

*Alison Gibbons**

Multimodal Literature ‘Moves’ Us: Dynamic Movement and Embodiment in *VAS: An Opera in Flatland*

Abstract

Multimodality is a recent academic development, fuelling a surge of related research (Kress/van Leeuwen 1996; 2001; Baldry/Thibault 2006; Royce/Bowcher 2007). In parallel to this, the turn of the millennium has seen an increase in the inclusion of typography, graphics and illustration in fiction yet, with only a few exceptions (Gibbons forthcoming a; forthcoming b), printed literature has often been neglected in multimodal study. Focusing on the ‘imagetext novel’ *VAS: An Opera in Flatland*, written by Steve Tomasula and designed by Stephen Farrell (2002), this paper explores multimodal printed literature through cognitive-poetic analysis. The examination of visual elements is aided by theories from visual perception and multimodal research. This cognitive and perceptual methodology is strengthened through reflection upon recent findings from neuroscientific work on embodiment. In consequence, this paper presents a fresh approach to multimodality, an approach which not only attends to all modes of meaning-making equally, as well as collaboratively, but one which considers the cognitive and embodied aspects of a multimodal literary experience.

1. Introduction

The turn of the millennium has seen an increase in the inclusion of typography, graphics and illustration in fiction. Nevertheless, multimodal literature, that is literature that utilises more than one semiotic mode in the expression of its narrative, is not a new literary phenomenon. In fact, the practice is long standing. For instance, one need only think of

* *Alison Gibbons*
University of Sheffield
School of English Literature, Language and Linguistics
Sir William Empson House
Shearwood Road
Sheffield, South Yorkshire
S10 2TD, England
a.gibbons@sheffield.ac.uk

William Blake's 'illuminated printing' in the 18th century, and even this has many precedents.

The millennial revival of multimodality has resulted not only in major publishing houses releasing works with graphic elements. It also means that one can identify a spectrum of multimodal literature. This ranges from using pictures in a merely illustrative fashion, as can be seen in Alex Garland's *The Coma* (2004) and Marisha Pessl's *Special Topics in Calamity Physics* (2006) for instance, to a mediating form in which type face, type setting and images play a role in the progression of the narrative, of which *Extremely Loud and Incredibly Close* by Jonathan Safran Foer is an example. Toward the extremity of the spectrum are situated texts in which the presence of visual modality forms a more equal relationship between verbal and visual. In other words, the different modes of expression are located on the page not in an autonomous or separate fashion, but in such a way that, while these modes have distinct means of communicating their narrative voice, they constantly interact in the production of textual meaning. As a result, they often emphasise the dynamic and embodied nature of the practice of reading.

In this paper, I will be considering an extreme example of multimodal printed literature, namely *VAS: An Opera in Flatland* by Steve Tomasula and Stephen Farrell (2002). The paper will explore the readerly encounter with the novel *VAS* using cognitive poetic analysis, including the consideration of recent neuroscientific evidence of embodied cognition. The examination of visual elements will employ theories from visual perception and multimodal research. Frameworks used in the course of the paper will be elucidated as they emerge in analysis. The theoretical merger of cognitive poetics and multimodal research enables an original approach to multimodal texts. Expanding on existing work in multimodal studies (Kress/van Leeuwen 1996; 2001; Burn/Parker 2003; O'Halloran 2004; Ventola et al. 2004; Carlsson et al. 2005; Cranney-Francis 2005, Baldry/Thibault 2006; Royce/Bowcher 2007; Baldry/Montagna forthcoming; Gibbons forthcoming a; forthcoming b), this approach advances current applications by considering the cognitive possibilities produced by and implications of the interaction of modalities in a literary context.

1.1. Multimodal study

Multimodality is a theoretical endeavour of the 21st century as the recent arrival and surge in publication on the topic illustrates (Kress/van Leeuwen, 1996; 2001; Ventola et al. 2004; Levine/Scollon 2004; O'Halloran 2004; Carlsson et al. 2005; Baldry/Thibault 2006; Royce/Bowcher 2007). Presently, three books hold a prominent position in multimodal studies; Kress/van Leeuwen's (1996) *Reading Images: The Grammar of Visual Design*, Kress/van Leeuwen's (2001) subsequent book *Multimodal Discourse: the Modes and Media of Contemporary Communication*, and Baldry/Thibault's (2006) *Multimodal Transcription and Text Analysis*.

Kress/van Leeuwen's (1996) *Reading Images* brought multimodality into academic attention, referring to "composite or *multimodal* texts" which they define loosely as "any text whose meanings are realized through more than one semiotic mode" (Kress/van Leeuwen 1996: 183). In this seminal work, Kress and van Leeuwen put forward a framework to be used in study and analysis, which attends to the formal features of layout and design of both visual and multimodal texts. As such *Reading Images* was a groundbreaking publication, and retains its importance as a central resource in multimodal study.

In a later co-authored book, *Multimodal Discourse: the Modes and Media of Contemporary Communication*, Kress and van Leeuwen's approach shifts towards a greater social semiotic concern. In Kress and van Leeuwen's words, they "focus on *practices*", identifying "four domains of practice in which meanings are dominantly made" (Kress/van Leeuwen 2001: 4). These domains are Discourse, Design, Production, and Distribution. By acknowledging the production processes and technologies of multimodal texts, Kress and van Leeuwen's work presents a useful focus for the study of multimodality in an increasingly digital age.

Baldry/Thibault's (2006) *Multimodal Transcription and Text Analysis* is the latest textbook on multimodality. In this work, they articulate (2006: xv), "The term *multimodality* covers a diversity of perspectives, ways of thinking and possible approaches. It is not a single principle or approach. It is a *multipurpose* toolkit, not a single tool for a single purpose". Baldry and Thibault's work builds on Kress and van Leeuwen's by extending the multimodal toolkit as well as attending to addition-

al semiotic resources such as sound, for example in film dialogue and soundtracks.

This particular article is not the place for a lengthy review of the works briefly mentioned above (see Gibbons forthcoming for more discussion). Nevertheless, between these authors, a definition of multimodality can be agreed. In the narrowest sense, multimodality is the coexistence of more than one semiotic mode within a given context. In the widest, it is the experience of living; we experience everyday life in multimodal terms through sight, sound, movement... Even the simplest conversation entails language, intonation, gesture, and so forth. In today's world, multimodality in academic research seems to have become even more urgent and even more relevant. The present epoch is a technologically multimodal era. As technology progresses so too do the literary, poetic, and artistic forms of expression through that technology.

In the present study, I take a cognitive approach to multimodal texts. While I would be hesitant to engage in multimodal politics here, I can state with confidence that existing work in the field does not explicitly take account of the cognitive processes of readers, viewers, and receivers of multimodal texts. Thus, Baldry and Thibault's acknowledgement that there are many more avenues of analysis for multimodal study are encouraging. In consequence, the cognitive poetic analysis which follows is both original and revealing. Expanding on existing work in multimodal studies, this approach advances current applications by considering the cognitive possibilities produced by and implications of the interaction of modalities in a literary context.

1.2. Cognitive poetics

Cognitive poetics (Stockwell 2002; Gavins/Steen 2003) is a new approach to the study of literature, an approach which emphasises the cerebral procedures underlying the writing of a text in addition to those required by the reader in order to 'read', interpret, and comprehend the text as a literary artefact. In his textbook definition, Stockwell (2002: 1, original italics) briefly explicates the linguistic elements of the name: "*cognition* is to do with the mental processes involved in reading, and *poetics* concerns the craft of literature". Cognitive poetics is thus a discipline in which both the creativity and reception of a text are conceived as important elements in the production of textual meaning. It seeks to

look at form, style, and language in literature in context but through the conviction that structures of language and literary devices are expressions and materialisations of patterns of human thought. Thus as Gavins/Steen (2003: 1) put it, literature is “a specific form of human experience” and as such its study may reveal to us the cognitive practices by which we not only read literature but perceive and understand the world. Cognitive poetics is an approach constantly in the process of development, refining its frameworks alongside advancements in the domains of cognitive science and psychology upon which it draws.

Since cognitive poetics has an undeniable literary-linguistic inclination, having developed from stylistics among other sources, multimodal literary works may appear to pose a challenge to the discipline. Yet, as a discipline with an underlying cognitive inclination, cognitive poetics ought to be able to account for interpretive practice in its entirety, regardless of communicative mode. In their introduction to *Cognitive Poetics in Practice*, Gavins/Steen (2003: 1) make the following assertion:

The appeal of literature has been challenged by new art forms directed at new groups of audiences through new media, and it has become inevitable to consider the resemblance and difference between these art forms and literature in terms of their psychological and social effects. This is precisely what cognitive poetics promises to bring into view, by relating the structures of the work of art, including the literary text, to their presumed or observed psychological effects on the recipient, including the reader.

Gavins and Steen’s description of the goal of cognitive poetics shows that the discipline is conceived as applicable to all forms of artistic expression and, by implication, all forms of artistic expression therefore exhibit and demonstrate the cognitive capacities of human nature. While this is true, the idea behind it has yet to be fully investigated.

It is my belief that by using cognitive poetics, along with elements of visual perception and multimodal research, new light will be shed upon the reading experience of literary multimodality, including insights into the interaction of word and image on the page and, crucially, the way in which cognitive structures underlie both verbal and visual modes of expression. In addition, recent discoveries from neuroscience relating to embodied experience are utilised in order to plausibly analyse the embodied nature of the reading process. This interdisciplinary approach is

by no means an extraordinary leap since at the heart of these disciplines stands an essential desire to relate to general human experience and to advance understanding of the cognitive practices by which we see, read, and make sense of the personal and social world.

2. *VAS: An Opera in Flatland: Contextual information*

VAS: An Opera in Flatland (Tomasula/Farrell 2002) is described in the publisher's blurb as an 'imagetext' novel, including colour, images, and innovative typographical arrangements. Set in an unspecified future time, the novel's main plot centres upon a character named Square, who agonises over the decision to undergo a vasectomy at the request of his wife Circle. The names of these characters, complemented by the presence of their daughter Oval, are evidently shape nouns. This is significant as the subtitle of *VAS* is an intertextual allusion to Edwin A. Abbott's (1884) short novella, *Flatland: A Romance of Many Dimensions* which conceives of a world populated by two-dimensional shapes. As an English theologian, cleric, and teacher, Abbott was a prolific writer, but *Flatland* is considered his defining work, functioning both as a social satire and a creative science-fiction. The latter is underpinned by mathematical laws and abstract conjectures on time and space (the presence of a fourth dimension) which foreshadowed the scientific concerns of its period, particularly in the arena of theoretical physics. *VAS: An Opera in Flatland* engages with many of the topics of Abbott's novella, reflecting upon present-day American society while also extending Abbott's concern over scientific ethics by inspecting contemporary subjects of controversy. As such, the 'Flatland' in which the narrative of *VAS* is set is a world which is becoming progressively postbiological, with its culture of surgery, cloning, biological patenting, and genetic commerce. The book's structure augments these themes by utilising scientific quotation, facts and figures about the human genome and evolutionary process as well as commercial adverts related to cloning and DNA testing.

What differentiates *VAS* from many other multimodal printed novels is that it is a collaborative work between author and academic professor Steve Tomasula and graphic designer Stephen Farrell. Both are named on the book's cover and both of their names appear on the book's spine, giving them equal recognition. The working relationship between To-

masula and Farrell appears to be a partnership, implicit in the way in which they discuss the creative process of collaboration. In interview, Farrell accentuates the “writer and designer together” (Farrell qtd. in Burdick 1996: no pagination):

I think that just by allowing the designer to have the piece to work with, the writer is already allowing certain liberties to be taken. And it's important that they know and respect this up front: that design isn't just beautifying a piece, that's it's going to be co-authorship, a joint venture. In return the designer must respect the text, respect the craft of writing.

In this interview, Farrell continues to discuss his working relationship with Tomasula, giving the impression that both form and content were matters of debate between them in order to reach mutual decisions. Farrell's potent choice of wording, emphasising ‘co-authorship’ and ‘joint venture’, suggests that he perceives the designer's role to play an equivalent part to the writer in the final meaning-making potential of a text.

Collaborations between writer and designer inevitably raise important issues for multimodal studies, since they instantly destabilise notions of authorship and authorial intention. Farrell's employment of the prefix ‘co-’ and modifier ‘joint’ suggests that the power of a singular authorial figure is undermined. Interestingly, this is in accord with Barthes' (1968) deconstructive attack upon the supremacy and prestige attributed to the author in humanist thinking. Barthes (1968: 147) deems the notion of author to be restrictive, inflicting a limit upon the text and closing it off from numerous possibilities. Admittedly, Barthes' argument was somewhat deterministic since all texts are subject to various readings as is evident in literary criticism's ability to read the same text from different scholarly perspectives. Nevertheless, Farrell (Farrell qtd. in Burdick 1996: no pagination) sees design as opening up a text, “enriching meaning by creating contradiction, ambiguity, all the things that imagery can add; that presence, that immediacy”.

By displacing the author, Barthes bestows greater import on the active responsibility of the reader, postulating (1968: 148);

a text is made up of multiple writings... but there is one place where this multiplicity is focused and that place is the reader, not, as was hitherto said, the author. The reader is the space on which all the quotations that make up a writing are inscribed without any of them being lost; a text's unity lies not in its origin but in its destination.

Like Barthes, (multimodal) cognitive poetics does not recognise the author as the sole determiner of textual meaning, but also looks to the reader. However, even with its acute attention to the cognitive reception of texts, cognitive poetics would not agree with Barthes' (1968: 148) now much-quoted words, "the birth of the reader must be at the cost of the death of the author". Rather, the production of meaning is a 'joint venture' between author(s) and reader(s).

Multimodal texts, particularly those which are a shared creative vision of two or more authorial minds, intensify the multiplicity of literary writing. Their polyphonic nature, composed of "writing and design... interdependent modes of representation" as Farrell (qtd. in Burdick 1996: no pagination) would term it, exposes the reader to multiple forms working in synchronicity to communicate narrative meaning. Thus such works assign further cognitive demands to the reader than the conventional novel. Since the reader must negotiate and make sense of not only a multiplicity of meanings, but also of modes which in turn expand and add to those meanings, it is imperative to analyse *VAS: An Opera in Flatland* (Tomasula/Farrell 2002) using an approach which considers readerly cognitive and imaginative process as well as the novel's multimodal design.

3. Analysis

3.1. Into *VAS*

VAS: An Opera in Flatland is a novel with an unusual narrative inception (Tomasula/Farrell 2002: 9-10): "First Pain / Then Knowledge: a paper cut". At the story level, this refers to a physical act: while writing, the main character Square has given himself a paper cut. Importantly, the opening sets up the theme of embodiment, which grips the novel. Embodiment is a central concept in cognitive science, linguistics, and poetics (Johnson 1987; Varela et al. 1991; Lakoff/Johnson 1999; Glenberg/Kaschak 2002; Gibbs 2005; Gibbs 2006, Zwaan/Taylor 2006), which consider mind and body as a syndicate through which conceptual information is understood. As Gibbs (2005: 66-67) articulates,

Cognition is what happens when the body interacts with the physical/cultural world. Minds are not internal to the human body, but exist as webs encompassing brains, bodies, and world... "embodiment" re-

fers to the dynamical interactions between the brain, the body, and the physical/cultural environment.

Thus, it is the body's physical, sensory, and perceptual interactions within the world that influence the way in which the mind structures and conceptualises human experience.

A framework that has been central to cognitive poetics, and more significantly, which is seen to demonstrate the connections between conceptual and embodied experience is conceptual metaphor theory (Lakoff/Johnson 1980; Lakoff/Turner 1989; Lakoff/Johnson 1999; Turner 2000). Conceptual Metaphor theory has been a substantial research area since the 1980s, suggesting that human conceptual patterns are metaphorical by nature. They always consist of a familiar, often bodily, source domain and an abstract target domain. Conceptual elements from the source are transferred through metaphoric connection to the target which is often re-characterised as a result. In this way, conceptual metaphors provide a means for understanding abstract concepts (the target) by comparison to a basic-level domain (the source) which is grounded in bodily and/or everyday experience.

One of the most frequently cited examples of a conceptual metaphor is known as the CONTAINMENT metaphor. This metaphor, which is based upon the physical understanding of containment, relies upon a structure of inside, outside, and boundary between (Lakoff/Johnson 1999: 32). Obviously, it is not difficult to think of everyday objects which exemplify containment; a box, a cup for tea, etc. We even perform many actions on a daily basis which rely upon experiential containment such as getting into bed at night or out of bed in the morning, walking into or out of a room. The fact that these physical manifestations are an essential factor in forms of conceptual understanding can be seen in idioms such as "getting the most *out* of life" or in the common notion of being "*in* love" with someone. My italics show that the prepositions 'in' and 'out' play a significant part in the CONTAINMENT metaphor. Moreover, each of the examples given presents a different variation of the CONTAINMENT metaphor, the former being LIFE IS A CONTAINER while the latter is LOVE IS A CONTAINER. In both cases, a concrete domain (CONTAINER) is mapped onto an abstract domain (LIFE and LOVE respectively), demonstrating the pervasive influence our bodies and bodily experience has upon conceptual thought.

Significantly, conceptual metaphor theory is particularly suited to the analysis of multimodal texts since as it underlies the way in which human thought is organised, conceptual metaphors are articulated and perceptible within all forms of human representation. Indeed, Crisp (2003: 100) states, “[m]etaphor can be expressed in different modalities because its underlying reality is conceptual and so not confined to any single mode of expression”. Notably, recent work on conceptual metaphor has begun to tackle non-linguistic manifestations (e.g. Forceville 2005; Gibbons forthcoming a; Gibbons forthcoming b).

The opening to the novel *VAS: An Opera in Flatland* (Tomasula/Farrell 2002) foregrounds embodied meaning. Moreover, the initial sentence, “First Pain / Then Knowledge: a paper cut” (Tomasula/Farrell 2002: 9-10), spans two pages, and the positioning of these pages within the book requires a page-turn in its midst. As a result, Tomasula/Farrell (2002) ensure that from the moment a reader picks up the novel, s/he is affected immediately by the materiality of the book, thus foregrounding the embodied aspect of the practice of reading literature.

3.2. Around *VAS*

Tomasula and Farrell explore the theme of embodiment both thematically through the novel’s interest in genetic modification as well as multimodally by designing the visuality of the book to emphasise its status as a material artefact with which the reader interacts. In this way, *VAS* seeks to involve the reader physically in its narrative. At the end of a highly political discussion of genetic development, ethnic cleansing and U.S. legislation, the nature of the universe of the book as a ‘flatland’ is suddenly referenced (Tomasula/Farrell 2002: 139): “...astronomers concluded, the universe... must be... flat”. The last linguistic content of this page appears in a very small elaborate font. More unusually, these final words are upside-down:



Figure 1. “Still, it Moves” (Tomasula/Farrell 2002: 139)

Due to the diminutive type size and ornate script-like font, it is difficult to read this clearly without rotating the book. On doing so, one is able

to decipher the text as “Still, It Moves”. The word ‘move’ is defined by the OED as to ‘go or cause to go in a specified direction or manner’ or ‘change or cause to change position’. It is therefore associated with dynamic action. Even when the word ‘move’ is used metaphorically, such as expressing that we ‘feel moved by’ something, it is underwritten by a conceptual metaphor (EMOTION IS MOTION) which relies upon our experiences of physical manipulation and activity. This is in line with cognitive linguistic dogma, believing that all abstract thinking, particularly metaphor is grounded in bodily experience (Lakoff/Johnson 1980; 1999; Johnson 1987; Sweetser 1990; Gibbs 2005; 2006).

Research in cognitive science and neuroscience demonstrates that embodied experience is fundamental to linguistic processing and comprehension, particularly in the usage of action verbs such as ‘to grasp’, both when they are used literally (‘He grasped the handle’) (Glenberg/Kaschak 2002; de Vega et al. 2004; Hauk et al. 2004; Zwaan et al. 2004; Gallese/Lakoff 2005; Pulvermüller 2005; Pulvermüller et al. 2005; Tetamanti et al. 2005; Zwaan/Taylor 2006; Glenberg 2007) and when they are used metaphorically (‘He grasped the idea’) (Wilson/Gibbs 2007). The former research evidences that when reading action-related sentences, some of the same regions in the brain are activated as when performing the action, thus priming the neurological circuitry for the linguistically-referenced movement. Although this research looks at action verbs which are specifically related to parts of the body (e.g. ‘grasp’ is associated with the hands), it nevertheless suggests that “real bodily action is at the root of meaning conveyed by language” (Glenberg/Kaschak 2002: 653). Thus, the word ‘moves’ in *VAS*, like all uses of this word, has an undeniable motoric dimension.

Furthermore, it is significant that the reader must physically move the book in order to read, ‘Still, It Moves’. The priming operation of language for action also works in reverse; language which refers to a said action can be processed with increased speed and ease if a subject has previously performed that same action. This can be inferred from Glenberg/Kaschak’s (2002) results as well as Pulvermüller et al.’s (2005), who show that “sensorimotor areas can play a specific functional role in recognizing action words” (Pulvermüller et al. 2005: 795). Wilson and Gibbs (2007) also reach a similar conclusion which Gibbs (2005: 88) summarises; “performing an action facilitates understanding of a figurative phrase containing that action word, just as it does for lit-

eral phrases”. Consequently, the kinesthetic movement of rotating the book primes the concept of ‘movement’ and assists linguistic comprehension of ‘Still, It Moves’.

It is also worth noting that the visual feature on this page (Tomasula/Farrell 2002: 139), a diagrammatic swirl of arrows which resemble the shape of a tornado, may also contribute to this process since the direction and curvature of the arrows appear to be acting under a centripetal force thus creating the impression of rotary motion. In this way, the diagram may be a form of pictorial priming for rotational movement. If this is the case, ‘Still, It Moves’ is a multimodal inscription. In reading it, word, image, and physical kinesthetics are cognitively and neurologically united.

Above the words ‘Still, It Moves’ is written (Tomasula/Farrell 2002: 139), “After all, if a person turned Galileo’s telescope end-for-end and looked through it, wouldn’t an elephant appear to be the size of an ant?” This hypothetical and rhetorical question is concerned with perception – looking at something in a different way or from a different vantage results in a different vision. This is lucidly pertinent to the reader’s experience of ‘Still, It Moves’ since it is only by altering their approach to the text, physically rotating it as with Galileo’s telescope, that the words may be comprehended.

The reference to Galileo becomes even more important overleaf where on the right hand page ‘Still, It Moves’ is repeated (Tomasula/Farrell 2002: 141), having been imprinted in exact replication of its previous appearance. Above this, appear a series of vertically aligned circles and foreign words, of which “Eppur, Si Muove” sits central and in larger type. The lowest line of this archaic inscription seemingly authenticates the material with a date (April and the year in roman numerals) and signatory. The presence of a signatory, seemingly named as Galileo, enables the reader to infer that the mysterious words, “Eppur, Si Muove” belong to the seventeenth century astronomer and physicist Galileo Galilei. “Eppur, Si Muove” is, in fact, an Italian phrase which Galileo is reported to have muttered at the close of the inquisition of 1633 as he rose from his knees after having recited the abjuration in which he was forced to retract his belief in the Copernican solar system, namely that the earth (and all planets) move in orbit around the sun (Fahie 1903: 324; Næss 2005: 177). While this speech has been discarded

as inaccurate by historians and biographers, it nevertheless holds magnitude for a reading of *VAS*.

To begin with, the ‘O’ in “Eppur, Si Muove” is not realised in the same typography as the rest of the words. It is actually created using one of the vertical circles. These circles, ten in total, can be said to represent nine planets and the earth’s moon in the solar system, an idea confirmed by the heading word ‘Mérídanum’. This version of the word ‘meridian’ refers in astronomy to an imagined circle passing through the celestial poles and zenith of a given place, enabling astronomers to plot the positions of stars and planets. In effect, the reader holds in their hands a solar system, all be it a two-dimensional flatland version. By paying attention to both the linguistic content and visual design in this extract, the semantic inferences triggered by each semiotic mode interact with each other, bringing the interpretation articulated here into focus.

Since ‘Still, It Moves’ once again sits upside-down at the bottom of the page, the book requires rotation. Those readers who choose to revolve the book in this manner, rather than lazily reading it ‘wrong way up’, take on the role of the sun spinning the planets, putting them into orbit, so to speak. This physical interaction creates a multimodal conceptual blend in which the notion of the sun is transposed upon the reader. Thus, like the sun for the earth, the reader is a life-giving force for the novel, bringing it ‘alive’ in cognitive terms. Ultimately, it is the reader’s corporeal transaction with *VAS* that enables meanings such as this to arise.

3.3. Out of *VAS*

In terms of sensory modalities, the physical body is part of the haptic sense. As cognitive scientists, Lederman/Klatzky (2001: 71) explain, “People use the haptic system to perceive and interact with the world of concrete and virtual objects”. Laura Marks (2002: 2) also offers a definition, affirming the haptic sense comprises “the combination of tactile, kinesthetic, and proprioceptive functions, the way we experience touch both on the surface and inside our bodies”. Media critic Laura Marks and art theorist Jennifer Fisher (1997) consider haptic perception in relation to cinema, and art and exhibition spaces, respectively. In considering artistic forms and genres that utilise a haptic aesthetic, as Fisher

might term it, they share a promising ideal of the affect such works have on the reception process. While their discussions focus upon more explicitly visual mediums, a shared idea is equally relevant to *VAS* and the genre of multimodal literary print novels in which it is situated. To quote Marks (2002, p.18) (but with *VAS* in mind), "...by appearing to us as an object with which we interact rather than an illusion into which we enter, [it] calls on [a] sort of embodied intelligence. In the dynamic movement between optical and haptic ways of seeing, it is possible to compare different ways of knowing and interacting...". Moreover, in his seminal work, *The Body in the Mind*, Mark Johnson (1987: xix) states:

The centrality of human embodiment directly influences what and how things can be meaningful for us, the ways in which these meanings can be developed and articulated, the ways we are able to comprehend and reason about our experience, and the actions we take. Our reality is shaped by the patterns of bodily movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects. It is never merely a matter of abstract conceptualizations and propositional judgements.

Since embodiment is fundamental to human understanding and experience, it seems logical to suggest if the body is more involved in the act of reading, then that particular reading may become more meaningful, or loaded with greater significance, as a result. In an article on synaesthesia in poetic language, Shen/Cohen (1998: 125) discuss the organisational ranking of modalities along a scale from high to low. Sight is the 'highest' modality, followed by sound, smell, and taste, with the 'lowest' modality being that of touch. Following Johnson/Lakoff's (1980; 1999) ideas on embodiment, they convincingly argue that concepts belonging to lower modalities are more accessible since they "involve a more direct, less mediated experience of perception" (1998: 128). Therefore, by tapping into the lower modality of (haptic) touch using the immediate contact of the reader with the text through bodily experience, Tomasula and Farrell enhance the accessibility of their narrative world making *VAS* a more vivid reading experience.

4. Conclusion

Since cognitive processes underlie every act of reading and interpreting, I believe a cognitive approach to multimodality, complete with rig-

orous attention to textual detail, will yield invaluable insights into both human understanding and multimodal forms. A more traditional multimodal perspective of the extract of *VAS* analysed above could certainly have produced an interesting account of the extract's style and design features. However, by adding a cognitive dimension to the analysis, I have been able to reveal the experiential impact that literature which explicitly stimulates the senses may have upon on the reader. Cognitive poetics, with its close focus upon stylistic features and reader involvement, reveals multimodal novels as complex and dynamic forms which induce the reader to invest in narrative physically as well as cognitively. Analogous to our bodies, composed of various matter, chains of DNA, and encompassing our genetic histories, *VAS: An Opera in Flatland* is multimodal in its employment of the visual, verbal, and somatosensory which collaborate in the production of textual meaning. It demands that, in reading, we employ the capacities of our senses and of our bodies. Multimodal printed literature, such as *VAS*, not only moves us figuratively speaking, it literally makes us move.

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