機能言語学

JASFL
Occasional
Papers

Volume 1 No. 1   Autumn 1998

JASFL
Occasional Papers

Edited by

Noboru Yamaguchi
Tohoku University

and

Wendy Bowcher
Tokyo Gakugei University

JASFL
Occasional Papers

Articles （論文）

Synergy on the Page: Exploring *intersemiotic complementarity* in page-based multimodal text

Terry D. Royce
Teachers College, Columbia University (Tokyo)

Abstract

This paper problematises the co-occurrence of visual and verbal modes in page-based multimodal text. It is proposed that a social semiotic, metafunctional view of communication as developed by M.A.K. Halliday is an effective theory for informing attempts to account for the visual-verbal interface in texts of this type. It is further argued that visual-verbal intersemiotic relations are predominantly characterised by *intersemiotic complementarity*, and that this *complementarity* can be identified and explicated through the adaptation and application of the linguistic concepts and analytical techniques commonly used in the analysis of cohesion in language. An analytical framework is presented, and an analysis of a sample text is provided.

Introduction

Throughout the twentieth century the central focus of the discipline of linguistics has been on the structural, psycholinguistic or functional features of language. Increasingly however, the most recent trends in the latter half of the century have involved a developing interest in and research into forms of communication other than the linguistic, and the ways that they systematise and project their meanings. This increasing interest has its genesis not only in the evolution of semiotic theory, but also the impetus provided by innovations in communication modes that have produced a revolution in communication technology. As a consequence of this, much new research and discussion about the ramifications of these changes has been generated, and this is reflected in discussions on the design of intelligent multimedia interfaces, automated presentation design, and associated architectural and modelling issues (e.g. Maybury, 1993), the analysis of meaning projections in digital imagery (e.g. Marchese, 1995), and an evolving philosophical debate about the 'visual' nature of contemporary culture (e.g. Jenks, 1995).

In Western culture, and indeed most industrialised 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 linguistic dominates; it dominates in the educational systems, and it dominates in the print media, whether it be academic or media-based, whether the texts therein utilise only the spoken or written mode, or whether they combine it with some kind of visual representation.

What is also being increasingly recognised is that developments in general linguistic theory can 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 (hereafter SFL), 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).

According to the SFL model, 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). To Halliday semiotics is not simply 'the general study of signs', but is 'the study of sign systems ... the study of **meaning** in its most general sense' (Halliday & Hasan, 1985: 3-4). The discipline of linguistics can be seen as one 'kind of semiotics' which studies the ways that language is a meaning-making system. However, Halliday makes the point that 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' (Halliday & Hasan, 1985: 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** (Halliday & Hasan, 1985: 4 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 co-operation). 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?

To address these questions, this paper will present a theoretically motivated investigation of the proposition that both the verbal and visual modes, while utilising the meaning-making features peculiar to their respective semiotic systems, do 'work together' in various contexts to project a unified, coherent message to their viewers/readers. This investigation will involve the presentation of a framework which illustrates the ways that this co-operation is realised in page-based multimodal text, and proposes 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*.

It is argued that *intersemiotic complementarity* 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 MOOD, and through intersemiotic *attitudinal congruence* and *attitudinal dissonance* (modality) relations.

• when the TEXTUAL (Composition) meanings are integrated by the compositional relations of *information value, salience, visual framing, visual synonymy*, and *reading paths*.

The analysis which follows will test this claim, and will present a framework developed to explore it. It is important to note 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 simple conjunction relationship[1]. Rather, the implication is that the relationship is **synergistic** in nature. The concept of synergism[2] 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). This necessarily implies 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 paper therefore to take a first step towards the explanation of how this synergism is realised, and to test the claim that *intersemiotic complementarity* occurs in ideational, interpersonal and textual (composition) terms. To do this, a multimodal text in the form of a full-page advertisement extracted from *The Economist* magazine shall be used (hereafter referred to as the WMI text - see Appendix).

A Framework for *Intersemiotic Complementarity*

The framework which forms the basis for the analysis derives from a Hallidayan metafunctional view of communication, as derived from SFL theory, and is presented in Figure 1.
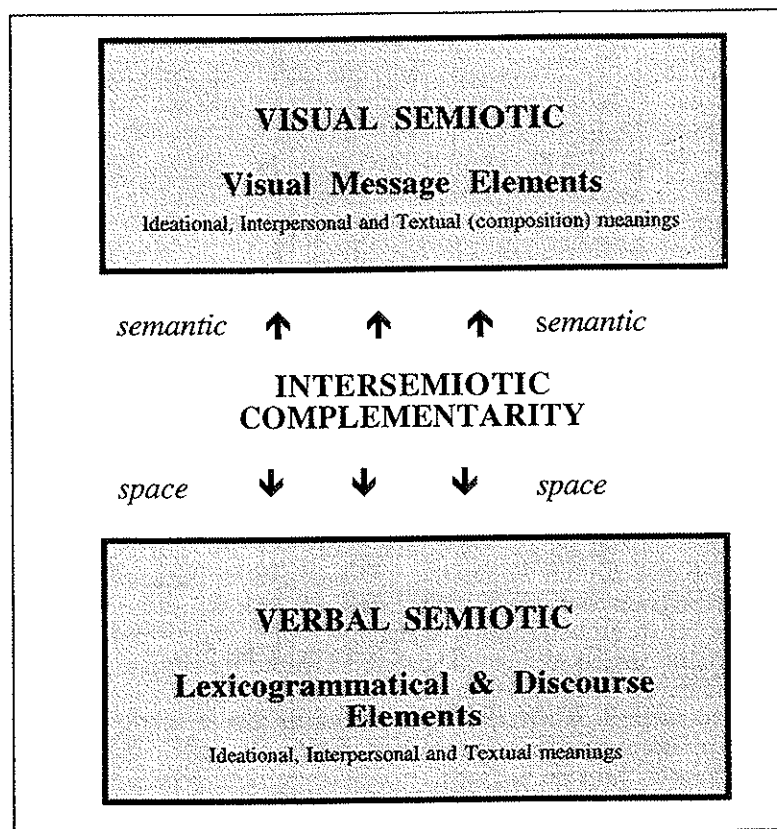
Figure 1   Visual-verbal *Intersemiotic Complementarity* **on the Page**

Apart from attempting to explicate the nature of *intersemiotic complementarity* through an analysis of the WMI text, a major objective of this paper is to determine if some of the concepts and terminology of existing linguistic theory, and their attendant analytical tools can be productive in explaining how semiotic systems interact. To this end it will utilise the concept of sense relations in lexical cohesion as outlined by Halliday

(1994: 330-334) and Halliday and Hasan (1985: 80-82), and will attempt to adapt 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 (Halliday & Hasan, 1985: 84).

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 & Yule, 1983; Hoey, 1991; van Dijk, 1977; Halliday & Hasan, 1976 etc.), a *multimodal* text (which is here defined as any text which utilises more than one semiotic resource system to project its meanings) 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 that it 'is doing some job in some context' (1985: 10). Cohesion is also viewed in terms of meaning, in that it refers to the 'relations of meanings that exist within the text, and that define it as a text' (1976: 4). Although Halliday and Hasan here are referring primarily to language in its spoken or written forms, they are aware 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).

SFL theory is an *exotropic* theoretical paradigm which inherently allows, through its usage, the ability to explain a range of communicative phenomena, and an ability to communicate and work with other theoretical paradigms (Hasan, 1997, in press). A strength of the SFL model is that the concept of a text in terms of metafunctional meaning also permits an analysis of semiosis from three different metafunctional perspectives, the ideational, interpersonal and textual, with the assumption that an analytical focus on any one necessarily implies that the other two are and should be considered as operating simultaneously. Further, the view that communication involves 'systems of meanings' and the act of communication involves making simultaneous selections from those systems in terms of what is going on (the field of discourse), who is taking part (the tenor of discourse), and the role assigned to language (the mode of discourse), suggests that it is a paradigm which can perhaps be usefully applied to other systems of meaning besides language. This has been demonstrated clearly by the work of O'Toole (1994, 1995) and Kress and van Leeuwen (1990, 1996) in their applications to other visual modes. What this paper asks however, is can SFL theory accommodate the proposed synergistic sense of *intersemiotic complementarity* between language and those other semiotic systems (Halliday & Hasan, 1985: 26)?

To this end, the analytical framework developed here draws on aspects of Kress and van Leeuwen's (1990, 1996) attempt to develop a grammar of images. In both books, Kress and van Leeuwen attempt to describe the structures that visuals use to realise a variety of different kinds of meanings, and they link their analyses with discussions of visual literacy and the implications for education. They do this because of their perception of the overwhelming importance of visual communication in the modern world, the already-mentioned dominance of the verbal over the visual in educational systems, and their view that there is a 'staggering inability on all our parts to talk and think in any serious way about what is actually communicated by means of images and visual design' (Kress & van Leeuwen, 1990: 3, 1996: 16). This last view is surprising, especially considering that Kress and van Leeuwen do draw very heavily on selected publications from a considerable body of work by researchers in such areas as communication and media studies (Dondis, 1973; Dyer, 1982; Fiske, 1982; et. al.), studies on the psychology of visual perception (Arnheim, 1969, 1974, 1988; Gombrich, 1960; et. al.), information design (Tufte, 1983; et. al.) and visual semiotics (Barthes, 1967, 1977; Eco, 1976; Saint-Martin, 1987; et. al.) in their interpretations of the ways that images organise and project their meanings.

What is new and interesting in Kress and van Leeuwen's approach however, is the application and adaptation of linguistic insights from the SFL model in an attempt to link the visual meanings in an image to the producers of that image and their particular social contexts. Of significance in this regard also is the work of O'Toole (1994, 1995). O'Toole reinterprets the metafunctions of language in his examination of the language of displayed art. He has reinterpreted the metafunctions to be 'representational' for ideational, 'modal' for interpersonal, and 'compositional' for textual, to provide interesting analyses of the ways that the visual modes of sculpture, architecture, and classical art project their meanings. O'Toole's work is important too in terms of its

application of the Hallidayan linguistic principle of Rank Scale to the interpretation of displayed art—here art is viewed and interpreted in terms of an hierarchy of meaningful units, which for O'Toole is interpretation at the levels of the Work as a whole, Episode, Figure, and Member (1994: 14-15). As the present focus is to look at the intersemiotic relations between the visual and verbal aspects of multimodal texts, both Halliday's metafunctions along with selected ideas derived from the reinterpretation of these metafunctions by Kress and van Leeuwen and O'Toole are utilised in the development of a theoretical framework for determining *intersemiotic complementarity.*

In this paper the metafunctions will be interpreted in the following ways. The ideational metafunction is the function of language to represent the 'goings on' in the world. In analysing visuals the starting point is to identify the *represented participants*, or all the elements or entities that are actually present in the visual, whether animate or inanimate. The interpersonal metafunction is the function of language to represent the roles and statuses that participants hold in any form of interaction, and here the *interactive participants* are the foci—this includes the participants who are interacting with each other in the act of reading a visual, one being the graphic designer or drawer, and the other the viewer, and the social relations between the viewer and the visual. The textual metafunction is that function of language through which a text can be recognised as having coherence and as making sense, rather than as a series of unconnected words or phrases or sentences, and the focal point here is a consideration of multimodal text in terms of its coherent structural elements or *composition.* In this paper, compositional *intersemiotic complementarity* refers primarily to aspects of layout and design which combine and integrate the interactive and represented participants in a way in which the graphic designers or drawers wish to present at a particular point in time (Kress & van Leeuwen, 1996: 183).

Table 1   Analytical Framework for Visual-Verbal *Intersemiotic Complementarity*

METAFUNCTION	Visual Meanings	Intersemiotic Complementarity	Verbal Meanings
IDEATIONAL	Variations occur according to the Coding Orientation. In the Naturalistic Coding we can look at: • Identification of represented participants • Activity portrayed • Circumstances of means, accompaniment and setting • Attributes of represented participants	Various lexico-semantic ways of relating the experiential and logical content or subject matter represented or projected in both visual and verbal modes through the intersemiotic sense relations of: • *Repetition* • *Synonymy* • *Antonymy* • *Meronymy* • *Hyponymy* • *Collocation*	Lexical elements which relate to the visual meanings. These lexical items arise according to: • Identification (participants) • Activity (processes) • Circumstances • Attributes
INTERPERSONAL	Variations occur according to the Coding Orientation. In the Naturalistic Coding we can look at: • Address to the viewer • Level of Involvement of viewer • Power relations between viewer and represented participants • Social Distance between viewer and represented participants • Modality - believability or acceptability of the portrayal	Various ways of intersemiotically relating the reader/viewer and the text through MOOD and MODALITY through the intersemiotic semantic relations of: • *Reinforcement of address* • *Attitudinal Congruence* • *Attitudinal Dissonance*	Elements of the clause as exchange which relate to visual meanings. These arise according to: • The MOOD element in the clause realising speech function • The MODALITY features of the clause • Attitude - use of attitudinal adjectives.
TEXTUAL - COMPOSITION	Variations in visual meanings occur according to choices made in: • Information Value - intra-visual placement • Visual Salience • Framing of visual elements	Various ways of mapping the modes to realise a coherent layout or composition by • *Information Valuation on the page* • *Salience on the page* • *Degree of framing of elements on the page* • *Inter-visual synonymy* • *Reading paths*	The body copy (verbal element) as an orthographic whole realised by various typographical conventions: • General Typesetting: • Copyfitting: • Other Typesetting Techniques • Also: Theme/Rheme, Given/New Structures

The visual representation of *intersemiotic complementarity* framework shown in Figure 1 can now be expanded into an analytical table (see Table 1) showing a range of potential ways in which these intersemiotic metafunctions reflect relations between different semiotic systems in a multimodal text. The term *Compositional* has been bracketed under Halliday's *Textual* because it captures more fully the sense of two modes interacting with each other to project meaning coherently on the page. This is in agreement with Kress and van Leeuwen's usage, but is at slight variance with O'Toole's (1994: 278) use of the term composition, where he uses it in the more traditional sense of composition within the piece, and the artistic interpretation of how the elements of a work of art cohere to produce a sense of visual unity or wholeness within the work.

The analytical framework presented in Table 1 will be expanded and examined in the ensuing analyses via the presentation of a series of tables. Each table focuses on a specific intersemiotic metafunction and outlines the main areas where *intersemiotic complementarity* may be realised.

The *WMI* Advertisement

The WMI text is an extract from the issue of *The Economist* magazine dated September 2nd 1995, and is an advertisement for Waste Management International, a company based in Hong Kong (see the Appendix). It is multimodal in the sense that it includes two instances of both the visual mode (a monochrome photograph from the naturalistic coding orientation and a company insignia or logo) and the verbal mode (orthographic print of varying fonts). It appears in an Asian edition of the magazine, so the advertisement is addressed to a particular population in terms of its readership. *The Economist* issues a North American/European and an Asian edition every week. They are essentially the same issue in terms of the articles, but they often differ in terms of the front page artwork and subject matter, and in certain kinds of advertising (Garrett, 1994).

In *The Economist* magazine each multimodal and single mode text is a realisation of a particular contextual configuration of field, tenor and mode, however, these configurations derive their meaning from the broader world economic, financial and eco-political culture, as well as from *The Economist* magazine as a journalistic publishing institution which is comprised of a range of attitudes towards, and perceptions of its readership, incorporating also various views of its role as a publisher and advertiser dealing with economic, financial and eco-political issues. This context of culture includes how *The Economist* magazine itself views the medium of its message, in other words its views of both its verbal and visual output in relation to their relative primacy, priorities, typographic conventions, writing/stylistic conventions and so on.

The multimodal WMI advertisement which is the subject of analysis here is a metafunctional construct in that it is a complex of simultaneously interacting ideational, interpersonal and textual (composition) meanings. A reader (hereafter the reader is assumed to be the viewer/reader) of *The Economist* who sees this advertisement would interact with this complexity by comprehending the experiential and logical content represented and referred to in the visual and verbal sectors of the page, as well as any interrelationships between them. The reader would also be asked to respond to the ways he or she is being addressed, whether it be in terms of any potential visual or verbal offers or statements, questions asked or commands issued, as well as a variety of projected attitudes and judgements. Further, the reader would need to appreciate in visual and verbal terms the timeliness and topicality of the product being advertised, or its relevance to the context in which it occurs, as well as the coherence between one part of the page and every other part.

Ideational *Intersemiotic Complementarity*

The analysis which follows will focus on evidence for lexico-semantic *intersemiotic complementarity* between the visual and verbal aspects of the WMI advertisement. The range of ideational features which may be examined in analysing a multimodal text is outlined in Table 2, which is an elaboration of the ideational portion of Table 1.

Table 2 presents the ideational features in terms of a range of questions. It should be noted that not all of the questions will apply to a text at any one time. The degree of application of these questions will very much depend on the type of text—for example, an article dealing with the latest news in a complex financial issue and utilising a sketch caricature and a photograph will perhaps reveal a far more complex mix of messages and usages of these realisations than a straightforward advertisement focusing on a single product or service.

Table 2 Ideational *Intersemiotic Complementarity*

METAFUNCTION	VISUAL MEANINGS	INTERSEMIOTIC COMPLEMENTARITY	VERBAL MEANINGS
IDEATIONAL	Variations occur according to the coding orientation. In the Naturalistic coding we can look at: Identification: Who or what are the represented participants (actor, recipient, goal)? Who or what are they interacting with? Are the participants interacting? (vectors). Activity: What action is taking place, events, portrayal, scene, states, types of behaviour (gestures, facial expressions, stance, physical moves)? Circumstances: where, who with, and by what means are the activities being carried out (setting, means, accompaniment)? Attributes: what are the qualities and characteristics of the participants?	Various lexico-semantic ways of relating the experiential and logical content or subject matter represented or projected in both visual and verbal modes through the intersemiotic sense relations of: • *Repetition*: identical experiential meaning. • *Synonymy*: the same or similar experiential meaning. • *Antonymy*: opposite experiential meaning. • *Meronymy*: the relation between the part and whole of something. • *Hyponymy*: the relation between a general class of something and its sub-classes. • *Collocation*: an expectancy or high probability to co-occur in a field or subject area.	Lexical elements which relate to the visual meanings. These lexical items arise according to: • Identification (participants): who or what is involved in any activity? • Activity (processes): what action is taking place, events, states, types of behaviour? • Circumstances: where, who with, and by what means are the activities being carried out? • Attributes: what are the qualities and characteristics of the participants?
INTERPERSONAL			
TEXTUAL - COMPOSITION			

In examining the ideational features of the WMI text, the first step is to ascertain who or what is in the visual frame (the represented participants, whether animate or inanimate), what action is taking place (in terms of who or what is the actor and who or what is the recipient or object of that action), and what those actions represent circumstantially according to the wider context of situation.

An examination of the WMI text in terms of the represented participants, or Identification, or Who or what is in the visual frame, reveals quite obviously a naturalistic monochrome photograph of a young woman, possibly between the ages of 16 and 20 years of age, standing upright and facing potential viewers, as well as a company insignia signifying that the company is Waste Management International (WMI). The primary visual in this text is the whole image. Going down the visual rank from the whole figure portrayed to the rank of member (body part or feature), we see that the most salient represented participant features are a **clipboard** held or displayed in a typical clipboard-holding gesture, the **safety helmet** she is wearing, the **insignia** of the company or group on the helmet, and what could be construed as a **uniform** of some kind—perhaps a school or trainee uniform. The size of this clipboard and the helmet in relation to the whole figure of the young woman make them the features with visual weight, which according to Arnheim (1988: 229) is 'the dynamic power in an object by virtue of its conspicuousness, size, shape, location etc.'. Other less salient features are her **hair**, which is out and unrestrained, and the posture she has selected with her other hand behind her back, giving her stance a sense that it is perhaps a posed one.

In terms of the Activity, or What action is taking place, we can see that the action taking place is the action of **posing** or **portrayal** of some kind on stance. The represented participants outlined above all form part of the whole figure which is organised into this pose. It is in Kress and van Leeuwen's terms a *Conceptual Representation* encoding what they refer to as an *Analytical Process* which involves the part/whole relation of the *Carrier* (the whole) and its *Possessive Attributes* (the parts). These possessive attributes are denotative features which do not reveal much beyond their straightforward identification—they do however realise connotative meanings, somewhat akin to what Kress and van Leeuwen (1996: 108) refer to in their categorisation of the *Symbolic Process* within the set of processes they identify as Conceptual Representations. These processes are about what a participant *means* or *is* (Kress & van Leeuwen, 1996: 108). In other words, these processes are connected to the symbolism or messages conveyed by the participant relations portrayed. Where there are two participants, the participant whose meaning is established in the relation is also the *Carrier*, and the participant which represents the meaning or identity itself is the *Symbolic Attribute*. This is the *Symbolic Attributive* process, where objects in images are significant due to, amongst other things, their conventional symbolic value, or are made prominent by being foregrounded or looking slightly incongruent in some way (Kress & van Leeuwen, 1996: 108).

The Circumstances, or Where, who with and by what means, are also interesting in terms of the lack of a backgrounded setting, and the fact that no other human or non-human participants are in the visual frame with which actional vectors may be formed. There is therefore no sense that the objects worn or carried by the main participant are used in any action beyond that of display. This lack of any circumstantial elements therefore serves to accentuate what is on display, and this is the symbolic attributes of the represented participants both singly and in combination.

The symbolic attributes projected by this photograph are realised by the portrayal of a human Carrier holding in the foreground (and therefore displaying) an implement commonly used in listing, checking, assessing, and management contexts (a clipboard). The Carrier is also wearing a safety helmet which connotes protection, safety and taking care in potentially hazardous situations, and such helmets are invariably worn to protect workers in situations where plant and machinery are operating. This helmet is also labelled with an insignia which identifies the helmet as belonging to a particular organisation or industry, and since the Carrier is wearing this helmet, she too is connoted as belonging to that organisation in some way or capacity. The Carrier is also wearing what could be construed as a company uniform of some sort, an interpretation which may be reinforced by her identification with some industrial organisation. This could however be a school or college uniform, because the Carrier is a very young woman. This impression of youth is reinforced by the fact that her hair is out or not restrained in any way, which is incongruent with the fact that she is wearing a safety helmet that is commonly worn in contexts where long unrestrained hair is often viewed as a potential safety hazard. At the rank of the whole figure therefore, the symbolic attributes of these represented participants combine into a visual gestalt (Arnheim, 1969, 1974) which confers on the young woman the meaning of a young trainee manager in some potentially hazardous resources development industry (as opposed to a service industry).

Given these interpretations, the symbolic attributes of the most prominent of the ideational representations can be identified and summarised in Table 3 below.

Table 3   Visual Message Elements

Represented Participant	*Visual Message Elements (Symbolic/connotative meanings)*
Whole figure	A person involved in the resources development industry.
Young woman	A symbol of youth (a young woman with her future before her).
Clipboard	A symbol of assessment, control, management.
Safety helmet	A symbol of protection, safety, care.
Insignia (photograph & symbol)	A symbol of an organisation or group (here it is WMI).
Uniform	A symbol of membership in some organisation (could be a school, or it could be a company)

Starting with the visual message elements outlined in Table 3, and checking through the verbal aspect of the text for semantically-related lexical items produces a series of lexical inventories (this is an adaptation of the use of lexical strings which express semantic relations between the lexical items. Here they express the semantic relations between the visual message elements and the lexical items found in the verbal aspect of the text, and as such constitute what may be referred to as an inventory or list of intersemiotic semantic relations). The sentence-level breakdown of the verbal aspect of the text into sentences is presented in Table 4 and the results of this procedure can be seen in Table 5. Decisions about which lexical items to include or exclude in relation to each visual message element are based on the notion that the lexical items should be the closest semantically to each visual element, or be reasonably expected to co-occur or collocate in a text drawn from a particular context of situation. All uses of language have an immediate environment in which they operate, and this text is an instance of language 'structured as a *field* of significant social action' (Halliday, 1978: 43).

Table 4   Verbal Aspect of the WMI Text

Number	Sentence/Move
1.	Does your environmental policy meet your granddaughter's expectations?
2.	Is your business or community among the millions of customers across the world already using our environmental services?
3.	If it is, you'll be aware of our total commitment to protecting and sustaining the environment.
4.	Why?
5.	Because we believe a high standard of performance is good for the environment and essential to maintain the public trust and the confidence of our customers and investors.
6.	We also believe our services - integrated waste management - have an important role in the drive towards sustainable development.
7.	In plain language, that means we'll help our customers reduce, reuse and recycle unwanted material wherever possible and manage residual wastes in ways that safeguard the environment now and in the future.
8.	Finally, we feel openness is fundamental to the success of our operations.
9.	So we're happy to discuss our environmental policy and talk about our people's commitment and performance.
10.	For more information about our total commitment, please call us at Pacific Waste Management in Hong Kong: 852 2827 1383.
11.	Waste Management International
12.	A WMX Technologies Company
13.	Total Commitment to a Sustainable Future

What can be seen by an analysis of this text is that in ideational terms, there is clear evidence of visual-verbal *intersemiotic complementarity*, as indicated by the large number of lexical items which relate to the topic-focus of the advertisement. This topic-focus is the presentation of the WMI Corporation as a concerned and responsible company involved in environmental waste management, and therefore the future. As Table 5 shows, in the inventory concerned with this central topic, that of *Resources Industry* (realised by the visual gestalt projected by whole figure of the woman), we find that there is a very significant usage of lexical items which intersemiotically collocate to varying degrees with that particular field, as well as some instances of intersemiotic meronymy, where such lexical items as *customers, investors* and *company* (which refer to people or institutions) and terms such as *waste(s)* (which refer to products) may be considered as forming meronyms of the superordinate *Resources Industry*.

Table 5 Ideational *Intersemiotic Complementarity*

S's	SYMBOLIC ATTRIBUTES OF REPRESENTED PARTICIPANTS					
	Resources Industry (Woman)	Youth - the future (young woman)	The company (WMI)	Organisation (uniform)	Protection/ safety (helmet)	Management (clipboard)
1	environmental (C)	granddaughter's (C) expectations (C)				policy (C)
2	business (C) customers (M) environmental (C)			community (C)		
3	environment (C)				sustaining (C) protecting (R)	
4						
5	environment (C) customers (M) investors (M)					standard of performance (C) maintain (C)
6	waste (M) development (C)	sustainable (C)				management (R)
7	customers (M) reuse (C) recycle (C) material (C) wastes (M) environment (C)	now (C) future (R)			help (C) safeguard (R)	manage (R)
8						
9	environmental (C)					policy (C) performance (C) Management (R)
10	Waste (M)					
11			Waste Management International (R)			
12	Technologies (C) Company (M)		WMX (R)	Company (C)		
13		Sustainable Future				

Other significant visual symbolic attributes are intersemiotically related also. The clipboard representing *Management* is complemented verbally by the repetition of such terms as *management* and *manage*, and this is collocationally supported in varying strengths with such lexical items as *maintain, performance, policy* and *standard of performance*. The complementarity between the young woman connoting a representative of the future and the verbal aspect of the text is also evidenced by the specific reference to a *granddaughter*, the repetition of *future* and the collocational support provided by the reference to *now, expectations*, and the use of words such as *sustainable*, which carry a suggestion of the consideration of the future. This verbal reference to a *granddaughter* also has a strong intersemiotic collocational relationship to the image — this is because the word *granddaughter* refers to the female gender and a young woman is depicted (as opposed to a young man), but less overtly because the young woman shown is of an age where she could be someone's granddaughter. This has implications regarding the text constructors' assumptions about the potential

readership of *The Economist* magazine and of its advertisements. Given the nature of the gender-bias in company management in major corporations (whether they be developed or developing economies), the expected readership would be mostly male, in middle to upper-management, and perhaps close to retirement age. The safety helmet as a represented participant, along with the collocational usage of such lexical items as *sustaining* and *help* and the repetition of *protecting* and *safeguard*, are also further evidence that the constructors of this text have chosen both these modes in order to present an intersemiotically consistent and coherent message to any potential readers. This combined message of safe management of resources for future generations is designed to be strongly associated with the company WMI, which is also visually referred to via the two instances of the insignia, and is intersemiotically complemented through its verbal repetition as *Waste Management International*, or WMI.

Interpersonal *Intersemiotic Complementarity*

An examination of the interpersonal features of the image in the WMI text involves a consideration of the ways that relations between the visual and the viewer are represented. The ways in which the producer and viewer of a visual are placed socially in relation to each other is important because this can affect the topic of the visual, the ways that it can be read, and as a result the ways that it can be interpreted. An examination of these interpersonal features will require an analysis of intersemiotic aspects of address, levels of involvement, power relations and social distance, and an analysis of visual-verbal modality. The range of potential visual and verbal realisations of these interpersonal, *intersemiotic complementarity* relations are outlined in Table 6, which, like Table 2, is an elaboration of a portion of Table 1, in this case that pertaining to the interpersonal metafunction.

Taking Halliday's notion of speech functions and the speech acts they can realise, and Kress and van Leeuwen's re-interpretation of these into 'image acts' in their visual grammar, we can see that visual forms of communication can also realise similar forms of address, but through the meaning-making features which are peculiar to visual semiotic systems. In Halliday's (1994: 69) exposition of the speech functions, speakers can give information (make a statement), which can then be agreed with or contradicted, or they can give goods and services (make an offer), which can then be accepted or rejected. Also, speakers can demand information (ask a question), which can then be answered or disclaimed, or demand goods and services (give a command), which can then be obeyed or refused. Kress and van Leeuwen propose however that in Western cultures, visuals generally perform only two image acts, and not the full range that is possible with the four primary speech functions. These they refer to as visual 'offers' and 'demands' (Kress & van Leeuwen, 1996: 129). This is presumably an attempt to deal with the fact that the nature of the medium being employed, and the chronological and physical distance between the interlocutors (the drawer/graphic designer and the viewers) precludes the viewer from actually *physically* responding to an offer or demand for goods and services. Thus, when images offer they most commonly offer information, and when they demand, they most often demand the particular goods and services which would realise a particular social relation, or some kind of response from the viewer.

The realisation of a visual demand is determined by the presence or absence of a gaze, which indicates a form of direct or indirect **address** to the viewer (Kress & van Leeuwen, 1996: 121-130). The producer is thus using the image to act on or do something to the viewer. The gaze always takes the form of a vector formed by the glance of one or more of the animate represented participants outwards to the viewer of the visual. This may often be supported by some kind of physical gesture. The animate represented participant(s), which could be human or animal (mostly human), will demand something via one or more pairs of eyes looking directly at the viewer, and what is demanded by the represented participant(s) in the image depends entirely on *how* the look is conveyed. There may be a smile (suggesting friendliness), a direct stare (suggesting contempt), or a raised eyebrow (suggesting a quizzical or questioning action). Each of these actions requires some kind of response from the viewer in terms of entering into some kind of social relation, which in this case is to accede to or deny the demand (Kress & van Leeuwen, 1996: 122-123).

Table 6 Interpersonal *Intersemiotic Complementarity*

METAFUNCTION	VISUAL MEANINGS	INTERSEMIOTIC COMPLEMENTARITY	VERBAL MEANINGS
IDEATIONAL			
INTERPERSONAL	Variations occur according to the Coding Orientation. In the Naturalistic Coding - it is a continua of the use of: Address: Gaze at the viewer (direct or indirect). Involvement & Power: Perspectival aspects of the role of the horizontal angle, and the vertical angle. Social Distance: Size of frame (close up, medium, long shot etc.) affecting the affinity between viewer and image. Modality: Contextualisation (full background to a complete absence of background). Degree of representing detail or abstracting detail. Texture, Illumination (light and shade). Colour saturation showing degree of reality.	Various ways of intersemiotically relating the reader/viewer and the text through MOOD (Address via offers, commands, statements, questions) and MODALITY (Attitude re something as real or unreal, true or false, possible or impossible, necessary or unnecessary) through the intersemiotic relations of: • *Reinforcement of Address*: an identical form of address (MOOD). • *Attitudinal Congruence*: a similar kind of attitude (MODALITY). • *Attitudinal Dissonance*: an opposite or ironic attitude (MODALITY).	Elements of the clause as exchange which relate to visual meanings. These arise according to: • The MOOD element in the clause realising speech function (offer, command, statement, question) as determined by the subject/finite relationship. • The MODALITY features of the clause indicating views on possibility, probability, and certainty.
TEXTUAL- COMPOSITION			

The monochrome photograph of the young woman in the WMI text can be interpreted as demanding information via the speech function of asking a question.   It depicts a young woman whose gaze, supported by slightly raised eyebrows, is directed right at the eyes of the viewer, and this is realised by the fact that a straight-line vector can be drawn from her eyes directly to the eyes of the viewer. It is a portrayal of a young woman who is directly addressing the viewer with some kind of query.   However, the image in and of itself does not reveal what that question or query is—the viewer only knows that he or she is being directly addressed by being asked *something*, and some kind of a response or an answer is required.

This *something* is provided by the rest of the page, with the verbally-provided question directly above her head.   If one assumes a reading path of image to verbal text, then a look at the verbal aspect after the image reveals that the first two sentences contain two Subject/Finite relationships which realise an interrogative MOOD.   Thus, the image, which asks a visual question, is immediately and directly complemented intersemiotically by the following process:

Does	*your environmental policy*	*meet*	*your granddaughter's expectations?*
Finite	Subject	Predicator	
MOOD: Interrogative		Residue	

Here is an instance of intersemiotic *Reinforcement of Address*, where the reader is addressed in the same way by both modes—there is firstly a visual question or query, realised by the slightly raised eyebrows and the direct gaze which basically says 'I am talking to you', and then there is the repetition of this form of address via a clause which has a Subject/Finite relationship which is interrogative in MOOD, and is realising the unmarked speech function of asking a question. This *intersemiotic complementarity* in terms of *reinforcement of address* obtains whether the reading path is image to verbal or vice versa. This interpersonal, visual-verbal address is of course supported in ideational terms by the image of the young woman (the granddaughter) and the symbolic attributes of the resources industry's safety helmet, clipboard and WMI company insignia (environmental policy).

Once the main question is asked, the form of address continues with another question, which attempts to move from the personal to the collective. The reader is asked whether or not he/she also is using the WMI services. Thus we have a kind of supplementary *reinforcement* of the address, with the verbal text continuing on in the same vein, addressing the reader and requiring some kind of cognitive response. Whether the reader responds yes or no, this sets him or her up to receive the advertising message, which is the WMI Corporation as a concerned and responsible company involved in environmental waste management, and therefore the future. This second instance of *intersemiotic complementarity* is also realised by a clause which has a Subject/Finite relationship that is interrogative in MOOD, and is realising the unmarked speech function of asking a question.

Is	your business or community	among the millions of customers across the world already using our environmental services?
Finite	Subject	
MOOD: Interrogative		Residue

We therefore have an instance of *intersemiotic complementarity* in terms of the ways that both the visual and verbal modes address the readers. Both the modes ask questions which the readers can answer or disclaim. We can interpret this as an instance of intersemiotic *Reinforcement of Address*.

This interpretation of the WMI text as being a multimodal or composite text consisting of visual and verbal questions is supported by the **level of involvement** required of the reader in answering these questions. The monochrome photograph of the young woman is a naturalistic visual which, in terms of the horizontal angle, has a frontal point of view (as opposed to an oblique one). The frontal plane of the viewer of this visual is parallel to the frontal plane of the most visually salient represented participant, the young woman. There is thus a strong degree of involvement with the woman required on the part of the viewer, not by choice (although that may be the case), but by the requirement to be involved which is coded (or loaded) into the visual by its constructor(s). It is a scene which shows someone who is fully facing towards any and all potential viewers, and because of the frontal nature of the angle puts the viewers in the direct line of address. There is really no escape for the viewers—they are required to either directly reject or turn away from the full frontal address of the young woman (something which is hard to do in any human interaction, although there is more freedom here), or to receive and respond to the kind of address encoded in her posture, gestures and gaze. The viewer is thus strongly engaged and addressed in this photograph.

This level of engagement of the reader with this multimodal advertisement is also intersemiotically reinforced by a further aspect which is specific to images, especially photographic images. This is the degree of **social distance** between the represented participants and the viewer(s), as realised by the size of frame. As Kress and van Leeuwen explain, in television production the size of frame is related strongly to how much of the human body is shown in the visual frame. There is thus the close up, the medium shot, and the long shot etc. (1990:44; 1996:130). These different kinds of shots used in television production can be paralleled with the varying distances between people when they talk to each other face to face, where it can be intimate or friendly (as in a spouse or

friend or acquaintance), or unknown (as in a complete stranger). These distances are of course culturally determined, but generally speaking one can apply these ideas to the meanings encoded in visuals when a close up shot of someone's head and shoulders, as opposed to the top half of the torso, and as opposed to the full body within three metres or at over thirty metres or more is utilised.

In the naturalistic, monochrome photograph of the young woman, the degree of social distance between the represented (human) participant can be characterised as one of a close social to personal distance which is realised by a medium close shot, where the woman's full figure is not shown, but is cut off at the thigh. This can be contrasted with the 'up close and personal' sense of the close-up shot, where the frame includes only the upper body (head and shoulders) of the subject, and with the long shot, where full figures are shown and a great deal of the physical context in which they are placed is also portrayed. The medium close shot here however has the effect of making the figure portrayed seem to be socially included with the viewers with a decided sense of personal involvement as well, and lends weight to previous interpretations which suggest it is a portrayal which asks the viewer to socially engage with the represented participant, and it goes beyond simply being asked to just observe her portrayal or pose.

The **power relations** between the viewers and the represented participants in a visual are encoded in the vertical angle formed between them. This is an important aspect of cinematography where the viewers of film are required to react to the participants in a particular shot according to whether they are looking down to, up to, or at eye-level with them. There are therefore three possibilities here: a high angle, a low angle and an eye-level angle. The high angle encodes the meaning that the viewers are looking down on the represented participants, suggestive of a superiority to them or of their insignificance, a low angle that the viewer is looking up to them, suggestive of an inferior position to them or of their magnificence, and an eye-level angle is suggestive of equality between the viewer and the represented participants. The naturalistic, monochrome photograph of the young woman forms an eye-level angle between the viewer and herself and therefore does not place her in a superior or inferior position. These power relations of equality, combined with the frontal point of view encoded in the horizontal angle and the sense of inclusion produced by the encoded social distance, support the idea that the image is attempting to include or engage the viewer rather than dominate or elevate the viewer.

In the verbal aspect of the text there are also clear attempts to directly involve the reader as the other interactant in this demand for a response, again indicating an instance of interpersonal *intersemiotic complementarity*. An examination of the text reveals, for example, that there are no forms of direct yet impersonal address, such as reference to the reader as 'the reader' or 'the viewer'. There are however uses of the second person pronoun 'you', and the second person pronoun possessive 'your' to directly address the readers and to engage them as members of a group which believes the environment and family are important concerns, as in

> *Does your environmental policy meet your granddaughter's expectations?,*
> *Is your business or community among the millions of customers ......?,* and
> *If it is, you'll be aware of our total commitment ....*

There are further attempts to engage the viewers in a kind of conversational process, where the answers to the previously posed questions draw the readers into a staged argument. Once the readers respond to these questions posed by the image and initial sentences, they are then given a conditional statement where it is suggested that if the answer is affirmative to the first series of questions, then they would be members of that group of people who are aware of the need to be 'protecting and maintaining the environment', which is also WMI's policy. If negative, then there is a covert message that the reader is not looking after the next generation, and is not on a performance par with *'the millions of customers across the world who are using our environmental services'*.

Once the reader responds, he or she is further engaged by the rhetorical 'Why?', which links the statement of the company's commitment and the reasons for it. This information is then provided, and there are a number of instances of the first person plural pronouns of 'we/us/ours' used in the non-inclusive and inclusive sense to explain the company's point of view as in references such as:

>*Because we believe a high standard is good to maintain the public trust and the confidence of our customers and investors.*

If the reader has answered affirmatively to the questions posed, then he or she is now being included as a recipient of the information being given and an equal member of the group, as realised by 'our customers'. This is seen throughout the text, as the following examples show:

>*We also believe our services ....*
>*In plain language, that means we'll help our customers ....*
>*Finally, we feel openness is fundamental to the success of our operations, and*
>*So we're happy to discuss our ... and talk about our people's commitment.*

This 'conversation' between the advertisement and the reader is concluded with a request to call the WMI offices if more information is required. This is an attempt to allow those less-informed companies and individuals who were not aware of '*our total commitment*', to become informed and to join in the commitment.

In the WMI text therefore, we have instances of *intersemiotic complementarity* in terms of both the verbal and visual modes addressing the viewers and the readers in the same way - they both ask questions which can then be answered or disclaimed. The readers are not explicitly referred to in the verbal aspect of the text, but they are addressed directly and then included into one of two groups—those who can answer YES to the first set of questions, and those who answer NO. Either of these answers is appropriate, because the reader is then addressed and included in the offers of information which follow the questions (as realised by the declarative MOOD of the remaining clauses). Therefore, in terms of address, involvement, social distance, and power relations there is clear evidence of the intersemiotic relation *Reinforcement of Address*, which realises interpersonal *intersemiotic complementarity*.

From the kinds of **attitudes** presented by the visual mode, we see that when questions are asked or information is offered, it can be answered or disclaimed, affirmed, or denied by the viewer(s). In language, the truth or credibility of what is represented by a speaker or writer is expressed through the use of modality at the clause level, and the polarity between the affirmation and denial of this offered information is expressed in terms of whether something is or is not, or whether it is real or unreal. In between these two extremes there are other possibilities which express degrees of certainty or uncertainty, where *perhaps* something could happen, or of usuality, where something might *sometimes* happen, but not *always*.

In the visual semiotic code, visuals can also be interpreted in terms of the truth, credibility, and probability of what they represent to the viewer(s), and the information they offer can also be affirmed or denied according to whether something is or is not, real or unreal, as well as whether other possibilities exist which can express degrees of certainty or uncertainty, or of usuality. The interpretation of the degrees to which a visual is considered to be real or unreal, credible or incredible, possible or impossible depends in the first instance on its coding orientation (Kress & van Leeuwen 1996). The WMI photograph is a type of naturalistic visual. Such visuals are considered to be real/unreal or possible/impossible depending on the degree of accuracy of their representation of reality. Figure 2 shows a continuum of naturalistic visuals used in *The Economist* magazine. This continuum illustrates the varying degrees to which these visuals (and by default their creators) attempt to portray 'natural' images (visuals which the members of a particular cultural setting would agree to be an accurate representation of reality, as viewed by the human eye).
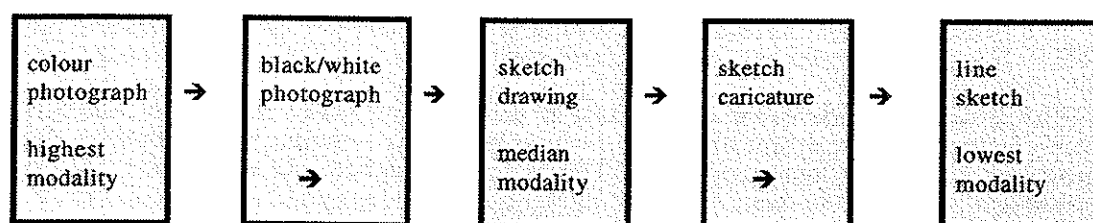
colour photograph		black/white photograph		sketch drawing		sketch caricature		line sketch
highest modality	→		→	median modality	→		→	lowest modality

Figure 2 Modality in the Naturalistic Visual Continuum

The WMI photograph is an attempt to represent familiar objects, characters and actions (real or fictional) which are easily recognisable to the viewers, but are slightly abstracted from full colour via the use of monochrome photography. This is not a totally accurate representation for these reasons, but it is still a naturalistic photographic form. This may be contrasted for example with a sketch caricature which does not present reality to the same degree, but presents a whimsical version of it. As such, in the type of visual used in the WMI text, the visual modality of the individual portrayed in terms of it being real or credible is high. There is less freedom for the viewer(s) to agree or disagree with the portrayal, or to contradict it. It is therefore presented as an acceptable interpretation of reality, and as such carries a higher modality in terms of its probability as an accurate representation of 'truth' than, say, caricatured sketches or line drawings.

The absence of colour and the abstraction away from many physical details of the setting which could have been included, such as office furniture and industrial machinery, or landscape features such as plants, trees etc., also combines with the monochromaticity to slightly lessen the visual modality. Although this type of naturalistic visual can be interpreted as an accurate or real portrayal, this is mediated by the fact the subject is presented with a reduced setting, which has the effect of drawing attention to the meanings that the drawers wish to attach to what this woman is doing, carrying and wearing.

An examination of the verbal aspect of the text reveals that the levels of indeterminacy which could be provided by modalisation are limited. When the writers of this verbal text present information about their company, they use the positive finite operator to clearly express the actuality of what they are stating. This is revealed in

> ... *we believe a high standard is good* ...
> *We also believe our services ... have an important role* ...
> *We feel openness is fundamental* ..., and
> *So we're happy to discuss ... and to talk about our people's* ...

This form of address to the reader about their company's policy and beliefs constitutes the presentation of an attitude by WMI that has a high probability of being true and therefore highly credible. It is presentation of certainty. When they address the customers about what they (the customers) may or may not be thinking however, there is some modulation. This is seen when they address the reader regarding their assumptions about what the reader will or will/not be aware of, as in

> *If it is, you will be aware of our total commitment* ...

and when they make their promises to the customers (in case they can't fulfil them), as in

> *In plain language, that means we'll help our customers* ...

Thus we have a situation where a credible monochrome image is complemented by verbal language which is direct, believable and only slightly modulated. Both image and verbal text are presenting to the readers an attitude that the multimodal message presented is truthful, believable and sincere — it is an intersemiotic presentation of certainty. In terms of address therefore, we have *intersemiotic complementarity* that is realised by the *attitudinal congruence* generated by the certainty and credibility projected by the visual and verbal aspects of the WMI text.

Textual (Composition) *Intersemiotic Complementarity*

An examination of the textual features of a multimodal text involves an examination of those features of the layout or composition of the text which allow the elements on the page to be viewed as coherent parts of the one composite text. These features are not placed on the page randomly, but are placed there for various purposes, the most important of which is to convey to the readers a sense of unity, of co-operation, and of coherence in terms of the main and supporting messages. The ways that this compositional aspect of multimodal text can realise *intersemiotic complementarity* is given in Table 7, which, like Tables 2 and 6, is an elaboration of a section of Table 1. Here the focus is on the textual/composition aspects of the multimodal text.

Table 7 Textual (Composition) *Intersemiotic Complementarity*

METAFUNCTION	VISUAL CONVENTIONS	INTERSEMIOTIC COMPLEMENTARITY	VERBAL MEANINGS & CONVENTIONS
IDEATIONAL			
INTERPERSONAL			
TEXTUAL - COMPOSITION	Variations in visual conventions occur according to choices made in terms of: Information Value: Top/bottom placement (vertical axis). Left/right placement (horizontal axis). Balance (or balancing centre and margins). Salience: Foregrounding & backgrounding. Relative sizing. Contrasts in tones and differences in sharpness of focus. Framing (weak and strong): Clear spaces or actual frame lines. Contrasts in tones and/or colours. Structural elements which divide visual space. Vectors producing an hierarchy of elements via arrangements of abstract graphic elements. Similarity and differences in size or volume in co-occurring images.	Various ways of mapping the modes to realise a coherent layout or composition by • *information Valuation on the page*: Left/right placement (horizontal axis); Top/bottom placement (vertical axis); Balance (centre and margins). • *Salience on the page*: Foregrounding and backgrounding; Relative sizing; Tonal contrasts and variations in focus. • *Degree of framing of elements on the page*: Clear spaces or actual frame lines; Contrasts in tones and/or colours. Visual-verbal bleeding; run-around; margins; gutters. • *Inter-Visual synonymy*: Degrees of semblance in form across modes. • *Reading Path*: The impact of potential reading paths.	The body copy (verbal element) as an orthographic whole realised by various typographical conventions: General Typesetting: Contrasts in font sizes and colour, including the use of bold, italics and underlining. Copyfitting: Columns, line spacing, line length (justified or ragged), run-arounds. Other Type-setting Techniques: Display type (headlines, headings, sub-headings); Blurbs; Captions; Boldface lead-ins; By-lines. Also grammatical and discourse features e.g. THEME/RHEME and Given/New Structures

There are a number of important visual-verbal compositional aspects in this text which show that both the modes work together to produce a coherent and unified visual-verbal message for the readers. These aspects are examined in this framework by adapting and extending the work of Arnheim (1974, 1988) on pictorial design and visual (gestalt) perception, Dondis (1973) on the fundamentals of visual literacy, Uspensky (1973) on the poetics of composition in classical art, Kress and van Leeuwen (1996) on compositional structuring principles in images, and O'Toole (1994) on composition in displayed art.

These compositional aspects are basically concerned with where the visuals are placed spatially on the page in terms of horizontal/vertical, left/right, or central placement, the relative size of the visual and verbal elements to each other, or visual salience, how the visuals and the type interact for page space, and how the visuals interact with each other.

These compositional features of the WMI text will be examined according to the following textual *intersemiotic complementarity* relations:

- *Information valuation on the page:*
- *Salience on the page*
- Degrees of *framing of elements on the page*
- *Inter-visual synonymy*
- The importance of *potential reading paths.*

A consideration of **information valuation on the page** requires an examination of the relative placement of the visual and verbal modes. In this text there are two important spatial propensities operating in terms of the vertical or top/bottom and the horizontal or left/right placement of the image and the verbal text on the page. What is immediately of notice is that vertically the page has four sections — the top sector of the page is occupied by the verbally realised question, *Does your environmental policy meet ...,* the less-valued bottom of the page sector is occupied by the verbal statement of the WMI Company's stated corporate aim, and the middle of the page is occupied by both the photographic image and the main body of the orthographic text. Considering that the main form of address to the viewers and readers of this text is to pose a set of questions to draw the reader in, it is interesting to note that the most highly valued sector (Kress & van Leeuwen, 1996:193-4), the top half of the page, is occupied by both the visually-posed question, as realised by the woman's direct questioning gaze, and the verbally posed question. Their relatively close placement together in this more prized sector of the page means that the questions raised multimodally are more highly valued in terms of attracting reader interest. This is an important aspect of reading path which is discussed below.

In terms of the horizontal or left/right placement of the image and the verbal text on the page, we see that they occupy the middle or centre section, and they form basically two halves of the section. The image is placed in a primary position in relation to the magazine's spine, and the fact of its visual salience in terms of size means that a casual reader flipping through the magazine will more easily see the image of the young woman first and may be attracted to the advertisement because of the directness of the gaze. This accords with the 'attract' function of images in advertising and in many of the articles in *The Economist* magazine, which is to grab the attention of the reader.

On the other hand, the image and the verbal text are both placed in the centre of the page, also a primary position in terms of visual weight and a divider or balancing centre between the two halves of the page centre section. One of the functions of composition is to be engaged in a 'striving for unity' (Arnheim, 1988:133), and this is provided by the equality evident in the division of the page into two halves. One of the functions of central placement is that perceptually, for the viewer, it acts as a 'stabiliser of weight', where visual elements which are 'located in the central area or on a centrally located axis gain[ed] in power' and help the objects outside the centre zone to be 'united and stabilised when they are grouped around the balancing centre' (Arnheim, 1988: 133). Thus, the effect of the verbal headings being placed above and below the centre section of the verbal page space is stabilised by the equality evident in the central placement of the visual and verbal text, and the sense of compositional unity and *intersemiotic complementarity* is realised.

One further aspect which could be important is Kress and van Leeuwen's (1996) interpretation of Given-New relations in terms of placement on the page. In SFL, the Textual metafunction is realised in those grammatical and discourse features which serve to organise text. These resources provide readers with cues as to where they are and where they are going. In English, what is expressed first, or what is in the left hand position, is very often what carries information which may be retrieved from the context, and may be considered as given, or understood as known by the reader. This Given-New structure is mapped onto the thematic structure of a text, providing a 'composite texture to the discourse and thereby relat[ing] it to its environment' (Halliday, 1994: 299). Kress and van Leeuwen have reinterpreted this for the visual semiotic system, so that the left to

right orientation of the reading path in English and the organisation of meaning into a Given-New contrast is also important in organising the ways that meanings are represented to the viewers, but in ways that are of course peculiar to the visual mode. In a visual semiotic, there are strong culturally-based conventions for interpreting how visuals can be read. One of these is the left to right reading path orientation, and the visual expectancy that this can produce in viewers. This expectancy is complemented by the Given-New and THEME-RHEME organisation in verbal text. In the text under discussion here, the verbal text is organised into two parts according to Themes; the first part contains Themes relevant to the reader 'you' (*Is your business...*; *If it is, you*) while the second part contains Themes relevant to the company, 'we' (*Because we*; *We*; *In plain language, that means we*; *Finally, we; So we; For more information about our total commitment*). This organisation is mirrored in the visually salient opening question which includes the phrases *your granddaughter* and *environmental policy*, in that order. This opening question could be interpreted as the Theme of the text as a whole. The image of the young woman (who could be connoted as representing a family member of the viewer/readers, as well as an employee of the company, WMI) visually brings together the elements of the opening question — 'you' (the reader) and 'we' (the company, which is referred to indirectly by 'environmental policy'). Both the visual and the verbal thus work together to reinforce the connection between 'you' (the reader) and 'we' (the company).

Interpreting visual-verbal intersemiotic relations in this text in the light of its Given-New organisation, we can suggest that the image of the young woman occupies the left-hand or Given position of the page, while the New or right-hand position is occupied by the verbal text. Kress and van Leeuwen (1996: 189) suggest that in many multimodal magazine layouts the left-hand space of the Given is usually taken up by verbal text, while that of the New (right-hand) is often taken up by one or more images, with the images providing a way of quickly and directly letting the viewers know what is the new information coming. They provide many examples of this — however they do comment that there are exceptions to this verbal-visual, Given-New ordering, such as instances where the image is presented as the Given and the New is the verbal text. They discuss specific instances to show that the realisations of this Given-New distinction are not always predictable, and it seems that this WMI advertisement is one of those exceptions, where the young woman (the granddaughter or anyone's young daughter) is addressing the viewer directly through her questioning gaze. Once the viewer's attention has been gained and has accepted the nature of the Given question, he or she can then be presented with the New information, which is supplied in verbal form on the right-hand side of the advertisement, and relates to how the WMI company can help, depending on the answer given by the reader. The image could be interpreted as Given if we take the view that the reader could be of an age where he or she **does** in fact have a granddaughter (which as already noted is most probably assumed by the creators of this advertisement). The new information provided in the verbal form would then directly relate to the reader/viewer — the *you* of the text.

The *complementarity* relation **salience on the page** has to do with the relative sizes of the visuals (their visual salience) compared to the verbal aspect of the text in relation to the space taken up by each on the page. It is concerned with how important the elements are to the compositional makeup of the text. According to White (1982: 127), size is an indicator of visual importance, so a graphic designer should

> Signal the Big Idea of the story in the Big Picture - and make that big picture as big and as dominant as possible. Then, reinforce the big idea within the big picture with smaller ideas carried in the smaller pictures, to flesh out the big idea, add details, corroborate the thesis ... In visual terms, such attention-focusing is achieved most easily by the simple expedient of giving the important picture the size that shows its importance.

The size of the image of the young woman in relation to the amount of space taken up by the type shows that it is significant and has an important part to play in the transmission of the topic-focus of the text. This effect is accentuated by the fact that her image forms one half of the middle section of the page, and well over three quarters of the left hand side of the page. Further, her image carries visual weight in terms of the colour saturation provided by her dark dress, and the saturation provided by the dark hair

which frames her face and makes it more visually salient (which also has the effect of forcing the viewers' eyes to be directed towards her questioning face and eyes). The attracting sense provided by this monochrome colour saturation is mediated however by the salience of the top and bottom headings, which is realised by the black, large type font, and has the effect of balancing the 'weight' of the image's colour saturation. Further, the impact of her address to the viewers is compositionally supported through the choice of size of frame to realise a particular social distance. The medium close shot-size of the photographic image has allowed the visual constructor to load other messages into the visual through the inclusion of the safety helmet, the clipboard and the uniform, rather than having just the isolated, strong effect of a close up shot of her eyes dominating. It is not simply a question being asked, but a question with other features in the context of who she portrays herself to be, and what she is shown as being capable of doing.

In relation to the **degrees of *framing of elements on the page***, the first and most obvious feature here is the fact that the page space can be divided up clearly into four balanced sections. This is represented in Figure 3.


```
nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn
nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn

                    │ nnnnnnnnnnnnn
    IMAGE           │ nnnnnnnnnnnnn
                    │ nnnnnnnnnnnnn
                    │ nnn
                    │        symbol

nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn
nnnnnnnnn
```

Figure 3   Framing on the page

In many texts visuals often compete to varying degrees with the verbal aspect of the text for page space. Here however, there is no sense of competition but a clear demarcation and balancing in terms of spatial allocation. There are uniform proportional divisions between the verbal (type) space and the visual space of the photograph and insignia. In fact the insignia seems to form a sort of visual 'full-stop' to the right hand block of verbal text.

This text displays a typical clear division in framing terms. Although there is no conventional but strict framing device like a drawn-in line border, there is an orderly, clear space around the visual to delineate it precisely from the other parts of the page. The image is not however forcing the type to conform to its shape, a technique referred to as a runaround and commonly used by graphic designers for effect—a dangerous one since in design terms whenever it is used there must be some sacrifice in legibility (White, 1982: 106-7). Here there is a clear even space between the visual and the type, so that the arrangement of the elements on the page in relation to each other creates a sense of unity and little if any sense of competition for page space. The overall effect for the reader is of textual *intersemiotic complementarity*, in that the image forms an integral part of the page, the two modes in a sense occupy their page spaces in an orderly and non-disruptive way, and the reader retains a sense of visual unity so that the message can be easily projected. These intersemiotic textual features work in concert with the interpersonal and ideational intersemiotic semantic relations in the text to satisfy several conditions of *intersemiotic complementarity*.

So far, we have found evidence supporting the realisation of *intersemiotic complementarity* on the page in terms of *information valuation, salience* and the degrees of *framing of elements*. The next sections will deal with two other important aspects of textual (composition) *intersemiotic complementarity*, that of *inter-visual synonymy* and the effect of potential **reading paths**.

In many multimodal texts there is often more than one visual utilised, and in *The Economist* magazine this can potentially include naturalistic photographs, sketch caricatures and drawings, or mathematical tables, charts, graphs and diagrams. When visuals have been derived from the same coding orientation, there is potential for them to co-operate on the page also. This *complementarity* is often realised through what may be termed *inter-visual synonymy*, where there is some semblance in form across the page, which in a sense mirrors the meaning expressed by both visuals. An examination of this visual to visual interface in the WMI text shows this kind of *inter-visual synonymy* in the insignia on the young woman's helmet and under the right hand verbal text, where it forms some kind of a 'full stop' to the text. The primary or first-order function of the insignia is to identify the WMI corporation, and the fact that it is also placed prominently (in the centre) of the helmet above the visually salient eyes projects a clear associative message initially of group membership, but more importantly of association with the values projected by the safety-conscious, managerially-efficient, with her future-all-before-her company trainee. This is an interesting example of how two different coding orientations, the naturalistic and straightforward abstract or symbolic, complement each other in reinforcing the *intersemiotic complementarity* inter-visually and between the visual and verbal modes.

An aspect which is interdependent with the compositional principles of *information value, salience, framing* and *visual synonymy* on the page discussed so far is that of potential **reading paths**. Kress and van Leeuwen (1996: 218-223) discuss this when they refer to 'linear' and 'non-linear' compositions. The former refers to the strictly coded verbal text of English, which in its single-mode form must be read from left to right (e.g. a novel), and the latter to multimodal (composite) texts which can be approached in alternative non-linear (circular, diagonal, spiralling) ways (e.g. newspapers, magazines). Reading paths relate to the hypothetical viewer's eye movement from the most salient points in the composition to the next or less salient points. There is of course a cultural element to this in that viewers from different cultures (and even different age groups or educational backgrounds and contexts) may read a visual in differing ways.

Kress and van Leeuwen also comment about the reading paths commonly used in magazines and newspapers, comments that are relevant to the interpretation of *The Economist* magazine text in this paper. They suggest that the reading paths followed in magazines often involve the readers flicking through and stopping as pictures or headlines catch their eye, and then perhaps returning to the articles which piqued their interest. Alternatively, they may go straight to the article relating to the front page topic or headline, or to their favourite columnist, or the sports section. Many readers of newspapers may in fact read the back page first. Thus the reading path is selective and partial, as opposed to strictly linear. They comment further that

> whether the reader only 'reads' the figure and the headline [referring to a magazine text they are discussing], or also part of the verbal text, a complementarity, a to-and-fro between the text and image, is guaranteed ...... the most plausible reading path is the one in which readers begin by glancing at the photo, and then make a new start from left to right, from headline to photo, after which, optionally, they move to the body of the verbal text. Such pages can be scanned or read, just as pictures can be taken in at a glance or scrutinised in their every detail (Kress and van Leeuwen, 1996: 218-219).

An interview with Ms. Penny Garrett (1994), the Chief Editor of Graphic Design at *The Economist* magazine's corporate headquarters in London reveals that this is precisely what the graphic designers of each issue of *The Economist* magazine assume that their readers will do, and so they attempt to construct their issues accordingly. Kress and van Leeuwen's use of the term 'complementarity' here is interesting ―― in the above quotation the term is used in a different sense to the usage in this study, in that their usage refers generally to the fact that a reader of a multimodal text tends to read all elements of a multimodal text in some culturally-determined way or direction. *Intersemiotic complementarity* in this paper however is a theoretically-motivated term which is used to explain not only why a reader does move 'to-and-fro between the text and image', but also what intersemiotic resources are drawn upon to produce this sense in the reader that the text before him or her is a single, coherent multimodal text.

Another influence on the reading path is the way that visual saliency is interdependent with placement in the visual field. This is concerned with Arnheim's (1988) work on left-right directionality, and relates to the reading path that a typical reader will follow. In the WMI text it could easily be assumed that the first thing seen by viewers would perhaps be the image of the young woman addressing them directly with a question. This could be due to the photograph having its own visual 'weight' because of its placement on the left hand side of the visual frame or field, and the fact that it would be the first thing that the eye could catch. The next thing seen would be visually salient, and in the WMI text this would be the question asked at the top of the page — this question occupies the upper sectors of the visual frame and so carries its own 'weight' in that sense. So the constructor of any multimodal text must take account of the fact that readers will assume that visuals are part of the page space and that they will be viewed as part of the whole text. They would therefore attempt to include visual and verbal instances which can readily realise *intersemiotic complementarity* in ideational, interpersonal and textual (composition) terms.

Conclusions

In this paper a framework for the analysis of page-based multimodal texts has been presented in an attempt to prove the proposition that *intersemiotic complementarity* obtains when a range of conditions are met. To that end it has been argued that a metafunctional interpretation of visual-verbal intersemiotic relations in multimodal text would prove fruitful in clarifying the ways that the intersemiotic relations in multimodal texts are realised. It has also been argued that both the verbal and visual modes project their meanings in concert, and that this interrelationship is one of *intersemiotic complementarity*. Through an analysis of the WMI text in terms of the three metafunctions, the ideational, the interpersonal, and the textual (composition), it has been demonstrated that in this text this *complementarity* is realised ideationally through the intersemiotic lexico-semantic sense relations of *repetition, synonymy, antonymy, hyponymy, meronymy*, and *collocation*, interpersonally through meanings projected in both modes through the *reinforcement* of intersemiotic forms of *address* (MOOD), and intersemiotic *attitudinal congruence* and *dissonance* (modality) relations, and textually (compositionally) via the complex interplay of various compositional relations of *information value, salience, framing, inter-visual synonymy*, and *reading paths* on the page.

It is clear also that just one text like the WMI text is an amazingly rich source of complexity in multimodal meanings and *intersemiotic complementarity*, and that there are further areas which would be rich avenues of exploration, and levels of delicacy in analysis which could be developed further. One area which may be very interesting is how the visual and verbal modes realise *intersemiotic complementarity* at the level of a multimodal text's discourse structure, and even in terms of texts as realisations of a particular generic structure. It is also of interest to an investigation of the ways that *intersemiotic complementarity* is realised when applied to other modes such as the aural-visual on television. Finally, the kind of analytical framework introduced here has elements which could make this a particularly useful tool in first and second language pedagogy, especially in many of the subject areas which frequently utilise multimodal methods of projecting meaning.

Notes
1. The use of the term *complementarity* in this paper differs substantively from Greimas' usage, that of a logical relation between semantic oppositions as represented in his 'semiotic square' (see Nöth, 1990: 318-319). The term has also been used in research on the nature of the relationship between speech and writing — the views of this relationship suggest that it is one of heteronomy, or of autonomy, or of partial to full interdependence or complementarity (see Nöth 1990: 262-263). Complementarity in

this latter area means that writing and speech can influence each other in linguistic communication, and thus are fully interdependent.

2. Barthes (1977: 41) explores this phenomenon briefly in his exposition of *relay* between text and image, where he claims that 'text and image stand in a complementary relationship; the words, in the same way as the images, are fragments of a more general syntagm and the unity of the message is realised at a higher level'. Thus *relay*, in terms of an interpretation of the total message of the verbal/visual text involves a reciprocal association between both the verbal and visual (image) constituents, with each mode contributing to the overall message projected. The actual mechanisms by which these mode-based contributions produce this 'more general syntagm' are not explored in any depth by Barthes.

References

Arnheim, R. (1969) *Visual Thinking*. Berkeley and Los Angeles: University of California Press.

Arnheim, R. (1974) *Art and Visual Perception*. Berkeley and Los Angeles: University of California Press.

Arnheim, R. (1988) *The Power of the Centre: A Study of Composition in the Visual Arts*. Berkeley and Los Angeles: University of California Press.

Barthes, R. (1977) *Image, Music, Text*. New York: The Noonday Press.

Brown, G. and Yule, G. (1983) *Discourse Analysis*. New York: Cambridge University Press.

Dijk, T. A. (1977) *Text and Context*. London: Longman.

Dondis, (1973) *A Primer of Visual Literacy*. Cambridge, Massachusetts: The MIT Press.

Dyer, G. (1982) *Advertising as Communication*. London: Methuen.

Eco, U. (1976) *A Theory of Semiotics*. Bloomington: Indiana University Press.

Fiske, J. (1982) *Introduction to Communication Studies*. (2nd ed.) London: Routledge.

Garrett, P. (1994) Interview with Chief Editor of Graphic Design of *The Economist Magazine*, London: 17th August.

Gombrich, E. (1960) *Art and Illusion: A Study of the Psychology of Pictorial Representation*. London: Phaidon Press Ltd.

Halliday, M.A.K. (1978) *Language as Social Semiotic*. London: Edward Arnold.

Halliday, M.A.K. (1985) *An Introduction to Functional Grammar*. London: Edward Arnold.

Halliday, M.A.K. (1994) *An Introduction to Functional Grammar*. (2nd ed.) London: Edward Arnold.

Halliday, M.A.K. & R. Hasan. (1976) *Cohesion in English*. London: Longman.

Halliday, M.A.K. & R. Hasan, (1985) *Language, Context and Text: Aspects of Language in a Social-semiotic Perspective*. Oxford: Oxford University Press.

Hasan, R. (1997) Plenary Address: 'Paradigm Orientation: In the Scheme of Things: Systemic Functional Linguistics and Human Life'. International Systemic Functional Congress, York University, Toronto, Canada, Monday, July 21st.

Hasan, R. (in press) Society, Language, and the Mind: The Meta-dialogism of Basil Bernstein's theory. In F. Christie (ed.) *Pedagogy and the Shaping of Consciousness: Linguistic and Social Processes*. London: Cassell.

Hoey, M. (1983) *On the Surface of Discourse*. Boston: George Allen and Unwin.

Jenks, C. (ed.) (1995) *Visual Culture*. London: Routledge.

Kress, G & van Leeuwen, T. (1990) *Reading Images*. Geelong, Victoria: Deakin University Press.

Kress, G & van Leeuwen, T. (1996) *Reading Images: The Grammar of Visual Design*. London: Routledge,.

Marchese, F. ed. (1995)*Understanding Images: Finding Meaning in Digital Imagery*. Santa Clara, California: TELOS - The Electronic Library of Science, Springer-Verlag Publishers.

Maybury, M.T. (ed.) (1993) *Intelligent Multimedia Interfaces*. London: AAAI Press/The MIT Press.

McLuhan, M. (1964) *Understanding Media: The Extensions of Man*. New York: Signet Books.

Nöth, W. (1995) *Handbook of Semiotics*. Bloomington: Indiana University Press.

Ong, W. (1982) *Orality and Literacy: The Technologizing of the Word*. (New Accents Series) London: Methuen.

O'Toole, M. (1994) *The Language of Displayed Art*. London: Leicester University Press.

O'Toole, M. (1995) A Systemic-Functional Semiotics of Art. In Peter Fries & Michael Gregory, *Discourse in Society: Systemic Functional Perspectives*. (Vol. L in the series Advances in Discourse). Norwood, N.J.: Ablex.

Random House, (1992) *Random House Webster's Electronic Dictionary and Thesaurus*. Version 1.0, Reference Software International.

Saint-Martin, F. (1987) *Semiotics of Visual Language*. Bloomington: Indiana University Press.

Saussure, Ferdinand de. (1916/1966) *Course in General Linguistics*. New York: McGraw-Hill Paperbacks.

Schapiro, M. (1973) *Words and Pictures: On the Literal and the Symbolic in the Interpretation of a Text*. The Hague: Mouton.

Stubbs, M. (1983) *Discourse Analysis*. Chicago: University of Chicago Press.

Tufte, E. R. (1983) *The Visual Display of Quantitative Information.*, Cheshire, Connecticut: Graphics Press

Uspensky, B. (1973) *A Poetics of Composition*. Berkeley and Los Angeles: University of California Press.

White, Jan V. (1982) *Editing by Design*. (2nd ed.) New York: R. R. Bowker Company.

Appendix
Waste Management International Advertisement, *The Economist*, September 2nd, (1995) p. 30.

Does your environmental policy meet your granddaughter's expectations?
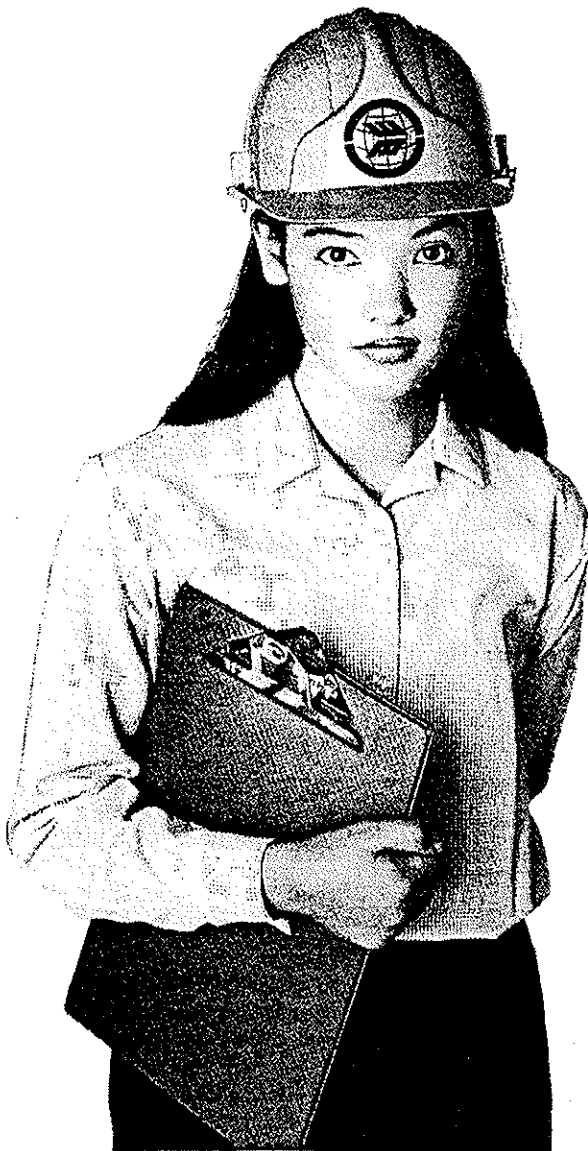
Is your business or community among the millions of customers across the world already using our environmental services?

If it is, you'll be aware of our total commitment to protecting and sustaining the environment.

Why? Because we believe a high standard of performance is good for the environment and essential to maintain the public trust and the confidence of our customers and investors.

We also believe our services – integrated waste management – have an important role in the drive towards sustainable development.

In plain language, that means we'll help our customers reduce, reuse and recycle unwanted material wherever possible and manage residual wastes in ways that safeguard the environment now and in the future.

Finally, we feel openness is fundamental to the success of our operations. So we're happy to discuss our environmental policy and talk about our people's commitment and performance.

For more information about our total commitment, please call us at Pacific Waste Management in Hong Kong: 852 2827 1383.

Waste Management International
A WMX Technologies Company

Total Commitment to a Sustainable Future