

# **CHAPTER 1 - Introduction and Outline of the Research**

## **1.0 Introduction**

One of the most outstanding features of this age is that it is an age of signs. There is a proliferation of signs. Not just signs in the usual sense of “Beware of the Dog” or “Keep off the grass” signs, but in the semiotic sense. There are orthographic or written, and verbal or spoken signs, the subject of modern linguistic science. There are visual signs, as in human non-verbal behaviours (gestures), photography, architectural design, cinema, theatre, television, sculpture, painting, fashion design, the dance, advertising images, icons on computer screens, and a multiplicity of non-specific images which operate to guide, to instruct, to constrain or to allow, to protect or to warn. There are also the aural signs, as in classical music. These linguistic, visual and aural sign types can occur in isolation, or may be produced in combination as in the aural, spoken and visual in opera, the aural and visual in ballet, or the aural, visual and orthographic in musical Christmas cards. This potential for a multiplicity and variety of signs, in combination with the exponential growth of the Internet, multimedia GUIs (Graphical-User-Interfaces), and their role in what has been characterised as the “information revolution”, has in recent times raised consciousness of the visual sign as a conveyor of meaning, so much so that there is an increasing interest amongst educationists of a possible need for developing students’ abilities in visual literacy, rather than simply oracy or literacy.

The co-occurrence of and interrelationship between visual and linguistic signs is the issue that is addressed in this study. In Western culture, and indeed most developed cultures, there is no question that the linguistic, spoken and written forms are generally viewed as the dominant, and indeed, the superior mode of communication. The visual sign is generally seen as being subordinate to the spoken/written sign, and even more so is the aural sign. The dominance of the linguistic, and the dominance of the written over the spoken as the more “advanced” mode is all-pervasive, and is inculcated across various cultures in and through educational practices and attendant value systems (McLuhan 1964; Ong 1982). The rate and degree of change that has been brought about by the

increasingly computerised and multimedia-based modes of communication in this age of signs may well form a challenge to the traditional dominance of the linguistic over the visual age, but it is still an embryonic challenge. The fact remains that the linguistic dominates; it dominates in the educational systems, and it dominates in the print media, whether it be academic or journalistic, whether the texts therein utilise only the linguistic or written mode, or whether they combine it with some kind of visual representation.

The motivation for the present study lies in a question arising out of this writer's involvement, over more than 20 years, in various educational contexts relating to the discipline of economics. This involvement covers an undergraduate major in economics, the teaching of economics principles courses in senior high schools, and most recently research into the pedagogical difficulties inherent in economics discourse for non-native speakers of English (Royce 1993, 1994). The question relates to a perception that whilst the various forms of published economics discourse all utilise some form of visual communication, they do so differentially. Any reader of economics discourse will appreciate that the primary channel for the presentation and discussion of the content is the written, orthographic medium (hereafter referred to as the verbal mode), and that this is consistently accompanied by some form of visual communication. What is notable, however, is that whilst the professional, academically-oriented literature as a matter of course directs the readers to refer to the various graphs, tables, charts and diagrams utilised (as in "Consider the relationship shown in Fig.3.1, ....", or more indirectly through "This relationship can be represented diagrammatically ..."), the journalistic print media dealing with economic issues do so only rarely. Business magazines such as *The Far East Economic Review* and financial newspapers such as *The Financial Times* include many of the same types of visual forms of communication found in the professional, academically-oriented publications, but they do not specifically direct or ask the reader to interact in some way with the graphs, tables, diagrams and charts they utilise. Both the verbal and visual modes seem to simply co-occur. Given the importance of visual modes of communication in professional, academically oriented economics discourse, the questions arise: what then is the function of the visual mode when used in

conjunction with the verbal in economically-oriented journalistic print media, and what connections are construed when these two page-based modes co-occur?

### **1.1 Aims of the Study**

While the central focus of the discipline of linguistics throughout the twentieth century has been on the study of natural language, either in structural, psycholinguistic or functional terms, some of the trends of the latter decades of the century have reflected an increasing interest in forms of communication other than linguistic and the ways that they project and organise their meanings. This interest has been fueled not only by the continual development and enrichment of semiotic theory, but also by the already-mentioned rapid changes in the modes of communication brought on by the revolution in communication technology. The result is an increase in the publication, for example, of studies dealing with meaning projections in digital imagery (e.g. Marchese 1995), discussions on the development of automated presentation design, intelligent multimedia interfaces and associated architectural and modelling issues (e.g. Maybury 1993), and an expanding debate about the ‘visual’ character of contemporary culture (e.g. Jenks 1995). It has also been recognised that developments in general linguistic theory could inform the interpretation of other communication modes besides language. Researchers utilising concepts from linguistic theory to examine non-linguistic modes have included the Prague School of the 1930’s and 1940’s, the Paris School of the 1960’s and 1970’s (see Nöth 1990 for a good overview), and more recently what has been loosely characterised by Kress and van Leeuwen as “the fledgling movement” of “Social Semiotics” (1996:5). This latter paradigm utilises Systemic Functional Linguistic Theory, developed by M.A.K. Halliday (1978, 1985, 1994). This theory interprets language as a socially-based semiotic system, and applications of it to non-linguistic forms of communication have in recent times been gaining prominence through research on the visual semiotics of displayed art forms such as sculpture, architecture and painting by O’Toole (1994, 1995), and the proposal of a ‘grammar’ of visual design in images in general as well as in educational contexts by Kress and van Leeuwen (1990, 1996).

In order to address the question of the function of the visual *vis a vis* the verbal in economics discourse, this study problematises the visual-verbal interface in multimodal text (which is here defined as any text which utilises verbal and more than one other semiotic code to project its meanings), which entails a theoretically motivated investigation of the ways that the different semiotic modes project meanings, and of the intersemiotic relationships between them. It will thus involve an exploration of the proposition that both the verbal and visual modes, while utilising the meaning-making features peculiar to their respective semiotic systems, work together in various contexts to project a unified, coherent message to their viewers/readers. The subject of this exploration will be a multimodal text extracted from the economically-oriented journalistic print media, specifically from *The Economist* magazine. To that end, the analysis of intersemiotic relations in this study will take as its theoretical framework a Hallidayan view of communication, and will utilise and seek to test the applicability of Halliday's Systemic Functional Linguistics theory (hereafter SFL) to multimodal meaning.

According to the Hallidayan SFL theory, language is viewed in a "social semiotic perspective", where "social" refers firstly to the social system (which is synonymous with culture) and secondly to the fact that language is to be interpreted in terms of its relationship to social structure (Halliday 1978, 1985:3-4). For Halliday, semiotics is not simply "the general study of signs" (as per Saussure et. al.), but is "the study of sign systems ..... the study of **meaning** in its most general sense" (Halliday and Hasan 1985:3-4). The discipline of linguistics can be seen as one "kind of semiotics" which studies the ways that language organises meaning. However, there are "other ways of meaning, other than through language ..... there are many other modes of meaning, in any culture, which are outside the realm of language" (op.cit:4). These other modes of meaning may comprise

both art forms such as painting, sculpture, music, the dance, and so forth, and other modes of cultural behaviour that are not classified under the heading of forms of art, such as modes of exchange, modes of dress, structures of the family, and so forth. These are all bearers of meaning in the culture. Indeed we can define a culture as a set of semiotic systems, as a set of systems of meaning, all of which interrelate. (loc.cit. - my emphasis).

The assumption that semiotic systems interrelate seems to be an established one. Aspects of this have been explored in some depth for example by semioticians like Schapiro (1973:9-11), who studied medieval images derived from religious narratives, and Barthes (1977:38-41), who in his famous essay “The Rhetoric of the Image” examined the various ways that verbal text and image interact in press photographs and advertisements, asserting *inter alia* that the relation between them is one of either *anchorage* (image-text dependency) or *relay* (image-text cooperation). The question therefore arises: if it is assumed that different semiotic systems can and do work together semantically, what evidence is there for it, and how can it be accounted for? Or put in another way, what is the function of the visual *vis a vis* the verbal mode, and vice versa?

This study will therefore seek to test the claim of the inter-relatedness of systems of meaning, in this case, the interface between the visual and the verbal semiotic systems in a multimodal text extracted from one instance of economically-oriented journalistic print media, *The Economist* magazine.

## **1.2 Data and Terminology**

The data which constitutes the focus of this study is a multimodal text drawn from *The Economist* magazine, specifically from a section which is commonly referred to as the *Finance* department. This text has been extracted from a March 1993 issue, bearing the title heading “*Mountains still to climb*”, and is reproduced in Appendix One (*The Economist*, March 27<sup>th</sup>, 1993:77-78). Two questions need to be addressed in relation to the institutional discourse focus of this study and the multimodal text chosen for analysis. The first is why *The Economist* magazine has been selected from the range of possible types of economic discourse, and the second is why this particular text.

For the purposes of this study, the text extracted from *The Economist* will be viewed as a sample of written, page-based economics discourse, one of a range of potential discourse forms within the disciplinary culture of economics (Becher 1981:109, 1987:261). The various types within this disciplinary culture range from academically-oriented professional economics journal articles through to

journalistically-oriented newspaper reports on economics topics. A typology and some well-known examples of these discourse forms is given in Table 1.1. *The Economist* magazine has been chosen as the focus of this study because it uses almost all the visual forms that can potentially be used across the range of identified types of written economics discourse shown. The other forms of economic discourse such as professional journals, textbooks and finance industry reports tend to use specific types of visual forms and not others. *The Economist* magazine does not use the specialised mathematical symbolism of algebra and statistics commonly used by the professional literature, but it does use almost all the other visual forms drawn from mathematic semiotic systems such as graphs, charts, and tables. *The Economist* magazine also uses sketch drawings (mostly caricatures) and photographs (mostly portraits and scenes) common to media discourse types such as magazines and newspapers. It would seem therefore that an examination of a multimodal text drawn from *The Economist* magazine, one which could potentially include the full range of possible visual types used in economics discourse, would be a more useful text to focus on in terms of the applicability of its results to other disciplines in the social and general sciences which often utilise the same range and type of visuals.

<b>Discourse Type</b>	<b>Examples</b>	<b>Most common visual forms</b>
Professional economics journals	Economics, Journal of International Economics, Journal of Economic Literature, Review of Economics and Statistics.	Line graphs, tables, bar graphs, pie charts, schematic diagrams.
Economics textbooks	Introductory economics texts, university texts on theoretical aspects of macro and microeconomics.	Photographs (author portrait); line graphs, tables, bar graphs, pie charts, schematic diagrams, sketches.
Reports by economic organisations	OECD reports, Barclays Bank economic reports, stock market reports.	Photographs (portrait), line graphs, tables, bar graphs, pie charts, diagrams; flow charts.
Reports and analyses of economic issues by various journalistically-oriented print media.	The Economist Magazine, The Financial Times, The Wall Street Journal, The Far East Economic Review.	Photographs (portrait and scene), line graphs, tables, bar graphs, pie charts, diagrams, flow charts; sketch caricatures.

Table 1.1 - A typology of economics discourse

For the purposes of this study, visual information will be interpreted as those features which in a traditional linguistic sense are generally not analysed as part of "text", such as the various drawings, diagrams, graphs, tables, and charts that are

most commonly used in the discourse types outlined in Table 1.1. Mathematically-based algebraic equations (e.g. the Keynesian four-sector model of the economy expressed in the algebraic equation  $Y=C+I+G+[X-M]$ ) and statistical formulae (e.g. the analysis of covariance) will not be interpreted as visual information here, firstly because as already mentioned above, this type of symbolic communication is rarely, if ever used in *The Economist* magazine, and secondly because algebraic and statistical formulae differ fundamentally from the ways that the traditional forms of visual representation (pictures, graphs, diagrams etc.) are considered to project their meanings — they are often viewed as another semiotic code (see Nöth 1990:217-218 on numerical codes), or as within the linguistic system, as Lemke (1990) points out in his discussion of science as a subject in educational contexts and its use of mathematics:

mathematics itself, that is the use of mathematical expressions, is *part* of language, not something different from or alternative to language. You can, quite literally, talk mathematics, either by reading the symbols, or by converting them into conventional words and phrases of the language (register) of mathematical English. Most mathematical expression is a form of *written* language, and mathematics makes use of its own specialised written genres, such as the Proof (op.cit:159).

It is important at this point also to clarify just what is meant by *text* in the term *multimodal text*. Without providing an exposition of the various definitions of text typically and traditionally applied by theoretical and applied linguistic researchers (see for example Stubbs 1983, Brown and Yule 1983, Hoey 1991, van Dijk 1977, Halliday & Hasan 1976 etc.), text in this work will accord with Halliday and Hasan's view that it is "a semantic unit: not of form, but of meaning" (1976:1-2), and that it is functional, or "language that is doing some job in some context" (1985:10). It will also accord with their view of cohesion, which is also viewed in terms of meaning, being the "relations of meanings that exist within the text, and that define it as a text" (1976:4). Although Halliday and Hasan are referring primarily to language in its spoken or written forms, they are cognisant of the fact that their view of text as contextualised meaning and function permits the consideration of other modes of meaning-making. Thus, a text "may be either spoken or written, or indeed any other medium of expression that we may like to think of." (1985:10 my emphasis). In this study, the multimodal text extracted

from *The Economist* magazine (hereafter referred to as the *Mountains text*), will therefore be considered as a contextualised, cohesive unit of meaning, with the understanding that the ways the various meaning(s) are projected can be potentially realised via differing coding or semiotic systems. Accordingly, in this study the use of the term *text* will be made with the understanding that this means multimodal text, not simply text in the traditional linguistic (spoken or written) sense.

The *Mountains text* has been selected for analysis because it is typical of the *Finance* department leader articles which can be found in any issue of *The Economist* magazine between early 1992 and late 1994 (in 1995 the department changed its heading to *Economics and Finance* and started including coloured graphics). Over this period a corpus of over one hundred texts from the *Finance* department was compiled, and an analysis was conducted to identify and characterise the texts according to the most common text-type. The results of this analysis revealed:

- None of the leader articles occurred as verbal text only. They all included some kind of graphic or image, the term ‘image’ incorporating both photographs and sketched drawings, and the term “graphic” incorporating mathematically-derived tables, charts and graphs, of which there are various types (line graphs, pie charts, bar graphs/charts, tables etc.). Thus all the texts were multimodal.
- All the texts contained some form of an image, the most common being what may be characterised as sketch caricatures (approximately 97%), the other being head and shoulder (portrait) photographs of a person, people, or people in a scene (approximately 3%).
- Many of these verbal plus image texts were combined with some form of a graphic, the most common being a line graph or a bar graph/chart.
- A small number included more than one of each type of visual mode - for example some included a sketch caricature, a photograph, and a line graph, while others contained a sketch caricature and two photographs only.

From this analysis it can be seen that the most typical multimodal text type which could reasonably be viewed as representative of the types that occurred between the period early 1992 and late 1994 would be one that is characterised by the co-occurrence of verbal language, a sketch caricature, and either a line graph or a bar graph/chart (Preferably a line graph, since most of the bar graphs in the corpus



express the same rate of change relationship as a line graph — the remainder of the bar charts simply presenting comparative proportions, a point treated in greater depth in Chapter Six).

In terms of the terminology used, the standard SFL conventions as used by Halliday (1994) and Matthiessen (1995) are adopted in this study. Briefly, these are as follows:

- the metafunctions written in lower case: ideational, interpersonal, and textual.
- the names of systems written in all capitals: MOOD, TRANSITIVITY, SPEECH FUNCTION, THEME etc.
- the names of structural functions in the clause are written with initial capitals: Actor, Process, Goal, Mood, Residue, Finite, Predicator, Theme, Rheme etc.

### **1.3 Hypotheses and Outcomes of the Research**

As already indicated, this study problematises the visual-verbal semantic interface in multimodal text by questioning the functioning of the visual *vis a vis* the verbal modes in economically-oriented journalistic print media. In doing so it aims to test the Hallidayan claim of the inter-relatedness of systems of meaning, in this case the visual and verbal semiotic systems in a multimodal text extracted from *The Economist* magazine. It will therefore involve an exploration of the proposition that both the visual and verbal modes, while utilising the meaning-making features peculiar to the respective semiotic systems, work together in this particular context to realise a unified, coherent text for potential viewers/readers. That is, it is proposed that the visual and verbal modes semantically complement each other to produce a single textual phenomenon in a relationship which can be referred to as *intersemiotic complementarity*, and that this relationship will obtain when one or more of the following occurs:

- when the ideational meanings in both modes are related lexico-semantically through intersemiotic sense relations of *repetition*, *synonymy*, *antonymy*, *hyponymy*, *meronymy*, and *collocation*.
- when the interpersonal meanings in both modes are related through intersemiotic *reinforcement of address*, and through intersemiotic *attitudinal congruence* and *attitudinal dissonance* (modality) relations.
- when the compositional meanings are integrated by the compositional relations of *information value*, *salience*, *visual framing*, *visual synonymy*, and *potential reading paths*.

The antithesis of this proposition is that while the verbal and visual modes utilise the meaning-making features peculiar to their respective semiotic systems, they simply co-occur and do not work in concert to project a unified, coherent text. In other words there is no intersemiotic complementarity between the visual and verbal modes, and the intersemiotic ideational, interpersonal and compositional meanings do not occur.

The analysis which follows in this study will examine the above proposition, and will present a framework developed to explore it. It is assumed that the realisation of intersemiotic complementarity in multimodal text does not imply that the visual semiotic and verbal semiotic simply co-occur on the page space and have a relationship of conjunction. Rather, the implication is that the relationship is **synergistic** in nature, a concept which describes the ability of elements, in the act of combining, to produce a total effect that is greater than the sum of the individual elements or contributions (Random House 1992). The sense of the usage of the term *complementarity* in this study therefore differs substantively from Greimas' usage, that of a logical relation between semantic oppositions as represented in his "semiotic square" (see Nöth 1990:318-319). It also differs to its usage in research on the nature of the relationship between speech and writing which suggests that it is potentially one of heteronomy, or of autonomy, or of partial to full interdependence or complementarity — in the latter area of research complementarity means that writing and speech can influence each other in linguistic communication, and that this interdependence can be revealed in evolutionary, psycholinguistic and cultural terms (op.cit:262-263).

Further, the question of whether one mode is more dominant than the other, or whether a particular verbal text can be understood with or without the visual mode, will not be addressed in this study. Aspects of these questions are explored in some depth by Barthes (1977), who looks at the various ways that text and image interact in advertising. His work is discussed more fully in Chapter Three. A discussion of the processes involved in the production of *Economist* magazine texts and the general reasons why various graphic design decisions are made is

outlined in Chapter Six, and this will help to clarify the views of the magazine itself on the question regarding which mode is dominant. The concern of this study however is with the verity of multimodal text in *The Economist* magazine, with the analysis of a text produced by an organisation which has chosen for contextually-driven reasons to include both visual and verbal modes in its articles, and the semantic evidence within the text to support the assertion that they are interrelated.

Intersemiotic complementarity as used here implies further that while a multimodal text with one of the modes removed would still produce a coherent visual or verbal text, it would be one which would somehow be diminished in its communicative power. It is the aim of this study therefore to take a first step towards the explanation of how this intersemiotic synergism is realised, and to test the claim that intersemiotic complementarity occurs in ideational, interpersonal and compositional terms.

There are three outcomes expected of this study. It is expected that:

1. The visual and the verbal modes in *The Economist* magazine work together in intersemiotic semantic complementarity as defined above to produce a coherent multimodal text, and that the nature of the intersemiotic semantic resources which can be deployed to realise that complementarity will be clarified.
2. The results will provide evidentiary support for Halliday and Hasan's (1985:4,10) assertion of the interrelatedness of systems of meaning, and will extend the Systemic Functional Linguistic concept of metafunctions to multimodality in text.
3. The results will show that some of the concepts and terminology of existing linguistic theory and their attendant analytical tools can be productive in explaining how semiotic systems interact. These include the concept of sense relations in lexical cohesion as outlined by Halliday (1994:330-334) and Halliday and Hasan (1985:80-82), and the analytical tool of cohesive chains which is commonly used to illustrate the ways that lexical items in text are semantically related to each other (84).

This research is therefore a qualitative and descriptive study which aims to extend theory by means of its application.

#### **1.4 Structure of the Study**

In order to establish the need for this study, Chapters Two, Three, and Four will review the literature dealing with its general focus, which is visual communication in economics discourse. In Chapter Two the review of the literature on the analysis of economics discourse by applied linguists and economists will firstly highlight the nature, focus and findings of the various studies, and secondly evaluate the treatment of visual modes of communication where it is mentioned or acknowledged in some way. It will be shown from this review that the published research by applied linguists and economists has not attempted or been able in any rigorous way to describe, explain or account for the role of the visual mode in economics discourse.

Chapter Three will overview and review relevant work by semioticians and linguists who have attempted to analyse various visual modes of communication. This will initially involve a brief overview of the conception of the sign and meaning in general semiotic theory, and then a survey of the two main schools of semiotic theory which have attempted to examine other modes of communication utilising linguistic insights originally derived from Saussure's treatise. This chapter will show that throughout the twentieth century there has been consistent interest in explaining the characteristics of various visual modes, but that most of this work however has concentrated on single-mode analysis, with only some attempts to examine intersemiotic relations. The two main schools of semiotic analysis examined in this chapter are the Prague School and the Paris School, with a concentration on the work of the most influential of the Paris School's theorists, Roland Barthes. Barthes' attempts to build upon Saussure's semiological program contributed much to text semiotic studies of myth, theology, literature and narrative, as well as to ideas about the relationship between image and text in advertising. This chapter will thus act as a bridging chapter to Chapter Four by providing the background to the development of semiotic theory as derived from Saussure.

Chapter Four will outline and review the recent work of those who have used insights derived from the general theory of language and communication

developed by M.A.K. Halliday (1978, 1985) to examine non-linguistic modes. This work has recently been referred to as the Hallidayan school of “social semiotics” (Kress and van Leeuwen 1996:5), whose adherents have been active in applying Halliday’s principles to various modes of visual communication. M.A.K. Halliday’s Systemic Functional Linguistics (SFL), along with selected aspects of the work recently carried out by others using its principles, will form the theoretical framework for the analysis of the text extracted from *The Economist* magazine. This review will show that a significant amount of work has been carried out by those working from a Hallidayan interpretation of meaning-making in visual semiotic modes, and that it is concerned mainly with two areas: various types of images such as photographs, diagrams and drawings, and displayed art such as painting, sculpture and architecture. Common to this work is the reinterpretation of Halliday's metafunctions of language in order to examine the main processes used by visual modes such as photographs, drawings, diagrams, maps and charts, as in Kress and van Leeuwen's (1990, 1996) 'grammar of images', and those used by paintings, sculpture and architecture, as in O'Toole's (1994, 1995) 'language of displayed art'. This review will also demonstrate that although there is an expanding body of work examining these different types of visual modes, within this particular school there is a dearth of research into the nature of the intersemiotic semantic relationship *between* the visual and verbal modes in multimodal text, and none at all in relation to economics discourse. At this point the need for this study will therefore be clearly established.

The next chapter, Chapter Five, will present the theoretical foundations for the analysis of the sample *Economist* magazine text. This chapter discusses the fundamental assumptions of the SFL model as a social semiotic theory of communication, covering theoretical principles such as context of culture, context of situation, and metafunctions, and then applies these principles to the ways that the two modes, the linguistic (verbal) and the visual realise meanings. A discussion of SFL theory applied to the visual mode and the core ways that it projects its meanings is given (this is complemented by a discussion in Appendix Three of the verbal mode in SFL theory utilising examples drawn from economics discourse). Based on the discussion in Chapter Four, Chapter Five will present the

parameters of an analytical framework which will be used to examine intersemiotic complementarity in *The Economist* magazine text i.e. the possible ways in which the SFL model can be extended to apply not just to language or to visual modes, but to the semantic intersemiotic relationships between them.

Chapters Six and Seven form the heart of this study. Chapter Six, in line with the context-driven nature of the SFL model, presents background information on *The Economist* magazine, as an institution of economic and financial journalism, its institutional history, and its editorial policy in terms of the ways that it aims to approach its readers through both verbal and visual means. Much of this information is derived from *The Economist* magazine Style Book (1990) and Numbers Guide (1991), and the main points arising from an interview which was conducted in 1994 with Ms Penny Garrett, the Chief Editor of Graphic Design at the Head Office of *The Economist* magazine in London. This chapter also provides a visual typology based on an analysis of the range and varieties of visual communication commonly utilised in issues of *The Economist* between early 1992 and late 1994, an analysis which provides important background information on the ways that the most frequently occurring visual types, sketch caricatures and line graphs, project their meanings. The features of the context of situation of the sample *Economist* magazine text will also be examined, which will involve a discussion of its intertextual history and context of creation. This is concerned with the ways that the preceding texts deal with the subject matter and issue being addressed, the attitudes that are expressed towards this subject matter/issue, and the ways that the magazine composes them in visual and verbal terms on the page.

Chapter Seven will apply the analytical framework presented and outlined in Chapter Five in order to examine and analyse the intersemiotic complementarity between the verbal and visual modes in the sample *Economist* magazine text. The application of this analytical framework to this multimodal text will utilise the range of informational insights gathered from the contextual analysis of Chapter Six — these include the relevant features discussed concerning *The Economist* magazine as a commercial publishing institution, its stylistic and graphic design conventions, and the various contextual variables which make up the text's

intertextual history. This chapter examines the representative text extracted from the Finance Department of *The Economist* magazine. The text analysed includes both a sketch caricature and a mathematical visual (two line graphs), and is analysed to ascertain the ways that intersemiotic complementarity is realised in the intersemiotic ideational, interpersonal, and compositional features between these modes. Specifically, the analysis will attempt to test the applicability of the concept of intersemiotic complementarity for demonstrating how the visual and verbal modes work together on the page in *The Economist* magazine. It is proposed that intersemiotic complementarity obtains when the ideational meanings in both modes are related lexico-semantically through intersemiotic sense relations of repetition, synonymy, antonymy, hyponymy, meronymy, and collocation, when the interpersonal meanings in both modes are related through intersemiotic reinforcement of address, and through intersemiotic attitudinal congruence and attitudinal dissonance relations, and when the compositional meanings are integrated by the compositional relations of information value, salience, visual framing, visual synonymy, and potential reading paths.

Chapter Eight discusses the results of the analyses in Chapters Six and Seven in terms of the central hypotheses, and draws some conclusions based on the work. It examines the results of the study in terms of its implications for further research in the intersemiotic analysis of multimodal texts, as well as applications and teaching activities relevant to both first and second language pedagogy.