Esthetics, “Aida” and “Re-entry shock:” Fountains in a blind woman’s drawings

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Abstract
Blind people can invent drawings for material objects like cups, and matters esthetic, like “glory” at the climax of a story. In sketches of cups, their drawings are realistic, using lines for surface edges of profiles, and borders of cross-sections. They are metaphoric if they show purely mental events. These points are illustrated by two drawings by EW, a blind woman with two notable uses of a “fountain” device. One shows “glory” in the opera “Aida” and one is for memories overflowing. Keywords: touch, pictures, blind, outline, metaphor.

Received 09 September 2014; received in revised form 31 October 2014; accepted 31 October 2014. Available online 25 November 2014.

Heller and Gentaz (2013) and Picard and Lebaz (2012) concluded that the congenitally blind recognize tactile drawings of common objects. Also, they draw objects in ways recognizable by the sighted (Cohn, 2013; Kennedy, 1993). “There is no doubt that raised line drawings can communicate useful spatial information” (Heller, Calceterra, Burson and Tyler, 1996; page 310). Besides spatial information, what kinds of referents might they aim for? Here, it is claimed that the range includes mental events such as impressions and “glory” in an opera. Kennedy (2009) noted that thoughts were indicated in a drawing by a blind woman, EW. In the present article, an EW drawing about memory supports that claim. But further, a novel claim here is EW invented a device for an esthetic event -- the climax of a story.

In Figure 1, a cup is filled to the brim. Its contents overflow as if shooting out of the cup. It is a raised-line drawing (Zollitsch, 2003) by EW, a woman totally blind since early infancy, now in her 30s, who began drawing extensively in 2003, just a few years before making this sketch in 2007. It tells us that her memories of a wonderful trip are spilling out, now she has returned home, and is sitting with a cup of coffee. She is full of impressions from the trip. Coming back unbidden, they are irrepressible, the “fountain” at the top of the cup shows. In Figure 2, EW pictures a scene from Guiseppe Verdi’s Aida. Aida is being sealed-in with her loved one, Radames, a soldier, who has been condemned to being entombed alive by the high priest of Egypt and his court. Their heads touch, as if kissing. Of her own volition, Aida has taken-on her loved-one’s fate. She resolved to perish clasped in his arms. A stone has closed the vault. For Radames and herself, she imagines a heaven where love will never fade. Her “glory,” EW said, is shown by the lines like a fountain surrounding Aida. The lines, EW said, show “her glory coming out.” She said this is about “Aida and her Utopia.” She added “when they die they can be together forever.” She commented “The glory thing I wanted to come out of the tomb.” Asked to comment further, she wrote in an email on 23rd December 2012 that the lines penetrate the thick walls. Her inspiration was a performance in Leipzig.

Figures 1 and 2 were shown to the present author during a visit, July 15th-18th 2012, to EW at her home. EW gave permission for the drawings to be published in research reports. Here, I will argue that EW uses graphic devices (Cohn, 2013) for topics from several “ontologies,” each infinite in scope. Ontologies are “the kinds of existing things.” The three of interest here are material, mental and esthetic things (Hopkins, 1998). Further, to distinguish “realistic” drawings of material objects (Lopes, 2005) from “metaphoric” drawings of mental and esthetic things, a theory of outline representation (Kennedy, 2012, 2013) needs to be applied to Figures 1 and 2.

**EW’s goals**
EW lost one eye before she was 12 months old, and her other eye a few months later, because of cancers. She uses a raised-line drawing kit (Eriksson, 1998; Kennedy, 1993, 2008, 2009), a firm board with a rubberized front surface on which a plastic sheet lies. Sketching on the sheet with a ball-point pen produces a raised line.

In an email to the present author February 7th 2009 EW wrote that in 2006 drawing and the arts began to be
especially significant and “more than a casual pastime” in her words. She wrote (spelling corrected) “I began by drawing concrete objects, animals and people from my childhood memories, such as my pet rabbits [and] my favourite duck which I raised from a baby, the first bunch of flowers (Garbellas) I bought with my own spending money, the large stone in the school yard on and around which we blind children used to play during the lunch break etc. Then the idea of bringing other elements such as sounds, smell, impressions, feelings, atmosphere, etc., gradually came to my mind.”

Two days later she added: “What led to bringing intangible elements like sounds, smell, feeling etc.: it was initially the dissatisfaction I was feeling about my tactile drawings. I often wanted to depict one particular object, and not any other similar ones, but I was not always sure how to make my pictures specific. For instance, when I wanted to draw the tulips I had touched in Elke’s garden, or the American beagle my family had as a pet when I was a kid, I was not sure if the tulips or the dog I drew would represent specifically THE tulips and THE dog I meant to draw. They/it could look like any other tulips and any other dog. So then the question grew in my mind: how can I draw the thing I specifically want to represent, not any other ones. With my drawing techniques underdeveloped and limited possibilities of creating pictures on a 2-dimensional paper using only lines made by a ballpoint pen, I felt I was not successful enough. As I was experimenting with my drawings, the idea of utilizing other supporting elements such as smell, sounds, feeling etc. gradually developed in my head. It was in an attempt to make my pictures represent specifically what I wanted them to represent. For instance, I discovered I could probably represent the particular tulips I had touched Elke’s garden by first drawing the flowers themselves, and then adding other things that made up of those particular moments I was experiencing the tulips, such as the soft breeze blowing in the garden, birds’ chirping in the distance, occasional traffic noise, the scent of grass, the warmth of the sun etc. And so it has developed…”

At a public exhibition held in the Kelowna Art Gallery, Kelowna, BC, Canada, January 12th -March 17th 2013, EW’s offered an artist’s statement. In it she wrote “The drawings are an “attempt to re-create what I experience with my senses other than my vision onto paper. These include tastes, smells, touch, the flow of time, temperature, space, emotions, atmosphere, feelings, fantasies, ideas, even my own imagination of colours and light.”

She added: “Some of the questions I am confronted with as I make drawings include: What form would something abstract such as “joy” or “frustration” take on paper? How could an interesting taste or a unique smell be best transferred into the form of drawing? How could I best reproduce my tactile impressions using my own dots, lines and surfaces without losing their essence?”

EW draws flowers, trees, animals, people, cups, buildings and guitars aplenty. Her pictures run the gamut of the world’s furniture -- common objects, items with surfaces that can be seen and touched. What is of special interest for the present article is that EW considers pictures of material objects such as peonies and lollipops, and purely mental topics such as joy and frustration, smells and tastes. In the present report, referents other than common objects and sensory impressions will be considered.

About her own background she wrote: “I became blind when I was an infant …I have never had a chance to draw what I see or seen pictures drawn by others with my own eyes. Due to these “standards” lacking, I have to depend solely and completely on my own methods for my drawing. This is perhaps one reason why I have become interested in transferring my nonvisual experiences onto drawing paper.” In contrast, many sighted children have learned to draw mouths, profiles and other features by observing what was drawn by older or more experienced children (Wilson and Wilson, 1982). Though she is well-read and has a graduate degree in library studies, in drawing EW is largely independent of role-models.
In the main, she is developing her expertise self-taught. For common objects, the result is a plain style, one described by James Fenimore Cooper (1789-1851) as simple and unadorned, with few wasteful and purely decorative elements. To the plain style she adds devices for referents she calls abstract. Her comments show that for a time she was drawing flowers and the like but became dissatisfied, feeling that something more was needed to bring out distinctive qualities of the occasion and the flowers. Her something-more topics deserve to be catalogued, not cloaked under the one umbrella term “abstract”. Here, I offer broad distinctions to do with ontology, the kinds of things that can exist.

**Ontology**

Ontology is a branch of philosophy to do with types of existence. It is a part of “metaphysics,” which considers what is physical and what is not. Ontology helps classify different kinds of physical things. For an ontologist, we have material and mental existence. Our body, unlike most other material things, has a mind. Perhaps the crucial idea in metaphysics can be put like this: ontology X allows another, Y, to exist, but X’s affordance for Y is not evident in all forms of X. That is, material objects can allow minds to exist.

Each ontology X and Y and Z... is infinite in its possibilities. There are many ways material can be combined, as Lego blocks can be aggregated an infinite number of ways. A few elements and a few ways to click them together produce as many buildings as desired. Likewise, a few ideas, and a few ways to concatenate them, give rise to many possible thoughts in a mind, including of course thoughts about each of the Lego constructions. The more ontologies EW can envisage, the more kinds of infinities she can explore. She can consider the Lego blocks and their infinite realm. Call this Ontology X. She can entertain the senses and thoughts, and the infinite domain they offer. Call this Ontology Y. What is Ontology Z? The more ontologies EW delves into, the more infinities we can consider part and parcel of drawing by the blind, and, of course, by extension, the sighted too. Let us consider the realms that she has explored, and, in a coda to this tale, what territories remain for her to discover.

For a Realist, material things are the only things that exist. But material things have different uses. Consider how shape dictates what material can do. Material in the shape of a sphere has a special property not shared with a cube. On a slight incline, the sphere rolls down. The cube stands firm or slides. Raise the incline much past 45° and the cube begins to roll. Form has existence, and gives powers to material. One might say that number is a type of form, and 2 material objects introduce properties 1 alone cannot reveal.

Dead and alive are as real as material and form. A lump of matter in the void is lifeless. Life is material with a very particular form, all too readily lost. Further, life in certain form can have mind, sensing surroundings for instance, but most life-forms do not e.g. plants and viruses. Minds can have ethics, but not all minds do. In ethics we care about choices, and we are aware of alternatives, the consequences for others of our choices and what others think of us (Pinker, 2011), a demanding list, not satisfied by all minds, because awareness of others being aware of us incurs an infinite regress. Likely, few creatures imagine A inside B which is inside A, an infinite regress.

Because Figure 2 has a device for a climax of an opera, an art form, the ontology of esthetics needs to be queried. For esthetics, the arts permit the study of forms of assemblies that have emotional, value-laden and formal properties. The forms are complete or incomplete, with designs we can follow or anticipate (Hanslick, 1854, 1986), being symmetric or repetitive, intense or low-key, directional, complex or simple, with starts and climaxes. In irony, it is key that a design is intended, so we do not take events at face value. Audiences are aware of authors, and vice versa (an infinite regress). This affords designs being known to build toward climaxes, where the central character makes a crucial decision, for good or ill.

Hanslick (1854, 1986), in an argument about “the musically beautiful,” noted that a wonderful piece of music may trigger deep emotions, and a musical property is the cause. The music’s design is complete or incomplete, a phrase is in the middle or at the start, the piece is developing or concluding, and all these properties are in the music, physically. Similarly, stories have their grammar (Cohn, 2013). They provide a setting, develop, reach a climax, and provide a coda, denouement or “release” from the story (as in “and they all lived happily ever after.”). One of the audience’s jobs is to find the way into the music or story, and to discover the climax.

In sum, one kind of existing thing that EW draws is matter, as common objects. Another is living things, as in the people, plants and animals EW draws. Another is mental, as in joy and frustration, and the memories in Figure 1, ethical events, as in EW drawings of a sanctuary and a memorial (Kennedy, 2009), and yet another is esthetic, requiring discussion of Figure 2 here.

**Outline**

Theory of pictures holds that they rely on universal perceptual functions first tapped by the hunters and cave-dwellers of late Paleolithic times, shortly before the invention of agriculture (Cook, 2013; Herzog, 2010; Kennedy, 2012). What unit did the late Stone Age bands find makes linear graphics into pictures? In outline drawings, lines depict a surface’s edge (Figure 3). A flat surface’s border occludes background or meets another surface to form a corner. Likewise, bounds of rounded surfaces can occlude the background. The surfaces and their edges are tangible as well as visual. Surfaces structure the perceptual world of both the blind and the sighted. Also, blind and sighted people alike use line to
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depict surface edges. They can draw profiles of friends or strangers, the borders of common objects, trees, buildings and hills. They can draw familiar toys, or get pictures of hitherto unknown gadgets.

Figure 3 has six uses of outline in a drawing of flat, opaque surfaces. The line can have background on both sides, one side or no side. From the vantage point of the observer, background surface is occluded at the line. The foreground surface can end or continue, occluded, at the line. The line itself can depict a foreground surface or a background. To have a background one needs a foreground, but two foreground surfaces can meet at the line as a corner. The result, in Figure 3, as shown by the arrows in order from top left to bottom right is:

1. POST: background on the left of the line is empty/the line is foreground surface/the background on the right of the line is empty. The thickness of the line suggests the thickness of the post.
2. TOP OF BLOCK: background on the left of the line/foreground on the right of the line
3. SIDE OF BLOCK: background surface on the left of the line, which continues to the right of the line occluded/foreground surface on the right of the line, ending at the line
4. BASE OF BLOCK: foreground surface below the line which continues above the line occluded/foreground surface above the line which terminates at the line
5. CRACK: foreground on the left of the line which terminates at the line/the line depicts background/foreground surface on the right of the line which terminates at the line. The thickness of the line suggests the thickness of the crack.
6. CORNER: foreground surface above the line which terminates at the line/foreground surface below the line which terminates at the line

In Figure 3, the thickness of the line is relevant to showing posts and cracks because the width of the line shows the width of a foreground or background surface. Its thickness is irrelevant to the other uses.

EW’s Figures 1 and 2

That line can depict surface borders is apparent in Figures 1 and 2. Consider this use first, and then entertain “metaphoric” uses.

In Figure 1, surface boundaries of the cup and its handle are shown. The interior of the cup handle is not filled-in, and each line depicting the handle shows occluding bounds of the curved surfaces of the handle. The thickness of the line used in depicting the handle is not significant, since an occluding bound of a rounded surface has no thickness. The lines offer a profile, given by tangents to the surface. (In linear perspective the tangents go to the observer’s vantage point. In parallel perspective, the tangents remain parallel to infinity. The handle might be in either perspective.)

The interior of the cup is shown, and there is no line for the brim of the cup (Kennedy, 1993 p. 101), so the lines for the bowl suggest a cross-section. If so, on one side of the line, there is an empty background. On the other is the liquid in the cup, drawn in cross-hatch fashion, meaning dense to show the density of the contents. If the cup was empty, the receding surface of the interior of the cup could be depicted as in a cut-away, the front section cut off to display the interior, like a section through the middle of a tennis ball. In this case, the cup wall’s thickness would be emulated by the line, as if the line was showing a foreground post.

In Figure 2, lines also show surface boundaries. The lines show the profiles of people, Aida and Radames. Both heads are drawn in profile, and not filled-in, so the lines depict the occluding bounds of rounded surfaces. On the right is Aida, with flowing robes depicted by roughly vertical lines inside her overall silhouette-like profile. Each roughly vertical line could stand for the border of a fold. Alternatively, each line could be the top of a ridge or the bottom of a valley of the fold as in Kennedy (1993, p. 103). Radames, the larger of the two people, is not filled-in, and the lines depicting him are, like the cup-handle’s, for the occluding bounds of rounded surfaces, not cross-sections through a body that is empty inside, like a doll.

Figure 2 depicts rocks, with lines in the form of an arch. Ironically, the shape is that of an arch that might be used in a wedding, but the arch in this case depicts a tomb for 2 people buried alive. The arch is complete at the top, suggesting the opening through which they entered a vault has been closed by a large rock. It may be the sketch uses topological properties such as “inside,” meaning the central characters are enclosed. Alternatively, true shape may matter, not just “inside.” The lines shaping the arch may depict cross-sections through a closed container. If so, the outer lines mean the border of rock against the surrounding background space, and the interior lines near show solid material on one side, and on the other side is the receding wall.
of the burial cavity. The space between the inner and outer lines of the arch has criss-crossing lines. These may show the solidity of the enclosure, possibly in cross-hatch fashion, lines showing density rather than individual surface edges. About a third of the way up the arch, on both sides of the arch, are two horizontal lines. These suggest the tops of columns, bases for the arch, a component of the tomb. The rest of the arch rests on these bases, suggesting a top which has been put on to seal-in the doomed couple.

Besides outlined features, EW’s drawings depict referents that are not surface edges. The referents, memory and glory, cannot be touched or seen. The cup’s contents appear to be fizzing up and out. Aida offers a fountain of lines.

First, let us attempt an interpretation of Figure 1’s fizzes. Some are for contents in the cup; some are for a spray from the cup. Dense lines in the cup suggest the contents are intense and “pent-up.” The lines are chiefly vertical, suggesting the contents are oriented upwards, ready to spring up. The density of the lines is especially marked near the top of the cup suggesting what is contained is ready to burst out. The lines above the cup radiate in three groups, one left, one right and one vertical. Each could be depicting individual streams of liquid, in a fountain, each stream being foreground, with empty background on either side, each like the POST line in Figure 3. The groups of lines left and right curve up from the brim of the cup and then down, as if their surge lost upward energy and fell back out of the scene. The middle group still stands up.

The lines refer to unruly impressions in memory. Memory is not a line nor a fountain of lines. It is not posts, foreground surfaces with background on either side. This is not literal representation. On the one hand the tripartite shape of the fountain could suggest three impressions boiling over simultaneously, with the contents of each of the three groups of memories working together. On the other hand, the uneven radiation suggests unkempt hair, each line depicting a strand, not groomed, and largely uncontrolled, symbolic of memories that are coming unbidden, irrepressibly. In contrast, the cup is symmetrical, set on its base, symmetric and hence stable. It might be said that the recollections are out of control, but the vessel is quiet. The referent of the spray of lines is mental, not a twitching material body.

Figure 2 has lines surrounding Aida as if she was the centre of a fountain. There are 20 or so lines with an origin near Aida’s head. Four lines come from her waist and on the right, and, roughly symmetrically in the scene, four are to the left of the loving pair. Only two lines go almost straight up. The lines spread from the couple and curve downwards like thin streams of water shooting up, spreading and falling back to earth. They cross each other in a design that is not severely geometric, as if not rigid and fixed. They seem flexible in that each takes its own path and shape within an overall scheme. The individual lines suggest individual streams of water, as in Figure 1, but their referent is not a foreground surface. Rather, it is glory radiating from Aida. It is “her glory.” Glory is not made of surfaces of matter. Again, this is not a literal outline representation.

Discussion

The EW drawings include use of outline to show edges of surfaces, such as profiles, which are the occluding bounds of rounded surfaces. In addition, they contain devices to show what is not a surface or an edge, and not visible or tangible. These require interpretation and speculation. To a drawing of herself swimming, EW added lines depicting streams of water running through her fingers (Kennedy, 2008). Her comment was “these might be metaphoric for the sighted, but they are perfectly literal for the blind.” Streams of water in water are tangible but their tangible edges are invisible. EW’s comment supports the hypothesis that using lines for referents that have no perceptible edges is metaphoric (Kennedy, 1982). In that respect, the lines for memories and glory are metaphorical. If so, the fountain-like devices and their referents should have common properties. Metaphors such as “that woman is a tiger” imply that she and the tiger have common features, such as being fierce, strong and determined. In this vein, consider that the contents of a cup set down abruptly may spill over, and a person who has just returned home from a trip may find vivid impressions spilling out of memory unbidden. Likewise, water bursts from a fountain and radiance from heaven. Aida sings of the coming of death as an angel with heavenly radiance. In a fancy, in Figure 2 the radiance of heaven and the angel is given to the heroine. It penetrates the walls of the tomb, outward, not inward like that of the angel. Further, the fountain-of-lines device used is earthbound because it breaks the rule that radiance, like light, has rectilinear propagation. Befitting the world’s gravity, at both ends the lines curve downwards.

Evidently, apt features are shared by the graphic fountain devices and their referents. Hence, the devices are metaphors (Kennedy, 1982; Kennedy, 2013; Kennedy and Gabias, 1985).

What are the ontologies of memory and glory, as depicted here? Memory is a capacity of a mind. It belongs in the same category as sensing, thinking and having emotions. It is a property of awareness, specifically the awareness of something that happened at an earlier juncture in a character’s history. It is of special interest in a discussion of EW’s portfolio of drawings because, unlike EW’s other drawings, it invokes time, by being about the present effects in EW of past events.

Figure 2’s Aida has a different ontology than memory because its subject is in the arts. Many minds, human and animal, have memories. Fewer have esthetic interests. There are two esthetic aspects to Figure 2’s fountain. One is that it is a vivid device, commenting on a courageous act (Bouissac, 2014; Cohn, 2013). The other is the fact that the act takes place at a story climax.
Let us consider some speculations on climaxes. In the opera, Aida asks her loved-one to look towards the angel of death and heaven’s radiance. She is transported, the libretto states. She has put herself in the path of death, and did so for love. The vision Aida mentions, with all its glory, is mythological. The warmth, comfort and brightness of heaven are a religious ideal. But the glory attributed to Aida in Figure 2 is not that of heaven and the angel. It is the glory of a heroic action, and specifically it is one at the climax of a story. In effect, one part of our understanding is an awareness of love and death. Aida’s love for Radames is stronger than her fear of death. The second part of what we need to comprehend is that this claim is a climax to a story. We in the audience are aware of a story and its final moments. Judiciously and powerfully, so far as an invented storyline is concerned, the climactic act by Aida leads to the couple acting together. They wanted to be together, and finally here they are, but alas, ironically, imprisoned for ever. As their last lines, Aida and Ramades sing together. They imagine a brighter tomorrow, where the eternal will shine and there will not be shadows. As EW noted (in an email December 23, 2012), the final scene has the couple “embracing,” and the lines penetrate the tomb walls and go “beyond the physical world which they are about to leave.” (The denouement is another admirer of Radames singing of her hope that he will find peace and welcome in heaven.)

If Aida had taken her actions very early in the opera, it could have set the scene for a different story. If the moment she chose to die had been in the middle of the development of a story, it would have required responses from many characters in the story. It would not have the punch it does coming at the climax, surely. It is a double finale, the end of the story and the end of the character. By being a death at the end of the story, it signifies that the main focus of the story is the strength of her passion. The death reflects on the strands of the story that lead to her act. The strands all are to be interpreted with respect to this ending. If so, the glory of the action lies in more than her courage, the audience may well think.

In this interpretation, the fountain device is being used, in part, for the glory that comes with being an effective climax. The moment has complementary sides because on the one hand, her action completes her life and on the other it completes the story. Not just about her remarkable resolve, in this analysis it tells us about how things can end, as esthetic events. Death and a storyline belong together, one might say, perhaps inventively. Death can be more than the end of a story; it can be its climax. The content is death and the form is a story, and specifically the climax of the story is the death of the central character. If this is correct, the fountain device may suggest a climax just as much as it implies an unsurpassed action.

Aida’s action is dramatic, and it is part of a drama. To the extent that the device is specifically about a part of a story, it is about an esthetic event. Such events have a distinctive ontology. The specific form of the mental is the esthetic. By selecting a moment from a story and by choosing a device that is pertinent to a climax, EW has explored an intriguing and specific kind of event, with a distinctive ontology, she has not treated in any other picture.

In sum, by themselves neither spilling nor radiating of water are metaphoric. Representations of these afford non-literary representation. Their depiction here requires awareness of literal content, and cognition of properties in common between the device and a secondary referent. “The identification of novel tactile pictures is a difficult task, and it is known that familiarity and higher-level cognitive factors play a significant role in picture [identification]” (Heller, Brackett and Scroggs, 2002, page 349). Just so, EW’s captions help. Her comments help. Metaphoric graphic devices typically need to be appreciated in a context (Cohn, 2013; Kennedy and Gabias, 1985; Kennedy and Merkas, 2000). Profiles and face-front can be understood without guidance. But metaphors often need hints. They need interpretation, including the kind of speculation offered here.

EW devises intriguing pictures with topics from several ontological domains. Of interest, it is clear that an aspect of recent art has not attracted her. Besides theatrical acts, she depicts ordinary acts such as walking and swimming that are taken unselfconsciously, without concern for an audience or a design for a story. The opposite, meaning treatment of the awareness of an audience for a scene, is part and parcel of the modern era. Awareness of the audience, and the audience’s reciprocal awareness of the author, and each being aware of themselves and the other, is an infinite regress. It affords irony, wry comment, art for art’s sake, art for artists, art designated as rejection of art, art that is designed to be nothing, art as deliberately obscure, art as deceiving the audience, art as uncollectable by the audience, art for everyone, art as aimed at being priced out of reach of the audience, and so on. The awareness-of-awareness regress and its affordances are the mark of the modern. Truly a James Fenimore Cooper plain stylist, EW has not exploited her art ironically, has not rejected the interest of the audience, and has not been wry or shy about her subject matter. There is much in modern art that she has the tools to tackle because her own comments show she reflects on her art. The modern form in which art is about art may or may not be in her future, one cannot say. At present, she is interested in the world and how she might invent graphic devices to depict it.

In sum, the EW tactile drawings use lines for surface edges. In addition, her metaphoric devices show what is mental and what is esthetic. The drawings here were made by EW on her own initiative. They raise issues in esthetics and theory of literal and metaphoric depiction (Cohn, 2013). Referents and pictorial devices of many kinds are within the realms of possibility for a blind person exploring the nature of pictures, self-guided (Hayhoe, 2008), and the results are in keeping with pictures for and by the sighted.
Tactile picture theory

References


