

Wittgenstein's Bridge A Linguistic Account of Visual Representation

Michael Biggs

University of Hertfordshire, UK

Abstract This paper uses structure-mapping to bridge the divide between the analytical and visual culture traditions of image interpretation. Wittgenstein's analytic 'picture theory of meaning' from his early period, and his cultural theory of 'meaning as use' from his later period are used to show that the terms similarity, analogy and metaphor can be applied to both image and linguistic interpretation. As a result, by the mapping of similarity and analogy onto the analytic approach, and by the mapping of metaphor onto the visual culture approach, a common linguistic ground for the comparison of these two approaches to image interpretation can be established.

Keywords Analogy. Metaphor. Similarity. Projection. Meaning. Representation. Mapping. Structure. Explanation. Description.

Summary 1 Introduction. – 2 The Early Period and Picturing. – 2.1 Logical Pictures. – 2.2 The Limits of Picturing. – 3 The Later Period and Seeing-as. – 3.1 The Relationship of the Analytical and Cultural Contexts. – 3.2 The Relationship of Analogy and Metaphor. – 4 Conclusions: Bridging the Apparent Incommensurability.



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1 Introduction

Wittgenstein was brought up in an aesthetically educated household. His father was a patron of the Vienna Secessionists and Brahms was a frequent visitor to the house. His sister Margarete's wedding portrait was by Klimt.¹ Against this background of privilege in pre-First World War Vienna, and with specific training in engineering drawing and experience of architectural design with Engelmann, it is not surprising that Wittgenstein had a high awareness of visual culture. Some of his comments on drawing, painting and visual representation reflect this cultural education and there are passages in the middle and late period works where the act of drawing is a starting point for understanding representation in language, e.g. *The Blue and Brown Books* [BBB] (1969), *Philosophical Grammar* [PG] (1974) and *Philosophical Investigations* [PI] (1953).

Wittgenstein does not have an explicit theory of visual representation. This is despite the so-called 'picture theory of meaning' in his early work *Tractatus Logico-Philosophicus* [TLP] (1961 [1922]) which, as discussed below, is not a theory of pictorial representation. Indeed, the majority of the mention and use of visual representations occurs in the later philosophy in which it is frequently claimed that explicit theories are avoided. However, Wittgenstein does make a number of remarks relevant to visual representation. These remarks cover the act of representation itself, its relationship to thinking and our grammar of thought, and the ways in which we interpret and act upon images. It is also characteristic of the later period that the spur to philosophize often comes from language associated with visual experience.

The so-called picture theory of meaning in TLP has been widely accepted in the analytic tradition as a comparison between the way in which an engineering drawing is derived by means of projection from the object, and the way in which language and/or thought is derived from the world around us. Recent research into the intellectual history of graphical representation has shown that in addition to this kind of drawing, other forms of graphical representation were gaining in importance during the first decade of the twentieth century. Section 2 of this paper uses graphical statics and dynamical modelling to argue that Wittgenstein's picture theory of meaning is not based on a relationship of iconic similarity, but on the contrary seeks a linguistic mode of representation by analogy, in which performance and action can be calculated by extending the number of

¹ Gustav Klimt, *Margaret Stonborough-Wittgenstein*, 1905, Bayerische Staatsgemäldesammlungen - Neue Pinakothek, München. <https://www.sammlung.pinakothek.de/en/artwork/8MLvMXyxz3>.

dimensions beyond the basic three of visual experience. In Section 3, this linguistic interpretation of picturing is extended into metaphor by breaking the direct relationship of analogy between the representation and what is represented, in favour of the cultural interpretation of his later period. In Section 4 this linguistic account of the continuity of Wittgenstein's representational investigations, from similarity through analogy to metaphor, is used to reveal how the apparent incommensurability of the analytic and visual cultural approaches to image interpretation might be bridged.

2 The Early Period and Picturing

Although TLP is a difficult book, it is fairly easy to understand the visual analogy of the picture theory of meaning. It appears to derive from the way a drawing is constructed in descriptive geometry or engineering using lines of projection that map one onto the other, and makes the analogy that language has a similar relationship to the world that it describes. One reason why one can call this an analogy, a term that Wittgenstein does not himself use to describe this relationship in TLP,² is because the concept has a four-term structure (Biggs 1992, 4 f.).

The possibility of an analogous representation has its base in an isomorphism (Wittgenstein also uses the term "logical multiplicity", § 4.04), which ensures that aspects of the object can be mapped onto aspects of the representation, and vice versa. But Wittgenstein wants to do more than visually depict reality. Bearing in mind the final topics of TLP § 6, if the method of representation could be sufficiently abstracted, one might be able to make calculations and judgments about ethics, etc. Such a requirement to calculate rather than to depict, transforms the focus of the method from visual representations such as descriptive geometry and engineering drawing, to logical representations such as graphical statics and dynamical models.

In order to be a picture a fact must have something in common with what it pictures. [...] What the picture must have in common with reality in order to be able to represent it after its manner – rightly or falsely – is its form of representation. The picture can represent every reality whose form it has. The spatial picture, everything spatial, the coloured, everything coloured, etc. [...] What every picture, of whatever form, must have in common with reality in order to be able to represent it at all – rightly or falsely – is

² However, he does use it several times in the antecedent *Notebooks 1914-1916* (38, 99, 113) and elsewhere.

the logical form, that is, the form of reality. If the form of representation is the logical form, then the picture is called a logical picture. Every picture is also a logical picture. (On the other hand, for example, not every picture is spatial). The logical picture can depict the world. The picture has the logical form of representation in common with what it pictures. (TLP §§ 2.16-2.2)

2.1 Logical Pictures

One can regard the concept of dimension in a number of different ways, and to understand Wittgenstein it is useful to adopt the mathematical concept of dimension rather than the spatial one. The mathematical concept is that there is one dimension per quality to be recorded; thus if one records the three-dimensional position of an object and additionally records its colour, one needs four dimensions. If one also records its material it would add a fifth dimension, etc. This is not the everyday use of the word dimension, which starts with length, width and breadth, and adds time as a possible fourth dimension, but seems to make further dimensions 'inconceivable'. The everyday concept therefore includes an implicit visualisation which limits the number of dimensions to those of everyday experience. The mathematical dimensionality of a representation allows one to record qualities and to satisfy Wittgenstein's principal objective to be able to 'reconstruct the object'.³ This reconstructive purpose is emphasised in his examples in TLP which are not just restricted to three-dimensional objects, for example the gramophone record allows us to reconstruct the sound of a piece of music by decoding it.

There is a general rule by means of which the musician can obtain the symphony from the score, and which makes it possible to derive the symphony from the groove on the gramophone record, and, using the first rule, to derive the score again. That is what constitutes the inner similarity between these things which seem to be constructed in such entirely different ways. And that rule is the law of projection which projects the symphony into the language of musical notation. It is the rule for translating this language into the language of gramophone records. The possibility of all imagery, of all our pictorial modes of expression, is contained in the logic of depiction. (TLP §§ 4.0141-4.015)

3 This allows for non-visual 'pictures', an apparent paradox that can be dealt with by noting that the original German word 'Bild' includes the concepts of model and schema as well as picture.

The coding and decoding processes are mirror images of one another, but even though the analogue gramophone record has sufficient dimensional richness to be a logical picture of the music, it does not include an image of what the orchestra looked like when they were playing the music. Thus DVDs have a greater logical multiplicity or mathematical dimensionality than gramophone records. Digital techniques make it easy to record very large amounts of information about an object but they have a non-visual picturing relationship to what they represent or encode. When one is recording an event one must decide what it is that one wishes to record and therefore the number of dimensions and therefore the medium that is required. This was reflected in the Bergen project to digitise Wittgenstein's Nachlass.⁴ The project began with facsimiles of Wittgenstein's handwritten manuscripts etc. and a decision had to be made about what was important to record. Naturally, the orthographic types (written letters and words) were of prime importance, but how important were spelling mistakes; what about the graphologist who attributes meaning to the shape of individual letter forms? What about the line breaks and page breaks? Each logical 'dimension' of the original demands a dimension in the representation.

Wittgenstein's paradigm is the ability to reconstruct an object from its representation, to reconstruct a thought from a sentence, etc. This representational relationship appears to derive from classical mechanics: three-dimensional objects in three-dimensional space in mechanical relationships to one another, but Wittgenstein's mention of both Hertz and Boltzmann in TLP provides the clue to an alternative role of models as ways of thinking about the world rather than as depictions of the world. Graphical statics and dynamical models enable one to infer the performance of real objects such as the behaviour of propellers from vector diagrams or scale models. These techniques were very important at the time that Wittgenstein studied engineering (1906-11) because they were being used to design the first flying machines.⁵ Although there is sometimes a visual or iconic aspect to these drawings, they are principally a method of representing invisible forces using vectors. They are therefore at best a schematic representation of what the object might look like, and the notion of representation is principally one of function rather than appearance. Stenius, in his commentary on TLP, calls these "unnaturalistic pictures" (1960, 113).

Hamilton (2001) discusses various modes of engineering representation in Wittgenstein's works, including descriptive geometry,

⁴ <http://wab.uib.no/index.page>.

⁵ The aeronautical pioneer Henri Coanda studied at Technische Hochschule Berlin-Charlottenburg at the same time as Wittgenstein. Both Coanda and Wittgenstein went on to design innovative air-reactive (jet) propulsion systems.

graphical statics and dynamical models. However, the title 'Wittgenstein and the Mind's Eye' seems unfortunate because the mind's eye is something explicitly rejected by Wittgenstein in the later Blue Book (1969, 4). This common interpretation of TLP is described by Stenius as a "misunderstanding" (1960, 113). Sterrett (2002), recognising the role of performance models, preferred Hamilton's expression "engineering mind set" (2001, 73). However, the concepts of the mind's eye or a mindset are unnecessary for the argument of the present paper, which rejects Hamilton's emphasis on representation as the description of appearance (e.g. 2001, 53, 88) in favour of the description of performance. What is significant is not that through language or another form of representation we are able to perform the practical manipulation of the world, but the very possibility of that manipulation. So here one may see a symptom of the change of interest from Wittgenstein's applied studies in engineering to mathematics and the foundations of mathematics, which took him away from engineering to work on logical problems with Russell in 1911. TLP, which was written around 1918, reflects the idea that representation is more to do with possibility and functionality than physical appearance. In particular, to employ terminology from Wittgenstein's later work, when we move to an alternative form of notation, certain aspects become "perspicuous" (PI-I § 122).

There are, however, limitations to what can be recorded in any particular notation. Although Wittgenstein was seeking a perfect language, he was not seeking one with universal application but rather one that avoided being misleading. Thus when Hamilton refers to Wittgenstein's preference for "palpable, graphic forms of representation" (2001, 56 reporting Schulte), Wittgenstein's preference should be interpreted not as focussing on the merits of the graphical, but on the merits of the perspicuous. This paper's analysis of TLP reveals that different forms of graphical notation, and other forms of notation such as truth-tables and symbolic logic, each have the capability of rendering certain dimensions more clearly than others. Wittgenstein's training did not so much indoctrinate him to graphical rather than non-graphical methods, as raise his awareness of the influence that notational systems as a whole have on our concepts and reasoning.

2.2 The Limits of Picturing

The explicit comparison between visual representation and representation in language is a feature of the later period but not of the earlier. Although the later work begins with visual examples of projection drawing, the examples are used to question whether this one-to-one relationship holds good. When discussions of visual experi-

ence are advanced in the later period it is normally to combat the idea that when we are thinking or intending there is a picture before our minds. Particularly targeted is the idea of some kind of primacy such a picture might have because of its 'direct' association with the thought by means of the earlier projection relationship. Thus when Wittgenstein says, "The picture shows me a cube" (PG, 165), the emphasis is on the immediate object of experience. If one takes this image as a representation - in this case a cube - one *uses* the image in a particular way. "If the picture tells me something in this sense, it tells me *words*" (PG, 164). To interpret the figure as a cube involves *reacting* to the figure in a particular way which is as culturally determined as the association between the word 'cube' and the three-dimensional figure. This visual culture interpretation is in contrast with the analytical relationship of TLP because the cultural interpretation of a figure is discretionary. In TLP the picturing relationship is obligatory because a picture will embody the logical form of its object, "the spatial picture [can represent] everything spatial" (TLP § 2.171). What is not anticipated in TLP, in terms of visual representation, is that a spatial picture may be taken for a representation of some other object or form according to a convention or within a particular language-game. This change in the later period shifts his visually-led interpretation from something embodied in the representation to something embodied in our practices. It reveals the limitations, not of a single representational system, but of *any* representational system.

It is a key concept in TLP that a representation cannot represent its own representational form (TLP§ 2.174). To describe a representational form requires one to step outside it. Thus, if one did not understand English, no amount of reading the *Oxford English Dictionary* would help. Contrary to Hamilton (2001, 85) the fact that a picture cannot depict its representational form is not a problem of what can be visualised as opposed to what can be verbalised, but rather what can be expressed in a particular form of representation as opposed to the representational relationship itself. The latter requires stepping outside of the language of the representation in order to describe it. If we are talking about the totality of all our forms of representation of the world, i.e. thinking, then this process of 'stepping outside' becomes impossible. One could compare this to the limitation of a particular paradigm (Kuhn 1996): if the paradigm changes then all sorts of ideas become possible that were hitherto impossible or unthinkable. On the other hand, despite any changes of representational form, when a paradigm changes the world remains unchanged.⁶

⁶ Kuhn links his argument to a starting-point in Wittgenstein's *Philosophical Investigations* in the section "The Priority of Paradigms", 43-51.

The fact that ethics cannot be put into words (TLP § 6.421) is not a reference to the possibility that ethics could be put into pictures (Hamilton 2001, 85). These are two different modes of representation: language and pictures, and they can show two different things. Pictures are no more able to show their representational form than is language (TLP § 4.121). Neither drawing nor language, to the extent that they represent thinking, can represent the relationship between thinking and the world, because that requires stepping outside thinking. This is the problem that finally broke Wittgenstein's analytic image of a projection model of representation.

3 The Later Period and Seeing-as

In the later period (principally in PI) Wittgenstein's visual representations cease to have a projection relationship to their objects. One consequence of this change is that his use of images begins to refer not only to individuals but also to types, or general and unspecific aspects such as a facial expression rather than the specific look on a specific person's face. When looking at such images we see an aspect in them; seeing-as a face, a smile, etc.

The first part of PI engages with his principal difficulty which is the significance of the representational relationship itself. In projection drawing the projection 'explains' how the image stands in relation to its object: in linguistic terms, 'this word means this object' (cf. PI-I § 1). The system of projection (not the projection drawing itself) is what gives meaning to the image and gives meaning to the word. However, in his later period Wittgenstein claims this comparison cannot reliably be mapped onto our use of words. He particularly wants to object that meaning is not a third element standing between a representation and its object because we cannot, for example, specify the object of an ostensive definition. The ostensive definition 'this is a red patch' has as its visual phenomenon, the experience of a red patch, not the redness of the red patch. Offering up the sample of a red object, during the act of the ostensive definition, is part of the definiens and not the definiendum of red. Therefore, unfortunately, ostensive definition is *not* where 'explanation comes to an end' owing to it being fundamental, as is the case with simple ideas in TLP: explanation comes to an end because we cannot express the direct visual experience in the indirect language-game.

This sample is an instrument of the language used in ascriptions of colour. In this language-game it is not something that is represented, but is a means of representation (PI-I § 50).

As a result, Wittgenstein uses images, pictures and picturing in the later period in a very different way from their use in early period. He can no longer appeal to the structure of analogy to explain the picturing relationship because there are no longer four terms in a set relationship: p stands to q in a comparable relationship to how r stands to s . In the terms of analogy, we no longer know what the relationship between r and s is. Instead, the image stands without explication and therefore much better compared to the use of metaphor rather than analogy.

As is the case with linguistic metaphor, the underlying relationship of this later picturing is not unpacked and explained. The implication is that the earlier attempts at unpacking the relationships in TLP were futile. In PI the reader must allow the experience of examples to accrue in their cultural context, in order to intuit from custom and use how the community of users intends one thing to 'mean' another, and how we learn to 'see-as' (PI-II, 210). It shows a shift from a prescriptive, analytic visual image theory to a therapeutic, cultural interpretive visual image strategy.

It is not our aim to refine or complete the system of rules for the use of our words in unheard-of ways. For the clarity that we are aiming at is indeed complete clarity. But this simply means that the philosophical problems should completely disappear. The real discovery is the one that makes me capable of stopping doing philosophy when I want to. The one that gives philosophy peace, so that it is no longer tormented by questions which bring itself in question. Instead, we now demonstrate a method, by examples; and the series of examples can be broken off. Problems are solved (difficulties eliminated), not a single problem. There is not a philosophical method, though there are indeed methods, like different therapies (PI-I § 133).

3.1 The Relationship of the Analytical and Cultural Contexts

Our ubiquitous cultural practice of using samples and pictures as representations disguises their social origins and encourages the belief in a corresponding, analytic association with the thought. The habit requires cultural qualification.

Perhaps the following expression would have been better: we *regard* the photograph, the picture on our wall, as the object itself (the man, landscape, and so on) depicted there (PI-II, 205).

The ability to make a conventional association between an image and what it represents is particularly complex in the case of pictures of generalisations.

When I look at a genre-picture, it "tells" me something even though I don't believe (imagine) for a moment that the people I see in it really exist, or that there have really been people in that situation (PI-I § 522).

In Wittgenstein's terms, the necessity of identifying the role of a particular picture within our broader practice – the specific or unspecific reading – must be made perspicuous. Unfortunately, the possibility of genre-pictures introduces what Wittgenstein might call a 'temptation' which is to think that this process leads to a general image or that the genre-picture 'depicts' something general, i.e. that it has a projection relationship with a generalised object. If one sees a genre-picture as an unspecific depiction that does not necessarily imply that what is depicted is unspecific, only that certain aspects of the specific depiction are not part of its function as an unspecific picture. Thus,

there is a tendency rooted in our usual forms of expression, to think that the man who has learnt to understand a general term, say, the term "leaf", has thereby come to possess a kind of general picture of a leaf... one which only contains what is common to all leaves (BBB 17 f., cf. Goethe's *Urpflanze*).

Another equally erroneous temptation is that each as-yet-uninterpreted representation carries with it as some kind of cultural baggage of all the objects which the representation might stand for in other contexts. This is just the sort of hidden signification which Wittgenstein is at pains to deny.

Suppose someone said: every familiar word, in a book for example, actually carries an atmosphere with it in our minds, a "corona" of lightly indicated uses. Just as if each figure in a painting were surrounded by delicate shadowy drawings of scenes, as it were in another dimension, and in them we saw the figures in different contexts (PI-II, 181).

The unspecific pictorial image does not have a projection relationship to its object that can be explained by the analytic approach to image interpretation. It must be used correctly within the context of a language-game that constitutes our visual culture. "For such a schema to be understood as a *schema*... resides in the way the samples are used" (PI-I § 73). In practice this is determined by the use to which the drawing is put, rather than some inherent property of the drawing itself. There is therefore no transparent method of projection, no primacy of one form of projection over another: in other words, in the later work the analytic approach to the interpretation

of images has been superseded by the visual cultural. The directness and indirectness of the visual experience, and our understanding of it is reflected in Wittgenstein's rejection of the assumption that there is only one way of interpreting the picture: he complains that "a picture held us captive" (PI-I § 115); also, "the picture was the key. Or it seemed like a key" (Wittgenstein 1981, § 240). Interpretation on the basis of mere similarity misses the way in which the picture can act within a cultural practice and be seen-as as a type and not as a token.

3.2 The Relationship of Analogy and Metaphor

The claim that Wittgenstein uses images as metaphors (e.g. Wilkerson 1973; Biggs 1992; Nyiri 2014) draws attention to our ability to work abstractly with signs, to use them creatively, but also to cast doubt upon the possibility of an analytic, non-metaphorical use of signs.

We find certain things about seeing puzzling, because we do not find the whole business of seeing puzzling enough (PI-II, 212).

This new difficulty with the previously favoured analytical use of signs arises in PI-II because 'aspect-blindness' - which in relation to the duck-rabbit describes the user responding to it only as a rabbit - does not prevent responding to it as a rabbit. True aspect-blindness would prevent seeing the image as depicting anything including the rabbit. Therefore the user needs to 'see the aspect' that enables the projection drawing to be an image by similarity, just as much as she needs to 'see the aspect' of the duck and the rabbit. Furthermore, one cannot unilaterally extend the use of the sign beyond the aspects accepted by the users within a particular visual culture, for example, by seeing the duck-rabbit as an elephant.

Acting in a particular way in response to an image shows that someone is seeing a sign in a particular way. This does not imply that when one draws an image, that one's intention that it should be seen in this or that way somehow lies hidden. Wittgenstein asserts this in his usual, ironic way, expecting us to see the impossibility of the assertion:

We mean the arrow in one way or another. And this process of meaning... can be represented by another arrow (pointing in the same or opposite sense to the first) (BBB, 33).

Our intention will only be satisfied if someone reacts to our sign in the way we wish, and this establishes a cultural context for interpretation. Thus the iconicity in a pointing arrow is only conventionally or culturally determined.

What has the expression of a rule – say a sign-post – got to do with my actions?... I have been trained to react to this sign in a particular way (PI-I § 198).

This gives a clue to the basic use Wittgenstein finds for visual representations in the later period. They function as a therapeutic device against the temptation to pursue philosophical investigations in ways determined by the structure of a sentence rather than the characteristics of what it represents. The difference between the two can be revealed by a change in the representational form, e.g. by a picture instead of a sentence. The benefit of the use of a picture is to provide a contrast with the sentence, rather than providing a more accurate representation. It is this contrast which gives the utility to Wittgenstein's later use of images.

4 Conclusions: Bridging the Apparent Incommensurability

This paper makes six claims, of which the last is original. First, that Wittgenstein's early model for how we represent the world to ourselves is based on a type of visual 'picturing' exemplified by orthographic projection engineering drawing. The act of projecting and explicitly connecting the object to its representation shows that this is a relationship of direct correspondence or *similarity*. Second, that as he extends the logical complexity of the relationship to include non-visual representations such as gramophone records, the visual relationship of similarity is better replaced by the structural relationship of *analogy*. This second claim marks a shift from a visual paradigm to a structural paradigm. Third, that owing to its genealogy in visual representation, this structural relationship of analogy *shares features with the analytical model of image interpretation*. Fourth, that in response to the limitations of the method from analogy to account for the fundamental connections between a representation and what it represents, Wittgenstein abandoned this explanatory model from his early period in favour of a descriptive model based on *metaphor* in his later period. Fifth, that once again owing to its genealogy in visual representation, this cultural relationship of metaphor to what it represents, *shares features with the visual culture model of image interpretation*. Sixth, therefore the relationship between the analytic and visual culture approaches to image interpretation can be investigated in terms of *the relationship between analogy and metaphor in structural linguistics*, and as a result the latter can offer a bridge between the apparent incommensurability of the analytic and visual culture approaches to image interpretation.

The first three claims about Wittgenstein and representation may be summarised as follows. His early model arises in the visual prac-

tice of engineering drawing but owing to Wittgenstein's interest in the structural possibilities of the model, it is quickly extended from the visual into the abstract through a change from an underlying visual similarity to a structural relationship comparable to linguistic analogy. This change allows the model to be applied to non-visual representation whilst maintaining the fundamental principle of isomorphism. The isomorphic relationship ensures that there is a correspondence between the logical complexity of the representation and the logical complexity of the object. As the early period progresses, by sophisticating the notion of dimensionality from 2-D drawing, via 3-D engineering drawing, to the multiple dimensions of mathematical space, Wittgenstein shows that one can speak meaningfully of an analogous picturing relationship beyond what can be merely visualised. On the other hand, Wittgenstein had to deploy strategies to avoid the paradox of using language to speak about the limits of language. In his early period this simply meant that "what we cannot speak about we must pass over in silence" (TLP § 7).

The fourth and fifth claims about Wittgenstein and representation may be summarised as follows. During the transition and into the later period, Wittgenstein eschewed his increasingly complex defence of the relationship of analogy in favour of a metaphorical relationship. By the later period he had changed his approach to the problem of how to speak directly about the limits of language, in favour of an indirect method: "to travel over a wide field of thought criss-cross in every direction" (PI Preface). Methodologically, the shift to indirectness reveals that by exchanging the analogical, proximal relationship of one object to another for the abstract categorization of objects not usually juxtaposed, one can speak meaningfully about commonality without having to explain how that relationship functions.

The sixth, and principal claim of this paper, is as follows. The linguistic tropes of similarity, analogy and metaphor have been described using terms from structure-mapping theory in linguistics. The key difference between similarity and analogy is that similarity maps many attributes but few relationships from the target (about which we seek knowledge) to the base (about which we are familiar), whereas analogy maps few attributes but many relationships. In other words, similarity involves superficial similarity whereas an analogy is often all the more striking owing to the lack of superficial similarity to the base.

The central idea is that an analogy is an assertion that a relational structure that normally applies in one domain can be applied in another domain (Gentner 1983, 156).

Analogy is in this sense closer to metaphor than to similarity, owing to them both relying on disjunction, e.g. between the claim of the metaphor - for example "Juliet is the sun" - and its literal interpre-

tation. By this comparison, Wittgenstein's early period includes two related but distinct picture theories of meaning. The first adopts a simple iconic model in which both iconicity and spatial picturing are used. The second is more dimensionally complex and meets Wittgenstein's description of a logical picture/representation. This shifts the linguistic description of the relationship from similarity to analogy because the latter relies on the target and base having comparable relationships despite having dissimilar appearances.

According to [structure-mapping theory], the contrast between analogy and literal similarity is a continuum, not a dichotomy (Gentner 1983, 161).

As a result, it would be in accord with recent scholarship about Wittgenstein's early period to avoid using the term 'picture theory of meaning' - which he himself did not use - in favour of a 'theory of representation by analogy'. However, in his later period he rejects the adequacy of such a correspondence relationship owing to the lack of both the attribute and the relationship mappings regarding the way that images and words function as representations. Continuing the appropriation from linguistics, various commentators have described the representational relationship in the later period as functioning by metaphor. This description applies to his use of both words and images. According to structure-mapping theory, metaphor works by a process of categorization in which a novel category is established that can contain both the target and the base:

the base concept is used to access or derive an abstract metaphorical category of which it represents a prototypical member, and the target concept is then assigned to that category. (Bowdle, Gentner 2005, 195)

The novel abstract category does not rely on a similarity of attributes or relationships. It achieves its polysemy by the creative possibility of generating multiple categories, and some of that possibility arises from the lack of explicit similarity, including any apparent categorial similarity. One of the challenges discussed by Bowdle and Gentner is how the user chooses between competing potential abstract categorizations in order to select the most productive one for the interpretation of the metaphor. Wittgenstein's response would seem to be that this is a societal matter resolved by normal usage, commonly expressed as his concept of 'language-games'. Wittgenstein's presumed response would be harmonious with visual culture interpretation, indeed Barker and Jane claim that cultural studies is constituted by the language-game of cultural studies (2016, 4).

This leads to the final issue of what benefit is gained from the above analysis. Wittgenstein's abiding interest from the early period to the later period was in the relationship between language and the world. His use of images throughout his lifetime was always to illustrate what he thought was the nature of this relationship. In his later period he abandoned the so-called 'picture theory of meaning' in favour of a culturally focussed account of the connection between language and meaning. This is supposed to stem from the day when his colleague Sraffa passed him by on a bicycle and made a rude gesture at him (Malcolm 1958, 69). Wittgenstein realised that the meaning of this gesture was culturally determined, and this extended to the meaning of words in general. This has become known as 'meaning as use' and occurs in a cultural context that Wittgenstein called 'language-games', i.e. cultural practices. The interpretation of that gesture, and of words and images in general, may be compared to the linguistic practice of metaphor, in which two disparate terms are juxtaposed and this disjunction provides rhetorical impact. The disjunction also serves to cue, break or prevent the literal interpretation of the words in favour of an indirect meaning. When we are presented with an image we understand, owing to this cultural context, that we are supposed to see beyond the objectivity of the colours on paper and to 'see-as' an image what is apparently merely an object. Such implicit, culturally inferred meanings are, according to structure-mapping theory, mediated by an indirect object of a different category than the base and target terms. The metaphor is polysemous and so the optimum meaning must be negotiated by the users as part of a cultural practice. There is, therefore, a continuity in the representational relationship between the analytic and visual culture approaches to image interpretation that can be investigated in terms of the relationship between analogy and metaphor in structural linguistics, and as a result this method can offer a bridge between the apparent incommensurability of the analytic and visual culture approaches to image interpretation.

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