype of macro-genre	Purpose
Pedagogic macro-genres		Apprenticing into knowledge of biological phenomena and their applications
	Macro-report	Classifying and describe phenomenon
	Experimental procedure	Instructing student to carry out experiment Describing/classifying phenomena (introduction)
Research article		Publishing findings of own or others' research
	Descriptive review	Summarising 'settled' findings of research strand
	Exploratory review	Summarising 'unsettled' findings of research strand
	Critical review	Evaluating findings of research strand
	Research report	Reporting on one or more specific research study

verbal text from an imagic perspective. Some of these elemental genres and the logical relationships that connect them are shown in the annotated outline of one exemplar pedagogic macro-report shown as Text 7.1 in Table 7.2.

7.3.2.1.2 Experimental procedures

The experimental procedure functions to instruct students how to carry out an experiment. As will be discussed in Section 7.2.3, these macro-genres are closely related to an apprenticing macro-genre students write in school science, called experimental report, which functions to record and evaluate findings of their laboratory work. In addition to providing a sequenced set of steps on how to carry out an experiment, experimental procedures also serve an important field-building function at undergraduate level. In first-year courses, building knowledge of biological phenomena typically occurs via a short report or explanation genre, which is embedded as a Phenomenon Identification stage. In the experiment report shown in

Table 7.2 Apprenticing macro-report: elemental genres and key registerial features

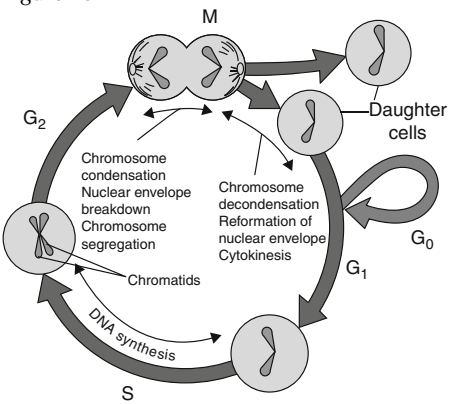
Elemental genres and key registerial features	**Text 7.1 Overview of the Cell Cycle and Its Control** (excerpts)
7.1.1: Abstract verbal text non-contested bare assertions focus on field: object of study	*Section 13.1 Overview of the Cell Cycle and Its Control* We begin our discussion by reviewing the stages of the eukaryotic cell cycle, presenting a summary of the current model of how the cycle is regulated, …
7.1.2: Sequential explanation verbal text elaborating on 7.1.1 by specifying in greater detail non-contested bare assertions (monogloss)	The Cell Cycle Is an Ordered Series of Events Leading to Replication of Cells As illustrated in Figure 13-1, the cell cycle is divided into four major phases. In cycling (replicating) somatic cells, chromosomes are replicated during the S (synthesis) phase. After progressing through the G2 phase, cells begin the complicated process of mitosis, …
7.1.3: Sequential explanation symbolic representation (verbal/visual diagram) activity explicit through arrows elaborating on 7.1.2 by restating from a different point of view	Figure 13-1 
7.1.4: Series of sequential explanations and descriptive reports within classification taxonomy verbal text elaborating on 7.1.3 by specifying non-contested bare assertions (monogloss) marked themes signal shift in field	In most cells from higher eukaryotes, the nuclear envelope breaks down into multiple small vesicles early in mitosis and re-forms around the segregated chromosomes as they decondense during telophase, the last mitotic stage. … In yeasts and other fungi, the nuclear envelope does not break down. In these organisms, the mitotic spindle forms within the nuclear envelope In vertebrates and diploid yeasts, cells in G1 have a diploid number of chromosomes (2n), one inherited from each parent. … Rapidly replicating human cells progress through the full cell cycle in about 24 hours … Postmitotic cells in multicellular organisms can 'exit' the cell cycle and remain for days, weeks, … without proliferating further. Most postmitotic cells in vertebrates exit the cell cycle in G1, entering a phase called G0 (see Figure 13-1) …

Table 7.3 Excerpt from Text 7.2: BCH 2001 laboratory manual

Laboratory stages	**Text 7.2: An investigation of Sponges** **1. Histological Sections**
Procedural Steps	Examine microscopically the sections provided of Grantia and/or Sycon, two calcareous sponges. Note how
Phenomenon Identification (compositional report)	… the body wall is divided into two layers. (1) An inner gastral layer of choanocytes (2) An outer dermal layer divided into (a) an outer covering of pinacocytes (b) an inner skeletogenous layer of spicules In the body wall are pores through which water enters.
Procedural steps (continued)	Make two drawings of these sections, one at low power of the whole section, the other at a high power showing the detailed structure of the body wall. Fully label your diagrams. …

Table 7.3 (an excerpt from a BCH 2001 laboratory manual, identified as Text 7.2), the genre that is embedded is a compositional report.

Being a compositional report, the Phenomenon Identification stage functions to identify and classify the phenomena under investigation and to define key concepts (Humphrey & Hao, 2013). In second-year courses, longer explanation or report genres that precede the experimental procedure serve this function. These macro-genres are similar in structure to the apprenticing macro-reports in print and online textbooks. In the following section, key registerial features of these apprenticing macro-genres are described.

Registerial features of pedagogic macro-genres

In terms of register, the macro-reports found in both textbooks and experimental procedures were found to foreground ideational resources. Of central importance for reading are discourse semantic resources that build technical understandings and support students to unpack technicality. An analysis of entity types reveals that the field of these apprenticing texts develops around the 'object of study' and particularly around the sub-field of biological phenomena (Humphrey & Hao, 2013). In the embedded compositional report of Text 7.2 above, technical entities include *gastral layer*, *choanocytes*, *dermal layer*, *pinacocytes*, *skeletogenous layer and spicules*.

These technical entities form taxonomic relations of parts and subparts to the whole calcareous sponge 'body wall' as shown in Figure 7.2, reflecting the depth of field knowledge.

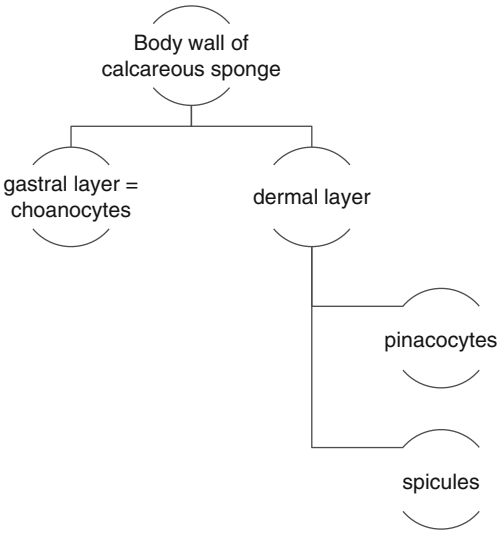


Figure 7.2 Taxonomic relationships in Text 7.2

An important way in which these texts provide pedagogic support for students is through textual signals, such as bold font, to alert the reader to technical terms that may be unfamiliar to them and through definitions provided as margin notes. In web-based materials, terms are often hyperlinked to definitions within glossaries.

The use of Theme was also found to be an important resource for supporting reading of the multi-layered texts. In Text 7.1 shown in Table 7.2, for example, marked Themes, realised as circumstances or dependent clauses, signal the beginning of new phases. In the excerpt from this text below (Text 7.1.1), circumstances of location in space (small caps) signal a field shift to the processes occurring in different types of organisms. Within these three phases, marked themes (small caps) are also used to keep the focus on the type of organism or to signal the temporal unfolding of the process (i.e. Following mitosis …).

Text 7.1.1

IN MOST CELLS FROM HIGHER EUKARYOTES, the nuclear envelope breaks down into multiple small vesicles early in mitosis and re-forms around the segregated chromosomes as they decondense during telophase, the last mitotic stage. …

IN YEASTS AND OTHER FUNGI, the nuclear envelope does not break down.

IN THESE ORGANISMS, the mitotic spindle forms within the nuclear envelope, which then pinches off, forming two nuclei at the time of cytokinesis.

FOLLOWING MITOSIS, cycling cells enter the G1 phase, the period before DNA synthesis is reinitiated in the S phase.

IN VERTEBRATES AND DIPLOID YEASTS, cells in G1 have a diploid number of chromosomes (2n), one inherited from each parent. … Rapidly replicating human cells progress through the full cell cycle in about 24 hours ….

An expert/apprentice tenor relationship was also evident in most of the pedagogic macro-genres. This was achieved through the use of bare assertions as shown in Example 7.1 below rather than as a reported claims or finding as shown in Example 7.2.

Example 7.1: *In the body wall are pores through which water enters.*
Example 7.2: *Scientists have found that there are pores in the body wall through which water enters.*

These interpersonal patterns allowed the focus to remain on the biological phenomena. One exception to this focus was in macro-reports that were produced as videos, as these had no clear signalling of phases related to description or explanation. These video macro-genres provide a bridge from fields of everyday experience to specialist scientific knowledge. The complexity of the fields involved and the lack of clear signalling can, however, lead to difficulties for students in extracting information relevant to the demands of particular assessment tasks.

7.3.2.2 Analysis of research article macro-genres

In addition to the reading needed to carry out their practical work and to build understandings of biological 'facts', students in the undergraduate program at CityU also needed to read reports of scientific research. Research article macro-genres are concerned with the field of 'object of study', i.e. describing, classifying and explaining biological phenomena; however, this field is typically built up through reviews of others' research.

Research articles can be further categorised in a number of ways. An important consideration from the perspective of reading was whether or not the field focus of the articles was on the generalised state of the research field (research review) or on individual studies (experimental report). From the perspective of tenor, research review macro-genres were

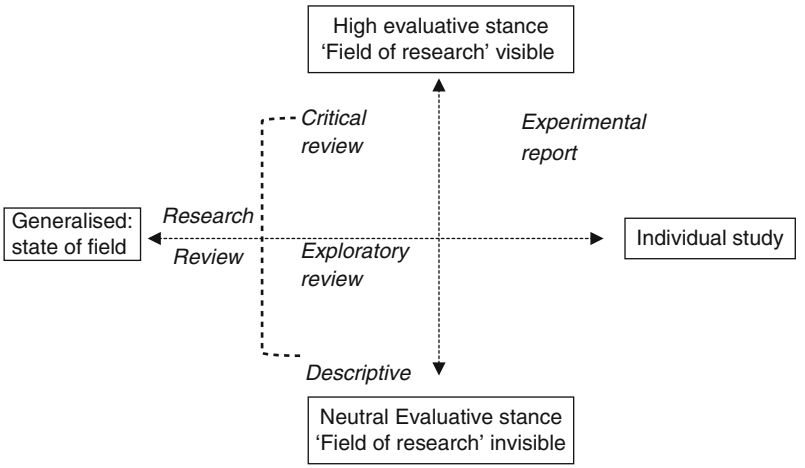


Figure 7.3 Classification of research article macro-genres

further classified according to the extent to which the author adopted an evaluative stance towards the field of study. As shown in Figure 7.3, this analysis allowed for three further macro-genres to be distinguished.

The relative importance of an evaluative stance in research articles means that more attention has to be paid to interpersonal resources in the analysis of this family of macro-genres. Writers deploy a range of resources from the Appraisal system of ENGAGEMENT to bring other voices into the text. In descriptive reviews, research findings are typically introduced into the text through verb groups (e.g. are found to be, demonstrates), which endorse the findings as more or less uncontested, thus contracting space for negotiation. In the example below, the endorsing verb group is highlighted.

> *Animals from at least seven different phyla* ***are currently known to*** *harbour chemosynthetic SYMBIONTS,*

In exploratory reviews, however, expanding heteroglossic resources are used, with findings presented as less settled. Expansion is also frequently realised as verbal groups (e.g. *has been reported*, *was hypothesized*) as well as through modalised clauses (*it is possible that …*) and explicit reference to sources (e.g. *the authors of the study concluded that …*).

Descriptive and exploratory reviews rarely evaluate research findings explicitly because of their focus on generalised biological phenomena. However, critical reviews overtly evaluate aspects of the studies. This is accomplished through the interaction or coupling of resources from the discourse semantic systems of IDEATION and APPRAISAL. Couplings in which sources are positively evaluated are referred to as 'burnishing', while those that negatively evaluate sources are referred to as 'tarnishing' (Hao & Humphrey, 2012). In critical reviews, writers typically employ burnishing couplings to evaluate external sources that support the authorial position and tarnishing couplings to evaluate sources that are challenged by the author. The interaction of burnishing and tarnishing is evident in the excerpt from Text 7.3, a critical review read by students in BCH 3012. In the first clause of this sentence, the interaction of the ideational meaning (i.e. the entity 'epidemiologic studies'), the expanding resources (i.e. the inverted commas around the entity 'epidemiologic studies') and the explicit negative ATTITUDE value (i.e. *inappropriate*) contribute to a 'tarnishing' of the phenomenon. In the second clause, this tarnishing is mediated to some extent with a burnishing coupling, most evident in the choice of explicit positive attitude 'appropriate' and the referent 'they'. Despite this mediation, however, the further choice of the modal verb of probability (i.e. might), which expands space for alternate opinions, and the implicit evaluative contrast between the ideational choices of 'causation' and 'hypothesis', contribute to an overall tarnishing of the studies which are reviewed:

> So-called 'epidemiologic studies' are inappropriate to establish causation, although they might be appropriate to suggest a hypothesis or to estimate the extent of risk factors in the cases of proved causation …

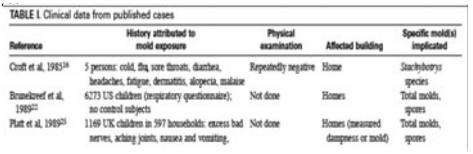
In summary, while the specialised knowledge of biological phenomena continues to be central to the field of research articles, the inclusion of the field of research and the more complex tenor relationships result in a greater focus on interpersonal resources, which interact with experiential resources to create an evaluative stance. Table 7.4 provides an outline of the critical review from which the excerpt above has been annotated to identify the key registerial patterns discussed above. These need to be taken into consideration in supporting students to read research articles.

Table 7.4 Excerpts from Text 7.3: verbal/visual research article provided to second-year (BCH, 2012) students to summarise

Elemental genres and key registerial features	**Are indoor molds causing a new disease?** Abba I. Terr, MD **Rostrum** *San Francisco, Calif* J ALLERGY CLIN IMMUNOL February 2004
Descriptive Report: summarises situation (problematic) non-contested bare assertions about the way things are (monogloss) field focus: 'object of study' – problem	There is a current wave of litigation sweeping the country. Residents living in homes, apartments, or condominiums are suing … claiming personal injury caused by 'toxic molds.' … Physicians are being enlisted by attorneys representing either plaintiffs or defendants to offer 'expert' testimony. Allergists in particular are sought because of their knowledge of environmental molds as allergens …
Analytical exposition arguing that a position on a contested issue is valid claims projected from external source (heteroglossic) field focus: 'object of study' – biological phenomenon	**MECHANISMS OF FUNGAL DISEASE** Experience, logic, and the vast majority of accumulated data at the present time lead to the conclusion that there are but 3 mechanisms for the pathogenesis of human disease caused by mold. These are infection, allergy, and toxicity …
Factorial Explanation [[constituting Arguments stage of analytical exposition]] non-contested bare assertions (monogloss) and claims projected from external source (heteroglossic) field focus: 'object of study' – biological phenomenon	**Infection** Fungal infections of human beings are often localized to the skin or lungs, although they might be systemic … **Allergy** Respiratory diseases caused by inhalation of mold spores mediated by allergic mechanisms are well recognized by allergists. They encompass only 4 known diseases: atopic asthma, hypersensitivity pneumonitis, allergic bronchopulmonary aspergillosis (ABPA), and allergic fungal sinusitis … **Toxicity.** The natural hosts for fungi are plants, … They might colonize these crops saprophytically, or they might be pathogenic by means of tissue invasion. Therefore the effects of mycotoxins on human subjects are recognized as the result of ingestion. …

(*continued*)

Table 7.4 Continued

Challenge: argues against a position by first presenting that position and then providing a counter argument claims projected from external source and negatively evaluated (heteroglossic) field focus: 'research' – others	**CONTROVERSIES IN FUNGAL DISEASE** In sharp contrast to these recognized diseases, the overwhelming majority of claims for illness that generate litigation are attributed to the presence of *any* indoor mold … In a recent report, 27, two schools were investigated for mold contamination. Case reports of students and teachers with asthma and allergic rhinitis were cited … The implication that an excessive prevalence and severity of allergy was related to mold contamination of these schools was not verified on the basis of proper epidemiological investigation and is therefore only speculative.
Classifying report (grounds to support challenge) symbolic representation (verbal/visual diagram) entity focus – classification of studies implicit evaluation through reporting of methodological weaknesses	 TABLE I. Clinical data from published cases Reference | History attributed to mold exposure | Physical examination | Affected building | Specific mold(s) implicated Croft et al, 1985[26] | 5 persons: cold, flu, sore throats, diarrhea, headaches, fatigue, dermatitis, alopecia, malaise | Repeatedly negative | Home | *Stachybotrys* species Brunekreef et al, 1989[27] | 6273 US children (respiratory questionnaire); no control subjects | Not done | Homes | Total molds, spores Platt et al, 1989[28] | 1169 UK children in 597 households: excess bad nerves, aching joints, nausea and vomiting, | Not done | Homes (measured dampness or mold) | Total molds, spores
Hortatory exposition – arguing for action to be taken claims presented as bare assertions though negotiated through high modality of obligation (heterogloss) field focus: 'research' – future	**RECOMMENDATIONS** … It is now time for scientifically rigorous data to be used to answer the question about the effects of indoor mold exposure on human health … 1. At the very least, a thorough history, physical examination, review of prior medical records, appropriate laboratory testing, and imaging studies should be used to define the physiologic and anatomic abnormalities in suspected cases. It is inappropriate to use laboratory testing as a 'fishing expedition.' … 6. Cases in litigation should be clearly identified as such.

While space does not allow a full discussion of the contribution of logical and textual meanings that contribute to the critical review genre, it is important to make visible the relationships between stages and phases to students, particularly relationships of elaboration, which specify meanings of previous phases and relationships of extension, which link contrasting positions.

7.3.3 Analysis of students' written texts

Many of the understandings of macro-genres for reading also informed the analysis of the texts students were expected to write. Understandings of reports and explanations within pedagogic macro-genres informed much of the modelling of the texts students composed to demonstrate knowledge of the field in first- and second-year courses. Understandings of published research articles were also used as models for students' writing in the third year. However, as these texts are produced by experts, intermediate steps were needed to provide a bridge between the genres of first- and second-year courses and the macro-genres of the Honours year. To better understand the linguistic resources from an ontological perspective, SLATE researchers focused on the family of macro-genres involved in recording scientific activity. In first- and second-year courses, scientific activity typically takes the form of experiments conducted in the laboratory. The macro-genre for recording this activity is referred to in the field as laboratory report and identified by SLATE researchers as experimental report to foreground the activity. Honours Year research activity is enacted through an extended macro-genre, known as Research Report (Hood, 2010).

7.3.3.1 Findings of analysis of student texts

To map development across genres of core courses, researchers examined experimental reports produced by 20 students in the four core courses of first- and second-year biology as well as three research reports produced by students in their Honours year. In this section we focus on the introductory genres of these texts because of the considerable linguistic challenges they present (Hood, 2004; Swales, 2004).

While introductions to both laboratory reports and research reports function to situate the student's own scientific activity, changing expectations across the courses leads to considerable variation in how this occurs. SLATE researchers identified two distinct genres functioning as introductions in these reports. In the core courses of the first and second years, the experimental context is employed to identify the biological phenomena under investigation and to preview the experimental activity; in the Honours year, a research warrant is employed to situate research work in relation to both established knowledge and prior research in order to justify their own research. Key features of each of these genres are examined below. A more detailed account of linguistic patterns is provided in Humphrey and Hao (2013) and Hao and Humphrey (2012).

7.3.3.1.1 Experimental context

The experimental context genre typically unfolds through stages of Aim, Phenomenon Identification and Experiment Preview. These stages are annotated on the first-year experimental context (Text 7.4), which is shown as Table 7.5. While in the first-year text below, the stage of Phenomenon Identification is quite short, in second-year texts this stage is typically extended and is frequently an embedded descriptive report or factorial explanation.

While Text 7.4 in Table 7.5 is typical of those written by students in the first-year courses, the models provided in the laboratory manuals, particularly in second-year units, indicate that the Phenomenon Identification itself could be an extended multimodal macro-genre, with a series of descriptive reports and explanations providing background information about the biological phenomena.

Table 7.5 Experiment context from first-year BCH 2002. Lab report 1: Exercise 1 – Epidemic

Stages	**Text 7.4. Laboratory Report Introduction from BCH 2001 Laboratory Manual**
Aim	To experience how an epidemic can spread and determine who started the epidemic
Phenomenon Identification (spread of epidemic)	Pathogenic bacteria and viruses can cause infectious diseases. When a disease is transferred from one person to another at a rate that substantially exceeds the existing rate by direct or indirect contact, it is called an epidemic. Infectious diseases have different modes of transmission. The infection can be passed by direct contact, which means an infected person directly touches an uninfected person. Indirect contact like transmission by infectious droplets of saliva through coughing or sneezing is also very common.
Experiment	In this exercise, we experienced the spread of bacteria (the red bacterium *Serratia marcescens* and the yellow bacterium *Micrococcus luteus*) by direct contact and found out who started the spread of infection. Sweets inoculated by the two bacteria were used to contaminate our hand gloves. The bacteria could spread while we were shaking hands with others. To find out who was originally infected by the red bacterium, samples from the gloves were collected and streaked on nutrient agar plates which were then incubated at 30 for 48 hours and examined for the presence of red or yellow colonies.

Because of its focus on describing and explaining features of the biological phenomenon, ideational meanings are most at risk in the experimental context genre. However, an analysis of entity types reveals a shift of focus from the field of 'object of study' in the Phenomenon Identification to the field of 'experiment' in the Experiment stage. In this field, entities are not technical and the taxonomy is relatively shallow, as shown in Figure 7.4.

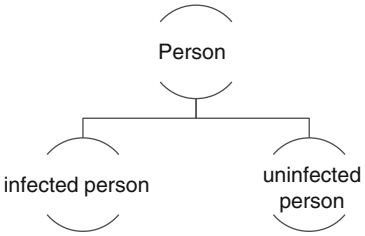


Figure 7.4 Shallow taxonomy in Text 7.4

Logical meanings are also an important way in which students demonstrate their knowledge of the field, particularly in the Phenomenon Identification stage. The following example, an elaborating relationship of specification in Text 7.4, is achieved through a hypotactic (or relative clause within a clause complex).

> *The infection can be passed by direct contact,* ***which means an infected person directly touches an uninfected person***

In these texts, logical metaphors are used to express causal relationships, particularly in hyperThemes of the Phenomenon Identification stage. For example, in Text 7.4, a causal relationship is expressed as a verb group, highlighted in the sentence below.

> *Pathogenic bacteria and viruses* ***can cause*** *infectious diseases …*

Logical metaphors, which express causal relationships 'in the clause', allow information to be packaged in abstract ways. Concepts that are introduced in these highly packed sentences are typically 'unpacked' in the clause complexes that follow. In these sentences, conjunctions express causal or temporal relations 'between clauses', to enhance meanings. For example, in the clause complex from Text 7.4, which followed the clause shown above, the meaning of the concept of infection

is unpacked as a clause (i.e. When a disease is transferred from one person to another …).

> *When a disease is transferred from one person to another at a rate that substantially exceeds the existing rate by direct or indirect contact, it is called an epidemic.*

Packing and unpacking through the use of logical metaphor and causal/temporal conjunctions is an important way in which students show their knowledge of the biological phenomena.

7.3.3.1.2 Research warrant

Like the experiment context, the research warrant functions to contextualise the student researcher's own study by demonstrating their knowledge of the field. Research warrants share with published research articles the goal of justifying the study and thus require an expanded repertoire of resources from across metafunctions, including extensive use of interpersonal resources to evaluate both their own and others' research. Each stage of the research warrant is construed through different linguistic configurations. In this section we take an ontogenetic perspective, focusing on key registerial patterns that develop across the undergraduate years.

The expansion of ideational resources in research warrants includes a deepening of taxonomies, which are constructed through a greater range of technical entities. These include entities that form other fields such as medical applications. From an ontological perspective, this suggests that the move from experimenting to research involves applying biological knowledge to solving real-world problems. Experiential metaphor, in interaction with logical metaphor, functions to package activities densely within a single clause and enables technical knowledge to be established and reasoning to occur across clauses. In the following sentences from an Honours research project, shown as Text 7.5, logical metaphors that express causal relationships are in bold and the interacting experiential metaphors and the noun groups formed around them are underlined.

Text 7.5 Excerpt from Honours research project

It has been reported that the frequency of occurrence, severity and spatial scale of hypoxia has been increasing due to pollution and global warming effect (Wu, 2002). The solubility of gases depends on temperature, increase in temperature could cause decrease in gases solubility. At high temperatures, D.O. decreases although the metabolic rate of aquatic organisms increases, which results in more consumption of oxygen.

Also, organic pollutants from anthropogenic activities have caused large scale hypoxia (thousands of km2) in aquatic systems all over the world, it has resulted in significant changes in the biodiversity of aquatic organisms, population decline of some species and decrease in fish biomass (Alexander et al., 2000).

As this example illustrates, the pressure to summarise a large body of research in research warrants results in far greater use of grammatical metaphor than in the genres used for experimental activity in earlier years.

Additionally, the resources of Appraisal are used extensively throughout the stages of this macro-genre. In the opening stages, ATTITUDE choices of APPRECIATION: valuation are used to establish an evaluative stance towards the 'object of study'. These choices typically evaluate the technical entities in terms of their value or significance and worth, including their value in research (e.g. *It acts as an* ***ideal*** *research organism*).

As the research warrant unfolds, the evaluative focus shifts to the field of 'research'. This is evident firstly in the increased use of referencing as the student writers draw on the research of others to authorise the propositions about the object of study. In the following excerpt from Text 7.5, sources are shown in bold. In one case, the student has not included the year and the marker has inserted a query (i.e. *Year?*). This indicates that the student writer is still learning to control in-text referencing conventions:

> ***Yatabe et al. (2004) reported that*** *up-regulation of hTERT protein followed that of mRNA expression. Inhibition of TERT showed increased expression in bax protein that is a pro-apoptotic protein in HeLa cell and caused mitochondrial apoptotic pathway* ***(Massard et al.)****. Also,* ***Sutapa Chakroborty et al. (Year?)*** *reported that inhibition of TERT caused up-regulation of bax protein expression in human chronic myelogenic leukemia cells. Furthermore, the down-regulation of TERT caused the induction of apoptosis in human umbilical vein endothelial cells* ***(Judith Haendeler et al.)****. So the apoptosis should be suppressed during hypoxia.*

In this excerpt neither the source nor the proposition is explicitly evaluated, but the accumulation of such findings does position the reader to accept the findings as valid (Hood, 2010, p. 156). As the research warrant unfolds, positive and negative choices of ATTITUDE interact with resources of ENGAGEMENT to position the reader more

deliberately. In the text that follows, evaluations of the two research fields (i.e. 'others' research' and 'author's research') effectively open a gap in research and then position the reader to see the author's study as potentially closing that gap. In the excerpt that follows soon after the one shown above, the internal contrastive conjunction, Yet, signals a shift in evaluative stance. While the ATTITUDE choice of **conflicting** in this excerpt does not explicitly evaluate a particular study, it does imply an evaluation of the field of 'others' studies' as problematic.

> *Yet, **conflicting** findings have been reported. For example, under hypoxic condition, apoptosis is induced in human cytophoblast cells (Rong Hu et al.), piglets cortical tissue (Alan B. Zubrow) through the increased expression of Bax …*

The shift to a negative stance signalled above is made explicit in the text that follows. In this text, the writer initially presents an interpretation to explain the conflicting findings; however, the use of expanding resources of modality, which are boxed in the excerpt from Text 7.5 below (*suggest*, *may*), position the reader to read this interpretation as 'open to question'. The concessive conjunction, *However* (underlined in the text), which begins the second sentence, effectively contracts these evaluative choices and the reader is once more positioned by the explicit choice of negative ATTITUDE (*uncertain*) to maintain the evaluation of 'others studies' as problematic. Positive ATTITUDE choices ('*better*', *insights*) are then used to introduce the student's own study as a potential way to fill the gap. All attitude values are in bold in the text below:

> *… The **conflicting** findings suggest that there may be a multiple mechanistic relationship between hypoxia, TERT, bax protein and apoptosis. However, it is still **uncertain** to determine if these findings can be deduced to other whole animal systems in vivo. A **better** understanding of the relationship between hypoxia and bax protein expression could provide some **insights** on the in vivo regulation of fish and the adaptive responses to hypoxic condition.*

In the excerpt above, grammatical metaphor, used to form semiotic entities in the field of research (in bold in the examples below), also enables evaluation to occur within noun groups (e.g. *a better **understanding***; *the conflicting **findings***) so that they appear as already agreed upon.

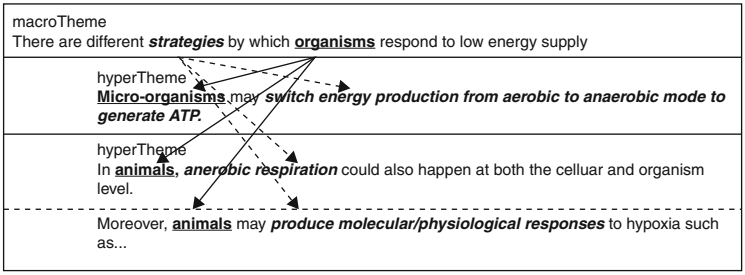


Figure 7.5 The work of hyperThemes in signalling entities in a Research Warrant

Textual resources function across the introductory stages of research warrants to organise the information flow. Research warrants have a more developed hierarchy of periodicity to signal the move from class to co-class within phases of text. Figure 7.5, an outline view of one stage of the Research Warrant in one student's text, illustrates the work of hyperThemes in signalling the entities to be described in each phase. Note that these hyperThemes also work cohesively to link back to the more abstract representations of the field (strategies and organisms) signalled in the macroTheme.

In sum, the analysis of experiment warrant and research warrant genres indicates that students at undergraduate level need to continue to expand their linguistic resources beyond those valued at secondary school level. While constructing technical entities is vital in demonstrating knowledge of biological phenomena, students need to use these entities to construct taxonomies across multiple fields and to evaluate these fields with a range of interpersonal resources to open the space for their own research.

7.4 Conclusion

In this chapter we have presented important findings of research into both the expert texts students in the undergraduate biology course at CityU read across their core units as well as key texts used for experimental and research activity. This research informed the development of pathways for the literacy intervention conducted by SLATE researchers and tutors in collaboration with subject specialist lecturers. In Chapter 9 we discuss how SLATE researchers and tutors supported students to develop their linguistic repertoire across the four core courses of the Biology program.

8
Training Tutors to Work with Students in the SLATE Project

8.1 Introduction

In this chapter we move from reporting key findings of our discourse analysis of Biology and Linguistics to reporting on the implementation of the intervention stage of the SLATE project. Specifically, this chapter focuses on the design of the training provided for tutors (language coaches) who were employed to support participating students from City University, Hong Kong (hereafter CityU), through the cycles of literacy intervention designed by SLATE researchers.

In previous chapters we stressed the importance for students at tertiary level to develop knowledge of the distinctive 'uncommonsense' ways in which language is used in particular discipline areas. Recognition of this need has resulted in systemic functional linguistics (SFL) informed interpretations of the language resources of key genres in the disciplines of science, the social sciences and the humanities. Genre-based pedagogies have also proven a most effective framework for making patterns of academic discourse visible to students, and for supporting them to successfully achieve their discipline learning goals. As discussed in Chapter 3, such understandings have informed pedagogical practices that focus on preparing students to write rather than repairing what they have written without preparatory support.

One issue for teachers and teacher educators in academic support contexts has been developing a metalanguage that allows them to share the understandings of the texts that are valued for learning with diverse groups of students. Most tutors employed for the SLATE project did not have SFL training and thus did not control the basic concepts of metafunction, rank and strata to organise their own knowledge about language. The language features they were initially able to bring to

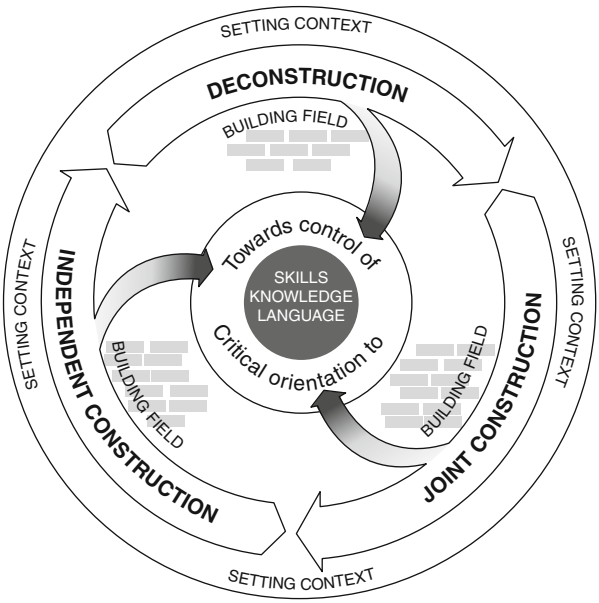


Figure 8.1 The Teaching Learning Cycle (TLC)

students' attention were typically at word and expression level and not always those that had the greatest impact on achieving the goal of the target text. Moreover, while embedding literacy support in discipline learning was the ultimate goal of the SLATE project, tutors often needed to work across disciplines and thus needed a metalanguage to talk about both the shared language patterns as well as the distinct patterns within the different academic disciplines. From the perspective of pedagogy, tutors needed to be apprenticed into supporting students through the different steps of the Teaching Learning Cycle (see Figure 8.1). That is, tutors needed strategies to contribute to the front-loaded support for reading and writing as well as for assessing and providing feedback on students' written drafts.

This chapter describes the key aspects of the four tutor training workshops developed by SLATE researchers in preparation for and prior to the intervention stage of the project. These workshops, which drew on the SFL genre-based theories and research described in Chapters 2–7, were designed to develop both a shared perspective of language at multiple levels of text and a view of pedagogy beyond a repair model

of feedback. Additionally, the workshops were designed to follow the Teaching Learning Cycle so that tutors gained first-hand experience of receiving instruction via this kind of pedagogy before having to enact parts of it with the CityU students. Thus the first two of the four workshops focused on field-building within the TLC, and the last two workshops enacted the deconstruction, joint construction and independent construction steps. The first section of this chapter describes the context for the SLATE tutor training. The second section focuses on the field-building in the first workshop – specifically, on how concepts of genre and register were modelled and contextualised in the academic domain and on the introduction of the '3 × 3' conceptual framework, which we introduced in Chapter 4 as a 'toolkit' for informing modelling, assessment and providing feedback on written texts in the academic domain. In the third section of this chapter we focus on the continuation of building the field in the second workshop with an introduction to the Sydney School pedagogy and, in particular, on the function of tutor feedback as a genre within the Teaching Learning Cycle. Finally, in the fourth and fifth sections of this chapter, we discuss the implementation of the deconstruction, joint construction and independent construction steps of the TLC with tutors, showing the modelling and practice opportunities provided for tutors. Finally, we discuss the implications of the tutor training for supporting students' literacy development at a distance and in an online mode.

8.2 The context – a needs analysis

Approximately 40 tutors per semester were employed by the SLATE project to work as language coaches for CityU students in a range of disciplines. Tutors came from diverse educational, linguistic and national backgrounds. Some of these tutors were seasoned language teachers, while others were still enrolled in MA programs (in TESOL and/or Applied Linguistics), or had recently completed one. Very few tutors came with knowledge of Sydney School genre pedagogy and SFL. The diverse backgrounds and experiences of the tutors were significant in informing the design of the tutor training workshops. In order to ensure that all SLATE tutors had a shared metalanguage and orientation to feedback, we developed the above-mentioned four workshops that all tutors were required to attend.

We began our training program by giving tutors a diagnostic writing test which required them to comment on a student text. The language used by tutors in their feedback revealed that, from a linguistic

perspective, tutors needed to be supported in shifting their gaze from a 'bottom-up' focus on low-level errors in grammar, punctuation and spelling, to a 'top-down' focus on the control of genre and register. This meant reconsidering errors in grammar and expression in terms of their function at higher levels.

From the perspective of pedagogy, many tutors had little experience working with a preparation-focused model of teaching and learning. As described in Chapter 5, Sydney School genre pedagogy can be characterised as a preparation-focused model in relation to its Teaching Learning Cycle (TLC; see Figure 8.1), which provides scaffolding that supports students *before* they are required to write independently. This kind of pedagogy aims to ensure all students have access to the knowledge and language needed to write successfully in educational contexts.

8.3 The training workshops

In response to the issues raised above, the series of four training sessions were designed to provide tutors with the resources needed to support students' literacy and learning. From the perspective of language, our aim was to provide an overview of the key principles of genre and register which underpin the Sydney School model and to introduce the 3×3 framework for organising linguistic knowledge in ways that were both meaningful and useful for the SLATE context. Following the pedagogical principles of the Teaching Learning Cycle, each feature of language was made explicit through modelling in context before the tutors engaged actively in activities to consolidate, extend and apply their knowledge. The following sections provide an overview of key elements of each workshop and further the discussion of the 3×3 provided in Chapter 3 by illustrating its application in teacher training.

8.3.1 Workshop 1: An overview of genres and registers in the academic domain

The goal of the first workshop was to introduce tutors to an SFL orientation to language, beginning with the notion of genre, in order to develop a top-down perspective on language.

Taking as our starting point the overview of genres in Martin and Rose (2008), the SLATE tutor trainers introduced the notion of genre and extended the discussion to include genres used within the disciplines supported by SLATE. In commonsense terms, genre was first introduced as 'the ways we get things done around here with language'. To provide

a gloss on 'around here', we drew on Macken-Horarik's (1996) concept of cultural domain, introduced in Chapter 4, to frame the broad contexts relevant to the lives of the tutors and the students they would be supporting. These included domestic/social, workplace, academic and civic domains. On this basis, tutors were then introduced to a more formal understanding of genre as the recognisable concurrent configurations of meanings that achieve different goals.

To develop these understandings, tutors participated in a range of deconstruction activities, which were designed to consolidate and further explore the relationship between text and context. For example, tutors read a number of decontextualised text segments and predicted both the broad domain in which they would be used and their unfolding as stages. These segments were:

- *Once upon a time …*
- *In conclusion, the above arguments …*
- *Six diamonds … hmmm, I can't guess :-))*
- *After closing, ensure that machines are thoroughly cleaned.*

There was general agreement amongst tutors as to the broad domains in which the excerpts would be found and they were able to predict the structural elements of the genres from which they were likely to have been taken. However, the diversity of responses to the third segment, *Six diamonds! …*, illustrated that some genres may be recognisable to different groups or communities of language users.

This activity provided a foundation for introducing exemplars of written genres from different disciplines of the academic domain. Tutors discussed the relationship of these genres to those encountered in other domains of their own and their students' lives, firstly in terms of their social purpose and then in terms of its use within particular disciplines or fields. Further exemplars were introduced to show the relationships among genres (as neighbours on a continuum), which have enabled educational linguists to organise genre pathways to discipline knowledge (see, for example, Coffin, 2006; Martin, 2002; Veel, 2006). Participants drew on their developing metalanguage to discuss distinguishing features of the exemplars they examined. Identifying and talking about patterns of language in this way consolidated their understandings of genre as relatively recognisable and stable configurations. The above activities built a shared understanding of the concept of genre that could be used as a valuable 'way in' to modelling the dimensions of register that are privileged in the academic domain and the linguistic choices which they activate.

Finally, Workshop 1 also briefly introduced tutors to the principles of genre pedagogy including the teaching learning cycle and its adaptation in the SLATE project.

8.3.2 Workshop 2: A 3 × 3 perspective on language in the academic domain

While Workshop 1 oriented tutors to the SLATE project and the concept of genre as applied in the SLATE project, Workshop 2 introduced them to the 3 × 3 matrix (see Chapter 4), which distils the concepts of register, strata, rank and metafunction into a toolkit for understanding texts within the academic register.

As discussed in Chapter 4, identifying distinctive discipline genres provided the way in to linguistic analysis and pedagogical practices throughout the project. Given the multi-disciplinary composition of the tutor-training workshops, the linguistic resources most valued across these genres were introduced from a register perspective and conceptualised for tutors as a 3 × 3 'toolkit'. The version of the 3 × 3 used for tutor training is provided in Table 8.1. This workbench metaphor was reinforced by a graphic representation of a toolkit, which foregrounded the appliable 'workplace' character of SFL. In the figure, metafunctions were conceptualised as 'compartments' that organise the tools and the three 'drawers' as organisers of the three different units or ranks of text.

The metaphor of a toolkit proved a valuable way of conceptualising not only the functional nature of SFL's linguistic descriptions but also the concept of language as a system from which resources are selected for particular tasks. Extending the metaphor, tutors were encouraged to conceptualise the tutor role in each academic discipline as apprenticing students into the crafting of texts in that discipline and thus requiring a distinctive subset of tools from the 3 × 3 toolkit. The notion of an academic domain and the metaphor of a toolkit for literacy work enabled tutors to understand the linguistic resources needed to support students across disciplines in terms that were relatively contained yet theoretically robust. In the following section we provide an overview of methods used to introduce the 3 × 3 and its applications in the workshop.

8.3.2.1 Introducing the resources of the 3 × 3: from whole text to clause

In introducing the resources of the 3 × 3 toolkit, tutor trainers and tutors worked firstly with a selection of successful student texts from a range of disciplines. Text 8.1 below contains excerpts from one such text. A more complete version of this text was used in Chapter 4 to introduce the dimensions of the 3 × 3.

Table 8.1 The 3 × 3 matrix or toolkit

Metafunction	1. Social activity: Genre and Register (whole text)	2. Discourse Semantics (phases)	3. Grammar and Expression (clauses and sentences)
A. Ideational Meanings *(parts)*	i. Beginning, middle and end stages of the text build knowledge relevant to the discipline specific topic and purpose ii. Language constructs the technical, specialised and formal knowledge of the discipline area (field)	i. Topics are grouped as phases which form a taxonomy according to discipline specific criteria ii. Information is related in logical relationships (e.g. time, cause, consequence, comparison) iii. Tables, diagrams, lists, formulae, examples and quotes are logically integrated with verbal text (e.g. to extend, report, specify or qualify points) iv. Information is expanded within phases (e.g. in terms of general/specific; point/elaboration; evidence/interpretation; claim/evaluation)	i. Elements within noun groups effectively describe and classify specialised terms (e.g. classifying adjectives, defining clauses) ii. Verb groups express processes relevant to the genre (e.g. defining, classifying; cause and effect, reporting) iii. Well-formed circumstances (e.g. prepositional phrases) are used to specify location of time, place, etc. where necessary iv. Tense is consistent with genre and expressed through logically structured verbal elements v. Nouns are determined correctly in terms of mass/count; single/plural; generic/specific vi. Vocabulary is discipline specific and formal (e.g. no contractions or phrasal verbs)
B. Interpersonal Meanings *(prosodies)*	i. Text convinces reader by moving its points or positions forward across the stages (e.g. by amplifying, justifying, reinforcing and acknowledging experts in the field)	i. Interaction with the reader focuses on giving information (i.e. no questions or commands) ii. Subject matter is evaluated objectively (e.g. implied through grading resources and according	i. Mood choices realise information giving function (i.e. subject finite) ii. Subject and verb agree in number iii. Adverbs, adjectives and infused lexical items are used to evaluate objectively

	ii. Language presents points and arguments in authoritative, impersonal and objective ways (**tenor**)	to values such as relevance, validity, significance) iii. Patterns of evaluation build a convincing stance within and across phases iv. The writer support points with authoritative evidence v. The writer includes and controls the voices of external sources to develop points and guide the reader towards a preferred position	iv. Modal verbs, adverbs and interpersonal metaphors are used to negotiate opinions and recommendations objectively v. Source material is incorporated into student writing through correctly formed quotes, paraphrasing and summarising vi. Conjunctions and continuatives are used to monitor and adjust reader expectations vii. Sources are cited correctly (e.g. using projection) and referenced according to discipline specifications (e.g. MLA)
C. Textual Meanings *(waves)*	i. Content is previewed in the beginning stage (introduction) and reviewed in the end stage (i.e. conclusion) ii. Global headings and abstracts are used to signal layout of longer texts iii. Language constructs coherent, signposted and abstract texts (**mode**)	i. Ideas are developed within phases (e.g. paragraphs) with topic and summary sentences used to predict and summarise ii. There is a logical flow of information from sentence to sentence across phases iii. Entities and parts of text are tracked through cohesive resources (e.g. reference, substitution and repetition) iv. Internal conjunctions are used to organise text v. Information flows from more dense abstract terms in topic sentences to expanded concrete terms in subsequent sentences	i. Choices of Theme predict the topic focus of the sentence ii. Grammatical metaphor is used to rework processes, qualities and logical relations as abstract entities and relationships (e.g. using nominalisation to express processes as nouns rather than verbs) iii. Active or passive voice is used to adjust information focus iv. Articles and pronouns are used to keep track of participants v. Spelling, punctuation, bullets, paragraphing and layout assist information structure vi. Abstract nouns are used to generalise and track ideas

Text 8.1 Factorial Explanation from exercise science with staging

	How to improve the biological performance of athletes
Outcome	Athletes try their best to obtain the best result in a competition. They engage in training exercise every day to enhance their biological performances include muscular strength, stamina and explosive force. They can also improve their performance by assimilating suitable nutrients.
Factor 1 (Training) *Training types*	Training exercises can be classified into aerobic exercises and anaerobic exercises. Aerobic exercise requires oxygen and a duration of training for more than 3 minutes. Most of the energy consumed in the exercises came from aerobic respiration. Endurance sports such as marathon running and long distance swimming are almost entirely aerobic. On the other hand, anaerobic exercises do not require oxygen, the duration of the exercise is usually less than a few minutes. Sports or activities which rely on short explosive bursts of activities, such as 100m races and weightlifting, are mainly anaerobic. …
Factor 2 *(nutrients) ATP nutrients*	Apart from regular training, athletes can also ingest suitable nutrients to improve their biological performance. There are three nutrients that can be oxidized by respiration inside our body cells to release energy which is in the form of ATP (adenosine triphosphate). They are carbohydrates, protein and lipid. ATP is the energy carrier of body cells. The energy generated by cell respiration will store in the ATP and it can be used when required in reaction in the cell when muscle requires energy. When carbohydrates are available, they are used first in muscle cells. …
Summary	In conclusion, athletes can engage in regular aerobic exercise to increase their stamina and anaerobic exercises to increase their muscular strength and explosive force. Athletes should get enough carbohydrates, lipids, proteins force energy source, maintaining body weight and muscle growth. They should also take sufficient amount of minerals to prepare a good body for competition.

Modelling of genre and register in the academic domain began with the distinctive global purpose and generic structure of the texts, which, as discussed in Chapter 4, were presented initially from an ideational perspective. From this perspective, taxonomies and activity sequences that construe a specialised field were of particular importance. Graphic outlines, such as that shown as Figure 8.2, provided a clear way to model the relationships of types to subtypes which form the ideational skeleton or map of texts such as 8.1.

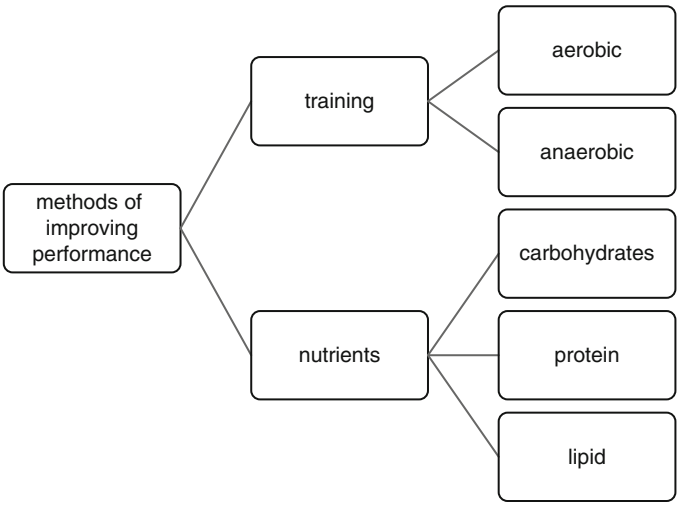


Figure 8.2 Graphic outline showing taxonomic relations in Text 8.1

To illustrate the work of taxonomies in building fields in different domains, tutors were given a task that asked them to consider the different ways pictures of food items could be grouped. A number of different taxonomies were suggested, including, not surprisingly given the context, those based on scientific nutritional values. Tutor trainers stressed the important role of tutors in supporting students at CityU to recognise the taxonomies that are valued in their discipline and to use these when organising information in their written texts.

Once tutors had been alerted to the importance of taxonomies such as that represented in Figure 8.2, they were alerted to the pathways available within the 3×3, not only for building their own knowledge but also for modelling and assessing texts for use in their roles as tutors. One pathway, which is particularly relevant to academic writing, begins with these ideational resources and extends to the textual meanings that organise the field at the discourse semantic and lexicogrammatical levels (see Table 8.2). The arrows in the table indicate the most frequent instructional pathways of SLATE modelling resources.

The resources of Theme, glossed at this level in the 3×3 as Previews, were highlighted in modelling resources because of their role in explicitly signalling the unfolding waves of information that students composed. An example of a Preview at phase level from Text 8.1 is: *Apart*

Table 8.2 A pathway for building knowledge of academic language

Metafunction	**1. Social activity: Genre and Register (whole text)**	**2. Discourse Semantic (phases)**	**3. Grammar and Expression (clauses and sentences)**
A. Ideational Meanings	iii. Does the language construct the technical, specialised and formal knowledge of discipline area? (**field**)	v. Are topics grouped as phases which form a taxonomy according to discipline-specific criteria?	vii. Do elements within noun groups effectively describe and classify specialised terms (e.g. classifying adjectives, defining clauses)?
B. Interpersonal Meanings	…	…	i. Are adverbs, adjectives and infused lexical items used to evaluate objectively …
C. Textual Meanings	iv. Is the content previewed in the beginning stage (introduction) and reviewed in the end stage (i.e. conclusion)? v. Does the language construct coherent, signposted and abstract texts? (**mode**)	vi. Are ideas developed within phases (e.g. paragraphs) with topic and summary sentences used to predict and summarise? vii. Does information flow from more dense abstract terms in topic sentences to expanded concrete terms in subsequent sentences?	vii. Do choices of Theme predict the topic focus of the sentence? viii. Is grammatical metaphor used to rework processes, qualities and logical relations as abstract entities and relationships (e.g. nominalisation?

from regular training, athletes can also ingest suitable nutrients to improve their biological performance.

After identifying the textual function of these previews, tutors were guided to explore the resources that allow previews to be packaged as dense and often abstract peaks of information. An important resource for packaging information in previews is grammatical metaphor, which, as discussed in Chapter 3, is a vital concern of academic discourse. As

noted there, grammatical metaphor allows for actions and qualities to be construed as participants within noun groups (e.g. *their biological performance*), as well as for causal links between clauses to be expressed by a range of grammatical constructions 'within the clause'. Engaging in activities that identify grammatical metaphor in expert texts and then unpacking those metaphors in order to retrieve the congruent meanings provided valuable preparation for tutors in their subsequent work with students in both the textual and ideational metafunctions, and across the range of strata. For example, grammatical metaphors such as *biological performance* were unpacked to 'to improve the way their bodies perform biologically'. Likewise incongruent realisations of cause, such as *They can also improve their performance by assimilating suitable nutrients …* were unpacked to become a much longer sentence and more congruent, such as: 'If they want to perform better they can eat/assimilate suitable nutrients'.

Although lexicogrammatical resources were not the main focus of the workshops, introducing linguistic features such as participants, processes and circumstances provided tutors with a metalanguage to assist students in creating texts that met the expectations of the students' disciplines. For example, having identified grammatical metaphors, created through the process of nominalisation, tutors identified the functional elements of the noun group (such as Numeratives, Classifiers and Qualifiers) that are marshalled to quantify, describe, evaluate, classify and qualify phenomena. They also explored the consequent 'emptying out' of meaning from verb groups by the use of relational processes, which is a by-product of grammatical metaphor. Sentences like *Endurance sports such as marathon running and long distance swimming are almost entirely aerobic*, which have a simple grammatical structure and an 'empty' relational process, show this feature. From an interpersonal perspective, identifying evaluative meanings within noun groups (i.e. as adjectives such as *important* and *significant*) provided a starting point for exploring the role of explicit and implicit attitudinal resources in building an evaluative stance in objective ways.

Using the 3×3 to frame and build upon the prior knowledge of tutors provided the SLATE team with a foundation upon which to plan teaching and learning sequences, and importantly, to develop assessment criteria for informing tutors' feedback on students' writing. In the next section we discuss the third and fourth workshops, which shifted from expanding tutors' own knowledge about language to applying that knowledge in the task of supporting students. Specifically, the third workshop focused on applying the tools of the 3×3 to specific genres and introducing and using the assessment criteria which were based on

the 3 × 3; the fourth workshop focused on introducing tutors to Sydney School genre pedagogy as recontextualised for the SLATE project.

8.3.3 Workshop 3: Application of the 3 × 3 to specific genres and assessment

The aim of the third workshop was to provide tutors the opportunity to see in action the effect of a top-down approach to language and to apply their newly acquired understandings of genre and register to the assessment of student texts, using the 3 × 3. As noted in Section 8.3.2, the initial 3 × 3 developed for tutor training was not genre-specific, rather it was generalised to the academic register. However, regardless of the genre it was being applied to, one of the challenges of using the 3 × 3 to direct the tutors' gaze on student texts was to encourage the tutors to examine student texts from the top down, that is, from the text to the word, rather than from the bottom up; tutors were also encouraged to view student texts as realising several strands of meanings simultaneously. The SLATE tutor trainers continued this process by guiding tutors in the assessment of a text written by a high school student on the topic of the necessity of governments, a text that had numerous problems across a range of levels (see Text 8.2).

Text 8.2 Student text – Year 10 geography essay (from Martin, 1996)

I think Governments are necessary because if there wasn't any there would be no law people would be killing themselves. They help keep our economic system in order for certain things
If there wasn't no Federal Government there wouldn't have been no one to fix up any problems that would have occurred in the community. Same with the State Government if the SG didn't exist there would have been noone to look after the school, vandalism fighting would have occurred everyday. The local Government would be important to look after the rubbish because everyone would have diseases.

Initially, tutors' comments on the text focused on the levels of word and expression (grammatical forms, spelling and punctuation). A second version of the text, with these low-level 'errors' adjusted (Text 8.2), was then presented to demonstrate the effect of focusing on this level in feedback and correction. Tutors agreed that this kind of bottom-up 'fix' did not in fact 'fix' the text at all as far as improving its cohesive problems and achieving the aims of the target genre.

Text 8.2 Student text with grammar, punctuation and spelling attended to

I think Governments are necessary because if there weren't any there wouldn't be any law: people would be killing themselves. They help keep our economic system in order for certain things.

If there wasn't any Federal Government there wouldn't be anyone to fix up any problems that occur in the community. It's the same with the State Government – if the State Government didn't exist there wouldn't be anyone to look after the schools; vandalism and fighting would occur everyday. The local Government is important to look after rubbish, because otherwise everyone would have diseases.

Tutors were then supported to use understandings of the higher levels of language within the 3 × 3 to guide the remediation of the text, as shown in Table 8.3. This resulted in a much more cohesive text that more effectively realised the aims of its genre, namely to persuade why governments are necessary, using academic discourse. In Table 8.3, the text has been annotated using the metalanguage of the 3 × 3 to illustrate how discourse semantic resources from the systems of periodicity, conjunction and ideation are marshalled to attend to its organisation and packaging.

As the main role of the tutors was to provide feedback to students on drafts of their assignments and ultimately to assess the development of their writing, Workshop 3 continued with a focus on tutors practising their newly developed understandings by examining a number of student texts. To facilitate the analysis and assessment of texts, the understandings developed through the 3 × 3 perspective were used to come up with probe questions, as shown in Table 8.4. Guided by these questions, tutors practised analysing the use of resources in the student texts and provided evidence from the perspective of whole text structures before moving to resources within discourse semantic and lexicogrammatical systems. At all levels, probes included meanings from across metafunctions.

Thus the 3 × 3 was modelled to tutors as a guide for them to determine to what extent student texts were successful in controlling the language resources that had been introduced through the SLATE deconstruction materials. In this way, a strong relationship was maintained between the preparation (modelling) and assessment.

Workshop 3 concluded with the introduction of an assessment rubric that SLATE researchers developed for assessing student texts. This

Table 8.3 Student text remediated from the top down (attending to its organisation through the use of discourse semantic systems)

Ideational and Interpersonal meanings		**Textual meanings**
Language constructs the technical, specialised and formal knowledge of discipline area (**field**)	*I think Governments are necessary for a number of reasons. These have to do with the special responsibilities of Governments at different administrative levels – Federal, State and Local.*	Content previewed in the beginning stage (introduction) Abstract nouns used to generalise and track ideas (e.g. levels, reasons, responsibilities)
Topics grouped as phases which form a taxonomy according to discipline-specific criteria (levels of government)	*To begin the Federal Government is concerned with general difficulties faced by the community. It organises armed forces to defend the country in case it is attacked and to help keep things peaceful in various parts of the world. It tries to improve the economy, … And it collects taxes …*	Choices of Theme predict the topic focus of the sentence (the Federal Government)
Information is expanded within phases as point/examples information is related in logical relationship of addition/comparison	*Similarly the State Government is responsible for schooling … this prevents vandalism and fighting … [elaborated] Finally the Local Government has to look after waste disposal … [elaborated]*	Active and passive voice used to adjust information focus
Subject matter is evaluated objectively according to values such as importance – via adverbs, adjectives and infused lexical items		Some grammatical metaphor used to rework processes as nominal groups (fighting), or as abstract entities through nominalisation (vandalism)
		internal conjunctions used to organise text (*finally*)
classifying adjectives and defining clauses within noun groups describe and classify specialised terms (e.g. concern)	*As a result of their concern with general difficulties, schooling and waste disposal, Governments at several levels of administrative organisation are necessary.*	Content reviewed in the end stage (i.e. conclusion)

Table 8.4 3 × 3 matrix with probe questions to guide analysis of texts

Level	Probe question	Comments and evidence in text
WHOLE TEXTS Social activity: genre: • field • tenor	Do the beginning, middle and end stages build knowledge relevant to the discipline-specific topics and purposes? Does the text convince the reader by moving points or positions forward across the stages (e.g. by amplifying, justifying, reinforcing and acknowledging experts in the field)?	
• mode	Is the content of the text previewed in the beginning stage (introduction) and reviewed in the end stage (i.e. conclusion)?	
PHASE discourse semantics • field	Is information developed across phases (e.g. in terms of general/specific; point/elaboration; evidence/interpretation; claim/evaluation)	
• tenor	Does the writer include and control the voices of external sources to develop points and guide the reader towards a preferred position?	
• Mode	Does the information flow from more dense abstract terms in topic sentences to expanded concrete terms in subsequent sentences?	
CLAUSE/SENTENCE Grammar and expression • field • tenor	Do elements within noun groups effectively describe and classify specialised terms (e.g. classifiers, defining clauses)? Are interpersonal objective metaphors used to negotiate opinions and recommendations (e.g. 'It is clear that' or 'There is a need for …' rather than 'I think' or 'you should')?	
• mode	Is grammatical metaphor used to rework processes, qualities and logical relations as abstract entities and relationships (e.g. using nominalisation to express processes as nouns rather than verbs)?	

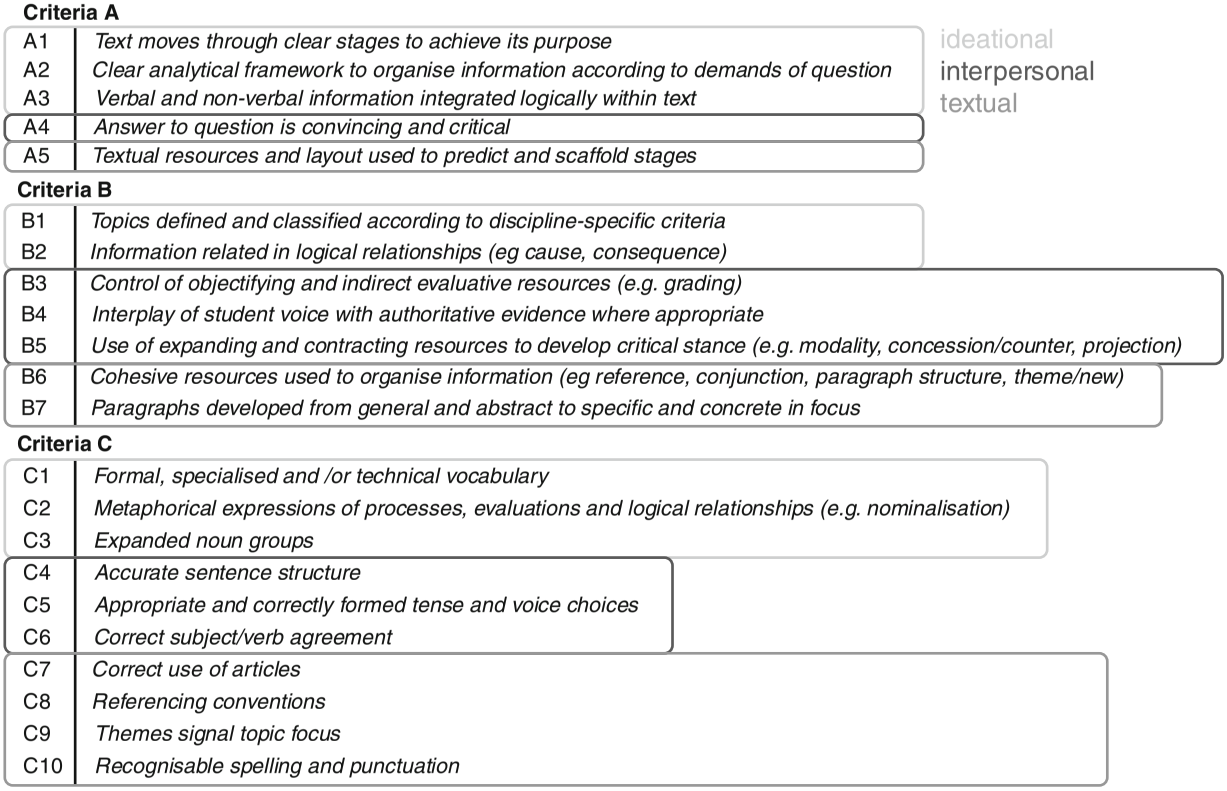


Figure 8.3 Rating sheets used by SLATE tutors to assess student texts

rubric, or ratings sheet, which was described in Chapter 4 (Figure 4.4), and is repeated here in Figure 8.3 (with the metafunctions identified on it), was also informed by the 3×3.

Tutors were given the ratings sheet and asked to match the criteria on the sheet to particular cells on the 3×3. They were then given an expanded version of the 3×3 that contained more information about each aspect in each cell, which they could use to flesh out their understandings of each line in the ratings sheet. Tutor trainers then demonstrated how to use the ratings sheet by applying it to a student text, reiterating how to focus on assessing a text from the top down, and selecting just a few key issues to be dealt with (so that in the case of poor texts, students were not overwhelmed with all language features which were in need of editing). Tutor trainers also modelled the move between the deconstruction materials provided to students and the assessment of texts so that the focus was on adjusting language resources that had been modelled to students in deconstruction. After being introduced to and shown how to use the ratings sheet, tutors were again given student texts to practise on and time to discuss their assessments of these texts. This careful scaffolding from the more generalised practice of analysis, which was guided through probe questions, to the more formal assessment provided essential time for tutors to raise issues and seek clarification from SLATE tutor trainers.

8.3.4 Workshop 4: Introducing the pedagogy – principles of the TLC with a focus on the independent construction step

The aim of the fourth workshop was to orient the tutors to the pedagogy used in the SLATE project as well as to the technology they would be using to support students' literacy development. Workshop 4 thus introduced students to 'Sydney School' genre pedagogy in order to outline to the tutors the logic of this preparation-focused model of literacy. As discussed in Chapter 5, the writing-focused genre model called the Teaching Learning Cycle is an interactive and iterative cycle where the SLATE team provided guidance throughout each of its steps to build on and extend students' knowledge of language, in order to control the genres of their disciplines. For this reason, developing tutors' familiarity with the texts and activities from all steps of the TLC was essential.

In order to introduce the tutors to the TLC, the tutor training workshops were themselves organised around the steps of the TLC, so that tutors were not only shown how it would work in the SLATE project, but also experienced its enactment in their own tutor training. Tutors were firstly introduced to the support materials provided to students during the deconstruction step by the SLATE team, including both deconstructed models of target texts as well as exercises for guiding

reading and note-taking. The deconstruction step, as discussed further in Chapter 9, involves both explicit modelling of the target text and student-centred activities, with a view to identifying the function and forms of the key resources modelled. Even though tutors were not required to respond to students' writing during the deconstruction step of the TLC, they were required to provide generalised feedback in the supported independent construction step to reiterate the teaching points and to link the activities to the students writing be producing; thus familiarisation with the deconstruction materials was essential. While SLATE researchers took responsibility for preparing 'answer sheets' for these activities, effective feedback during the supported independent construction phase depended on referring to the shared understandings built during deconstruction (and sometimes joint construction). Tutor trainers thus modelled to tutors how to move between the deconstruction materials and the student texts they were assessing, so that student texts were always assessed in the light of the deconstruction materials. Tutors were provided with a list of documents to have at their disposal while providing feedback on student texts, including, the assignment question, material the lecturer had provided, the deconstruction materials and the 3×3. They were also given a sequence of actions and time to practise, to help them become familiar with all the front-loading materials students had been provided with.

As discussed in detail in Chapter 11, the SLATE project developed an expanded independent construction step of the TLC, with two iterations of tutor feedback prior to students having to submit their assignments to their lecturers (Mahboob & Devrim, 2011, also see Mahboob et al., 2010). This extension supported students with drafts of their writing that linked what they were doing in their writing with material covered in the front-loading support. It also involved formalising the way tutors responded to students, to try to ensure a measure of consistency across the feedback provided by tutors.

In their feedback on students' written work, tutors were encouraged to personalise the feedback, for example by acknowledging students' participation, by introducing themselves and addressing them by name. Just as in face-to-face learning situations, it is important to acknowledge the role of tutors in motivating and engaging students in literacy activities, which may not always be seen as core business for students and even their subject tutors. Building relationships, reiterating the purposes of tasks and affirming students' progress throughout the cycle was essential to the success of the SLATE intervention, in light of the support provided by tutors was not face to face, it was imperative that tutors understood and practised the interpersonal work that supported the ideational work

Table 8.5 Models of tutor feedback for SLATE supported students

Stage	Phase	Example 1	Example 2
Orientation	Purr: warm greeting Statement of strengths Preview: states what feedback will focus on	Dear TM, Well done on submitting your first draft for your second assignment. You have a very good sense of structure in terms of staging with an appropriate beginning, middle and end. Well done. There are still some things you can do to improve your work on a paragraph level. Therefore my comments this draft will deal with paragraph structure and topic sentences. I will also make some remarks about appropriate linking words, level of formality and referencing.	Dear GY, Well done on considering my feedback from draft 1. You have certainly made a good effort in strengthening your work as a comparative text. You have made a considerable improvement, especially in creating a proper introduction and conclusion and refraining from using personal pronouns. My comments this time will address ways you can help the reader to understand your points. I will focus on ways you can improve your structure on a paragraph level, as well as touching on effective use of signposting.
Feedback	Statement of problem Explanation of why it's a problem Suggestion for how to remediate (including directions to Blackboard resources and model text and alternatives)	You have made a good attempt here at a linking phrase to introduce a comparison. However, the expression 'On the contrary' is not quite what you need here because you are making a specific contrast, so why not use something like 'Contrastingly …' or 'In contrast …' (NB. This is one of a number of points raised by the tutor)	The two paragraphs above seem to describe some words which are difficult to classify. Try to group them together with a clear topic sentence. This will alert the reader that there is a new idea about to be discussed. (NB. This is one of a number of points raised by the tutor)
Recap	Summary of what student needs to work on in next draft		This is a good comparative essay, Y. Keep my comments in mind when working on your final submission, particularly the way you can arrange your sentences in a logical sequence to move the reader through your ideas in a sensible way.

(*continued*)

Table 8.5 Continued

Stage	Phase	Example 1	Example 2
Recommendations	Suggestions for activities or general ideas to improve student's writing		Your essay could also be strengthened by using appropriately formal language suited to an academic essay. It can be tempting to write how we speak. This is one of the challenges of academic writing, but you must always keep this sense of formality in mind and you will improve. Your use of the personal pronoun 'I' is too informal for an academic essay. Personal pronouns like 'we' or 'I' are discouraged in academic writing. This is partly because the focus should not be on the author, but should remain on the subject matter. The exercise on passive voice should help you here.
Expanded explanation	Provision of more detailed explanations with examples		Like I said in my feedback last time, you need to effectively integrate these definitions into your paragraphs. As it is, they are not functioning as headings nor as part of the body. Try to integrate them with linking words and introductory phrases.
Encouragement	Praise and well-wishing for their next draft	This is a good linguistic commentary, TM Please take my comments into account when working on your next draft and your work will improve. Good luck, L	Good luck and we look forward to receiving your work!

of literacy development. In this fourth workshop, tutor trainers demonstrated how to give this kind of personalised feedback by going through the formalised model that was developed by the SLATE team section by section, in terms of stages and language features (see Table 8.5). This was followed by a joint construction of writing the feedback initially with the tutors, and then in small groups. Following this, each group presented their feedback to the whole tutor-training group for discussion.

Following this section of the workshop, tutors trainers demonstrated the technology they would be using for the supported independent construction step and provided opportunities for tutors to engage with this technology in a computer lab. Tutors were also given the opportunity to trial the assessment and feedback they had been modelled and practising on texts in the online platform so that they could become familiar with the technology before having to use it. Following these four workshops, they were given two more opportunities to meet, practise and discuss their trials of giving feedback on texts with tutor trainers and each other.

8.4 Conclusion

This chapter has described the workshops for training tutors or language coaches to work with participating students in the SLATE project's literacy intervention at City University (CityU), Hong Kong. The four workshops included in this training aimed to provide tutors with sufficient knowledge of SFL and 'Sydney School' genre-based pedagogy to provide supportive and consistent feedback on students' texts. Given that tutors who were employed to work on the SLATE project had varying levels of knowledge about language, the workshops were designed to support the development of a shared metalanguage in order to make visible the resources most at stake in academic writing. Through explicit modelling from a 3×3 perspective, deconstruction and independent construction activities provided through the four workshops, tutors developed both the knowledge about academic language used to model and assess students' control of academic genres needed to achieve their disciplinary goals. From the perspective of pedagogy, they developed knowledge and strategies for enacting the 'front-loading' pedagogy of a 'prepare' model of literacy development.

The next three chapters focus on the implementation of Sydney School genre pedagogy in the SLATE project. Chapter 9 focuses on the deconstruction step as enacted for the discipline of biology at CityU. Chapter 10 focuses on the joint construction step as implemented for linguistics students at CityU, and Chapter 11 focuses on the independent construction step as developed and implemented across the disciplines supported at City U.

9
Field Building and Deconstruction of Written Texts

9.1 Introduction

In Chapters 6 and 7 we modelled the key texts that were needed for learning across undergraduate linguistics and biology at CityU. We provided details of the key linguistic features of these texts and described pathways to cumulative learning in both disciplines. These understandings were essential for tutors to support students' literacy and learning throughout the SLATE project. In this chapter we turn our attention to the nature of the pedagogic support provided by SLATE researchers and tutors. This online support was designed on the basis of resources developed within the Sydney School in both face-to-face and online modes (Ellis, 2004; Rose & Martin, 2012; Unsworth, 2001b) and takes as its starting point the Teaching Learning Cycle (TLC), originally proposed for secondary contexts of learning (Rothery & Stenglin, 1995). In this chapter we examine cycles of support provided for building field knowledge and analysing target texts within the deconstruction step of the TLC. Chapter 10 focuses on the joint construction step, while Chapter 11 details the negotiated independent construction step designed to support students through the drafting of literacy-based assignments. Crucial to all steps of the support is the development and use of a metalanguage to ensure that knowledge of more generalisable patterns of academic discourse are made visible to students and transferred to their work with other academic texts.

In adapting genre-based pedagogical practices for the online environment, we were informed by the developmental work of educational designers within English for Academic Purposes (Drury, 2004; Ellis, 2004; Woodward-Kron & Thomson, 2000). These resources focus on the deconstruction of academic genres, accounting for the effect of register,

particularly field. They include exercises that are typically interactive and often allow students options in the selection and organisation of activities. As with face-to-face text deconstruction, however, online activities need to be sufficiently supportive to ensure that students have access to the genres and registers which are necessary for learning. In Bernstein's (1996) terms, the activities are strongly framed (i.e. they limit options in the pedagogic relationship), with some flexibility to be weakened if required.

Section 9.2 of this chapter focuses on the pedagogic strategies implemented to support reading, note-taking and summarising of expert texts across the biology and linguistics courses. This focus recognises that careful scaffolding of preparatory reading for building field is essential in academic contexts. In Section 9.3 we shift our gaze to the teaching and learning activities used in the deconstruction of the texts students produced for written assessment tasks, drawing on the research into these texts and the metalanguage described in earlier chapters.

9.2 Building knowledge of field and genre through reading

The reading materials developed for the undergraduate biology and linguistics programs aimed to support students to use effective reading, note-taking and summarising strategies through building knowledge of the aspects of text and language outlined in Chapters 7 and 8. The support was carefully integrated within the discipline learning of the core courses to ensure its relevance to both the immediate and the long-term needs of the students, and to blur the boundaries between the content and literacy teaching. Support material was designed by the SLATE coordinators and posted as word documents on the CityU course websites. In order to introduce students to these support materials, coordinators wrote letters to the students, introducing them to and preparing them for the support materials. Using the letter mode enabled coordinators to establish the solidarity and familiarity needed in a teacher–student relationship, while making explicit the procedures and expectations of the tasks through organised monologic text. Feedback on students' note-taking and drafting was provided by individual tutors, initially within a blog and later using the software Turnitin (see Chapter 11 of this volume for further discussion on the feedback provided to students).

Reading-oriented pedagogies developed by genre theorists (Rose, 2011; Rose & Martin, 2012; Unsworth, 2001b) provided valuable understandings for scaffolding students' reading comprehension. The organisational

framework for the reading materials activities drew on the temporally organised stages of Unsworth's (2001b) Literacy Development Cycle (LDC), which have been simplified in some educational contexts as Before, During and After reading (Unsworth, 1999). The Reading to Learn pedagogy (Rose, 2011) informed the careful scaffolding offered for accessing meanings and producing notes, paraphrases and summaries of the expert texts. The explicit 'front-loading' (i.e. preparing in advance) of Reading to Learn differs significantly from traditional word-level support provided in pedagogical materials and supports students to focus on 'main ideas' at each level before focusing on word-level technicality. This strategy provides an essential orientation to the highly technical field of expert texts and complements the orientation to the purpose and staging of the genre in the Teaching Learning Cycle.

Essential to the SLATE reading support was the explicit modelling of linguistic patternings to guide comprehension, using SFL-informed metalanguage at discourse, sentence and word level. Modelling focused initially on textual resources that expert academic writers use to organise information into cohesive written texts. Key aspects of the support at each phase are discussed in the following section and exemplified with excerpts from materials posted to students in biology.

9.2.1 Preparing to read

Resources developed to prepare students in biology for reading ('Before Reading' phase) focused on engaging students with meaning at the level of the whole text. From the perspective of genre, this involved making explicit the purpose of the macro-genre and its relationship to developing learning within and across courses. The support provided in second-year courses built on prior learning to make visible the relationship of macro-genres to those encountered in previous courses. In the excerpt from BCH 3013 support materials shown in Text 9.1, this involved making explicit the more delicate taxonomy of review genres within the research article family of macro-genres (for more details of other macro-genres within biology, see Chapter 7).

Text 9.1 BCH 3013: 'Before Reading' notes, making explicit the taxonomy of review genres

> In BCH 2002, you read and summarised two research articles for two of your assignments. These articles were descriptive reviews. A **descriptive review** presents current research findings from a number of studies to build understandings of a phenomenon.

The article you have been given to summarise for Assignment 1 in BCH 3013 is a type of research article called a **critical review**. A critical review also presents current research findings from a number of studies to build understandings of a phenomenon. However, the main purpose of a critical review is to build an argument by contesting or challenging aspects of the studies which are reviewed.

Learning to write a critical review is very important for preparing for conducting your own research project. From a critical review, you can establish 'the gap' in the research of a particular phenomenon and thus justify your own research. Later in the course we will support you to write a critical review but reading and summarising such a text can help you to understand its purpose and structure.

An important aspect of the support provided to students before reading was the use of outline tables. One important function of outlines is to model the generic staging of the text from a field-oriented perspective. For example, the excerpt shown in Text 9.1 continues as seen in Text 9.2.

Text 9.2 BCH Support document including outline of generic staging

Like the articles you read in BCH 2002, this article moves through a number of stages to achieve its purpose. The main stages of the critical review you have been given and the functions of these stages are given in the table below:

Title	Identifies main phenomenon and signals an issue to be resolved (eg. with a question)
Abstract	A summary of the article, indicating the structure and content of the whole article
Issue	Identifies the problem which is addressed in the article in a general way
Background/ Description	Provides information about what is agreed on or 'established' about the scientific phenomenon
Evaluation of research (claims and challenges)	Summarises research studies and evaluates the findings and/or methodology of the studies. Identifies gaps in the research. (Summaries may include longer case studies)
Recommendations for future research	Provides recommendations for future research.

In the Terr review, only the stage 'Recommendations' is labeled. However, the headings and formatting provide a guide for some of the other stages.

Exercise 1:

Write the name of the stage (eg, title, abstract, etc.,) beside the part of the text you think it includes.

Even though support materials were provided in document form, students were invited to be active in deconstruction activities following modelling. Student responses were submitted to SLATE tutors, who provided individual feedback and a completed copy to use as a model.

From the perspective of register, 'Before Reading' notes supported students for the kind of field knowledge needed to understand the article, including the field implications of different visual images. Comprehension was also supported by making explicit the role of spoken and written language in pedagogic macro-genres. A sample teaching note is provided in Text 9.3.

Text 9.3 Before Reading teaching note

BCH 2002 Using a video for learning

Watching a video such as 'Dangerous Friends and Friendly Enemies' is a very useful way of beginning to build knowledge of the topic of Microbes. This is because the video is designed as a bridge from the knowledge of everyday experience and the specialised scientific knowledge we gain from looking more deeply (i.e. under the microscope). When you watch the video you will notice how the images go back and forth between people and activities observed with the naked eye and microbes under a microscope. The information given in both parts is very important for building the whole picture, but the information given when the images are microscopic is particularly important for you in learning biology.

9.2.1.1 'During Reading' scaffolding

'During Reading' activities involved both close guided reading of important sections of the text and making explicit the role of key linguistic features to support reading comprehension. As in the 'Before Reading' phase, students' comprehension of the text was supported

throughout this phase with summary outlines preceding the sections selected for close reading. An example is given in Text 9.4.

Text 9.4 BCH 3012: 'During Reading' summary outline

In this stage the writer (Terr) has provided details of many research studies that have claimed that other illnesses are caused by indoor molds. The writer challenges these findings according to four reasons or criteria, which are given at the beginning of the section, They are:

- The molds which are blamed for the disease are not specified
- The diseases which are said to be caused by the mold. are not specified in an objective way
- The way the disease develops is not identified
- There is no description of the diseases

Exercise 4: Highlight the parts of the text which give these criteria.

Exercises throughout this phase engaged students in identifying meanings and marking up relevant sections of the text with highlighters. Marking up the text in this way scaffolds the move from comprehension to extracting relevant information in note form.

Linguistic resources were also made explicit during this phase of the support. Of particular value was the signalling role of the textual resource, Theme. The metalanguage used to build understandings of this resource drew on terminology from systemic functional grammar (e.g. Theme), but also made use of familiar rhetorical concepts such as Topic sentence and Heading to make links to students' prior knowledge of language. Knowledge of the signalling work of Theme at whole text (macroTheme), paragraph (hyperTheme) and clause levels is fundamental to developing reading strategies and composing written, clearly signalled texts.

9.2.1.2 'After Reading' scaffolding (note-taking and summarising)

'After Reading' scaffolding focused on extracting information from texts in note form as well as reconstructing notes into summaries. Note-taking was scaffolded with outlines that were designed to reflect the organisation of information within the text. Because most of the pedagogic texts were organised around classification and composition taxonomies, tables were the most frequently deployed graphic outlines. Outlines provided guidance for students in selecting highlighted information and noting key words and relationships. These grids were submitted to SLATE tutors, who provided feedback and a completed outline. This not

only ensured that students were beginning their writing task on a level playing field, but also provided a model of effective notes.

In most courses, student summaries of expert texts produced with the support of tutors were used as the major assessment of students' literacy development and also contributed to course assessment. The role of summary writing across the core biology courses in scaffolding students' development from doing science to researching science is discussed in Humphrey and Hao (2013). However, producing a summary or paraphrase as an 'After Reading' activity also presents a valuable context for supporting students to use the ideas of experts without plagiarising the wordings. In the excerpt in Text 9.5, from a first-year course, explicit knowledge of language at the clause level is introduced to model alternative wordings for defining concepts.

Text 9.5 BCH 2001 Support for paraphrasing information

Paraphrasing definitions

The first sentence of the Background section is a definition. The structure of this definition is very common in scientific reports. This structure is shown in the table

Term	Linking verb (=)	General class	Specific class
Algae	are	informally defined groups of eukaryotes	that are usually classified in 12 phyla

Here are some other examples of definitions from your lecture presentations

Term	Linking verb (=)	General class	Specific class
Ecology	is	all the cells, tissues and organs	(which are) controlled by one genome.
Population	refers to	individuals of a species	that occupy the same area and are likely la encounter each other regularly

It is not easy to paraphrase definitions because you may lose the precise meaning. However, changing the forms of some words will help you to avoid plagiarism. Some examples of changes you can make are:

- changing the linking verb (eg. refers to; is defined as; describes)
- using synonyms for words which are NOT technical terms (area = region; encounter =meet; are likely = could)
- using more general or more specific terms (cells, tissues and organs = organisms)

- changing the grammatical form of words (eg. be careful here because this usually means other parts of the sentence need to change as well)

Here are paraphrases of the two definitions above which are formed by changing word form

Term	**Linking verb (=)**	**General class**	**Specific class**
Ecology	can be defined as	all the organisms	which one genome controls
Population	refers to	members of a species	that live in the same location and meet one another often

Exercise 2: paraphrasing a definition

Paraphrase the definition of algae using some of the strategies demonstrated above:

As can be seen in the reading-oriented materials shown above, supporting students to access information from academic texts and to extract information for notes and summaries depends upon building a shared understandings of key linguistic patterns at the level of genre and register. This involves explicit instruction of these patterns, drawing on the metalanguage made available through the systemically informed research described in previous chapters. Above we have focused on patterns associated with 'whole text' purpose and structure, as well as textual and experiential patterns that provide access to the technical knowledge students need to comprehend and use in their specialised texts. While interpersonal resources, which are used by writers to build an evaluative stance, were increasingly focused on in texts read by students in their later courses, the activities focusing on genre, field and mode described above provided a strong foundation for the development of critical literacy. We now turn our attention to activities developed for deconstructing patterns of language within the texts students were expected to write.

9.3 Developing activities for deconstruction

The field-building activities described above, though focused on reading and extracting relevant information, provided a valuable context for building students' understandings of the language patterns they

Table 9.1 Focus of deconstruction in core undergraduate biology units

Genre	Field	Tenor	Mode
First-year experiment context Third-year research warrant	• technical entities • taxonomies of class-member and co-class • logical relationships of reformulation and exemplification • logical relationship of cause and effect	• expert voice – minimal interpersonal intrusion • multi-voiced statement with persuasive purposes • evaluation (Appraisal)	• macroTheme and hyperTheme • unmarked Theme realised by extended noun groups • grammatical metaphor used to control information flow • multi-layered macroThemes and hyperThemes

needed to use in their own writing. Guided by the mapping of the genres and registers of the particular disciplines, as outlined in Chapters 6 and 7, SLATE researchers were able to plan literacy support which complemented the support designed to scaffold students' comprehension and note-taking. Table 9.1 shows the genres and associated language features that were focused on during the deconstruction step within each unit.

As shown in Table 9.1, the focus of deconstruction during the first-year courses was on scaffolding students' control of ideational and textual resources to describe and explain established shared knowledge of the disciplines. In second-year courses, however, the focus shifted to the combinations of ideational and interpersonal resources that enabled students to evaluate previous studies and to justify their own research endeavour. In the following section we briefly summarise key aspects of the deconstruction provided in each year of the core Biology units.

9.3.1 Focus on genre

As discussed in previous chapters, analysis of student texts indicated that even students in their first year of undergraduate biology had developed familiarity with the overall staging of laboratory reports and with the experiential features of experiment context genres through the modelling provided by subject teachers and laboratory manuals. However, because the majority of students had not demonstrated

their ability to produce the genre independently, these resources were included in the design of deconstruction strategies.

The excerpts shown as Texts 9.6 and 9.7 from support documents provided at first- and second-year levels illustrate the shift in focus from the more descriptive writing associated with introducing a laboratory experiment to the synthesising and evaluative work required in providing a research warrant in a research report.

Text 9.6 Deconstruction of phases within Laboratory Report Introductions

BCH 2001 Assignment 1

Dear Students,
The first assignment your LCC tutor will be supporting you with this semester is a laboratory report, written to record the procedure, findings and discussion of your practical activity on Plant Diversity No 1: The Algae……Here we will provide extra information about the important parts of a Laboratory Report and introduce the skill of paraphrasing so that you can use information from other sources without plagiarism……

Your introduction should have the following sub-parts which we will call **phases:**

- **Background** information about the topic or phenomenon you are studying,
- A **summary of other studies** on the phenomenon (optional in first year)
- The **purpose** of your experiment

Text 9.7 Practice writing of phases within Laboratory Report Introductions [Text 9.7]

BCH 3013 Assignment 3

Dear Students,
For your third LCC assignment, we will support you in bringing together or synthesizing findings from other research in order to introduce your own research. **As we discussed in the joint writing tutorial, this is an important requirement for future work in Biology** – particularly in your Honours research report. For the purpose of this assignment we ask you to pretend that you are preparing to do research on the ecological significance of the marine

eukaryotic microorganism called *Thraustochytrids*. The focus of your study will be on tropical mangrove *thraustochytrids*. Two articles that report on studies of **sub-tropical** mangrove *thraustochytrids* are provided to help you introduce your study.
In your introduction you need to:

- give background information about the topic or phenomenon you are studying (ie. define and classify)
- identify a problem or particular aspect of the phenomenon
- summarise other studies which have been done on the phenomenon (eg. identify the major findings and the significance of the studies)
- identify a gap or area of research which is still needed
- justify the importance of further research
- State the aim or purpose of your research study.

9.3.2 Focus on linguistic patterns in first-year courses

The deconstruction activities prepared to model the linguistic patterns of register drew on the understandings and metalanguage developed through reading focused activities. The concepts introduced previously in more general and everyday terms were revisited and a more technical metalanguage was introduced to identify, create and manipulate the linguistic patterns. For example, the taxonomies that informed the scaffolded note-taking activities were revisited to make explicit class-member and co-class relationships and to introduce key grammatical resources for creating specialised taxonomies. Likewise, explicit modelling of passive voice and nominalisation enabled students to further develop understandings of how sentences could be transformed for paraphrasing expert texts within the texts they created. These activities set the scene for developing knowledge of explanation sequences, requiring both experiential and logical metaphor to express complex causal relationships. The following passage from the introduction of a third-year student's written text provided an excellent model of the work of logical metaphor. Causal relationships are highlighted in the excerpt in Text 9.8.

Text 9.8 Excerpt from student text used to model

It has been reported that the frequency of occurrence, severity and spatial scale of hypoxia has been increasing ***due to*** *pollution and global warming effect (Wu, 2002). The solubility of gases depends on temperature, increase in temperature* ***could cause*** *decrease in gases solubility. At high*

temperatures, D.O. decreases although the metabolic rate of aquatic organisms increases, which ***results in*** *more consumption of oxygen. Also, organic pollutants from anthropogenic activities* ***have caused*** *large scale hypoxia (thousands of km²) in aquatic systems all over the world. This* ***has resulted in*** *significant changes in the biodiversity of aquatic organisms, population decline of some species and decrease in fish biomass (Alexander et al., 2000).*

Each instance of explicit teaching was followed by student-centred activities, which provided practise in using the particular feature in the context of the field. Initial activities for the focus on cause and effect included completion of note-taking tables that required students to categorise information into 'causes' and 'effects'. Further activities included supporting students to unpack particular clauses in texts such as Text 9.8, to reveal the reasoning through more spoken-like conjunctions, and, importantly, to repack the information using logical and experiential metaphor. In the example of a deconstruction activity in Text 9.9, the grammatical mechanisms and their function are made explicit to guide students in completing the task.

Text 9.9 Excerpt from deconstruction activity

Exercise

The following sentence from the text we have been examining includes both a cause and an effect in one clause. The relationship is expressed through the verb group 'have caused'.

> *Also, organic pollutants from anthropogenic activities* ***have caused*** *large scale hypoxia (thousands of km²) in aquatic systems all over the world*

Expressing causal relationships through verb groups, prepositional phrases or noun groups is typical of written scientific explanations as it allows information to be packaged tightly and related to other causes and/or effects. These forms are all types of logical metaphor because they recast logical relationships that are typically expressed as conjunctions in spoken language. Complete the following sentence, using a causal conjunction to unpack the information.

Hypoxia has occurred ***because*** *people ….*

What do you notice about the sentence you have written?

Now repack the information using a logical metaphor instead of a conjunction. However, this time, instead of using a verb group, use a preposition phase (e.g. due to or because of) or a noun group (e.g. The cause of …).

Recent research in discipline learning has found that classroom activity which includes both unpacking and repacking academic discourse is essential to preparing students for high stakes assessment in academic contexts (see Martin, 2013; Maton, 2013 on 'semantic waves').

As the focus of writing in first-year courses was on demonstrating discipline knowledge, control of ideational and textual resources was foregrounded. These resources enabled students to produce extended descriptions and explanations, which provided an essential platform for building an authoritative voice for later research work. As discussed in Chapter 6, the use of experiential and logical metaphor not only enables technical knowledge to be established and reasoning to occur across clauses, it also sets the scene for evaluating both the discipline knowledge and the source of that knowledge.

9.4 Conclusion

This chapter has illustrated key aspects of the explicit pedagogy developed to support undergraduate biology students to build knowledge of field and genre through reading extended expert texts and through deconstructing models of the texts students needed to produce. This intervention was informed by analysis of a range of genres, including those which apprentice students into the hierarchy of biological knowledge, those which build and demonstrate knowledge of important discipline concepts and those which report on and review findings of research. The teaching and learning materials, which were accessed by students through their course webCT site, were developed to make visible the key semiotic resources that construe meanings across stages of genres and macro-genres. 'Before', 'During' and 'After' reading support materials provided support for students to access challenging field knowledge and prepare for recording knowledge in appropriate written genres. The macro-genres students were required to read were modelled in terms of how they unfold as stages to achieve particular purposes as well as how their particular registers were realised linguistically. The use

of a functional metalanguage to introduce these generic and registerial features enabled modelling to build on knowledge developed in past courses and provided a language for SLATE tutors to support students in drafting written responses to students' texts. The literacy intervention provided to students in core courses was crucial for creating a bridge from the ideationally oriented genres used to demonstrate knowledge to those which involved interactions of ideational and interpersonal resources to develop arguments.

10
Joint Construction in the SLATE Project

10.1 Introduction

This chapter examines the SLATE project's implementation of the joint construction step of the Teaching Learning Cycle (TLC), which was carried out in an online context. As introduced in Chapter 5, the TLC is a curriculum macro-genre designed to support the literacy development of student writers. Following the deconstruction step, which focuses on pulling apart and exploring key stages and linguistic features of model texts, joint construction involves teacher-led collaborative writing. In this step the teacher interactively guides students to produce a text or part of a text in the genre they have been focusing on in deconstruction but on a different topic. The aim of joint construction is to provide students with first-hand experience of the craft of writing in a supported environment. It thus forms a bridge from the deconstruction step to the independent construction step, where students need to write an instance of the target genre on their own, transferring the understandings about language and text that have been developed in deconstruction.

Drawing, as noted in Chapter 5, on Halliday's (e.g. 1975/2003) and Painter's (e.g. 1984, 1986, 1999) studies of child language development, on Vygotsky's (1978) notion of the zone of proximal development, and Mariani's (1997) concept of 'high challenge, high support', joint construction attempts to help students produce a text that is of a higher level than they could achieve independently at that point in time. In the collaborative teacher-led writing that takes place in joint construction, teachers invite students to offer words, phrases and sentences as contributions to the emerging text. Teachers use their expert knowledge of language to carefully mediate students' contributions, providing

explicit feedback to support the development of both students' writing and their knowledge about language. From an SFL perspective, joint construction involves giving students the opportunity to expand their meaning potential with the guidance of an expert other ('guidance through interaction in the context of shared experience', in Martin's (1999, p. 126) terms). The challenge for the SLATE team was to replicate the face-to-face shared experience of the co-construction of text in an online environment in order to be able to provide the language practice of a face-to-face joint construction.

In the next section we introduce the online joint constructions of the SLATE project, followed by an examination of the different patterns of staging in the joint constructions from three different contexts. We then examine the SLATE online joint constructions in light of the explicit scaffolding offered in the child language development context. We finish with a discussion of the challenges faced in adapting what is typically a highly interactive face-to-face experience to the online context.

10.2 Joint construction in the SLATE project

The SLATE project was a pioneering project in the implementation of joint construction in an online context. Implementation of this step differed from that of the other TLC steps in that it involved synchronous interaction with students. This meant that SLATE teachers in Australia sat at a computer terminal at the same time as students in Hong Kong, all using the same virtual classroom for the one-hour lesson – but in different time zones. The selection of Adobe Connect™ software enabled us to organise three simultaneous interactive windows (see Figure 10.1): a whiteboard for scribing the jointly constructed text, which only the teacher had access to; a chat room for dialogue and discussion about the construction of the text, which both the teacher and students had access to; and an attendee list, showing who was logged on for the lesson. As each participant logged into the virtual classroom, their name automatically appeared in the attendee list.

The arrangement of this virtual classroom allowed SLATE teachers to manage all the requirements of a joint construction lesson: the co-construction and scribing of a text, the talk surrounding that co-construction and the management of the classroom.

SLATE teachers conducted joint constructions with students in two biology and two linguistics subjects. The linguistics subjects were a first-year introduction to sociolinguistics called *Language in Society* and

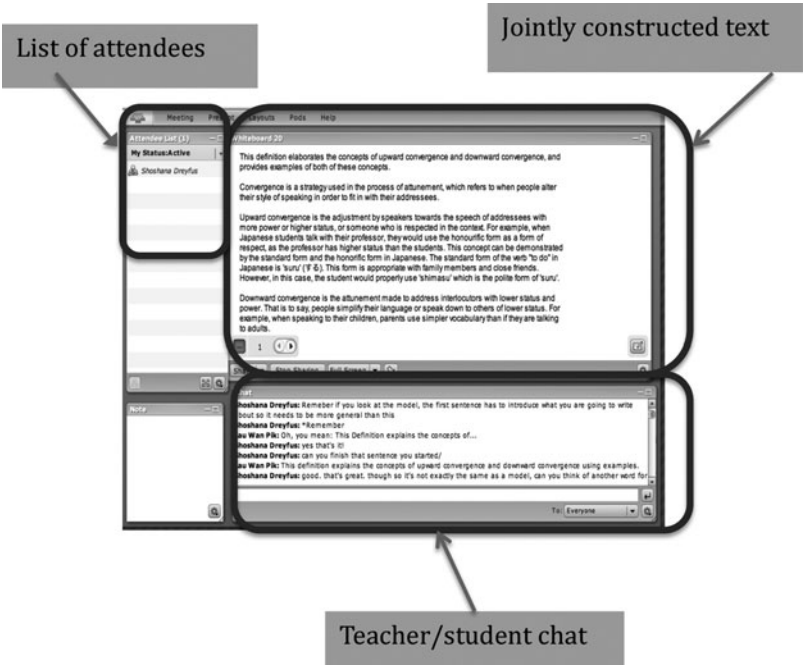


Figure 10.1 The Adobe Connect™ interface for online joint constructions

a second-year subject introducing students to the computational aspects of natural language processing and speech recognition, called *Language Technology 1*. Examples used in this chapter come from the joint constructions in these two linguistics subjects.

Language in Society occurs in the first session of the first year, and in this subject two assignments were supported by the SLATE team. These assignments were short (approximately 200–300 words), and involved writing a concept report (called a definition in Dreyfus & Humphrey, 2013) and a summary of a part of the subject textbook. The literacy support for writing a concept report focused on aspects of academic literacy that form the foundation for the building of the discipline-specific literacy skills in the field of linguistics (i.e. managing technicality to explain and exemplify key concepts, and synthesising and rewriting information from sources). The deconstruction materials focused on genre staging as well as a variety of linguistic features that are important for concept report writing: nominal group structure and nominalisation

(for managing technicality); relational verbs and tense (for defining and describing concepts); passive voice (for control over the location of technical concepts as Theme or New); attribution (for referring to outside sources); and conjunctions and connectives (for linking points).

Two assignments were also supported in *Language Technology 1*, both experiment reports on experiments conducted with language processing software. The deconstruction materials for these assignments focused on genre staging, organisation of paragraphs, use of passive voice, resources for paraphrasing and ways to include data and manage tables when reporting on findings.

10.3 Studies of joint construction across a range of contexts

There have been a number of studies conducted into the implementation of joint construction. In face-to-face contexts, these include studies of primary school (Hunt, 1994), pre-tertiary education (Dreyfus et al., 2010; Humphrey & Macnaught, 2011), and tertiary education (Dreyfus et al., 2011; Humphrey & Macnaught, 2011); in the online context, Dreyfus and Macnaught (2013) focused on the joint constructions enacted in the SLATE project. With the aim of understanding the 'mechanics' of joint construction, both in an online and face-to-face context, these studies identified the stages and phases that joint construction moves through to achieve its pedagogic goals.

Through close analysis of the detailed scaffolding work teachers do in the mediation of student contributions to the collaborative text production, these studies showed that the mode, i.e. whether face-to-face or virtual, impacted on the way the joint construction lessons are enacted. The mode differences thus resulted in slightly different stages, as is detailed below.

Hunt's (1994) study of joint constructions found there were four stages in the primary school macro-genre: Genre Review, Task Orientation, Text Negotiation and Conclusion. In Genre Review the teacher revises both the genre and the knowledge about language developed from the model texts in the deconstruction step. Task Orientation is where the teacher explains to the class what they will be doing in the joint construction lesson. In the Text Negotiation the text is jointly constructed, with the teacher soliciting, mediating, elaborating and extending students' contributions to the text, which s/he then scribes on the board. The Conclusion involves reading the text together as a class and summarising what was achieved in collaboratively writing a text.

Face-to-face tertiary joint constructions are interpreted by Humphrey and Macnaught (2011) as being both similar to and different from those of the primary school: similar in that there is the same nucleus stage of Text Negotiation; different because the two initial stages of Genre Review and Task Orientation are conflated into the one stage called Bridging. In the tertiary context, the teacher does not separate reviewing the genre and orienting students to the task, rather s/he does these simultaneously, perhaps reflecting the age difference and experience of the students. In primary school, it seems considerably more time is needed to orient the students to the task. An additional difference is in the final stage. In the final stage of the tertiary joint constructions, the teacher and students more formally assess the collaboratively written text in terms of whether it has met the requirements of the genre and to what extent the language choices are effective and appropriate. They also edit the text where necessary. This Review stage is more reflective, elaborated and extended compared to the primary school Conclusion stage.

The SLATE tertiary online joint constructions differ again from the face-to-face tertiary ones, primarily due to the technological constraints and opportunities arising from the difference in mode. Specifically, it is the first and last stages that are most affected by the virtual mode. In the virtual classroom, the first stage not only has the function of recapping the field and genre as per the Bridging stage in the tertiary face-to-face joint constructions, it has an additional function of negotiating all the aspects of the virtual environment and lesson before proceeding. As students need to log on to the virtual classroom from different computers, either individually or in groups (some were in computer labs at CityU, while others logged in from personal computers at home), this stage (named Set-up) contains many instances of greeting, as students do not log on at exactly the same moment. And because the teacher cannot see the students, the Set-up stage also involves directing students to the online resources, checking whether they have everything they need, as well as checking the sound. In other words, Set-up collapsed into one stage the Task orientation of the primary school joint constructions with the Bridging of the face-to-face tertiary joint constructions, while adding a new element of addressing the technology issues in the virtual classroom. The division of labour of the functional elements of the Set-up stage was spread across two parts of the virtual classroom: the whiteboard pane and the chat. The whiteboard was used to post a welcome note that recapped the genre and oriented students to the task (Example 10.1).

Example 10.1 Welcome note in the whiteboard pane of the virtual classroom for writing a definition in first-year sociolinguistics

> Hi everyone,
> Welcome to today's online writing lesson. We are going to be working on your second assignment and you need to have your notes from assignments 1 and 2 as well as the completed activities from assignment 2.
>
> Today we're going to be writing a definition, which has the stages of Preview and Concepts, and the topic is upward and downward convergence. If you have everything ready, when everyone's here we can start.

As can be seen in Example 10.1, the whiteboard also functioned to review the genre and its stages briefly, orient students to the task and welcome students to the lesson. The interactive chat window, on the other hand, addressed the logistical details of the Set-up as well as sometimes expanding on or reiterating what was in the welcome note. Table 10.1 shows the functional elements of the Set-up stage and the division of labour across the different windows of the virtual classroom.

Table 10.1 Functional elements and their modes in the Set-up stage of online joint constructions

Stage	**Set-up**	
Mode	Whiteboard	Chat window
Functional elements	Welcome Genre Review Task Orientation	Greetings Logistics

Addressing the initial details at the beginning of the online lessons takes longer than setting up in face-to-face joint constructions, partly because the teacher cannot see what the students have brought with them and also because the interactive 'chat' needs to be typed rather than spoken. Although the software has the capacity for participants to talk to each other, issues with sound quality meant that some students were not able to hear the teacher, so most of the interaction in SLATE online joint constructions ended up being typed. Example 10.2 shows the Set-up stage from one of the online joint constructions for *Language Technology 1*, where students were being guided to write an experiment report on a computational linguistic experiment they had conducted.

Example 10.2 Set-up stage from one SLATE online joint construction in second-year *Language Technology 1*

Teacher:	Hi K
Student 1:	Hello
Teacher:	WY, J and K, did you bring the activity sheets and the support materials for writing the report?
Student 3:	Is it the one that contain two activities?
Teacher:	yes. it asked you to find the topic sentences in the model report and to work out what the tense and voice of the verbs were
Student 4:	i have the support materials
Student 3:	yes i did
Student 1:	which one is the support material?
Teacher:	the support material are the nots for writing the report. Both the activities and the notes were posted on blackboard oops notes not nots!
Student 1:	yes i have them too,
Teacher:	well K has disappeared and it looks like only J and WY ar ehere – oh look. here is K. Hello K Ok great. Let's start then. How did you go with finding the topic sentences in the activities? J?
Student 4:	i will start off by looking at the first sentence of the paragraphs
Teacher:	was it helpful?
Student 4:	some are , but some are not necessarily topic sentences
Teacher:	Do you mean that sometimes the first sentence is not a topic sentence?
Student 4:	yes. at least i do not think they are
	ok. good observation. Now kwkf – are you K? no answer. Let's start WY, do you have the notes with you? i'm going to put the microphone on and see if you can hear me

(*continued*)

Example 10.2 Continued

Student 4:	YS
Student 1:	yes
Student 1:	I have the notes with me Title, Introduction, Method, Data, Results and Discussion, Conclusion and References.
Student 4:	Report on CTL3233 Practical 1: Word segmentation
Teacher:	Kwfk – what should i call you?
Student 4:	K
Student 1:	I am sorry, but I can't hear you
Teacher:	ok i'll type -

**Note*: All original spelling, spelling mistakes and typographical errors that occurred in the online 'chat' are maintained

As can be seen in Example 10.2, which had only four students participating, the Set-up stage takes a considerable amount of time. In fact, in some lessons, it took up almost a quarter of the hour-long lesson.

The main stage of joint construction, Text Negotiation, is present across all contexts – primary face-to-face, tertiary and pre-tertiary face-to-face, and tertiary online. It is by far the longest stage, representing the nucleus of the joint construction lesson; all the main work co-creating a new text is done here. Teachers work hard in this stage to support students' contribution to the creation of the text, to reflect on the language choices used and to explain why choices are appropriate or not. In order to achieve this, the Text Negotiation stage in both the face-to-face and online tertiary joint constructions is made up of iterative cycles of two phases: 'Create' and 'Reflect'. The Create phase is where the co-construction occurs and involves the teacher soliciting and mediating suggestions from students (which are considered by peers and evaluated by the teacher for inclusion in the new text). In this phase, a variety of solicitation strategies are employed in both online and face-to-face modes to support students' contributions. These are adjusted according to the responses of the students (Dreyfus & Macnaught, 2013; Dreyfus et al., 2011). As with face-to-face joint constructions, the Text Negotiation stage in the online joint constructions provided opportunities for students to refine their language choices with guidance from the teacher.

Example 10.3, from one of the online joint constructions of writing a definition in *Language in Society*, shows a segment of the Text Negotiation stage comprising a series of iterative 'Create' phases.

Example 10.3 Extended interactions with one student in iterative 'Create' phases in the Text Negotiation stage of an online joint construction for *Language and Society*

Phase	Turn	Contributor	Chat
'Create'	1	Teacher:	ok so let's start writing. can you think of a sentence to begin the definition with?
	2	Student 1:	Upward convergence is defined as …
	3	Teacher:	Remeber if you look at the model, the first sentence has to introduce what you are going to write about so it needs to be more general than this *Remember
	4	Student 1:	Oh, you mean: This Definition explains the concepts of …
	5	Teacher:	yes that's it! can you finish that sentence you started/
	6	Student 1:	This definition explains the concepts of upward convergence and downward convergence using examples.
	7	Teacher:	good. that's great.
'Create'			though so it's not exactly the same as a model, can you think of another word for 'explains'
	8	Student 1:	eleborates? oh …
	9	Teacher:	ok good one
	10	Student 1:	spelling mistake..
	11	Teacher:	yah :-)
'Create'	12	Teacher:	ok what about we change the end of the sentence 'using examples' so it's a bit different too. can you think of another way to include examples

Example 10.3 shows the teacher and one student in an extended interaction at the beginning of the Text Negotiation stage; the teacher is guiding students to write the topic sentence of the text they are working on. In this segment the teacher solicits a suggestion with an open question in turn 1 and provides explicit feedback in turn 3:

Turn	**Contributor**	**Chat**
1	Teacher:	ok so let's start writing. can you think of a sentence to begin the definition with?
2	Student 1:	Upward convergence is defined as …
3	Teacher:	Remeber if you look at the model, the first sentence has to introduce what you are going to write about so it needs to be more general than this *Remember

The teacher (in turn 3) then gives the student the opportunity to self-recast, which happens in turn 4:

4	Student 1:	Oh, you mean: This Definition explains the concepts of …

To extend their contribution in turn 6:

5	Teacher:	yes that's it! can you finish that sentence you started/
6	Student 1:	This definition explains the concepts of upward convergence and downward convergence using examples.

and edit it in turn 8:

7	Teacher:	good. that's great. though so it's not exactly the same as a model, can you think of another word for 'explains'
8	Student 1:	eleborates? oh …

The segment continues with the teacher challenging the student in turns 7 and 12, in order to encourage them to think of language choices other than those found in the model text:

12	Teacher:	ok what about we change the end of the sentence 'using examples' so it's a bit different too. can you think of another way to include examples

This kind of guided interaction provides students with an experience of how to craft text using alternative language choices to those found in other texts (in this case, the model text). It also displays extended interaction that differs from traditional classroom discourse where interactions between teachers and students are often restricted to a three-move sequence (initiation, response, feedback). In these interactions students are frequently not provided with the opportunity to expand and extend their contributions (see Dreyfus & Macnaught, 2013 for further discussion on IRF sequences and joint construction).

The second phase in the Text Negotiation stage of tertiary joint constructions is 'Reflect'. This is where the teacher leads the students to reflect on the language choices they have made, often considering alternative or more appropriate wordings, or adding explanations to expand students' knowledge about language (almost always linking back to aspects of language that have been focused on in the deconstruction step). 'Reflect' phases have been found in both face-to-face and online tertiary joint constructions. Examples 10.4 and 10.5 show two different types of 'Reflect' phases from one of the online joint constructions from *Language in Society*. Example 10.4 shows the teacher reflecting on why a particular choice is the right one.

Example 10.4 Explaining a language choice in the 'Reflect' phase of the Text Negotiation stage

Phase	**Turn**	**Contributor**	**Chat**
'Reflect'	1	Teacher:	ok so let's just examone what we've written because what i want to point out to you is the way we've introduced a technical term 'attunement' but then explained what it is straight away. that's an important skill to have you need to be able to use abstract and technical language but also to explain it

The language choice focused on in the 'Reflect' phase of Example 10.4 is directly linked to one aspect that was the focus of the deconstruction materials, namely the ability to manage technical language.

Example 10.5 shows a 'Reflect' phase where the teacher mediates the student's contribution by directing them back to the model text for support, gently providing the reason why their offering is not sufficient for the task.

Example 10.5 Pointing the student back to the model text in the *Reflect* phase

Phase	**Turn**	**Contributor**	**Chat**
'Create'	1	Student:	Upward convergence is defined as …
'Reflect'	2	Teacher:	Remeber if you look at the model, the first sentence has to introduce what you are going to write about so it needs to be more general than this
	3	Student:	Oh, you mean: This Definition explains the concepts of …
	4	Teacher:	yes that's it!

As can be seen from Example 10.5, iterative cycles of 'Create' and 'Reflect' phases work in conjunction with each other to form the stage of Text Negotiation in both face-to-face and online joint constructions at tertiary level.

The third and final stage of online joint constructions is Wrap-up, which occurs when the co-construction of text has finished. Unlike the Review stage in the tertiary face-to-face joint constructions (which sometimes involved an extended examination of the text with a critical eye, amending it where necessary), the time pressures in the one-hour online joint construction meant that SLATE teachers always ran out of time. Thus Wrap-up was usually a short stage with no general review of the jointly constructed text. Instead, teachers tended either to check with students about the support provided, to emphasise one main point covered in Text Negotiation, to provide instruction about what to do next and/or offer some encouragement. In this stage, students are seen to thank and say farewell to the teacher as well as comment on the support they received. Example 10.6 shows the Wrap-up stage from one of the computational linguistics joint constructions. Here the teacher signals it is time to finish, before checking with students that they are getting the idea of what to do, and then finally they all sign off.

Example 10.6 Wrap-up stage with phases

Stage	Phase	Contributor	Chat
Wrap-up	'Encouragement'	Teacher:	Anyway, it's just about time to finish. Well done everyone
		Student 1:	Ok
	'Farewell'	Student 3:	Thankyou
		Student 4:	Thanks
	'Check-in'	Teacher:	so are you getting the idea? if you follow the notes, they will guide you how to write the report
	'Farewell'	Student 1:	thank you.
	'Check-in'	Teacher:	did it help at all or was it too slow?
		Student 2:	Really thanks for your help, its help a lot
		Student 3:	it helps me have a better structure
		Student 1:	i have some ideas now … thianks
		Teacher:	that's great. the notes will also help.
	'Farewell'	Student 1:	i have to go now.
	'Check-in' (cont)	Student 4:	ya, i have a better idea on how to wite the report now
	'Farewell'	Student 1:	thanks.
		Student 4:	see ya
		Teacher:	Bye K
	'Check-in' (cont)	Student 3:	i use the notes
	'Farewell'	Teacher:	Bye I
		Student 1:	bye~

(*continued*)

Example 10.6 Continued

		Teacher:	goodbye everyone
		Student 4:	Bye
		Student 3:	Bye
		Student 5:	thank you for the time!! Goodbye
		Student 2:	gd bye and have a nice day

This section has shown that the change in mode from face-to-face to online affects the way a joint construction lesson unfolds. While the nucleus stage of joint construction, Text Negotiation, is maintained across all contexts, the first and last stages differ in online joint constructions because of the constraints of the virtual classroom. The different contexts and their varying stages are shown in Table 10.2.

Table 10.2 Stages in joint construction across three different contexts

Contexts	**Primary face-to-face**	**Pre- and tertiary face-to-face**	**Tertiary online (SLATE project)**
Stages	Genre Review Task Orientation Text Negotiation Conclusion	Bridging Text Negotiation Review	Set-up Text Negotiation Wrap-up

The next section examines the opportunities for language development provided in online joint constructions in relation to those identified by Painter (1986) as key to the successful language development of children.

10.4 Examining the opportunities offered in online joint construction

As noted above and in Chapter 5, joint construction was modelled on the way parents carefully scaffold their children into learning to speak their mother tongue. Halliday (e.g. 1975) and Painter (e.g. 1984, 1986), document the crucial role played by joint construction in a child's development of spoken language and the appropriate spoken genres. The joint construction of language by parents and children offers unique opportunities to develop language, opportunities which are provided in face-to-face joint constructions in the Teaching Learning Cycle. For example, Painter (1986) shows how interactions that are

jointly constructed with the parent in one instance are later used by the child independently, as s/he masters more and more of the language. Painter's example of her two-year-old son recounting a trip to the zoo jointly and then two days later on his own illustrates this phenomenon (Example 10.7).

Example 10.7 Joint construction in early childhood leading to independent construction two days later

Child:	(cuddling a toy giraffe) *I saw a big giraffe*
Mother:	*Yes, what was the giraffe doing?*
Child:	*Eating a leaves*
Mother:	*What about the little giraffe? Remember what he did?*
Child:	*Go Peepbo*
Mother:	*Yes, he was looking out of the door, wasn't he?*

Two days later:

Child:	*That's giraffe. I saw a big giraffe. Big giraffe eating a leaves; little giraffe go peepbo round a door.*

As with face-to-face modes, the design of the Teaching Learning Cycle in the online mode allows for students to experience this phenomenon. Through practising language use in a joint construction lesson, students should be able to carry over what they have practised into the independent construction step. Online joint constructions aimed to give students this kind of practise – practise to expand their meaning potential before having to write independently. This kind of practice can be seen in Example 10.8, from linguistics, where students are jointly constructing a concept report on the topic of upward and downward convergence. Here they are exploring a variety of language choices and uses with the teacher before settling on which is the appropriate choice.

Example 10.8 Language practice in the Text Negotiation stage of online joint construction

Turn	**Contributor**	**Chat**
1	Teacher:	In Activity one on Shooshi's handout to you, you were asked to have a go at creating a few more sentences. Can anyone suggest alternate wording to the first sentence that Shooshi gave you? What other wording could do the same job?

(*continued*)

Example 10.8 Continued

2	Student 1:	Differences between the consonants in four languages compared to English will be discussed in this interpretation.
3	Student 3:	This linguistic analysis deals with the consonants in four languages and their differences in compasion with English.
4	Teacher:	Wonderful
5		So nice use of passive
6	Student 4:	Compared to English, the differences between the consonants in four languages will be discussed.
7	Teacher:	Which one should we choose?
8	Student 4:	K's (Student 3)
9	Student 1:	K's
10	Teacher:	Why is this choice better do you think?
11	Student 4:	M's (Student 3)
12	Student 4:	With more specific terms
13	Student 3:	For academic writing passive voice is better
14	Teacher:	Yes. Specific text type and very clear what the discussion will include. All in one sentence! Yes passive voice is often very good. Why?
15	Student 4:	Objective
16	Student 5:	The theme of the sentence is put at the front
17	Teacher:	Yes the writer in not in the spotlight. The content is in the spotlight
18	Teacher:	Excellent
19	Student 4:	Emphasis the theme
20	Teacher:	Yes the 'what' is put in theme position not the 'who'

Example 10.8 shows the teacher soliciting contributions from the students, who supply a range of offerings, with the teacher then asking the students to choose one and supply their reasons for why one choice

is better than another. Both Halliday's and Painter's studies demonstrate how, through repetition of conversational interactions, children are able to internalise models of language and genres, and that parents highlight for children the salient features of those genres. As can be seen in Example 10.8, the teacher (in turns 14–20) highlights salient features of the genre, in this case the use of passive voice and its ability to shift the focus by manipulating what is put in Theme position in a text.

Painter (1986) points out that the salient features highlighted by parents are those that focus on meaning rather than on correctness, building on what the child *can* do, rather than correcting what they can't do. This can be seen in turns 2–5 from Example 10.9.

Example 10.9 Turns 2–5 from Example 10.8, showing a focus on what's working

2	Student 1:	Differences between the consonants in four languages compared to English will be discussed in this interpretation.
3	Student 3:	This linguistic analysis deals with the consonants in four languages and their differences in compasion with English.
4	Teacher:	Wonderful
5		So nice use of passive

Here, the teacher does *not* focus on the errors produced by the students when offering their contributions to the jointly constructed text, rather she focuses on what it is they *are* doing, in line with what has been modelled in the deconstruction step. In other words, the proficiency model that parents use with children in ensuring their success in the development of their mother tongue is seen to be enacted here in the online joint constructions.

Painter (1986, p. 81) also shows that children freely 'plagiarise' from the language they hear for use in future conversations and monologues. This of course is an issue for written text at tertiary level, and students who are not confident with the language of instruction can be tempted to plagiarise (Devlin & Gray, 2007). The SLATE online joint construction offered students a context in which to practise newly developed understandings about language, providing opportunities for them to try different language usages from those modelled in deconstruction. Example 10.10

shows the teacher supporting students to think of synonyms for the words found in the model text, explicitly modelling ways to avoid plagiarism while still construing similar meanings.

Example 10.10 Teacher and students expanding the repertoire of possible language choices

Turn	Contributor	Chat
1	Teacher:	ok so let's start writing. can you think of a sentence to begin the definition with?
2	Student 1:	Upward convergence is defined as …
3	Teacher:	Remeber if you look at the model, the first sentence has to introduce what you are going to write about so it needs to be more general than this *Remember
4	Student 1:	Oh, you mean: This Definition explains the concepts of …
5	Teacher:	yes that's it! can you finish that sentence you started/
6	Student 1:	This definition explains the concepts of upward convergence and downward convergence using examples.
7	Teacher:	good. that's great. though so it's not exactly the same as a model, can you think of another word for 'explains'
8	Student 1:	eleborates? oh …
9	Teacher:	ok good one
10	Student 1:	spelling mistake …
11	Teacher:	yah :-)
12	Teacher:	ok what about we change the end of the sentence 'using examples' so it's a bit different too. can you think of another way to include examples

Painter (1986) identifies another important feature of the kind of careful scaffolding parents provide to children as they jointly construct language. This is the use of probe questions to help the child elaborate their language (Example 10.11).

Example 10.11 Parent probes child to expand their nascent recount

Child: *I break a moth. I find a moth. I break it all up.*
Mother: *Where did you find it?*
Child: *In the laundry. I found it in the laundry*

In this example, the parent supports the child to expand their nascent 'recount' by inquiring about some extra detail that will flesh the story out a little more. This kind of probing that encourages the expansion of contributions was also found to occur in the Text Negotiation stage of the online joint constructions, as can be seen in Example 10.12. In turn 5 of this example, the teacher asks the student to expand their contribution by specifying which languages will be discussed, and in turn 8, gets the student to finish the sentence that was started.

Example 10.12 Teacher probing student to expand their contribution

Turn	Contributor	Chat
1	Teacher:	Okay so we need to do Job3
2	Teacher:	a sentence to tell the reader what order we are doing to discuss the differences … have a go
3	Teacher:	mary … any ideas?
4	Student 1:	the analysis will be divided into four parts and each discussing one language
5	Teacher:	great. K. which langauges though?
6	Student 2:	Polish
7	Teacher:	and …
8	Teacher:	can you put the languages into the sentence that was suggested … add them in
9	Student 3:	the analysis will be divided into four parts and each discussing one language, including Polish, Chinese, Italian and Quechua
10	Teacher:	Lovely

Painter (1986) shows not only how parents support children to expand their meaning potential rather implicitly, as per Example 10.11, but also more explicitly, using some meta-comment that directs children what to say in a particular context. This can be seen in Example 10.13, where a child is attempting to ask for stamps at the post office.

Example 10.13 Prompting child to expand meaning using a meta-comment

Post Official:	*Yes love?*
Child:	*Could I have … uhm … two different first … the Australian ones*
Mother:	*The first day covers*, ***you wanna say***
Post Official:	*Yes*
Mother:	*Please*
Child:	*Please*

Source: From Ventola, 1984, in Painter, 1986

This kind of more explicit support was found frequently in the Text Negotiation stage of the online joint constructions, where, when mediating student contributions, teachers make explicit comments about a language choice (Example 10.14).

Example 10.14 Teacher providing more explicit scaffolding

Turn	Contributor	Chat
1	Teacher:	ok so let's just examone what we've written because what i want to point out to you is the way we've introduced a technical term 'attunement' but then explained what it is straight away. that's an important skill to have you need to be able to use abstract and technical language but also to explain it

In this example, the teacher pauses the text construction to make an explicit comment about the use of technical language, reiterating what has been scaffolded in the deconstruction step.

This section has shown how online joint constructions are able to provide similar opportunities for students to expand their meaning potential as those provided by parents successfully scaffolding children

into their mother tongue. Specifically, we have shown that in online joint constructions students are given the opportunity to:

- explore a variety of language choices;
- have salient language features highlighted, with a focus on appropriate meaning rather than correctness; and
- have their meaning potential expanded in ways that are both implicit and explicit.

The next section discusses the challenges faced by the SLATE team in trialing joint construction in an online medium.

10.5 Challenges to the implementation of joint construction in the online context

There were a number of challenges to the implementation of joint construction in the online context. The first of these challenges relates to general management, including working out what was the optimum number of students in an online joint construction lesson. Initially, the SLATE team was allocated one tutorial group per hour of online lesson, the same time allocation as for a face-to-face tutorial. However, given the length of time it takes for each person to type a response in the chat window, we found that 20 students at individual computers were too many; there tended to be bottlenecks when more than a couple of people responded to open questions. We trialled three different methods to deal with this problem: the first was for the teacher to nominate a student to answer a question rather than ask anyone to contribute, thereby minimising the overload of responses. The second was for a small group of three to five students to be clustered round one computer to contribute as a group. The third was to decrease the class size, which resulted in an increase in the number of classes needed for joint construction. Nomination of particular students enabled the teacher to control the flow of responses. Reduced numbers of students also worked as this allowed all students to contribute to the co-construction of the text. It was more difficult to ascertain the effect of clustering groups around a computer. While this reduced the chance of an overload of student responses, it also made it more difficult to ensure all students were engaged and contributing to the co-construction of the text.

A second challenge was that teachers found it difficult to simultaneously participate in the chat while typing the jointly constructed text. Some teachers trialled a microphone to speak to the students. However,

as mentioned above, unreliable sound quality resulted in some students not being able to hear, so the problem of having to type into two screens simultaneously was not solved easily. One solution to this issue could be for a particular computer lab to be requisitioned for the joint construction lesson and the sound checked in advance. Alternatively, different virtual technology (e.g. Skype) could be trialled. This would mean both teacher and students could see and talk to each other and the teacher could use an actual whiteboard for writing the jointly constructed text. As technology and bandwidth continues to improve, it is possible to imagine that virtual classroom technology will advance as well.

A further challenge experienced by SLATE teachers was that the chat window showed when someone was typing, but not *what* they were typing until they pressed 'Enter' to send their message to the group. The chat window also had an option for participants to type to each other privately. Where this was selected, the teacher could thus see when someone was typing, but not *what* they were typing nor who they were typing to. This meant teachers regularly found themselves waiting for students to respond, only to find that nothing came into the chat window when students were typing privately to each other. This slowed things down and made classroom management a challenge.

An additional challenge to classroom management was that SLATE teachers sometimes reported difficulties in building rapport in a virtual classroom with students they hadn't previously met. This points to the multifaceted multimodal nature of face-to-face teaching. Typed chat is devoid of almost all of the paralinguistic resources that contribute so much to meaning making and rapport (e.g. gesture, facial expression, voice quality and tone).

However, the main challenge as far as timing was that everything is slower in the online environment. In particular, it is far slower to type rather than talk; and sometimes there were time lags with the technology. Speed of interaction was thus a considerable challenge as far as completing a joint construction was concerned. In addition, students entered the virtual classroom at different times; this meant the Set-up stage needed to be repeated, which slowed things down even further.

Despite all these challenges, implementation of online joint construction in the SLATE project was seen to be beneficial for students, and in fact the online medium offered at least one affordance not seen in the face-to-face joint constructions. This affordance relates to the number and frequency of questions asked by students in the online joint constructions compared to face-to-face ones. In our experience, students from a Chinese background are reluctant to speak in face-to-face joint

constructions – just as in our experience they are generally reluctant to ask questions as part of the group during class time. In online joint constructions, however, students do regularly ask questions as the class unfolds; perhaps the social distance afforded by the distance mode gives them more confidence to speak up. The questions students ask cover a range of topics related to the task at hand and the language choices being worked on, including the logic and order of the unfolding points in a paragraph or stage, technical language and terminology, sourcing of examples, referencing and meaning or use of language choices. The last of these can be seen in Example 10.15, where in a 'Reflect' phase of the Text Negotiation stage a student queries the use and function of a particular conjunction.

Example 10.15 Student questions teacher about the use of a particular conjunction

Phase	Turn	Contributor	Chat
'Reflect'	1	Student:	u mean we can use 'that is to say' to conjunct the paragraph of upward convergence and downward convergence?
	2	Teacher:	No. i mean you can use 'that is to say' to unpack or explain what you mean in the previous sentence

Questions like these were not infrequent in the online joint constructions.

This chapter has shown that, despite the constraints and challenges of the online medium, joint construction can offer students a useful opportunity to practise writing before they attempt to write a text independently. The next chapter explores the SLATE project's enactment of the independent construction step of the TLC.

11
Negotiated Independent Construction: Feedback in the SLATE Project

11.1 Introduction

This chapter discusses the SLATE project's development and implementation of the final step of the Teaching Learning Cycle (TLC). As explained in Chapter 5, in a typical enactment of the TLC, the Joint Construction step is followed by an Independent Construction step. In this step, students write a text of the same genre as the ones that are modelled in the Deconstruction step and co-constructed with the teacher in the Joint Construction step. As noted in Chapter 10, some students in the SLATE project participated in online Joint Construction lessons, whereas other students went straight from Deconstruction to Independent Construction, bypassing the Joint Construction step altogether. The SLATE project's enactment of the Independent Construction step differed from traditional face-to-face versions in that it involved iterative cycles of feedback and revision after students had written a draft of their assignment independently but before being finalised and submitted to the lecturer. This adapted Independent Construction, or Negotiated Independent Construction step, involved asynchronous interaction between a student or novice writer and an expert other (a tutor) using an online platform. In this chapter, we describe how the Negotiated Independent Construction step was implemented and also present an analytical framework to explain the nature of feedback given. In focusing on feedback, this chapter attempts to clarify the role of feedback in genre pedagogy, which is relatively unexplored in the literature on Sydney School genre pedagogy. In order to do so, the chapter draws on both the principles that support genre pedagogy as well as research on feedback in traditional TESOL literature.

11.2 Introducing the negotiated independent construction step

Negotiated independent construction refers to the process of independent construction and supported reconstruction of text through cycles of feedback and response to feedback. The step begins when a student submits their draft to a tutor, who provides feedback focusing on particular aspects of language use. Students have a choice whether to respond to the feedback or not. If they do respond to the feedback, they either do all of what is recommended by the tutor, do part of what is recommended, or do something different from what is recommended. In our review of feedback and its impact, as will be illustrated later, the revisions made by students across a feedback cycle did not always result in error-free language; these revisions did, however, show that most students were engaged with the feedback and used it to revise their texts to the best of their abilities. At times, by focusing on one resource of language, students lost some control of other resources they had previously controlled. This fluctuation in their control of linguistic resources suggests that the students' language was still developing and that they were engaging with the scaffolding provided to experiment with new ways of expressing themselves.

In addition to individual feedback, SLATE tutors identified common or critical issues in students' writing and developed additional notes to address these problems. These notes were referenced in the feedback given to the students. The feedback also referred students to a comment bank, which covered common problems, and to notes that were given to them in the earlier steps of the TLC. The students used this feedback and notes to revise their work, which they submitted as a second draft to their tutor. The tutors then provided a second round of feedback. A single assignment cycle typically included two iterations of feedback and took approximately two weeks to complete. After the completion of an assignment cycle, the students submitted their assignments to their course lecturers. This negotiated independent construction thus supported students to develop control over the linguistic resources they needed to write texts in their disciplines and, by doing this, develop greater autonomy.

11.3 Feedback in TESOL literature

While of great value and interest to TESOL researchers, feedback is often dealt with peripherally in the literature on language teaching and learning. When error correction or feedback is mentioned in teaching

methodology textbooks, it is 'typically touched upon from a very general perspective without recognition that it is an integral part of the process of teaching language forms' (Pawlak, 2014, p. ix). Furthermore, in the current literature on feedback in English Language Teaching (ELT) and Second Language Acquisition (SLA), feedback is typically conceptualised and discussed in terms of 'corrective' feedback. In this context, 'corrective feedback' is seen as something that 'signals an error in the usage of the L2 [second language]' (Kregar, 2011, p. 3). For Kregar and others working in this area (e.g. Heift & Rimrott, 2008; Rezaei & Derakhshan, 2011; Sheen, 2007), the notion of error tends to focus primarily on syntactic and other surface-level errors (e.g. spelling). For example, Kregar (2011) focuses on Spanish preterite and imperfect; Rezaei and Derakhshan (2011) focus on conditionals and wish statements; Heift and Rimrott (2008) focus on misspellings; and Sheen (2007) focuses on articles.

In recent years, there have also been a limited number of meta-analyses of research on feedback (e.g. Biber et al., 2011; Ellis, 2009; Hyland & Hyland, 2006; Li, 2010; Norris & Ortega, 2000; Russell & Spada, 2006). These meta-analyses provide evidence that 'corrective feedback' plays an important role in language development. In his discussion on the typology of written 'corrective' feedback, Ellis (2009) describes six broad strategies for providing corrective feedback. These are summarized in Table 11.1.

Table 11.1 Types of feedback

Feedback strategy	**Description**
Direct corrective feedback	Teacher provides the correct form.
Indirect corrective feedback	Teacher tells the students that there is an error, but doesn't correct it. This may or may not include locating the problem (via underlining, etc.).
Metalinguistic corrective feedback	Teacher gives metalinguistic clues to students to help them understand the nature of the problem. This can be done by using error codes or by providing brief grammatical descriptions.
The focus of feedback	Teacher can choose to provide feedback on selective errors (called focused or intensive feedback), or provide feedback on all (or most) errors (called unfocused or extensive feedback).
Electronic feedback	Teacher highlights the error and provides a hyperlink that provides additional information about the error.
Reformulation	Teacher rewrite students' text.[1]

Source: Adapted from Ellis (2009).

In reviewing the current literature on feedback, we note that this work is informed by traditional and formal models of language, which consider language use in terms of control of correct clause-level grammatical forms rather than as the degree to which appropriate functional choices are made for a particular context. Feedback in these models is thus seen as corrective. For the SLATE project, this focus was too narrow for two reasons. The first is that the SLATE project focused on scaffolding students' language development across all strata, including but not limited to the lexicogrammatical or graphological level. The second concerns our focus on scaffolding students' language development rather than just correcting their errors in form. With an understanding of these limitations, the SLATE team used the term 'feedback' in preference to 'corrective feedback', and developed a framework for understanding feedback that goes beyond the notion of correction and engages with understanding how feedback can be integrated within the TLC to support student learning.

In addition to the general literature on feedback, a few papers have specifically examined the role of feedback in genre pedagogy and in online contexts. For example, Ken Hyland (2007, p. 160) notes that the Teaching Learning Cycle provides:

> repeated opportunities for students to engage in activities … and using feedback to improve their work. The model, therefore, allows vocabulary to be recycled and the literacy skills gained in previous cycles to be further developed by working through a new cycle at a more advanced level of expression of the genre.

In another study, Fiona Hyland (2001) categorises online feedback in terms of whether it focused on 'the product' or on 'the learning process'. In this classification, feedback that is product-oriented focuses on content, organisation, language accuracy, and presentation, whereas feedback that is oriented towards the learning process consists of encouragement, reinforcement of learning materials, and suggestions to help students' language learning process. Hyland's categorisation is broader than others in the field as it involves the learning process along with the product itself. It also considers feedback as involving more than error correction and broadens the conception of an error beyond syntax. This research on feedback in genre pedagogy aligned with our project needs and helped elaborate the role of feedback in the SLATE project.

11.4 Feedback in the SLATE project

Analysis of feedback provided by the SLATE team (Devrim, 2012; Mahboob & Devrim, 2013) reveals that all tutors adopted a structured approach to composing their feedback, following the guidelines given to them during tutor training (see Chapter 8). Tutors were trained to think of feedback as a cohesive text written in response to students' writing. To enhance the cohesiveness of feedback, tutors first introduced the focus of their feedback, then provided detailed feedback and finally reviewed their feedback. Thus, tutor feedback included three main stages:

Feedback Preview
Feedback
Feedback Review.

11.4.1 Feedback Preview

Feedback Preview included two phases: 'purring' (greeting and positive comment) and 'previewing' (outlining the focus of the feedback provided). The main purpose of the 'purring' phase was to provide positive reinforcement to students about their progress and/or aspects of the text they had controlled. This was followed by a previewing of the feedback. In this phase, tutors specified the focus of their feedback with the aim of helping students understand the purpose of the feedback. An illustration of the Feedback Preview is given in Example 11.1 (tutor feedback is given in italics and enclosed in curly brackets{}).

Example 11.1 An example of Feedback Preview
Hello again XXX! It's great to see your work improving. In this draft, my comments will focus on improving the organization of content and how to integrate your numerical data into your text with careful punctuation.}

In this example, the tutor started with a greeting and acknowledgement of improvements in the student's work. The tutor then specified the focus of their feedback on the current draft. This preview of feedback informed the students of what they should expect in the feedback and focused only on specific aspects of language. It also addressed a key criticism of feedback in current literature. Chanock (2000) and Carless (2006) point out that students often do not know the purpose of feedback given to them and that they are unsure of what the teacher wants them to do in response to the feedback. By previewing the focus and purpose of their feedback, SLATE tutors avoided this problem.

11.4.2 Feedback

The central Feedback stage identified specific issues with students' work and provided them with support. This feedback varied in two ways: degree of explicitness and amount of rationale. By degree of explicitness, we refer to the level of specificity of feedback. Explicitness was high (E↑) when tutors remediated students' errors explicitly; and is low (E↓) when tutors identified problems but did not provide explicit rewording. For example, there were two instances of feedback provided to the student in Example 11.2.

Example 11.2
For Intangibility, since services are ideas and concepts, it is important for Xpresso Lube to increase the reputation by work of mouth {'*word of mouth' is the correct expression*} and earned {*if you are talking about the present then use the present tense*} customers' trust.

In the first feedback, 'by work of mouth {"*word of mouth" is the correct expression*}', the tutor highlights the problem in student writing, 'work' and provides the correct form, 'word'. This is considered highly explicit (E↑), because the tutor tells the student exactly what is wrong and provides the way to correct their error. In contrast, in the second feedback, 'earned {*if you are talking about the present then use the present tense*}', the tutor identifies the problem, tells the student what they need to consider, but does not explicitly correct the error. This is considered lower on the explicitness scale (E↓); however, when a metalanguage is shared with students for talking about the particular resource (e.g. present tense), it still allows for a high degree of visibility. Feedback is considered lower on the explicitness scale when the problem is identified without specifying the problem or identifying a way of addressing it, for example when the tutor writes 'Revise' or 'Rewrite' etc.; or asks questions that probe the student's language use, for example 'What do you mean?' or 'Can you think of another way of saying this?', 'This idea is not very clear', etc.

The degree of rationale refers to whether a tutor explains what is problematic. Rationale was high (R↑) when tutors gave a detailed explanation about a problem; and is low (R↓) when they provided little or no explanation. Example 11.3 is an instance of feedback with high rationale.

Example 11.3
Finally the can was placed back to the cold water, the volume would be decrease (point d->a). {*I gather that the information in brackets refers to a diagram in your experiment description showing the different stages in the*

engine cycle? If so, rather than brackets, you need to use language so that your reference (Figure 3) is extremely clear for the reader. I suggest that you make this reference clear from the beginning and then refer to different points in the figure. E.g., Figure 3 refers to X. || At point A..|| Between point B and C, …|| When X, Y decreased between point C and D.|| When you do this, then the reader knows to check back to Figure 3 to see the visual information again if they want or need to.}

In Example 11.3, the tutor first explicitly identified the problem in the text and provided a number of possible ways of addressing it (E↑). The tutor then told the student why this change would be good and how it would help the reader. A clear rationale (R↑) is thus provided for the feedback. In contrast, the first instance of feedback in Example 11.3 shared earlier only included explicit feedback (E↑) and no rationale (R↓).

The degree of explicitness and the amount of rationale can be plotted on a Cartesian plane to provide a typology of feedback. This typology includes four possible types of feedback that we refer to as hand-holding, carrying, bridging and base-jumping (see Figure 11.1).

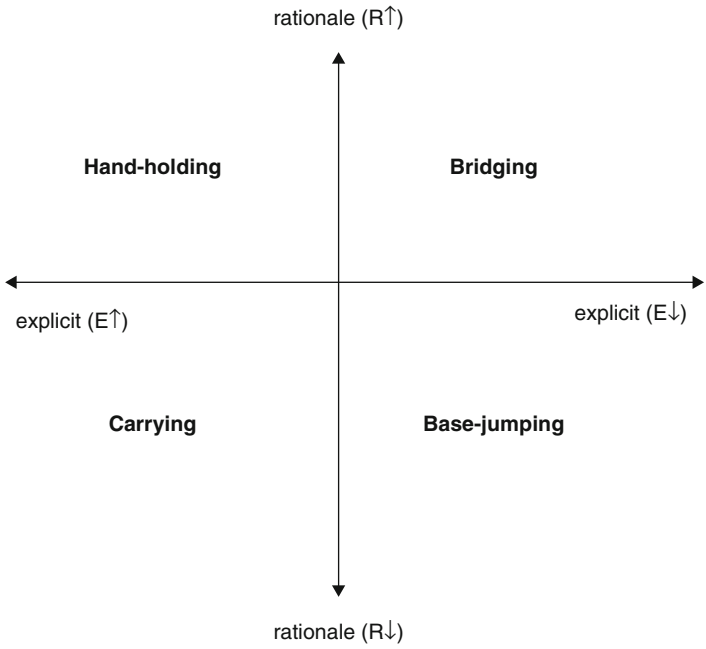


Figure 11.1 A typology of feedback

11.4.2.1 Hand-holding: E↑, R↑

Hand-holding refers to feedback with the highest level of support. It is both explicit and explanatory and we likened it to 'hand-holding' a child as they learn to walk. This type of feedback tends to work best with learners facing challenging tasks. The feedback provides students with specific suggestions/changes.

Examples 11.4 and 11.5 provide instances of 'hand-holding' feedback.

Example 11.4

In this essay, the importance of nominalisation will be explained. *{Delete this sentence as you have added this information at the end of the paragraph, which is the appropriate place to add this.}*

In this example, the tutor explicitly (E↑) tells the student to delete a particular sentence and also tells them why this should be deleted (R↑).

Example 11.5

In part 2, we used the same automatic data logger to measure different voltages and compared the result with a multimeter. {*Another point which you can consider is to change the sentences with 'we' (active voice) to passive voice as passive voice is more formal. For example, 'In part 2, we used the same automatic data logger to measure different voltages and compared the result with a multimeter.' can be changed to 'The same automatic data logger was used to measure different voltages and its result was compared with the results of a multimeter'.*}

In Example 11.5 the tutor first tells the student that passive voice is more appropriate in this context (R↑) and then explicitly tells them how to do this (E↑).

In terms of scaffolding, *hand-holding feedback* works in students' zone of proximal development (ZPD; Vygotsky, 1978) by taking them beyond what they can do unaided. This is achieved by identifying a problem, explaining why it is a problem and suggesting ways of fixing it. The explicit feedback and the rationale together help students to attend to the problem. Tutors in the SLATE project tended to give this type of feedback on features that they had identified as the main focus of their feedback. Tutors would give such feedback in the first (few) instances of the problem in a student's text and would then use a less explicit and less explanatory comment on the later instances of the same problem (although they would continue to highlight or underline it). This meant the support about the focus point became increasingly less explicit over

the course of the draft, reflecting the reduction of scaffolding found in parent/child interactions (as outlined in Painter, 1989, 2007).

11.4.2.2 Carrying: E↑, R↓

The second kind of tutor feedback refers to instructions that were explicit but did not have much (or any) rationale. This type of feedback is known as 'carrying'; it carries the learner forward to the correct form/answer, without explicitly telling them why their text needs to be changed. This type of feedback tends to work well with low-level 'mistakes' at or below clause level, where a student has made a typing or lexicogrammatical error, which is not typical of their writing. In addition to serving as an editing tool, this feedback was sometimes used by the tutors to 'piggyback' on the rationale provided by *hand-holding feedback* that they had provided earlier. In such cases, the tutor was providing the student with another example of how to fix a problem that they had previously identified and explained.

Carrying feedback usually provides the learner with a single option for fixing the issue. It typically asks students to delete a section of the text or make a change that the tutor believes will address the issue and, as a result, improve the text. As such, *carrying feedback* includes what Ellis (2009) might refer to as 'direct' and 'reformulation'. Examples 11.6 and 11.7 provide instances of *carrying feedback*.

Example 11.6
An economy cannot {*merely*} persist with one type of production industry merely {*delete}*.

In Example 11.6 the tutor moves the word 'merely' (E↑), but does not provide any rationale (R↓) for why this is necessary.

Example 11.7
It gives an impression to reader a higher level in using English and well-organized article. {*It gives reader*s *the impression of a higher level use of English and a better organised text*.}

In Example 11.7, the tutor reformulates and rewrites the student's sentence (E↑) without providing any comments or rationale. However, the student, while being shown how to fix the text, is not told what is wrong or why it should be changed (R↓).

SLATE researchers found a relatively large number of instances of *carrying feedback* in our data. One reason for this is that comments of this

nature were provided for language problems that had not been identified as the main focus of the feedback. *Carrying feedback* thus typically occurred as additional comments about lexicogrammatical problems that the tutor identified as needing revision, but not problems that would be addressed more substantially in that particular round of feedback. In addition, as stated earlier, tutors sometimes used *carrying feedback* to piggyback on the *hand-holding feedback* that they had given earlier. In such cases, the feedback helps the student identify additional cases of a problem that was pointed out earlier.

11.4.2.3 Bridging: E↓, R↑

The third kind of feedback, *bridging*, tends to be low on explicitness, but provides rationale. In *bridging feedback*, the tutor provides support (as a bridge) for the learner to understand the problems through the provision of substantial rationale and/or explanation; however, learners are not told how to fix their problems explicitly. Rather they are supported with comments that explain the nature of the problem, which may include examples, clues, or a list of suggestions. The focus is thus on eliciting a change rather than correction. Examples 11.8 and 11.9 illustrate *bridging feedback*.

Example 11.8
In my own point of view {*Although your opinion is important, in an article review you need to provide an impersonal evaluation of the arguments presented by the author*} after reading the articles, …

In Example 11.8, the tutor tells the student that s/he should avoid personal opinions in academic writing (R↑), but does not state explicitly how to revise the draft (E↓).

Example 11.9
[This feedback was inserted before the student text began] {*You can add a separate paragraph for your introduction before you give details. By doing this you give the reader a 'preview' of what you are going to say in the following paragraphs.*}

In Example 11.9, the tutor inserts feedback before the student's text, suggesting that the student should add an introductory paragraph before the main essay and explains why this is important (R↑). While the tutor does tell the student what to do, this is done through a general comment '{*You can add a separate paragraph for your introduction before you give details …',* thus the explicitness level of this feedback is relatively low.

In our data, *bridging feedback* is typically used to elicit language of a more academic register from students. The tutors viewed the provision of rationale as sufficient for the student to achieve the improvements required. Note that in providing *bridging feedback*, tutors assume that students already have the ability to attend to the tasks that they are being asked to complete. As such, *bridging feedback* supports students by encouraging them to use the linguistic resources that they have already developed in new ways.

11.4.2.4 Base-jumping: E↓, R↓

The fourth kind of feedback, *base-jumping*, is neither explicit nor inclusive of rationale. Like actual 'base-jumping', it is risky. If provided under the right conditions it can work, but if not, the results will not meet expectations. In this type of feedback, students need to have sufficient knowledge about language to understand *what* the tutor is marking as needing to be recomposed, *why it needs recomposing* and *how* to fix it. If the learner is advanced or already has an understanding of the issues being identified, then they can respond appropriately; where this is not the case, the feedback may be too indirect for the learner to learn from it. Feedback classified as *base-jumping* only gives students 'hints' about what might be wrong (if that); students have to identify and revise the text on their own. Examples 11.10 and 11.11 exemplify this type of feedback.

Example 11.10
A specific example and related analysis may help us know the difference between the concepts better {*This idea is not very clear*}.

In Example 11.10, the tutor states that the student writing is not clear, but doesn't explain why or how it can be improved.

Example 11.11
In addition, {*Is this your conclusion?*} Pettigrew's article provides the way to solve the societal issues and problems by changing the social structures and reflects the basic concepts of social science which focus on the whole society and the interactions between the social structures and individuals.

In Example 11.11, the tutor asks the student a question, but the intent of the question is not explicit; it is not clear how the student can use this question (or their response to this question) to revise the text.

SLATE tutors usually used this type of feedback as a 'locating device', to highlight instances of an issue that was identified as one of the foci of their feedback. This meant they did not need to repeat themselves. In terms of scaffolding, this type of feedback works best in instances where the students already know what to do and why. For *base-jumping* to succeed, the tutor and the student need to have a shared knowledge about language because it allows tutors to give and students to interpret feedback correctly. A shared knowledge about language can be developed through the deconstruction and joint construction steps of the TLC, and also through *hand-holding* and *bridging* feedback. When tutors provide *base-jumping* feedback after they have already developed shared knowledge about language, students can identify the issue and use previous knowledge to revise their text. However, if the students and the tutor don't have a shared knowledge about language, then it is likely that the student will not be able to interpret or respond to the feedback. Given that the SLATE project worked on the premise of frontloading – that is, providing support before students write independently – shared knowledge was fundamental to the implementation of the project. Thus *base-jumping* feedback could be used frequently by tutors.

In addition to the two main dimensions of feedback exemplified above, three other factors played a role in our analysis of feedback. The first factor relates to how tightly framed the feedback was in terms of whether the feedback offered students one option or multiple options. The second factor relates to which linguistic stratum the feedback focused on. It could, for example, be focused on elements at or within clause level (lexicogrammatical), or above the clause at the level of discourse (text oriented). 'Carrying' tended to primarily focus on lexicogrammatical issues, while the other three types of feedback responded to all strata of language. The third factor relates to the presence of metalanguage (knowledge about language) in the feedback. Tutors built metalanguage with students in both the earlier steps of the Teaching Learning Cycle (deconstruction and joint construction) as well as during the feedback cycle. For feedback to be interpreted correctly and responded to, the tutors and the students needed to develop a shared knowledge about language and metalanguage.

11.4.3 Feedback Review

In Feedback Review tutors provided a brief recap of the support provided for the draft as well as encouraging comments. Example 11.12 gives an illustration of Feedback Review.

Example 11.12
This is a well-written essay and you have discussed your point clearly and thoroughly, linking your ideas together well. Although the body of your essay is good, you need provide an introduction and conclusion. The purpose of an introduction is to introduce your topic and outline your main points; the purpose of a conclusion is to sum up your points and give an overall statement or evaluation. Please check the tutor tips on essay structure for more explanation.
Your language use is very good, however please avoid the use of personal pronouns and the active voice ('we need to place this here') and instead use the passive voice ('This should be placed here') as this sounds more formal and information-focused, making it more appropriate for formal writing assignments.
A great discussion overall.

In Example 11.12, the tutor starts by positively appreciating the student's work. They then recap the main issues addressed in the feedback and remind the student of the rationale for the feedback. This final stage of the feedback reinforces and consolidates the goals of the feedback.

The three stages of feedback provided tutors with a structured approach to providing feedback. There were a number of benefits of using such a consistent approach to providing feedback: it created a level of consistency amongst the tutors – all tutors approached their task in a similar way based on their training. Using a consistent feedback structure also helped the students because they were given an orientation to the main purpose of the feedback in the Feedback Preview stage and therefore knew what to expect from the tutors' comments.

11.5 Feedback across the drafts

The use of staged, focused and purpose-driven written feedback extends the general scaffolding principle around which Sydney School TLC was designed. The negotiated independent construction step allowed tutors and students to work on student writing through an iterative cycle of feedback and response. The feedback responded to students' individual needs and supported them in their understanding of the problems in writing by providing detailed comments as well as additional notes. The extended examples (11.13 and 11.14) provide some evidence of how the negotiated independent construction step of the SLATE TLC supported two students across drafts.

Examples 11.13 and 11.14 include the students' first draft, the feedback given to them and the students' revised draft. Tutors' feedback is italicised and in curly brackets; students' revisions are underlined.

Example 11.13

Student draft 1

Firstly, the can of the heat engine was placed in cold water (point a). Secondly, mass was added to the platform such that the air was pressed directly, the pressure of the air would be increased (point a->b). Then, the can was placed in heated water, the volume of the air would be increased (point b->c). After this, the mass was removed from the platform, the pressure would be decreased (point c->d). Finally the can was placed back to the cold water, the volume would be decrease (point d->a).

Feedback provided

{*Dear Student, Well done for submitting draft 1 of your third experiment! It is great to see that you have started to organize your ideas clearly. In this draft, my comments will mainly focus on … I'll also make some suggestions regarding paragraphs and how to integrate non-verbal information into your discussion.*}

> Firstly, the can of the heat engine was placed in cold water (point a). Secondly, mass was added to the platform such that the air was pressed directly, the pressure of the air would be increased (point a->b). Then, the can was placed in heated water, the volume of the air would be increased (point b->c). After this, the mass was removed from the platform, the pressure would be decreased (point c->d). Finally the can was placed back to the cold water, the volume would be decrease (point d->a). {*I gather that the information in brackets refers to a diagram in your experiment description showing the different stages in the engine cycle? If so, rather than brackets, you need to use language so that your reference (Figure 3) is extremely clear for the reader. I suggest that you make this reference clear from the beginning and then refer to different points in the figure. E.g., Figure 3 refers to X. || At point A..|| Between point B and C, …|| When X, Y decreased between point C and D.|| When you do this, then the reader knows to check back to Figure 3 to see the visual information again if they want or need to.*}
>
> Revised draft
>
> The results are shown in figure 2 with the points A, B, C, D. Firstly, the can of the heat engine was placed in cold water, represented by

point A. Secondly, mass was added to the platform such that the air was pressed directly, the pressure of the air was increased from point A to B. Then, the can was placed in heated water, the volume of the air was increased from point B to C. After this, the mass was removed from the platform, the pressure would be decreased from point C to D. Finally the can was placed back to the cold water, the volume was decreased from point D to A.

Initially, as can be seen in Example 11.13, brackets and the symbol '>' were the only resources that the student used to integrate non-verbal information in the text. This was awkward because the student needed to describe what was happening in a diagram that contained four labelled points. In responding to the feedback, the tutor used the Feedback Preview to tell the student that they would be focusing on how to integrate non-verbal information into their texts before giving them detailed feedback (E↑, R↑). The student used this feedback to revise their draft and made the visual reference clear from the beginning of the paragraph; described what event was represented at each point without using brackets; and used 'from' and 'to' to describe changes across points, which is called a 'from X to Y' structure.

In addition to making the changes that were suggested, the student also revised their text further to improve their draft in two other ways: they replaced 'refers' with 'represents'; and as the events in the diagram were all connected and there wasn't an actual emphasis on what was happening 'between' points, the student used a 'from X to Y' structure.

Example 11.14

Student draft 1

Traditionally the car rental companies only have a single office located at the airport as their supporting facilities. However, ERAC has 4,000 offices located within 15 minutes of 90 percent of the U.S. population. These 4,000 offices are connected together via a one simple and user friendly telephone number.

Feedback provided

Traditionally the car rental companies only have a single office located at the airport as their supporting facilities. However, ERAC has 4,000 offices located within 15 minutes of 90 percent of the U.S. population. These 4,000 offices are connected together via a {*02*} one simple and user friendly telephone number. {*Good use of information selected from text. However, you do need a topic sentence that indicates which point you are discussing.*}

Revised draft
Comparing with other car rental companies, ERAC have very different supporting facilities. Traditionally the car rental companies only have a single office located at the airport. However, ERAC has 4,000 offices located within 15 minutes of 90 percent of the U.S. population. These 4,000 offices are connected together via one simple and user friendly telephone number.

In Example 11.14 the student successfully incorporated the tutor's comment about the lack of the cohesive resources of periodicity used to organise information in their first draft. The tutor feedback started with a positive comment about what the student has done well. The tutor then identified the problem with the paragraph (R↑), but didn't explicitly tell them what to do (E↓). In addition, the tutor also referred the student to the online comment bank (E↑,R↑) in one place 'via a {*02*}' to address a lexicogrammatical error. The comment bank link included an explicit description of the problem with examples (see Table 11.2).

The student used the feedback, both the item on the comment bank and the open comment, and revised their draft by removing the unnecessary article and adding a topic sentence. However, it should be noted that the new topic sentence included lexicogrammatical errors. These errors are a consequence of the student's engagement with the feedback and their attempts to respond to it. In this case, the student's revised draft was their final draft; however, in other cases, students received a further round of feedback. If this were the case here, this student would have been complimented on the response to the initial feedback and told what to do to improve the text further. The negotiated independent

Table 11.2 Item 2 in the comment bank

Comment	**Explanations**	**Examples of wrong use**	**Correct use**
2. Article unnecessary	This article is not necessary, because the noun is plural or because the noun is uncountable. (Sometimes plural nouns need the definite article.)	The students all have different ideas. *(If 'students' not mentioned before)*	Students all have different ideas. *(Note, the original sentence is correct if 'students' was mentioned before)*
		The oxygen is essential for health	Oxygen is essential for health.

construction was a process of construction and reconstruction of text through cycles of feedback. Each feedback cycle helped the students to develop control of the linguistic resources needed to write better texts within the context of their discipline.

11.6 Conclusion

This chapter described how the SLATE project expanded the independent construction step of the TLC by including a staged, purpose-driven approach to providing feedback to the students. The chapter presented an analysis of the nature of feedback provided and also discussed how this scaffolding was used by the students in revising their texts. Three stages of feedback were identified: Feedback Preview, Feedback and Feedback Review. The chapter demonstrated how two factors, explicitness and rationale, can be used to categorise feedback into one of four categories: hand-holding, carrying, bridging and base-jumping. Each of these has an identifiable set of features and serves specific purposes. Providing effective feedback requires an understanding of what feedback should focus on, how it should be organised and how the type of feedback should vary to achieve different purposes at different points in a text.

12
Looking Forward

This book has introduced the SLATE project from a theoretical, research and practical perspective, outlining the ways we approached the research and implementation of Sydney School genre pedagogy for two undergraduate programs at City University Hong Kong. This brief conclusion reflects on the innovations of the SLATE project, including what was learned from the project as a whole. We also look forward to issues that need to be addressed or could change if another university were to attempt this kind of embedded literacy support across a whole program, faculty or university.

The SLATE project was innovative in a number of ways. It was the first systematic embedded implementation of Sydney School genre pedagogy across more than one discipline in a tertiary institution. It extended beyond general EAP (English for Academic Purposes) into those disciplines, mapping discipline-specific genres and providing discipline-specific literacy support. The SLATE project was delivered in an online platform and, as such, represents the first iteration of distance implementation of Sydney School genre pedagogy in this mode. This was, for example, the first time that the joint construction step of the Teaching Learning Cycle (TLC) was implemented in an online mode using virtual classroom technology. The independent construction step of the TLC was also developed and expanded into a negotiated independent construction to allow for additional support during the writing process, which provided one-on-one support to students. This was a comprehensive program of literacy intervention that supported tertiary NESB students at all stages of the writing process.

The innovations of the SLATE project resulted in significant enhancements to the literacy support offered to students at CityU. Initially, these students were supported by the Language Companion

Course (LCC), which provided them with an online language 'coach' to assist them in their writing of assignments. This model was not a front-loading model and provided support to students only *after* they had written a draft of their assignments. The SLATE project changed the focus of literacy support to a front-loading model, where students are provided with a great deal of support for writing before they have to attempt writing on their own. Students were provided with cycles of modelling of target texts and deconstruction activities as well as guided writing practise with an expert in joint construction lessons in some cases. Feedback provided by trained language coaches further supported the writing process by linking this feedback to what had been scaffolded in the earlier stages of the Teaching Learning Cycle. Feedback moved beyond what was possible in the LCC comment bank which was only a list of language features that tutors and coaches could highlight for students to pay attention to.

Additionally, literacy support was not seen as an 'added extra' to the content students were learning in their disciplines. It was embedded into those disciplines, forming part of the process of being inducted into a field of knowledge and practice.

Crucially, students' reading of challenging academic texts was supported, not only through support structures such as note-taking outlines but also through explicit attention to the discourse features used by experts in the field.

The research that underpinned these innovations also resulted in significant understandings that may be generalised to other sites. The innovative 3 × 3 rubric introduced in Chapter 4 and used for training the language coaches that worked with CityU students combines complex linguistic concepts from SFL into a one-page framework that can be adapted for different genres. It is based on the SFL concepts of strata and metafunction, and foregrounds the top-down approach to language. This model has since been expanded and adapted to other contexts, such as secondary school (see Humphrey & Robinson, 2012).

In the research into linguistics, descriptions of a diverse range of genres and ways of interpreting language as an object of study informed the literacy interventions, providing students with support to write across this range of genres in their program of study. These descriptions enabled the top-down approach used for the literacy interventions, moving students through understandings of genre, staging and phasing, while also engaging them with understandings of ideational and textual meanings that enabled them to develop the technical field of linguistics and the discursive practice required by the field at tertiary level.

In the biology research, the focus on extended genres concerned with 'doing science' has complemented Veel's (1997) focus on those genres concerned with reporting and explaining science in the secondary school context and aimed to support students' cumulative learning towards their final Honours research project. The pathways developed to scaffold students' comprehension and composition of research-oriented texts enabled us to plan reading and deconstruction activities embedded within each of the core courses of first- and second-year biology. From a linguistic perspective, the pathway focused firstly on supporting students' control of ideational and textual resources before shifting to the combinations of ideational and interpersonal resources that enabled students to evaluate previous studies and to justify their own research.

Regarding the enactment of Sydney School genre pedagogy, the deconstruction step of the TLC presented few challenges to the SLATE team, other than sometimes needing to work hard to convince discipline lecturers to give up time and space in their subject for literacy. From research conducted into the reading and writing requirements of the disciplines, deconstruction materials were developed as described in Chapter 9, and students were well supported during this step by the tutors trained by the SLATE team. Joint construction presented more challenges, mainly to do with technology and time. As talk had to be typed, the lessons proceeded slowly, with teachers not able to get through as much as they would in face-to-face classrooms. Classroom management was more challenging in the online context as the teacher could not see what the students were doing nor when they were coming and going. However, as Chapter 10 showed, regardless of these challenges, the virtual classroom enactment of joint construction still provided students with the opportunity to engage with and practise writing before having to attempt it independently. With some modification as well as developments in technology, many of these challenges could be overcome. Additionally, the online platform had some affordances, being less confronting for some students to speak up than in the face-to-face mode.

Negotiated independent construction specifically extended the LCC program that SLATE inherited, linking feedback on drafts of students' texts to the support provided in the previous two TLC steps. The implementation of this step was relatively straightforward and this method of feedback is supported by research that shows that feedback on students' writing prior to submission of assignments is an effective way to encourage the take-up of that feedback (Ferris, 2006; Yates & Kenkel, 2002).

The SLATE project also developed a unique tutor-training package to support the language coaches working with CityU students in the negotiated independent construction step. This package distilled understandings of language and text into four workshops that enabled the SLATE team to prepare tutors both theoretically and practically for their literacy support work with students.

As university education moves inexorably towards increased online delivery (e.g. MOOCS, Moodle, flipped classrooms etc.), endeavours like the SLATE project show that tertiary literacy support can be provided using e-teaching as well as e-learning, providing they are theoretically informed to support students at all stages of the writing process.

Notes

2 Modelling Language in Context – Systemic Functional Linguistics

1. Lasn, K. (2012) *Meme Wards: The Creative Destruction of Neoclassical Economics*. New York: Seven Stories Press.
2. Our colleague Theo van Leeuwen comes to mind, who once suggested to me that he had encountered more than a dozen ways of misspelling his name (forgivingly, after I had apologised for getting it wrong, again)!
3. SFL treats locutions as projected by the verbal process and so dependent on the main clause, not embedded in it; similarly below, ideas are projected by mental processes.
4. We'll comment further on the embedding of groups/phrase and clauses in nominal groups, and of clauses within clauses, in Chapter 3.
5. Possession is made explicit in English graphology here, through the apostrophe, but is not realised phonologically with plural nouns.
6. The distinction between group and phrase will be clarified in Chapter 3.
7. The interpersonal resources (APPRAISAL systems) enacting tenor in this text will be explained in Chapters 3 and 4, with respect to GRADUATION (e.g. *burst*, *usual*, *why oh why*), ATTITUDE (e.g. *evil*, *idol*), and ENGAGEMENT (e.g. *of course, it soon became clear that*).
8. The first-person pronouns in Text 1 have to be interpreted cataphorically in relation to the attribution of the text to Luke Sherlock below the text in *Meme Wars*.

3 Knowledge about Language (KAL)

1. For a discussion of the Ridenhour texts used in this chapter, see Martin (2013).
2. The Ridenhour texts in this chapter are taken from this website: http://www2.iath.virginia.edu/sixties/HTML_docs/Texts/Narrative/Ridenhour_Jesus_01.html
3. This clause involves a relational state rather than a mental process, although the state is in fact a mental one (cf. *I was persuaded by events that* ...).
4. The first, third, fourth, fifth, and sixth examples in this table would in fact be treated as projected by Halliday (i.e. as dependent on the cognitive process but not one of its Participants). To simplify the presentation here, we won't focus on the distinction at this stage.
5. http://www.ehow.com/how_2095639_explain-lightning-child.html
6. To save space, we will not include examples of linguistics discourse in this chapter.
7. This racist term for certain of the enemies of US armed forces apparently came into use during the Korean War; the authors apologise to anyone offended by our use of examples deploying the term in this volume.

8. Proper names often in fact consist of more than one word (*Camp Baldry*, *Winston Churchill*, *Ron Ridenhour*); such complex names are treated as a single function in nominal group analysis – simply as Thing. They have their own internal structures, for example titles, given names, family name, and honours (e.g. Professor Michael Alexander Kirkwood Halliday, FAHA) or house number, street name, street type, suburb, metropolis, province, zip code, country (e.g. 1674 Orchard Avenue, Alta Vista, Ottawa, Ontario K1H7C8, Canada).
9. With indefinite expressions, descriptions of size, shape, colour, and attitude in fact follow the Thing (e.g. *something very black*), where they can be analysed as Qualifiers.
10. The other very common type of multi-word function is proper names functioning as Thing, discussed in footnote 7 above.
11. In linguistics, the placement of an asterisk before an example indicates that the example is ungrammatical (i.e. not acceptable by native speakers as something they would naturally say).
12. It is important to distinguish this *of* from two others. One allows for the expression of owners, relatives, and wholes in possessive nominal groups as Qualifiers rather than Deictics (cf. *the hill's crest/the crest of the hill*, *Lt Calley's platoon/the platoon of Lt Calley*). The other allows for the expression of participants as Qualifiers in grammatically metaphorical nominal groups with processes as Thing (cf. *they infiltrated the camps/camp infiltration/infiltration of the camps*).
13. Each embedding in these examples is numbered with a subscript showing where the embedded group or phrase, or clause begins and ends.
14. Actually for passive, *be* needs to be followed by the -en form of the following verb; but in English, for many common verbs, this form is identical to the -ed form (cf. verbs like *take*, *beat*, *hide*, *swim* which have distinctive -ed and -en forms: *took/taken*, *beat/beaten*, *hid/hidden*, *swam/swum*).
15. The Tense ... notation can be used to show that extra time has been added; for the verbal group analysis we are simplifying here, see Halliday and Matthiessen (2004), Martin et al. (2010b).
16. We could, for example, extend *were going to be dumped* as *had been going to be dumped*, or even *had been going to have been dumped*, but we'd have to make Ridenhour's recount more complicated to create a context which needed them.
17. In causative verbal group complexes the Events are in fact separated by the participant being made to do something; e.g. *he* ***had*** *me* ***do*** *it*, *it* ***made*** *me* ***forget***.
18. By using the lexical verbs *pounding* and *lumbering* Ridenhour has already infused his processes with the manner of the patrol's movement; learning to use verbs which incorporate manner in this way is an important dimension of writing development.
19. The P function is sometimes expressed by combinations of words like *out of*, *except for*, *because of*, *on behalf of*, *as for*; and prepositions in circumstances of location in time or space are sometimes modified (e.g. [***two hundred feet***] ***below*** *the hill's crest*, analysed above): *right into*, *just after*, *far from*, *long after*, etc.
20. In essence this 'something' is in the incongruent coding of meaning in a grammatical unit involving transcategorisation – for example, a semantic event as a grammatical 'thing' such as *insertion* (with *insert* nominalised as

insertion), or a semantic quality as a grammatical 'thing' like *safety* (with *safe* nominalised as *safety*).
21. http://www.law.umkc.edu/faculty/projects/ftrials/mylai/ridenhour_ltr.html
22. If we take adjectives as a kind of nominal (because of the role they play in nominal groups), then *infectious* can be included as another nominalisation here.
23. By minimal New we mean the final clause constituent containing a salient syllable that would have been tonic in an unmarked reading aloud of the clause – e.g. //We'd lifted off from Camp Baldy at daybreak that **morn**ing// (notation based on Halliday & Greaves, 2008).
24. Johnson's original text used the additive linker *also* to accumulate arguments.
25. For a useful table of distinctive internal conjunctions, see Martin and Rose (2007, p. 141).
26. For a useful table of external conjunctions, see Martin and Rose (2007, pp. 132–133).
27. Ron is introduced as the author of the article, in a minor clause, so is neither Theme nor New.

4 Setting up a Toolkit for Academic Literacy

1. The framework developed for the SLATE project has also been subsequently adapted as a 4 × 4 framework to take into account the important role of logical meanings in expanding ideas in academic discourse and to allow for more delicate layering of clause level grammatical units. See Humphrey and Robinson (2012) and Humphrey (2013) for further explication of this expanded model as it relates to genres of secondary school discipline learning.

5 An Introduction to 'Sydney School' Literacy Programs

1 For a deeper characterisation of genre as a recurrent configuration of meaning, see Martin and Rose (2008).

6 An Exploration of the Linguistics Program at CityU

1. While the report itself unites the Results and Discussion stages under one heading, we have separated them out for staging purposes.

11 Negotiated Independent Construction: Feedback in the SLATE Project

1. In his paper, Ellis states that reformulation is done by 'native speakers … to make the language seem as native-like as possible'. However, we would posit that reformulations can be made by both native and non-native teachers (see contributions to Mahboob, 2010).

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