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The book as a tunnel

ABSTRACT

Through our first repeated interaction with books, we come to recognize recurring elements in these experiences, such as verso and recto pages, covers, spine, etc., and relationships between these elements (front/back, part/whole, etc.). Such interactions enable us to construct abstracted mental representations of the book, which are simpler than any single physical instantiation, but indicative of many other books. This schematization provides the basis for a range of structures and pathways that can be linked, or mapped, onto text and imagery in both conventional and unconventional ways. Through metaphor and metonymy, basic concepts evoked by schematic book-form can link with words and images to make new meaning. Therefore, rather than thinking of the book page as simply a substrate onto which the printed word is inscribed, it can be understood, for example, as a slice of time and/or space, and such an understanding provides opportunities for making associations with text and imagery. Consequently, the book is not necessarily a neutral carrier of meaning but can prompt the reader to think in particular ways about how information is presented. This article will explore the book-form as a source of schematic structure that can be linked and blended with other elements to instantiate texts in diverse and creative ways. Using ideas from conceptual metaphor theory and conceptual blending theory, it will focus on one metaphorical understanding of the book: book as a tunnel, to highlight possibilities for integrating the physical and visual forms of books with book texts. The tunnel book is a format that has been explored by book artists in which apertures are cut into pages, suggesting movement through, rather than around pages. This article discusses a book that utilizes the notion of cutting through a book, but instead, seeks to evoke this effect through imagery and the conventional codex rather than by piercing the book page and utilizing the tunnel book format. I provide an account of how a sense of moving through a tunnel is projected onto

experiences of moving through a book. I also discuss the ways in which these two parallel experiences can be blended with other metaphorical journeys, in this case progression through a course of postgraduate study.

INTRODUCTION

What do we mean when we talk about 'form' and should this concept be positioned in opposition to other notions such as that of 'content'? From Beatrice Warde's provocative essay 'The crystal goblet' (1956) to Michael Rock's treatise 'Fuck content' (2009), questions have arisen about the relationship of these two concepts with graphic production. To what extent should we consider book form and content to be bound together? Common notions about books suggest that a particular *form* (book format) can have different *content* (text and/or imagery) 'flowed' through it. Such an understanding is implicit in software such as QuarkXPress and InDesign in which a formal framework of text boxes is established first before text is flowed into it. In this way, book form can be thought of as an independently existing container for textual content. In a book series, the use of the same book format for different texts asserts some categorical relationship between them. Conversely, two differently designed editions of Charlotte Brontë's, *Jane Eyre: An Autobiography* (first published in 1847) using unrelated formats might nevertheless be considered to be the same book. In this case, content is conceptualized as the fixed element, and form as the irrelevant, variable element.

For Rock (2009), graphic form provides opportunities to build a body of work characteristic of the concerns of an auteur, in much the same way as a Hitchcock movie exhibits film form through its treatment of content and its use of storytelling. But in this endeavour, the distinction between form and content begins to break down, since, as Rock notes:

> So the trick for the designer is to find ways in which to speak through treatment […] It is in this way that a designer builds a body of work and that body of work starts to become a kind of organized content in itself. The content is in short, always Design itself.
>
> (2009)

The use by Rock of words such as 'treatment' and 'design', although not synonymous with form, at least suggests an attention to formal concerns. The blurring of the distinction between form and content suggested by this passage arises because both content *and* form are construed as meaningful: 'the form has an important, even transformative meaning' (Rock 2009). Once both form and content are admitted as meaningful, the question becomes whether the difference between them is merely one of value (that content contains more meaning than form, for instance) or whether they are meaningful in different ways.

Rather than thinking of form as something concrete, external to human cognition and inherent within an object, it is used in this article to delineate discrete elements in perceptual experience: shape, colour, sound, spatial arrangement, texture and so forth (see Barsalou's description of 'schematic perceptual symbols' (1999: 583)). In our engagement with the outside world, perceptual elements are derived from sensorimotor data and isolated by an attentive act. They can also be based on internal introspective experience,

including our emotional states and representations in our minds of an absent object (Barsalou 1999: 585). Form is, then, a filtering of experience, a stage in a process of meaning construction. Form is meaningful at a basic level in that our understanding of it is driven by selective attention and our need to find meaning in our experience; material form is meaningful, therefore, as a coherent feature of this experience (a square, red). Further steps in this process involve pairing form with meaning using metaphorical and metonymical association (square with stability, red with blood). Form does not 'contain' a meaning but acts as a structure to which we can actively attach single or multiple meanings. Such pairings of material form with meaning occur in highly complex ways that are slowly beginning to be explained by theoretical advances and empirical experimentation that are taking place in a number of disciplines. This article draws from cognitive psychology (Barsalou 1999), image schema theory (Talmy 2000; Johnson 1987; Lakoff 1987; Gibbs 2005) and the neural theory of language (Feldman 2008), and is grounded epistemologically and ontologically in embodied realism (Lakoff and Johnson 1999).

The premise underlying this article is that some widely used oppositions discussed in the graphic design literature (such as that of form vs content) are unhelpful when used in relation to graphic communication in general because they favour particular understandings of graphic artefacts, the nature of communication and graphic design practice. Furthermore, these understandings do not align with the evidence emerging from cognitive linguistics and cognitive psychology.

In more conventional approaches, the opposition of form and content may often seem appropriate. Such approaches attempt to downplay the formal, physical and material qualities of artefacts like books and focus the reader's attention on the meanings of words or images (the content). The opposition of form and content is also reflected in the process of book production; it is commonplace for designers to first receive a text (the contents) and then articulate it through book form. Yet this distinction between book form and book text is not inevitable; book form and book text can be integrated, to greater or lesser degrees, by different ways of working, and the text does not necessarily have to be in existence before the form of the book can be established. The text of the book can emerge through experiments with book form. The idea of a separate, pre-existing text and a distinct book form seems largely inadequate, for example, in describing Olafur Eliasson's concept for *Your House* (2006) (Figure 1), a book in which the interior architectural spaces of a house are revealed through apertures cut sequentially through the pages of the book. Changes to the form of this book would have implications for our understanding of the house and our journey through it. It could be argued that this is only a case of one form (architectural form) being converted into another type of form (book form), but there are meaningful textual elements in this book, such as a narrative, as Eliasson's website notes: 'As readers leaf through the pages, they slowly make their way through the rooms of the house from front to back, thus constructing a mental and physical narrative' (2010).

I argue in this article for the view that a particular book form does not impose one set of meanings on a variety of texts, but that both formal visual elements and the textual elements associated with them have the potential to be blended together cognitively in both novel and entrenched ways, allowing new meanings to emerge. It is, in other words, a case of *conceptual blending* (Fauconnier and Turner 2002).
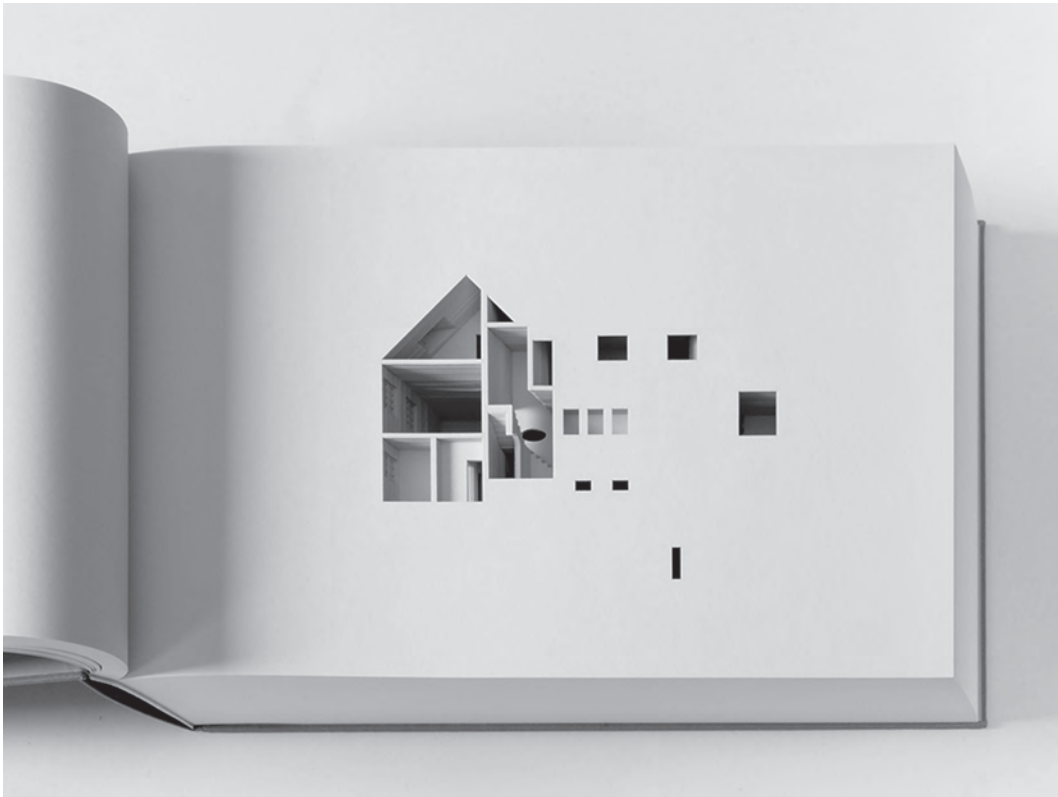
Figure 1: Olafur Eliasson, Your House, *2006. 27.4×43×10.5 cm; 10¾×17×4½ inches. Published by the Library Council of the Museum of Modern Art, New York, 2006. Courtesy the artist; neugerriemschneider, Berlin; Tanya Bonakdar Gallery, New York, © 2006 Olafur Eliasson.*

A similar example of conceptual blending can be found in the reconfiguration, in book form, of Christoph Hänsli's (Hänsli and Berger 2008) series of paintings. This book is a delightful presentation of 332 slices of mortadella sausage, painstakingly painted over a period of fifteen months. Rather than the paintings themselves, what is primarily of interest in this article is what happens when they are aligned and distributed in a volume in book form so that individual slices can be imagined as recombined in the form of a complete sausage. What has been recognized here is the potential for iconicity between the structural characteristics of the book as an object and sliced sausage meat. This establishes numerous mappings between the domain of books and that of sausage. The paper in which the book is wrapped becomes the packaging for the sausage; the individual pages in the book become slices and the white of the pages becomes a kind of supporting medium that bears the weight of the sausage suspended in the middle of the page. There are analogous part–whole relationships between the pages of a book and slices of a sausage. Consequently, the identities of sausage and book blend and fuse in engaging ways.

Although readers construct meanings in such instances on an individual basis, this process does not involve extreme relativism where any meanings are possible. Individually constructed meanings are constrained by a range of

factors. First, by the process of conceptual blending itself, which, according to G. Fauconnier and M. Turner (2002), involves constitutive and governing principles that constrain the ways in which meanings are made. Second, because our understanding of the world is achieved with our bodies and brains, and since we share similar cognitive and physical faculties, we are likely to attend to stimuli and construct meaning in similar ways. Another constraining factor concerns processes of socialization and enculturation during which particular ways of constructing meanings are acquired and then entrenched. Linked to this is our inclination to be relevant in our communications with one another, enabling us to make assumptions about the communicative intention of the author/designer (Sperber and Wilson 1986: 52). Once the intention of the author/designer is inferred by the reader, particular sets of assumptions that are suggested by the book tend to manifest themselves more than others do.

Such constraints on meaning construction can lead us towards: largely ignoring the form of the book, for example, when reading a conventional novel; or attending to the formal qualities of a book and establishing how these elements could be meaningful. This process of pairing meaning with formal qualities perceived in books happens not only through finding correlations to meanings found in the text but also in relation to our encyclopaedic knowledge of the world, including knowledge about relevant authors, publishers, illustrators, designers, photographers, how we engage with artefacts like books, the material and tactile qualities of things and the extended social, political and cultural context we associate with the work.

Rather than using the oppositions of *form* and *content*, therefore, the focus in this article is on the pairing of *form* with *meanings*. The difference between these two juxtapositions is that in the latter, form provides prompts from which meanings are actively constructed by readers, using knowledge from their comprehensive experiences. There is no implication, as with the opposition of form with content, that meaning is somehow contained within form. Rather than drawing on an inventory of graphic elements containing relatively fixed meanings, the book that is understood through the notion of form paired with meaning instead presents material cues that are interpreted dynamically *in situ* by the reader. These material cues are processed as visual, tactile and kinaesthetic forms and paired with concepts, emotions and other forms (forms such as word sounds in the case of written words).

Accordingly, in this article I suggest possible processes by which meanings are made from a graphic work. I use a particular book, designed as part of an on-going Ph.D. project, as a case study. This Ph.D. project is concerned with our schematic understanding of the book as an object (what parts of the book we label as front and back and inside and outside) and how we might use these understandings about the form of the book to structure and construe meaning from the text and images printed on its pages. In particular, this Ph.D. project explores how the apprehension of an object comprising individual sheets of paper bound on one side and placed within a cover can have bodily attributes such as 'front' and 'back' projected onto them and how this combination might become meaningful when blended with a text involving both words and images.

THE TUNNEL BOOK

An analysis of the language used to describe books provides insights into the ways in which we think about books and understand them. There are many different forms of books that are named in various ways. Some book

categories are labelled metonymically where all of the concepts in the label relate to the same conceptual domain. 'Hand sewn book' or 'fold book', for example, use the salient features of stitching and folding, both of which are intrinsic to the domain of books, to stand for whole subcategories of books. Other labels for books, however, use concepts drawn from two different domains of experience. These include 'flag book', 'concertina book', 'French doors book', 'venetian blind book' and 'tunnel book'. All of these use concepts related to one domain (the source domain, i.e. flag, concertina) to evoke an understanding about the domain of books (the target domain). The juxtapositions of different words with the term 'book' provide cues for cognitive work involving various forms of mappings/projections/linkages between the two domains.

The intention behind the design of *Tunnel Book* was to use the format of the codex to prompt an experience of burrowing through the book from the front to back cover as can be experienced with tunnel books (a particular book format in which an aperture is cut through successive pages of the book). *Tunnel Book* consists of photographs taken at approximately ten-metre intervals through the Greenwich Foot Tunnel. At each interval two photographs were shot: one looking forward along the tunnel and the other looking backwards down it. Forward-facing photographs were printed on recto pages and backwards-facing photographs on verso pages.

The journey along the tunnel is compressed into some 77 images, distributed over 39 sheets in the book. Each opening in the book provides two views of the tunnel from the same location but facing in opposite directions. Each sheet, therefore, represents a slice of time and space. The thickness of the paper is an analogue of the ten metres of space between the locations where the photographs were made and/or the time taken to walk the ten-metre distance. When the book is closed, the tunnel is aligned in roughly the same orientation as can be found in Greenwich Tunnel; when the book is opened, the cylindrical tunnel space is fractured and opened up for display.

The photographs compress the physical journey through the tunnel into an 80-page book but there is also an additional metaphorical journey that is suggested by the lines of type that appear periodically through the pages. This text refers to the stages of the University of the Arts London part-time research degree that requires approximately eight years of study, from pre-enrolment, when students prepare proposals in order to gain admission, to the final examination. By depicting laterally reversed type on the verso pages, an attempt is made to suggest that the type is *diegetic*, part of the narrative world through which the reader passes. These phrases are therefore anchored in particular locations of the physical journey through the tunnel.

Mapping an eight-year programme of study onto a physical journey through a tunnel involves differences in scales: years map to minutes, research degree stages map to distance covered. G. Lakoff and M. Johnson ([1980] 2003: 93) discuss how entailments involving journey metaphors can overlap with entailments involving container metaphors. Thus, for example, in the metaphors an ARGUMENT IS A JOURNEY and an ARGUMENT IS A CONTAINER, both metaphors share the concept 'as we make an argument, more of a surface is created'. In relation to the progression towards the Ph.D., therefore, as we travel down the tunnel we create more of a surface – or to put it another way, we cover more ground, and metaphorically acquire more knowledge. Other
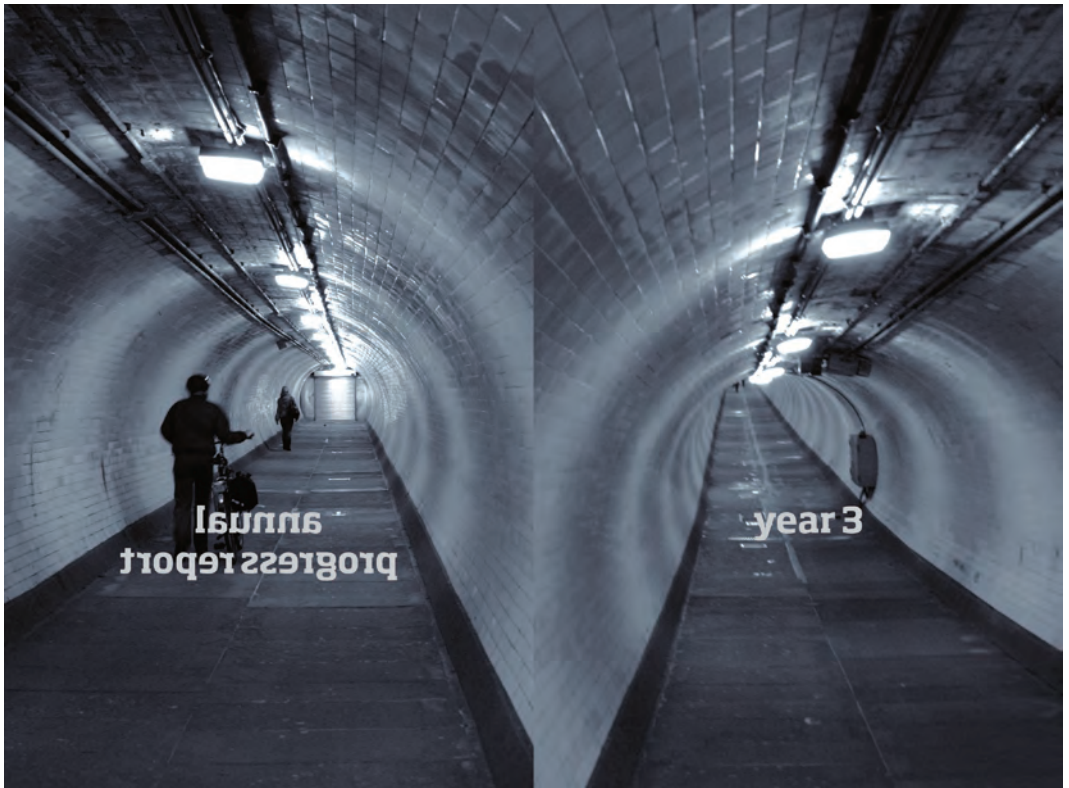
Figure 2: A spread from Tunnel Book.

similar associations are possible, for example, periods of walking alone down the tunnel map to periods of working in isolation towards a Ph.D.: the visual focus towards (an often distant) point in the tunnel maps to working towards a research aim and to completing the Ph.D.

METAPHOR AND PICTORIAL PRESENCE

According to C. Forceville's (1995) analysis of pictorial metaphor, the *Tunnel Book* is an example of a *verbo-pictorial* metaphor (RESEARCH DEGREE IS TUNNEL). Here the source domain of the metaphor is established pictorially (the photographs of the tunnel), while the target domain of the metaphor is realized orthographically through the written extracts from the Ph.D. framework. The references to each of these domains of experience provide access points to networks of concepts relating to a type of passageway on the one hand and to a level of education on the other. These networks of concepts can then be creatively linked and blended in the mind of the viewer to arrive at new insights about the target domain (the UAL Ph.D.). The question here is whether this account of the verbo-pictorial elements comprising *Tunnel Book* exhausts the metaphorical associations taking place.

Contrary to what we might expect, removing the photography from *Tunnel Book* does not completely disrupt the experience. While explicit references to the tunnel domain have gone – the confining tubular space, the material

quality of the brickwork and so forth – other structural qualities remain. The stages of the Ph.D. are still in chronological order, but are now separated by blank pages. The reader still proceeds through the book from a start point to an end point. The eight years of the Ph.D. are still compressed to the time it takes to read the book. There is still a *spatial* distribution of visual elements to help the reader to understand events taking place over *time*. According to Lakoff and Johnson ([1980] 2003) such space/time mappings are commonplace and, because they involve two different domains of experience (space and time), they are also metaphorical.

Consequently, beyond the metaphorical associations established through verbal and pictorial means, there are also associations that are added or strengthened by the structural qualities evoked by the book. This structure is not a property of the object, nor is it a total construction of the mind; rather it emerges from our embodied interaction with books and other objects. Without the pictorial depiction of the tunnel, the book (as a source domain in its own right) becomes more salient, together with metaphorical associations linking, for example, the turning of pages with the passing of time in the research journey.

Forceville (2009) lists nine modes of discourse (which he does not claim to be exhaustive): pictorial signs, written signs, spoken signs, gestures, sounds, music, smells, taste and touch. As a starting point these modes are considered to be '[sign systems] interpretable because of a specific perception process' (Forceville 2009). One approach to analysing *Tunnel Book* would be to explore the book through this construct of modes – socially constituted meaning resources linked to perceptual processes and accessed by communities of users or readers, (i.e., communities of readers). Rather than focusing on users or readers, however, I approach books from the perspective of the book designer and the potential she has to build meaning from the resources available to her in both conventional and novel ways. This potential is constrained by her communicative intention and by both what appears meaningful to her and what her assumptions are about what might be meaningful to a particular group of readers.

Book designers are faced with repertoires of resources from which to construct meanings. These include different types of images, text, paper, coloured inks, typefaces, bindings, book formats, typographic grids, print processes and so forth. The configuration of these resources is established through decisions that are made during design and editorial processes – these processes are instilled in designers through their training. The configuration of these resources is also established through decisions based in the practices of the various groups that are involved in making the book and through their methods of working. These decisions include choices about physical material, such as what paper to use, and choices about abstract schema, such as standard or non-standard dimensions to which the paper is cut.

Resources, such as paper, coloured inks and typefaces, can be selected or created and used in ways both familiar and unfamiliar to the designer and to communities of users or readers. Familiar, entrenched practices are established through convention or imitation, and unfamiliar novel practices through innovation. Cases where a particular configuration of resources is mandated by a publisher or an author can arise from specific requirements set down in a design brief (a set of instructions from the client) or from widely held assumptions about the role of the 'designer' (that she should not rewrite

the text of a novel, for example). Sometimes resources are selected solely on the basis of some pragmatic or functional criterion, such as financial cost, the ability of a paper to restrict ink absorbing into the substrate or the optimal number of type characters in a line for ease of reading. In such cases, the resource is intended to be neutral, to be ignored in any process of meaning construction.

Sometimes, through selection or invention, resources like paper, coloured inks or typefaces can suggest structures that are isomorphic to the designer's communicative intention. In such a situation the resource has relevance to other meanings evoked by the piece, and therefore, is likely to become a greater focus of attention. As a consequence, a particular resource does not necessarily have to belong to a pre-existing system of signs (in the sense, e.g., of an alphabet) in order to be meaningful. Meanings can emerge through conceptual connections with other resources that comprise the book. Such connections can be analogous where similar structure is evident in multiple resources or can be disanalogous when the structure in one resource clashes with the structure in another.

I focus in this article on the schematic structure of the codex format: the dimensions and configuration of the pages and cover comprising the book. The format of a printed book can be established by imitating already existing books, through visualizing it on paper or screen or by imagining a book object of a certain size, shape and construction. Such mental activity relies on schematic structure held in cognition that enables us to recognize books as sets of objects. According to L. W. Barsalou (1999: 585), 'In any modality, selective attention focuses on aspects of perceived experience and stores records of them in long-term memory'. Since selective attention focuses on aspects of our experience of books (say, shape rather than colour) what is stored in memory is schematic and fragmented. When we think of the *concept* 'book', this fragmented schematic structure is brought together in complex ways. The concept of book allows us to imagine any number of different kinds of books, but we can also imagine a particular instance or configuration of a book, in other words, a *conceptualization*. This approach goes a small way towards explaining the importance of schematic structure in our understanding of books, but in what ways can the schematic structure evoked by book formats be used by designers to suggest meanings?

The meaning potential of the codex format might seem sparse in relation to other resources, such as text or images. Yet our understanding of the codex, entrenched through numerous interactions with books, involves some basic schematic structure. There is an inside and an outside, a front and back, a top and bottom and so forth. These forms of structure are not specific to books alone but are a common feature of our everyday experience. L. Talmy (2000) provides an account of how language structures space through schema such as THROUGH, ACROSS and AROUND. The use of THROUGH, for example evokes an understanding of movement, into, along and out of a penetrable, volumetric space. The layout of text and imagery in *Tunnel Book* is intended to suggest a similar movement as does THROUGH, in which movement is imagined along a path that begins at the centre of the cover and proceeds through the pages of the book to the back cover. This is not to say that the tunnel in the image could not be cognized differently, as a plane curved into a cylinder, for example. However, successive images in the book depict a movement towards a distant exit through the void enclosed by the tunnel, rather than focusing on

the tunnel walls, and this suggests a volumetric rather than planar reading of the space.

Talmy's description of the structuring of space through language also utilizes the concepts of *figure* and *ground* (or *reference object*). Once again there are numerous candidates for what could be conceptualized as the ground in relation to the book as an object, depending on whether we are attending to the whole book, a double-page spread, a page or an element on the page. Consequently, the background of an individual image (such as the background of a portrait), the white of the page (imagined as space) or the material of the page (imagined as substance) could all be regarded as the ground. In the case of *Tunnel Book*, the image sequence that depicts the tunnel, and which runs throughout the book, suggests a useful delineation of a ground that forms part of an attentive act. The figure that stands in opposition to this ground is the typography, comprising centred blocks of type (one per page), which stands in front of the images as bounded points or locations within the less constrained images. The images bleed off all four sides of the page and therefore can be understood as continuing beyond its boundaries.

Besides demarcating figure and ground on the basis of their abstract visual qualities, there is also the question of how figure and ground are envisaged in relation to the conceptualizations of a journey through a tunnel and a course of study leading to a research degree. Both of these conceptualizations involve a figure (an imagined person) moving in relation to a ground (a tunnel or a course of study). If the person imagined in the tunnel and on the course of study is understood to be the same person, then the two perspectives are fused so that the person is simultaneously on a path leading to both a research degree and a tunnel.

Tunnel Book uses the source domain of a tunnel to illuminate the target domain of research degree. It is the research degree that is the primary subject to be explained. These dual domains correspond to the figure/ground relationships of the visual elements of the book. Here the typography (figure) articulates text related to research degrees while the image sequence (ground) depicts a tunnel.

Talmy's insights are recognized as a major contribution to what is called image schema theory (Dodge and Lakoff 2005). What precisely constitutes image schemata is still controversial (Grady 2005: 41), but they involve recurring patterns in experience. These patterns are not fixed and rigidly specified, however – INSIDE, for example, relates to a location within the boundary of some region, but the dimensions and composition of this region are unspecified. This open-ended nature of image schemata makes them flexible and capable of accounting for a wide range of physical instantiations. In relation to books, concepts such as 'page' have such image schematic qualities: pages (rather than 'sheets of paper') are bounded entities that have two sides and are (or once were) connected to other pages along at least one edge. The concept 'page', however, does not fix the size and shape of the bound-in sheet, the material out of which it is made, its colour and so forth. This makes 'page' flexible enough to refer to, among other things, landscape or portrait orientated; polygonal; curved or irregularly shaped entities in leaflets, magazines and books that are connected to other pages through folding, ring-binding, saddle stitching or sewing; or made out of one or more of many kinds of paper, card or even tin.

Yet the idea of 'page' does not feel as basic to our experience as does Joseph E. Grady's definition of image schemata: 'fundamental units of sensory experience' (2005: 44), units that describe image schemata such as HEAVINESS, UP or PROXIMITY (Grady 2005: 48). Indeed, even a concept as basic as 'page' is complex enough to include schematic structure involving each of these image schemata. 'Pages' are heavier or lighter; they have an 'up' side and they are nearer or more distant from other pages. Grady's definition of image schemata therefore:

> allows us to refer to a set of mental representations with a special and fundamental status, distinct from the infinite variety of 'schematic' images which can form over the course of a lifetime, including schemas of cup and other objects.
>
> (Grady 2005: 45)

For books, therefore, there are complex *schematic images* that the designer creates for different parts of books, including pages, covers, columns of text and so forth, but these are distinct from the more fundamental *image schemata* such as FRONT/BACK, INSIDE/OUTSIDE, TOP/BOTTOM, CENTRE/PERIPHERY, SOURCE-PATH-GOAL-TRAJECTOR, PROXIMITY and OPEN/CLOSED that are also highly pertinent to the book. These different levels of schematic structure are triggered by engagement with physical objects, such as books, through representations of objects such as the verbo-pictorial representations discussed above or through imagining objects, as when a designer mentally visualizes the format of some yet-to-be realized book design.

The suggestion here is that inherent in the schematic image for book is the notion of a progression from front to back along one of many potential paths through the book. In a conventional novel this path tracks forward and backward along consecutive lines of text and periodically from one page to the next. It is, however, possible to imagine alternative paths such as a path with a source in the middle of the front cover that cuts directly through the pages of the book to the middle of the back cover. As described above, a similar schematic structure can be found in our concept of *tunnel*, where a path is cut through rather than around a physical barrier with two salient external faces. It is the shared aspects of this schematic structure that motivate the 'metaphorical blend' (Fauconnier and Turner 2002) of the *Tunnel Book*. Because of this shared structure, even without the photographs of the tunnel, connections between the domain of books and the domain of tunnels remain active through the internal pages of the book. This same structure also maps onto the Ph.D. research 'journey' in which changes over time in the programme of study link to different spatial locations in the book.

The above discussion shows how complex schematic images for concepts such as 'book' can function in metaphorical association. At a more fundamental level, image schemata, too, can participate in metaphorical association. Grady (2005: 46) describes how sensory concepts 'identified with image schemas' are projected onto non-sensory concepts in primary metaphors. For example, remarks such as 'that's a heavy book' and 'that book is heavy going' project the sensory experience of 'heaviness' onto the non-sensory concept of 'difficulty'.

The use of image schemata in these verbal metaphors is reflected in visual metaphor, as Johnson (2007: 209) notes: 'the processes of embodied

meanings in the arts are the very same ones that make linguistic meaning possible'. For example, Johnson (1987: 80) has explored the role of BALANCE in painting and sculpture. Here we may talk about balancing visual 'forces' such as when a designer or an artist achieves a 'colour balance', but as Johnson points out, such ways of talking about visual phenomena are metaphorical since no actual physical forces are involved.

In *Tunnel Book*, the image schemata of FRONT/BACK relates to the non-sensory concepts of future/past. The front of each page or of each line of type suggests an orientation in which the reader looks forward, into the direction of travel, towards the future arrival at a destination; the backs of the pages and lines of type suggest an orientation in which the reader looks behind, into the past, to the source or the starting point of the journey. The CENTRE/PERIPHERY schema also motivates the meanings we make from the photographs of the tunnel and the placement of the typography.

For the book format, these compositions prompt a conceptualization of a point in the centre of the front cover connected to a point in the centre of the back cover by a path that cuts directly through the book. The centre of the page becomes a target towards which we advance as we progress through the book. Our vantage point is established by a field of view that maps to the periphery of the page (such that we can imagine standing on the pathway at a point below the foot of the page). As the central target increases in size, the distance between the periphery and the centre diminishes. These visual changes enable metaphorical mappings and elaboration that are interrelated to the text: the target is the aim (or completion) of the Ph.D., the location on the periphery of the page is the current point on the research journey and the spatial distance between the periphery and the central point links to the time remaining to the achievement of the Ph.D.

Tunnel Book maps the schematic structure of the tunnel onto the codex format, but because the elements that comprise image schemata and complex schematic images are unspecified and flexible, the codex has the potential to be appreciated in different ways. The photographic images in *Staircase* (Figure 3) suggest a different configuration of image schematic elements. Here, consecutive spreads present a series of photographs taken from adjacent steps on a staircase in the British Museum. The orientation of the images implies that the book should be held in landscape rather than portrait disposition, even though the book is bound on the longest edge. In the spreads, the TOP element of the TOP-BOTTOM image schema appears on recto pages and the BOTTOM on verso pages. Because of metaphorical mappings with the domain of staircases, however, there is another link whereby BOTTOM is mapped to the foot of the opening spread and TOP to the head of the final spread, with each page turn linked to a different step on the staircase. The first and last spreads are the source and goal elements in the SOURCE-PATH-GOAL image schema. The arrangement of the lines of type also conforms to the same logic as the imagery in that the column of text reads from the bottom up rather than the conventional top down.

Both *Tunnel Book* and *Staircase* use the same codex format, they share the same dimensions and they are bound in the same way. Yet, because of the textual and pictorial elements presented on these pages and the ways in which they are laid out, schematic structure is instantiated in different ways, resulting in different conceptualizations of, among other things, top and bottom and source-path-goal.

Figure 3: A spread from Staircase.

CONCLUSION

The book as a material object is very familiar to us. We project schematic structure onto it such as TOP, BOTTOM, FRONT, BACK, INSIDE, OUTSIDE. Other schemata help us to access the book so that we can discern reading paths and can break down the book into smaller units: double page spreads, pages, sides of pages and so forth. It is easy to imagine the relationship between these schemata and the physical material object of the book to be fixed and unvarying. In our typical experiences of books these schemata often apply in the same ways. For example, publishing in the West generally uses a configuration in which the front of the book is designated to be the part of the object that faces us when the book is closed and the spine is on the left.

These familiar, conventional ways of projecting schematic structure onto the material object of the book are, however, not the only possibilities. Schemata are flexible and can be applied to sensorimotor experiences of a large variety of different objects. This flexibility provides opportunities for writers and designers to experiment. They can use layout and typography in ways that prompt the reader to project schemata onto the physical book in unconventional and conventional ways. By placing the title and author of the book in a different place, and with a particular typographic emphasis, what was the front cover now becomes the back, for example. Metaphorical expressions such as 'tunnel book' also suggest particular ways of projecting schemata onto the book object. The entrance and exit to an imaginary tunnel are projected onto the front and back of the book, and the impermeable substance of the page is conceptualized as a space through which we can pass.

Because schemata can be projected onto books in different ways there is potential for these different projections to blend with other concepts and themes arising from textual and/or pictorial and/or material elements. This provides considerable scope for future innovation and exciting spaces for artists, writers, photographers and designers to explore.

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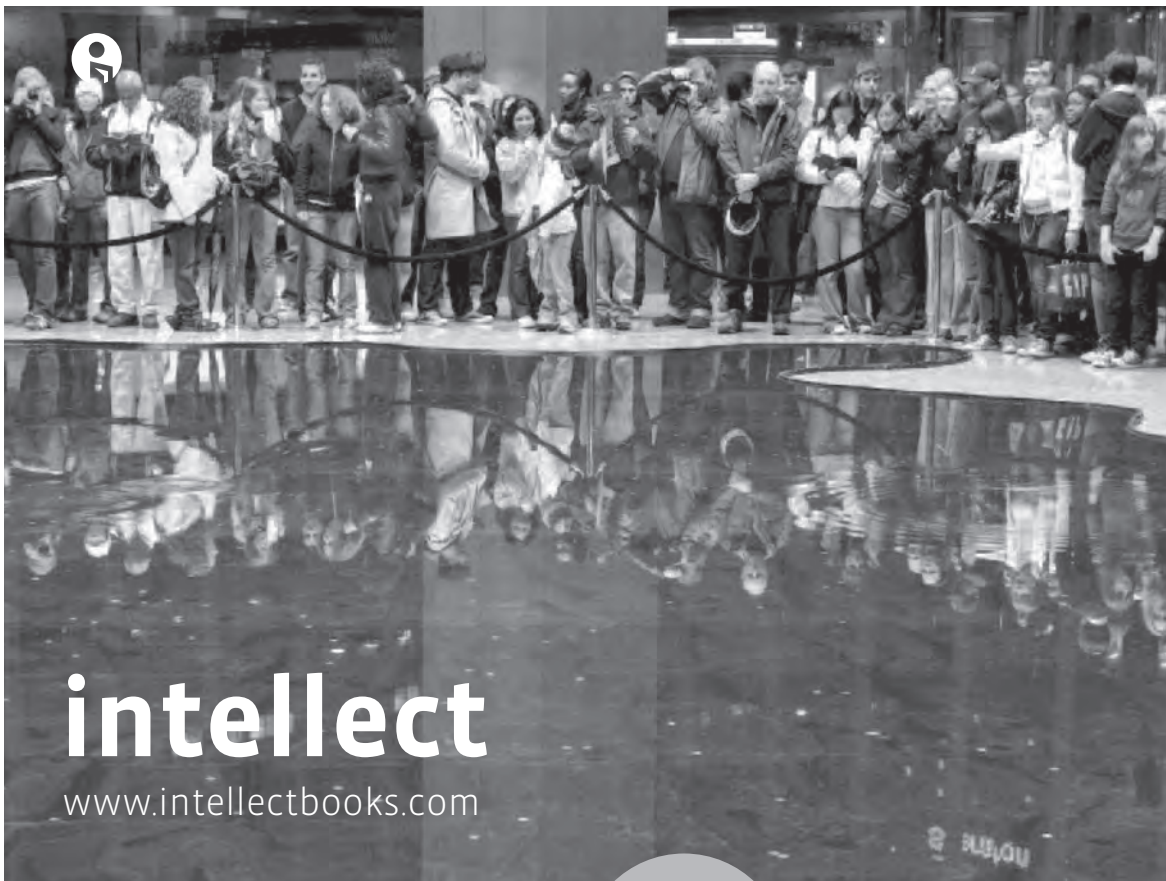
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