

Chapter 8: Conclusion

8.0 Concluding Summary

It is appropriate at this stage to briefly restate what has been covered in this study. The development of the analysis of intersemiotic relations in page-based multimodal text began in Chapter Two with a review of the literature dealing with the analysis of economics discourse by applied linguists and economists. This highlighted the nature, focus and findings of various studies of economics discourse, and evaluated the extent of their treatment of visual modes of communication. It revealed 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. In Chapter Three an overview and brief background to the conception of the sign and meaning in general semiotic theory as derived from Saussure was given, as well as an overview and review of the main schools of semiotic theory which in the twentieth century have attempted to examine visual communication from a linguistic perspective. This involved a brief description of the Prague School and the Paris School, with some concentration on the work of Roland Barthes from the Paris School.

An examination and review of the work of those who have attempted to investigate various visual modes from within the Hallidayan school of social semiotics was the subject of Chapter Four. This school, which extends Halliday's Systemic Functional Linguistic theory to the interpretation of the ways that various visual modes realise their meanings in social contexts, was introduced as the theoretical framework that would inform the analysis of the multimodal text extracted from *The Economist* magazine. This review firstly discussed the usefulness and applicability of the two major models available for the analysis of images — Kress and van Leeuwen's grammar of images, and O'Toole's language of displayed art — to the kinds of visuals commonly utilised in *The Economist* magazine. It concluded that Kress and van Leeuwen's 'grammar of images' is applicable to explaining visual meaning in *The Economist* magazine, as well as how it is organised. Although O'Toole's work was interpreted as being of less use

in these terms, his rank scale, schematic model was seen as being applicable for the analysis of naturalistic or mathematical images, and in terms of relating them to their contexts of situation. This review also demonstrated that although Kress and van Leeuwen's and O'Toole's ideas represent the core of an expanding body of work examining different types of visual modes, notably in general types of images and in displayed art, within this particular body of work 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 (in images or in intersemiotic relations). It was at this point that the need for a study examining visual-verbal interrelationships in page-based texts in economics discourse was clearly established.

Chapter Five presented the theoretical foundations for the intersemiotic analysis of the sample *Economist* magazine text, the *Mountains* text, by briefly overviewing the fundamental assumptions of the SFL model as a social semiotic theory of communication. This covered the theoretical principles of the model's extralinguistic features: contexts of culture and situation, the metafunctions, and the dialectic relationship between these and the linguistic levels of the lexicogrammar. Drawing on the work of Kress and van Leeuwen, O'Toole et.al., as well the linguistic principles outlined in the SFL model, an analytical framework for examining any potential intersemiotic complementarity in *The Economist* magazine text was developed. This framework presented various ways that the SFL model could be extended to apply not just to language or to visual modes, but to the analysis and elucidation of the intersemiotic semantic relationships between them.

Chapters Six and Seven focussed on a detailed analysis of the *Mountains* text. Chapter Six, in line with the context-driven nature of the SFL model, presented general background information on *The Economist* magazine as an institution concerned with 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. It was pointed out that the multimodal *Mountains* text is, like all such texts of its type in *The Economist* magazine, a particular

contextual configuration of the variables Field, Tenor and Mode which is situated in a particular context of creation. Here *The Economist* magazine's staff's writing and graphic design policies, their perception and attitudes towards their readership, and how they interpret their roles as writers/publishers dealing with economic, financial and eco-political issues were examined.

The analysis in this chapter also attempted to relate these broader issues to the analysis of the *Mountains* text by examining the more specific features of the text's context of situation, as well as aspects of its intertextual history. These discussions dealt with the subject matter and issue being addressed (Field-related), the attitudes that were expressed towards this subject matter/issue (Tenor-related), and the ways that the magazine composed these features in visual and verbal terms on the page (Mode-related). These extra-visual and extra-linguistic variables were interpreted as having an important bearing on the production and subsequent interpretation of the *Mountains* text.

Chapter Seven analysed the *Mountains* text by applying the analytical framework presented and outlined in Chapter Five. This application of the analytical framework was also carried out in terms of the informational insights garnered from the contextual analysis in Chapter Six. The *Mountains* text, which along with verbal text includes both a sketch caricature and a mathematical visual (two line graphs), was analysed in terms of the ways that intersemiotic complementarity is realised in the intersemiotic ideational, interpersonal, and compositional features between these modes.

In summary then, this study has problematised the visual-verbal semantic interface in the *Mountains* text by questioning the functioning of the visual *vis a vis* the verbal modes in this form of page-based media. In doing so, it has tested the Hallidayan claim of the inter-relatedness of systems of meaning, and has explored the proposition that both the visual and verbal modes, while utilising the meaning-making features peculiar to their respective semiotic systems, work together in the particular context described to realise a unified, coherent multimodal text for any potential viewers/readers. The hypothesis underpinning the focus of this study was

that in the *Mountains* text, the visual and verbal modes complement each other semantically to produce a single textual phenomenon characterised by intersemiotic complementarity, and that this intersemiotic relationship obtains when one or more of the intersemiotic ideational, interpersonal, or compositional metafunctional meanings occur. Inherent in this hypothesis was the assumption that the realisation of this intersemiotic complementarity did not imply that the visual semiotic and verbal semiotic merely co-occur on the page space and are related by simple combination — rather, it was implied that the visual and verbal elements on the page can combine semantically to produce a single, coherent multimodal text that in combination can have the potential to produce a more elaborate mix of meanings than would occur if the visual or the verbal aspects appeared in single-mode form.

The analysis of the multimodal *Mountains* text in terms of these hypotheses showed that the incidence of intersemiotic complementarity between the visual and verbal modes is potentially realised in this text in three simultaneously-occurring areas. Firstly, the visual and verbal ideational meanings were found to be lexico-semantically related to each other by means of the intersemiotic sense relations of repetition, synonymy, antonymy, *hyponymy*, meronymy, and collocation. Secondly, the visual and verbal interpersonal meanings were found to be related through intersemiotic *reinforcement of address*, and intersemiotic *attitudinal congruence*, and thirdly the visual and verbal compositional meanings were found to be integrated through the compositional relations of information value, salience, and visual framing, as well as the influence of *visual synonymy*, and *potential reading paths*.

In conclusion, three outcomes were expected of this research, all of which have been realised to varying degrees. The first outcome is that the visual and the verbal modes in the *Mountains* text have been found to work together semantically on the page to produce a coherent multimodal text, and that the intersemiotic semantic resources which realise this intersemiotic complementarity have been identified. The motivating question for this study which was originally asked in Chapter One has therefore been answered.

Secondly, the results of this study have provided evidentiary support for Halliday and Hasan's (1985:4,10) assertion of the interrelatedness of systems of meaning. This study has therefore applied and extended the Systemic Functional Linguistic concept of metafunctions to multimodality in text. It has been an effective qualitative and descriptive study for extending theory through its application.

Thirdly, the results show that some of the concepts and terminology of existing linguistic theory and their attendant analytical tools are capable of being adapted to the task of explaining how semiotic systems interact. Thus, 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 have proved to be adaptable and useful for a task of this nature.

8.1 Directions for Future Research

The intersemiotic analysis of the *Mountains* text in this study has revealed it as a complex multimodal text in which the visual and verbal modes complement each other on the page in terms of the intersemiotic ideational, interpersonal, and compositional meanings that it presents to its viewer/readers. It has been found to be a rich source of evidence for intersemiotic complementarity. It is however only one multimodal text; many of the features analysed and discussed would bear further research to confirm and reinforce these findings. Some of these areas are suggested in the following sections.

8.1.1 Analyses Focussing on Specific Intersemiotic Metafunctions

Each of the intersemiotic metafunctions covered in the analytical framework used in this study could be individually targeted to examine other types of page-based multimodal texts, to ascertain whether the results found in the *Mountains* text can be replicated in other texts and contexts. The specific analytical focus of these studies could examine ideational intersemiotic complementarity between any visuals' represented participants, processes and circumstances and the co-occurring verbal features. Alternatively, they could examine interpersonal intersemiotic complementarity in terms of the various ways that the

reader/viewers are related via address and through the projection of attitudes, or they could focus on finding patterns in the ways that the visual and verbal modes (single or multiple), interact in page layout to produce intersemiotic complementarity.

The first and most obvious types of page-based multimodal text that could be examined are those found in the economics discourse community. Analyses, either detailed or focussing on one intersemiotic metafunction, could target the different types of economics discourse identified in Chapter One: the professional economics journals, economics textbooks, reports by economic organisations, and reports and analyses of economic issues by other journalistically-oriented print media (such as newspapers) to ascertain any intra-community differences. Studies could focus on finding patterns within the discourse types by analysing a larger corpus, or they could focus on highlighting the similarities and differences between exemplars. The results of these comparative studies could be especially useful in educational contexts, since differences revealed in the relative importance of the visual and verbal in different contexts may assist educators in tracing the sources of students' conceptual confusion, or could allow instructors to tap into the ways that the two modes complement each other so that they can enrich or even evaluate students' understanding. A specific example may illustrate this — in Australian senior high schools it is common to evaluate economics students via essay questions which use some kind of naturalistic or mathematical visual as a prompt or stimulus for the actual multiple choice or essay question. This requires the students to be able to read the visual and to use its represented features to answer the particular question set. Some understanding on the part of both the instructors and students of the ways to 'unpack' a visual's message content, the ways this message is addressed to the viewer, and the attitudes embodied in the visual, may mean that the students could use this 'visual literacy' to answer the specific question set, and could allow them to demonstrate in writing a deeper understanding of the economic concepts and issues being addressed by the question. Also, since in these written answers the students are often expected to utilise diagrams (usually mathematical) to demonstrate their understanding or provide a proof, an understanding of the ways that the visual and

verbal modes complement each other on the page may allow students to develop more effective answers. A further future benefit is that this understanding could develop students abilities with the ever-increasing use of computer-based multimodal texts.

The range of potentially analysable texts could be extended to other multimodal texts in other commercial arenas and disciplines which commonly combine visual and verbal modes in their page-based presentations: the most notable here are the various commercially-available magazines (sports, fashion, computers, photography etc.), and textbooks in the social sciences (geography, history etc.), and the hard sciences (biology, chemistry, physics etc.). In this latter area O'Toole's work on rank scale in visual representation could be useful in clarifying the ways that visuals of various complexities represent their meanings at different levels of complexity, and this could then be related to any co-occurring verbal component. For example, in Geography and History textbooks at both high school and undergraduate levels, detailed diagrams representing complex and inter-related data or concepts are common. Analyses of the ways that the visuals commonly used in these contexts 'layer' or 'embed' their information can show the most common structuring methods used, and reveal content areas that are confusing for students. Again, developing the skills to 'unpack' these visuals by focussing on their ideational, interpersonal and compositional features can help students' understanding and develop their discipline-based skills (which may also be transferable).

Research could also focus on the co-occurrence of image and verbal text in advertising, work which would add to and complement the considerable body of work already published by Barthes (1977), Fiske (1982), Dyer (1982), Danesi (1994), Vestergaard & Schröder (1985), et. al. An analysis by Royce (1998b) of a single-page advertisement from *The Economist* magazine (which included a monochrome photograph and accompanying verbal text) showed that while the photograph (of a young woman) did not seem on the surface to be very complex, it was in fact an image of multiple layering in ideational and interpersonal terms,

and clearly worked with the verbal mode to produce an intersemiotically coherent multimodal text.

A further area where this study's analytical framework could be applied is the intersemiotic relationship between spoken language and the use of accompanying gesture, or even the analysis of movement portrayed on visual media (TV, movies, the theatre) and the intersemiotic relationships between the spoken word and the portrayed actions. The study of movement in visual media is an area of increasing interest amongst those working with non-page-based multimodality, as the work by Mercer (1998 in press) on "reconceptualising television realism" illustrates. Working with the Social Semiotics paradigm offered by Kress and van Leeuwen, Mercer explores the debate over realism in film and media studies with an analysis of morning television programs in the UK. He interprets television as a conjunction of various semiotics: written and spoken language, colour, sound, visual texture, camera movement, framing, editing etc., and posits that a "text's meaning comes out through a reading of all the modes" and that "every text is positioned with a relationship to social reality and therefore every text establishes some kind of realism" (op.cit.). Mercer examines in metafunctional terms two sample texts from morning programming, analyses their conceptions of their audience and the realisms they create through the representational resources utilised by the television medium, and shows that both texts create realisms with very different conceptions of their audiences.

8.1.2 Intersemiotic Complementarity between the Visuals and the Verbal Discourse Staging

It is clear that in this study there are areas of the *Mountains* text which could have also been examined in some depth, areas which could reveal further evidence of intersemiotic complementarity between the visual and verbal modes. One of these areas has already been touched upon in supporting the analysis of intersemiotic compositionality in Chapter Seven. In this analysis, the role of potential reading paths was examined in terms of the text's Given/New (past-present-future) structuring in the sketch caricature and line graphs, and how this related to elements of the

Discourse Unit	Paraphrase	Sentences
Identifying the department / topic area	a bolded, capitalised section heading provided to situate the text in the FINANCE section of The Economist magazine, and providing an initial orientation to the reader by indicating that the following information will be financial in nature	1
Attracting the reader	a large font, lower case bolded article headline which is aimed at grabbing the reader's attention via the use of a familiar catch-phrase, a verbal pun, or a bald statement. This text's article or topic heading is "Mountains still to climb"	2
Stating the thesis	one bolded sentence blurb explaining in more detail what the attract headline omits, presenting the thesis or main message of the article. Here it is suggesting that if Lloyd's does not solve its problems, then it could face extinction (bankruptcy).	3
Orienting the reader	two sentences which, in support of the thesis, orient the reader to the article's "slant" or point of view. While not making as strong a case as the thesis it suggests that further problems are looming despite the progress already made i.e. "One peak scaled often reveals another", and applies that opinion to the subject of the text, Lloyd's of London.	4-5
Reporting the background	three paragraphs consisting of a total of nineteen sentences which report, make predictions and comment on what has occurred with this topic in the past, and leading up to the current situation. It reports on Lloyd's problems: its losses, decreasing names, lawsuits and the effects on the Lloyd's market. It makes predictions about the release of new loss figures in June 1993, and the effect of these losses on the number of syndicates that are open years.	6-22
Reporting the current situation	two paragraphs consisting of a total of 9 sentences which report what is happening now as a result of the background events discussed in the preceding section. What is happening now is the unveiling of a business plan by the new management team of Rowland and Middleton to attempt to deal with the already mentioned problems.	23-31
Problematising the situation	seven paragraphs consisting of thirty-one sentences which involve a presentation of and discussion/analysis/comment on three problem areas which The Economist magazine feels should be addressed in order for the current situation to resolve itself. These problems are treated and analysed in order: the number of open years, litigation by names' syndicates, and financing the 1990 losses.	32-62
Concluding and commenting.	a single paragraph consisting of five sentences which express an opinion about the current situation (the two managers' willingness to listen to names, policy-holders and prospective investors), provide a modulated predictive summarising conclusion (Lloyd's may not survive if it does not meet the three problems discussed), and inserts a final coda-comment (the stakes are very high - i.e. Lloyd's survival).	63-67

Table 8.1 Schematic structure in the *Mountains* text

discourse structure of the verbal aspect of the text. The *Mountains* text could also have been analysed in ideational metafunctional terms at the level of its schematic structure, to ascertain the ways that both visual and verbal modes project and allow for the unfolding of their meanings in stages.

The schematic structure of the *Mountains* text is presented in Table 8.1, and has been derived in accordance with Martin's (1992) usage i.e. the socially-determined steps or stages that people must go through in various written or spoken interactions.

The division of the *Mountains* text into these staged, functional constituents has been carried out in accordance with the steps suggested by Eggins (1994:37-38), who suggests that the criteria for the division of a text into a series of stages/parts can be done according to the functioning of the different constituents in relation to the purpose of the whole text. She writes,

in assigning labels, the aim is to describe what the stage is doing, relative to the whole, in terms as specific to the genre as can be found. "Empty" functional labels such as Beginning, Middle, End, or Introduction, Body Conclusion should be avoided since they are not genre-specific (all genres have Beginnings, Middles and Ends). Instead, to find labels, ask, for example, "what is being done in the beginning of this text?" or "what is being done in the body of an essay that is different from what is being done in the body of a transactional genre?", etc. (op.cit:38)

In Chapter Seven, only those elements of the schematic structure which related to narrative staging were examined, but here the ways that both the VMEs and the full schematic structure relate intersemiotically across the page are examined.

As the following brief discussion shows, evidence of intersemiotic complementarity can be found through an analysis of the intersemiotic relationship between the ideational VMEs and the schematic structure of the *Mountains* text. The analysis of the VMEs represented by the caricatured mountain-side, boulder and two men in the sketch caricature shows that they may be viewed in composite terms as a visual metaphor which relates to specific parts

of the schematic structure of the *Mountains* text. The represented participants and the interaction between them in this visual presents a clear message that solving a current difficulty often does not mean that all is solved, in that there could be greater problems ahead. This is realised by two of the represented participants performing an action on a steep mountain-side ending with a ledge (a place of rest), but also an even steeper slope (suggesting the impossibility of the task) looming up ahead. This composite visual message is verbally reinforced and repeated by the headline attract '*Mountains still to climb*'. Further, in the sketch caricature the most visually salient represented participant is the mountain, and this salience is reinforced by the first word a browsing reader will meet: '*Mountain*'. Mountains can be seen as obstacles, something to be climbed, so there is evidence here of a clear attempt to cue the reader into the way that the topic of the article will be treated. There is thus a clear intersemiotic semantic link between the headline and the sketch caricature in working co-operatively towards attracting the reader to the article and its topic. This is also, as stated earlier in the contextual discussions, one of the objectives of the writers and graphic designers at *The Economist* magazine.

The composite action on the mountain also relates semantically to both the stating the thesis and orienting the reader stages in the discourse structure. The thesis is basically the message that if Lloyd's does not solve its current and possible future problems in terms of its capital providers (the names) and the people it offers insurance to (its clients), then it could face extinction (bankruptcy). This message is paralleled by the action between the represented participants in the sketch caricature, but especially so when the second, upper slope of the mountain-side is considered. Advancing up the slope that the two men are depicted as trying to climb could well be seen as a manageable task, especially since there is a ledge to rest on. However, once this slope is overcome there is a further, steeper slope to deal with, one that according to a common sense understanding of gravity and physics would seem to be impossible to climb, and possibly life-threatening. Here the attitudes of the writers are visually suggested, and this interpretation is strengthened by the verbal support provided by '*If April's business plan for Lloyd's does not the market could die*'. This attitude is immediately and

further reinforced by the orientation given to the reader via the two sentences suggesting that once the present difficulties are overcome there may be more, perhaps impossible tasks ahead, as in '*One peak scaled often reveals another*' followed by '*So it is at Lloyd's, London's insurance market*'. These sentences require the reader to apply this loaded interpretation to the topic at hand. The reader is also given closure in the conclusion and comment stage, where the issue of Lloyd's survival is addressed and verbally confirmed through '*If the plan cannot solve theLloyd's may not survive*'.

Thus, the sketch caricature basically presents the reader with the thesis that the two financial executives, David Rowland and David Middleton, have a difficult situation in attempting to deal with Lloyd's current problems. They have a difficult road ahead of them too - they may solve or alleviate these current difficulties, but they may have to deal with greater, even insurmountable problems in the future, problems which could be fatal to them and to Lloyd's. These messages, carried visually by the sketch caricature, are repeated in the attraction, thesis statement, orientation and conclusion stages of the schematic structure of the *Mountains* text, suggesting that the function of sketch caricatures in the Finance department of *The Economist* magazine may be to co-operate visually with the beginning and concluding stages of the text. Further research could explore the proposition that the visual-verbal modes in a corpus of Finance department texts operate in concert to present to the reader intersemiotically coherent texts in terms of how each one deals with its topic, thesis, point of view and conclusions.

The intersemiotic complementarity between the line graphs and the schematic structure of the *Mountains* text may be explained by referring to the lexical inventories generated for each of their VMEs. The line graphs deal with VMEs which are specific issues within the general topic of Lloyd's problems; these are the loss of names, the increase in open year syndicates, and how both have behaved over time. What is clear is that in each of the VME inventories concerned with names, syndicates, time, and number there is a consistent use of semantically related lexical items throughout reporting the background, reporting the current

situation, and problematizing the situation stages. In all four VME inventories there is only one mention of these issues in the attraction, thesis statement, and orientation discourse stages, and that is a synonym for names, “capital providers”. The reason for this pattern in the inventories can be traced to the topics of the data which the VMEs represent, and because mathematical visuals, by their nature, deal with specific data or relationships, and in this text these specific topics are discussed in relation to the wider issue, which is Lloyd’s problems and future.

At the discourse level therefore, there is evidence for suggesting that naturalistic visuals like sketch caricatures tend to visually represent generalised situations and issues, and as a result have a stronger intersemiotic, discursual relationship to the stages of a text where the aim is to grab the reader’s attention and to orient him or her to the general or overall point of view espoused, while the mathematical visuals like line graphs tend to deal with more specific data and therefore are more strongly related to the stages of the discourse which discuss and analyse the specific issues they visually represent (this does not imply that the relations are fixed in an either/or dichotomy, but rather refers to a tendency in terms of the strength of the relation — obviously this is a matter of degree, as both visuals in a text like the *Mountains* text can potentially relate to all the discourse stages; further research is necessary to confirm this). This general-specific perception accords with the statements made by Ms. Penny Garrett regarding the graphic design team’s views that images’ function is to attract, and the mathematical line graphs’ function is to provide informational support. These points may be summarised in Table 8.2.

Visual Type	Intersemiotically Related Discourse Stages
Naturalistic Visuals - Sketch Caricature <i>(General focus)</i>	<ul style="list-style-type: none"> • Attracting the reader • Stating the thesis • Orienting the reader
Mathematical Visuals - Line graphs <i>(Specific focus)</i>	<ul style="list-style-type: none"> • Reporting the background • Reporting the current situation • Problematizing the situation • Concluding and commenting

Table 8.2 Visual to verbal schematic structure intersemiotic complementarity

A further, potentially fruitful area of investigation also could be to examine the ways that certain VME-related lexical items may tend to cluster at various stages of a multimodal text as its schematic structure unfolds — an analysis could reveal how the selection of various lexical items relates to the various stages of the schematic structure of the text and how this relates to the any potential narratives represented in the visuals.

8.1.3 Intra-visual Compositional Intersemiotic Complementarity in the *Mountains* Text

The visual-verbal relationship *within* visuals is also an area in which intersemiotic complementarity can be realised. Often, as is the case with the *Mountains* text, visuals have included within the visual frame verbal support for the messages they are attempting to project. Thus, in terms of the intra-visual compositional aspects of the *Mountains* text, there are a number of important features which help to facilitate the projection of the various visual meanings and relationships. For example, vectors between the represented participants realise a similarity compositional relationship. This can be seen within the sketch caricature, where the two men pushing a large boulder up the mountain slope are related to each other in visual terms by the vectors formed by the directions of their eyes, the parallel placement of their arms and legs, and the parallelism produced by the slope of the first stage of the mountainside, which is also parallel to the vectors formed by the men's body positioning. This is further reinforced by the fact that the verbal labelling of the boulder shows the name '*Lloyd's*' skewed off the plane parallel to the mountainside slope. Writing is normally horizontal to a plane, so any skewing of this expectation gives a sense of movement, an effect heightened by the left-side of the word being higher than the right-side, and is suggestive of a forward, rolling movement. This suggested forward movement arises from the culturally-based expectation by viewers for circular movement to normally be clockwise, and that a left to right movement indicates forward movement (which is also related to reading paths). Thus, the vectors formed by the men's bodies in combination with the upward left to right slope of the mountainside, the skewing of the verbal label '*Lloyd's*' from the parallel plane, and the expectation for

clockwise movement, all co-operate compositionally to present an integrated and unified visual message.

In the line graphs this visual-verbal, intra-visual compositional coherence is more obvious and pronounced. The two line graphs are framed by a single shadowed box/border, and individually highlighted by the use of shadowed boxes and clear, linear white margins around each. As such they are both separated, but they are also within the one outer visual frame, so they could be counted as being one part of a single visual with two separate, distinct aspects. Framing is therefore used to both simultaneously include and exclude, and since each of the graphs within the outer visual frame occupy a little less than half of the available space within it, neither is more visually salient than the other. This compositional similarity and the intersemiotic complementarity it realises is further strengthened by the fact that both the line graphs are designed to represent the same mathematical relations. In other words, they are both mathematical line graphs showing the derivative (rate of change) relationship between interacting variables, they both display their data in the top left to hand quadrants of their axes, and they both utilise the same “x” independent variable (time) and start the range of that variable in the same year. This intra-visual complementarity is reinforced by the effect produced by the fact that they both share the same verbal, graphic headline format (reversed white on black), they share graphic headings that are consistent in font size and typeface, and they both share the same footer indicating the source of the data. Further, it seems that both the ‘y’ axes of the graphs are calibrated so that the line graphs displayed roughly approximate each other in size and range, despite the fact that the numbers involved are completely different — it could be reasonably argued that these graphs were constructed in such a way as to accentuate the differences in shape and direction of the two graphic lines, and to complement the symmetry of the two graphic headings, a point which is discussed in more depth below.

These kinds of intra-visual compositional features could be explored in more depth in future work because they don’t seem to be specific to the *Mountains* text, but are consistent with published and accepted guidelines in relation to the use of

headings in charts and graphs — they both use headings which relate semantically to the import of the data they portray. As White explains,

The readers should never be forced to draw their own conclusions from a chart: it is best to bring out the significance of the figures or trends or conclusions or interrelationships - by means of a good headline (not a label headline, but a sentence which says something) it is much better to indicate the significance of the chart or graph in a non-label title. (1982,178).

A brief analysis of these graphic headlines shows that they do relate to the data they portray semantically and typographically. They relate semantically in that the words '*Slumping*' and '*mounting*' could be seen as collocates of each other because they both belong to a lexical set in which they could be reasonably expected to occur or co-occur, that of vertical, up-down, rising-falling movement. A check of a thesaurus confirms this, where the root form "slump" produced synonyms such as '*fall*', '*drop*', '*slip*', '*give way*', '*sag*', '*tumble*', '*dip*', '*plunge*', '*decline*'; '*fall off*', and antonyms such as '*rise*', '*upsurge*', and '*upturn*'. The root form "*mount*" produced synonyms such as '*ascend*', '*climb*', '*climb up*', '*scale*', '*get over*', '*climb over*', '*rise*', '*go up*', '*increase*', '*grow*', '*soar*', '*swell*', '*surge*', and antonyms such as '*drop*', '*descend*', '*fall*', '*decline*', '*lessen*', '*decrease*', and '*diminish*' (Random House 1992).

Both the line graphs also connect their two headlines typographically. Despite the fact that the two headlines are divided by the enhanced framing around their graphs, they are skewered together in meaning by a single headline broken by leaders (a series of dots). This has the effect of unifying the message-focus of the two graphs, with the aim to eliminate as much work as possible for the reader. The use of the skewering effect by the leaders is a device which can produce a sense of expectation in the reader — as he or she reads from left to right, the leader "leads the reader on" to the next piece of information, an effect akin to someone pausing for effect in a speech.

A further device used to show that the two line graphs are compositionally related to each other is the use of the verbal statement that the source of the data is from '*Lloyd's of London*'. Its placement in the lower status, bottom left-hand corner of

the outer visual frame agrees with White's (1982:179) contention that the source of the raw data should be placed in an inconspicuous place; however it also serves the function of indicating to the viewer that all that is presented within this outer frame refers to and supports the information contained in the graphs. This inconspicuous placement of the source is supported by the relative visual salience of the other verbal instances within the inner visual frames; these visual VMEs provided by verbal means can be ranked in order of importance for the viewers according to font size and therefore salience as firstly the graphic headlines, then the two graphic heading labels, and finally the source of the data.

8.2 Educational Applications of this Study

This linguistic study has attempted to test the claim of the interrelatedness of systems of meaning, and to assess the applicability of the SFL theory to multimodality in a page-based text. This kind of study is useful in extending theory through its application to real text, but it may also be useful in informing educational practice in various contexts, as in:

- many school subjects such as Geography, Economics, the general Sciences, History, Domestic Sciences, etc. These utilise a multiplicity of different kinds of visuals (diagrams, photographs, illustrations, schematic drawings, tables, charts and graphs etc.) in combination with the verbal text to present, elaborate or explicate core concepts, and as pointed out before, to evaluate students' knowledge and understanding.
- school readers in ESL or EFL contexts where the stories in graded readers and books for English reading classes are often enhanced by visuals. For example, almost every second page in the readers used in Japanese high schools have some kind of visual which depicts a character or aspect of the unfolding story. Teachers generally concentrate exclusively on getting the students to cope with the verbal text, and rely on accompanying translations to facilitate that task. The visuals are typically ignored or treated as 'fillers' by the teachers. An appreciation of the fact that the visuals which co-occur with the verbal in these stories are often an expression of similar or correlated meanings could, for example, provide teachers with an extra resource to help the students understand the plot (since most visuals in these books, based on this writer's experience, do seem to mirror the stages of the unfolding plot).
- courses in media studies dealing with newspapers, magazines and desktop publishing, which at all levels have verbal/visual presentations. These courses often focus on the content or subject matter that the various print or electronic media project, and tend towards the analysis of the verbal or the visual mode in isolation — a focus on the ways that this content is projected intersemiotically

may allow students to see differences in the communicative power of multimodal meaning as opposed to single-mode presentations of meaning, and to conduct multimodal critical and stylistic analyses.

- industrial and work-related environments which rely heavily on co-occurring visual and verbal documents such as forms to fill in, safety explanations and requirements, and instructions for assembly and usage. An appreciation of the fact that visual means of presenting meaning do work in concert with the verbal expressions would enable educators in these fields to draw upon an extra dimension (the intersemiotic) to present and especially evaluate the efficacy of procedural explanations; an understanding of the areas where the visual complements the verbal would be especially important in areas of public and work-related safety, perhaps leading to more efficient presentations.

In the area of second language education, there also seems to be a need for a greater appreciation of multimodal meaning and a concomitant need for teaching methodologies to take it into account. An examination of some prominent examples of textbooks attempting to deal with other modes beside the verbal (the visual mainly) provides some insight into the reasons for this perceived need. The textbook by Maley, Duff, and Grellet (1980) is a typical example. This consists of a range of different kinds of images and drawings designed to stimulate speculative discussion in the language classroom, with the rationale that it will stimulate creativity in language use. The images are a collection of photos and images which are to be used to stimulate students' thinking and to therefore encourage them to talk more. Any accompanying verbal text, as the following extract shows, usually takes the form of instructions to the student to either work alone or in a group, and a series of statements about the accompanying visual which aim to involve the student with the visual in some way:

(A b/w picture of what looks like a flying saucer on some steps).

Work on your own at first. Then compare what you've done with your partner.

1. You are present, an element of danger is involved. What do you do?
2. You were present. Something happened. You had to send a telegram. Write this telegram quickly (op.cit:48-49).

In this example the visual works only as a stimulus to generate verbal language. In other exercises the students are asked to answer specific questions about the visual, which are then used to generate written exercises or discussion. This book

can be very useful for developing the students' visual interpretation skills, but it could perhaps be made more effective if the questions given below were to be accompanied by the bracketed additions:

(A b/w picture of a young man and woman).

Work on your own first. Then compare what you've done with your partner(s).

1. Where does the scene take place? [*what tells you it is certain place?*]. In an office? At home? In a school? [*what tells you it is one of these places and not the other - what is there or not there?*]
2. Why is she yawning? [*what is happening, what are they both doing?*] etc. (op.cit:20)

These could help them understand the how and why of their interpretation by focussing on who or what is represented and the processes that can be seen in the visual frame. The skills broken down and developed here could then be extended by the addition of texts in which the visuals are accompanied by some verbal text which relates or refers to them in some way. This text for example could be an image of a museum piece which has an accompanying identifying, descriptive or explicative verbal text. Questions could then be developed around what both the modes are presenting and where there are similarities or differences in content or attitude. The effect of this could be to train students to treat co-occurring modes as complementary sources of meaning, rather than as isolates.

Another textbook example is that by Wright (1989), a work which contains a range of ideas and activities showing how to use pictures in the language learning classroom. However, this book is typical in that it doesn't base its treatment on a view or theory of communication which informs its treatment of the visual mode — it treats visuals in isolation, divorced from their co-occurrence with the verbal mode. Its treatment of the visuals in this way is to a degree effective, and it is effective if the visuals used commonly occur in isolation, but as this study has shown this really only treats half the story, since visuals very commonly occur in combination with some written text, and they occur in a variety of wider contexts from which additional meaning can be extracted.

This publication by Wright is part of a series of books in applied linguistics which are aimed at TESOL teachers, and like most books in this area, it focusses mainly on using the visual only so far as to supplement the learning of verbal language. In his introduction Wright states that visuals can be used “as a reference and stimulus in order to promote five very different language teaching emphases” (op.cit:4-5), which he lists, with examples, as being structures (e.g. teaching tenses), vocabulary (e.g. topic-based words), functions (e.g. making a polite request), situations (e.g. a street scene), and skills (e.g. listening, reading etc.). Using pictures in this way is not necessarily inefficient considering the already-mentioned dominance of the verbal mode in English cultures. However, this supplementary view of the visual mode often leads teachers to ignore the importance of the visual as a complete and coherent source of meaning in its own right (Kress and van Leeuwen’s argument), that commonly works *with* the verbal when it co-occurs on the page. This state of affairs can be traced to the fact that historically, research in applied linguistics has not yet developed the tools to deal with the ways that other semiotic codes project their meanings, especially when they co-occur and are obviously an important part of a particular multimodal text.

As this study has shown this situation can be addressed by the usage of a theory of communication which can account for the intersemiotic relations which most obviously arise when visual and verbal co-occur in one text, and provides a common terminology which can work to reduce confusion. Here the SFL model and its concept of metafunctions can perhaps act as a unifying point.

8.2.1 A Suggested Methodology for Using Visuals in Educational Contexts

Since every image can be addressed in terms of what it presents, who it is presenting to, and how it is presenting, the concept of the ideational, the interpersonal, and the compositional metafunctions can act as pedagogical resources which can allow teachers to work out ways to get their students to extract just what the visuals are trying to ‘say’. This can then be the basis for a range of other techniques which can concentrate on various verbal language skills.

To do this, teachers could use metafunctional concepts and insights to organise activities which involve the students asking questions of the visuals, and then interpreting them for developing various language skills. The richest source of information can obviously be derived from those questions which focus on the ideational aspects of a visual, and since many subjects are concerned with information, its arrangement, and its relationship to other information, most classroom activities could be centred around extracting just what the visuals are trying to say to the viewers in terms of their ideational, informational content. The VMEs derived from these questions could then become the focus of speaking, writing and reading activities (and indirectly listening). The kinds of questions that could be asked can be seen in Table 8.3.

Metafunction	Questions
Ideational	<ul style="list-style-type: none"> • Who, What, Where, Why, How? • Who or what is involved in any activity? (Identification of participants). • What action is taking place, events, states, types of behaviour? (Activity & Processes). • Where [locative], who with [accompaniment], and by what means are the activities being carried out [means]? (Circumstances). • What are the qualities and characteristics of the participants? (Attributes).
Interpersonal	<ul style="list-style-type: none"> • What is it asking of you? (Visual address) • How does it make you feel about what you see? (Address/Attitudinal projection) • Do you believe this is a real scene? Is it possible or probable? (Visual modality)
Compositional	<ul style="list-style-type: none"> • If there are other visuals on the page, are there any similarities or differences between them? (Visual synonymy). • What relationship do they have to other visuals in the reading or on the same page? (Visual synonymy).

Table 8.3 Asking metafunctional questions of a visual

A range of learning/teaching activities can be developed based on the information obtained through asking a visual questions. Some of these activities, along with potential benefits for students, involve developing their reading readiness, reading comprehension, their writing skills, and their speaking and listening skills.

In terms of reading readiness, asking questions can activate the students' background knowledge (content schema) of the text's topic area, their knowledge of it through personal experience, opinion, and hearsay. This can be allied to

developing strategies for dealing with the reduction of ‘text-shock’, by allowing the students to ease themselves into a reading to get some idea of what to expect in terms of who is doing what to whom, why and how. This will allow for an expectancy to be set up in the students’ minds — the process of reading the text will then either give them a confirmation of their interpretation of the story, or in rare cases a different story to what they expect from looking at the visual. A further area is vocabulary development; the interpretation of a visual will necessarily involve encounters with new words, which the students can immediately associate with a visual representation. This allows for a cognitive association to be set up, facilitating vocabulary learning. Reading skills such as skimming and sight-recognition of vocabulary development can also be engendered. By skimming through a reading and identifying words that relate to the visual in terms of whether they be participants, processes and circumstances can also help students with pre-reading vocabulary development — in terms of an activity, the students individually or in groups could start with the visual, extract the main words or phrases that the visuals generate in their minds, find their meanings, and then find words/synonyms in the reading.

In terms of activities for reading comprehension, students’ understanding of the plot of a story could be enhanced. If there is a sequence of visuals in a short story, as is common in many graded readers and abridged versions of novels used in schools, the students could be asked to start their reading of the novel by looking at the visuals only in their story sequence, and then interpret them before they start to read the actual story. Also, the sequence of visuals in a short story could be extracted, reproduced and jumbled — the students could then be asked to put them in an order that they think is appropriate. If this approximates the story, well and good — if not, it can set up discussion of why or why not. Then they could actually read the story. This kind of activity can work to clue the students into the fact that visuals are often used as an entree into a reading (as an attract), and that this can work well in understanding a plot, since visuals in novels often mirror the stages of the story, and usually occur on or opposite a page which is dealing with the same point in the story.

In relation to the students' writing development, especially in the area of narrative writing, a sequence of pictures could be extracted from a reading that the students are required to read, and using these decontextualised images could construct their own story individually or in groups, then write the story in class or as a journal or as the basis for a class story magazine. This story-writing or class magazine production could be used as a writing process activity where drafting and redrafting is carried out in consultation with teachers, or in peer-editing groups. This kind of activity is relevant to developing in students an understanding of story/narrative structures: the image sequences and the writing activities which arise from them could be used to introduce the students to various genres (narrative, description), based on the ways that visuals are organised. The sequence of this kind of classroom activity could be to start with visuals which can readily tell a story, either one story only or a number of possible plots. Then the teacher could require the students to ask the visuals questions to extract who are the main characters, what are they doing and with whom, why are they doing it, and how, etc. Then the students could try to place the pictures in some order, which could be organised into their own spoken (oral skills development) and then into a written story.

The students' speaking and listening skills could also be developed through all the above activities, which provide ample opportunities for students to speak to the teacher and to peers. The reading readiness activities for example could also be used for reporting back to the class, for giving short speeches, explaining, describing etc., and the students of course have to listen to these student presentations, so the development of listening skills is another positive result. Images can also be used for evaluating speaking skills — this could involve showing a student a picture from a story already read and asking him or her to talk about it. This will test both production and understanding of the reading's content, and could also be used in a class-wide evaluation to see which group understands a story's content and sequence best, and if required, allotting various grades.

8.3 Final Comments

In this chapter attention has been drawn to areas where the propositions explored in this study can be further confirmed through more in-depth application of the analyses, as well as to areas of further research which can highlight other ways that multimodal texts like the *Mountains* text can realise intersemiotic complementarity, such as at the level of the text's schematic structure and intra-visually. It has also suggested that the analytical framework developed for the explication of the *Mountains* text has possible application to pedagogical contexts.

The focus of this study has been on using the SFL model for the analysis of multimodal text, and as such forms a continuation and extension of the interest shown by the many semioticians who have followed Saussure's semiological program in the analysis of non-linguistic signs (including the Prague School of the 1930's and 1940's, the Paris School of the 1960's and 1970's, and the more recent Social Semiotics School). This study also represents an evaluation and extension of the work of this latter school, specifically in regard to the ways that various visuals organise and project their meanings in *The Economist* magazine, and to the ways that these visuals may interact with verbal text. Finally, this study has tested the claim made by Halliday and Hasan (1985:4) of the inter-relatedness of systems of meaning, showing that the interfaces between the visual and the verbal semiotic systems in a multimodal text are in fact interrelated and work together to produce a coherent multimodal text. As such this study has extended the application of SFL theoretical principles by showing that it is an appropriate paradigm for explaining many aspects of multimodality.

As pointed out in Chapter One, the motivation for this study lay in a question arising from this writer's involvement in various educational contexts relating to the discipline of economics — this question related to a perception that whilst the various forms of published economics discourse all utilise some form of visual communication, the professional, academically-oriented literature clearly directs the readers to refer to the various graphs, tables, charts and diagrams utilised, while the eco-journalistic print media only rarely directs or asks the reader to interact in some specific way with them. The questions explored in this study, “what 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?” have been answered by showing that a multimodal text like the *Mountains* text is a single textual phenomenon characterised by intersemiotic complementarity, in which both modes work together to project various page-based meanings. The analytical framework presented in this study has shown that the connections construed in this intersemiotic relationship can be elucidated through an investigation of the intersemiotic ideational, interpersonal, or compositional metafunctional meanings. It can therefore be concluded that the realisations of the visual and verbal semiotic systems in this multimodal text do not merely co-occur on the page space and relate to each other by virtue of simple combination; rather, they synergistically combine on the page to produce a coherent multimodal textual phenomenon.