Abstract

This article considers a series of constraints active in the abrasive interface between picture and painting. The term constraint is used in reference to Margaret Boden’s research into the computational mechanisms underlying creativity, constraints understood as productive limits that test a given field or convention. The space between picture and painting is full of strongly defended divisions, and inevitable overlaps, and it can be a cluttered and contentious field for a practitioner to negotiate. The aim of this article is in part to bypass an oppositional mindset that cuts off descriptive and imitative impulses for painting and picture from abstract positions and to access the constructed forms of pictorial convention by a different route. In order to avoid a dead-end opposition, a distance from painting and picture is established through a close examination of an early artefact of mark making and counting in the form of a small clay ball called a bulla. Dating from around 3500 BCE, the bulla reference depends on the archaeological research of Denise Schmandt-Besserat and on a description by Georges Ifrah as a key example in the development of numeration. The bulla is identified as a point where distinctions between number, word, object and picture are not fixed and their interdependencies are clear and productive. In this article the particular qualities of the bulla facilitates thoughts about three interlocking terms: likeness, representation and depiction. Each term is addressed in turn, framed as ‘testing likeness’, ‘retaining representation’ and ‘the material requirements of depiction’, and each is considered through processes of recognition and resemblance. This article is informed by writing on painting’s mimetic and materially specific art history including James Elkins, Michael Podro, Georges
Didi-Huberman, W. J. T. Mitchell, Michael Baxandall and Jacques Rancière. Likeness is rephrased by a consideration of analogy, and the conceptual testing involved, opening a space between the notion of likeness and visual resemblance. Representation is thought through the processes of correspondence and reiteration, and the associations of both presence and displacement that provides. Depiction is embedded into its material conditions and the circumstances of recognition that evokes. All three terms are considered as key to the constraints between painting and picture, even when functioning as exclusions.

**Keywords**
- constraints
- Margaret Boden
- likeness
- representation
- depiction
- Bulla
- abstraction

I have in mind a small clay object. It is hollow, ball like and I could hold it in one hand. Turning it over there is the tactile pick-up of marks impressed on its surface, made while the clay was still pliable. The marks are various but ordered and some marks are recognizably repeated. The indentation of a block of marks produces a slight flattening in the spherical shape, the continuous surface of clay is delimited just enough to say it is a form with a front, that it tends to settle in a position that could be called facing. As I turn the marked surface towards me, there is the sound of objects contained inside, like seeds rattling in a dried out fruit. They must have been sealed in during the making and cannot be accessed without breaking the clay apart. The thought then occurs that the marks on the outside might correlate to the objects on the inside; that the marks on the surface of the clay ball represent those unseen objects, depict them and replace them.
I come across this object by multiple routes and I imagine holding it and turning it over while thinking through a set of constraints that I recognize as active in a space between picture and painting, constraints I find difficult to clearly state without labouring over definitions but that I see in operation when certain possibilities are excluded or only seem permissible under certain conditions. This space between picture and painting can be contentious and art historically loaded; it is extended when painting excludes an association with picture and reduced when picture is the inevitable implication of painting. Yet both of these moves seem unsatisfactory and unproductive for making painting. The possible interchangeability of the two terms focuses the problem. Picture as a catch all for a wide range of image outputs becomes too generalized when painting wants to argue for distinctiveness. Picture loses painting’s direct access to process as the verb and the noun bounce back off each other. Then the easy expansion of ‘picture’ to ‘picture of’ indicates a reliance on something prior to and against which the picture is compared, and so can read as a reduced version of painting’s potential to operate within its own terms of reference.

Constraints between painting and picture are configured by these difficulties. They need to negotiate the descriptive and imitative potential of painting and its rejection. I use the term constraint quite purposefully and to be understood as productive, constraints as limits that can ‘map out a territory of structural possibilities which can then be explored, and perhaps transformed to give another one’ (Boden [1990] 1992: 82). Margaret Boden’s research into the computational mechanisms underlying human thought processes stresses the importance of constraints for creativity. For Boden constraints are programmable, or at least potentially, and indicate the possibilities available within a convention or field of knowledge at any given time. It is ‘the partial continuity of constraints which enable a new idea to be recognizable by author and audience alike’ ([1990] 1992: 83). Constraints are of course restrictions, but attempting to express them clearly can produce unexpected flexibility. Constraints do
not simply state what cannot be done but rather map the variables under consideration. The systematic nature of this does not feel alien to painting in all its iterations; painting has often been defined by its relation to limits and it is observable how those limits shift and are still collectively comprehensible.

However, the cluster of terms that articulate the constraints between picture and painting escalate the problem of definitions. The overlaps of usage could be mapped with the logic of a Venn diagram, charting regions of equivalence and separation, where ‘illusion’ is distinct from ‘imitation’, or ‘likeness’ overlaps with ‘resemblance’, or ‘depiction’ separates from ‘representation’. Seen collectively these terms appear at odds with the historical clarity of abstraction as though activating them at all is a retrograde step or the consequence of taking sides in an old argument. The shorthand version of painting’s break with representation (or illusion, or external reference) can be described as its break with picture, but then abstraction’s apparent closure as a historical artefact can see painting stranded by its own logics (Damisch 2009: 133–35).

So I fix on to the clay ball with its marked and enclosing surface at an intentional distance from picture and painting and some well-rehearsed oppositions. The clay ball is called a bulla, and it is not intended here as a metaphor for picture or painting but as tangible evidence of a materially embedded thought process I want to catch hold of. The archaeology puts the form of bulla I am imagining in use from around 3500 BCE, and as a very early artefact of marking and of counting, it occupies a moment where the need to account for things in the world takes on a particular physical shape. A handful of clay is hollowed out to form an enclosure for a collection of small clay objects, rods, pellets, discs and cones, which then get sealed inside. These objects form a system of denotation and mark a development from a counting method using identical clay stones, or calculi, used to reckon quantity in a one to one
relationship, like the notches on a tally stick (Ifrah 1981 1998: 96–108). Each distinctly shaped object or token enclosed in a bulla stands for a specific numerical value. The closing of the bulla and the enclosing of the tokens then designates the reaching of a total and the sealing of an agreement. The marking of the external surface, often by a direct imprint from the counting objects, is a reiteration of that total and a memory prompt for the concrete counting. This repetition feels like thinking out loud or more precisely underscoring thought through material manipulation. Both the tokens and the surface marks of the bulla can be understood as instances of representation, they stand for or stand in for something else and they can be understood as instances of abstraction, a removal or displacement that enables that ‘stands for’ capacity.

The routes to the bulla as a thought object for picture and painting are traceable in retrospect and I will attempt to set out a rationale. In addition to providing a distance from the local disputes of painting, the bulla marks a point where number, word, object and picture are not fixable as categories. It is a precursor to the conventions of two-dimensional marked surfaces that picture and painting participate in, but importantly is at a remove from them. The double system of the bulla captures something of the processes of abstraction and representation in parallel, or in other words, it identifies representation as an occurrence and facilitator of abstract thought. The bulla materially demonstrates a self-referential system, referring to what is not visible while also containing it, or at least a version of it; the mark, the token, and whatever has been counted, and the concrete awareness of quantity that circulates amongst them. As an object prior to abstract numeration, its logic is tied to the stuff that it is made from and it offers a different thought about the totality of an object or a surface. For picture and painting, the bulla can be located by an ‘associative net’ (Boden 1990 1992: 94–100), one that links painting to picture to tableau to table to tablet to abacus to early forms of marking and counting.
But more generally the bulla is an object that does not ask to be mistaken for a painting or a picture – it does not recognize those categories and so it does not demand an expansion of them.

As archaeological artefact, the bulla is viewed as an interim object between counting systems, moving from a one to one correspondence of a thing in the world, identifiable and countable, to the recognition of something as one of many in a category of things. In *The Universal History of Numbers* (G. Ifrah, [1981] 1998) Georges Ifrah systematically describes the shift from counting stones used in isolation, then stones enclosed in bullae, to tablets, ‘when the stones were supplanted by their own images in two-dimensional form, and the hollow clay balls replaced by these flat clay slabs’ ([1981] 1998: 101). Here the tablet form draws close to a certain iteration of painting through the term *tableau*. But the bulla occupies a space prior to that shift to a flattened surface and it avoids a competitive jostling of categorized practices that can close down space rather than open it up.

However, the abstractions that set up the conditions for that move from bulla to tablet are important to take on board. Ifrah outlines these archaeologically identified processes in detail and it is here in his encyclopaedic book that I first saw a diagrammatic drawing of a bulla, one that lodged in my mind in relation to the logics of picture and painting (Ifrah [1981] 1998: 100–05). Ifrah reflects on the research of Denise Schmandt-Besserat, who proposes counting as a necessary precursor to writing, and also counting as a generator of and generated by visual and material practices. Schmandt-Besserat’s position on this period of pre writing prevents a closing off of picture from word and number, and picture from object. Here the cognitive leaps in the history of counting and writing are made possible by malleable objects and surfaces, evidence of the ‘mutual compatibility’ of writing and art (Schmandt-Besserat 2007: 102–05).
At this point it seems useful to consider some characteristics of the term picture within which painting can find itself included. In *Pictures and the Words that Fail Them* (1998) James Elkins examines the aspects of pictures that evade description, and accesses the commonality between picture and other mark-based systems. For Elkins an understanding of picture that is removed from an understanding of writing allows linguistic structures to impose readings on pictures as though from the outside (1998: xi–xvii). A meshing of pictures and words avoids that hierarchy and part of that task brings Elkins to look at early mark making and what he calls the ‘common origins’ of pictures, writing and notation. Also drawing directly on Denise Schmandt-Besserat’s research, Elkins identifies a shared space where ‘counting, picturing, and sculpting coincide’ and where ‘it becomes extremely difficult to disentangle the links between philosophy, artistic practice, and numeration’ (1998: 92). Elkins takes time to retrace the steps that Schmandt-Besserat lays out from one-to-one correspondence through concrete counting to abstract numeration. These are considered by Elkins as ‘species of abstraction’ and mapped against what he calls ‘operative concepts’. Elkins pauses to acknowledge each abstraction in terms of the object manipulation and surface marking that accompanies it. The ‘operative concepts’ are where for Elkins the archaeology has wider philosophical consequences, for example ‘signs signifying signs’, which is the moment the bulla occupies, or ‘the dematerialization of the sign’, the moment of the flattened slab, when tokens are used only to indent a surface and are no longer part of a double system of accounting, or the basic premise of the ‘immobility of the mark’ on the surface (1998: 76–94).

Elkins sustained interest has been to examine pictures’ resistance to translation, holding back from stable or resolved naming, and considering pictures’ place at the limit of representation (2008). As Michael Baxandall has described, ‘The things that language must be decisive about and pictures must be decisive about are different’, each enabling distinct modes and emphasis (2003: 123). Baxandall
comments on pictures’ capacity to withhold decisiveness and Georges Didi-Huberman calls pictures ‘disconcerting’ because of an inability to be unambiguous, even when directly imitative (1995: 1–10). Despite this Elkins wants to remind us that we can never divide pictures from words, as though they exist in separate domains; the ‘signs of writing’ he identifies, for example the prompt to read through order and repetition, or meaning derived from separation and spacing, are also embedded within the logics of pictures (1998: 129). Within the scope of the bulla we experience an interface between denotation systems. There is a generative mismatching, one that is productive for thinking and making rather than a sign of failed communication.

So what does painting forgo when it excludes picture? And what are the conditions that enable painting and picture to be productively and critically connected? To repeat Margaret Boden’s phrasing, what are the structural possibilities that can be explored and potentially transformed? ([1990] 1992: 82). With the still bulla in mind, I now want to gather some thoughts on three terms that can be usefully written into the constraints that are active or able to be activated between picture and painting: likeness, representation and depiction. Although image, illusion, mimesis, imitation and others hover close by I will not address them directly. The terms likeness, representation and depiction can be assumed as properties of picture, as though able to be removed from painting, but I also presume them as implicit in painting. Each can track a space that opens and closes between descriptive impulses and each can assume the appearance of things or displace them. Likeness, representation and depiction all intersect with written and spoken language through the motivation to name, interpret or translate, and they all offer resistance to that motivation. When a constraint is activated in painting that empties out external reference for example, or diminishes gesture, or accesses image only through appropriation of source and process, or prioritizes concreteness and materiality as a
strategy to avoid illusion, I am interested in how representation, likeness and depiction are still active as terms, even as exclusions.

Testing likeness

Recognizing likeness is a process of comparison. Likeness circulates with resemblance, and then significantly proffers a different set of associations. Where resemblance has a sense of a sliding scale of degree or extent, so resemblances can be slight or fleeting, likeness implies something more definite and also allows for an acknowledgement of difference or remove. One of the moves likeness can make is towards analogy, where visual similarity is no longer a requirement. Analogy requires a high level of conceptual mapping that might concentrate on peripheral properties of a concept or thing, and importantly, involves a shift in a pattern of thinking by reconsidering one thing through the framework of another (Boden [1990] 1992: 100–11). Crucially an analogic process makes a change in what it is possible to think and is recognized as a key strategy for reconfiguring a constraint (Boden [1990] 1992).

Testing likeness operates through a form of picturing, in the sense of engagement with an imagined possibility at a remove from the subject of immediate attention. The pictorial is often assumed to be dealing with visual likeness, but the likeness activated through analogy is a conceptual search. An example of this could be the ‘reciprocal aptness’ that Michael Podro describes between the depicted space in a painting and the spatial positioning and awareness of a viewer (Podro 1998: 61). It also might be said to be active when an artist makes a structural reconfiguration in response to the logics of another practice.

So is it helpful to put in the same frame the conceptual processing of analogic thinking and the conventions of a descriptive and imitative art history? Do they signal two completely different uses of the word likeness? Or can it be productive to bridge these notions of likeness to see them on a
continuum? The imitative potential of painting is not of course limited to the visual properties of something and the perceived properties of a medium and the perceived properties of a subject are endlessly interwoven. In any case a gap between the concept of likeness and visual resemblance can be registered, and with it, a flexibility that can help reconfigure a constraint. More generally, if as Boden argues analogy is an essential part of the creative process in any discipline, then it asks an interesting question of painting and its conversation with a set of terms that access the experience of likeness;

There is the simple relationship that produces the likeness of an original: not necessarily its faithful copy, but simply what suffices to stand for it. And there is the interplay of operations that produces what we call art: or precisely an alteration of resemblance. (Rancière [2003] 2007: 6)

This is the sense of art made up of images, not in terms identifying content or visual resemblance, but in terms of the motivation to displace. Testing likeness through analogy is based as much on difference than on similarity. A move away from a mimetic motivation is not a cut between painting and words, in the sense of painting prompting visual recognition and indicative naming, ‘but a different way of co-joining them’ (Rancière [2003] 2007: 76).

The testing of likeness evidenced in the bulla can be firmly categorized as a process of abstraction. The multiple systems of the bulla follow a process of conceptual testing, one that allows concrete counting to be re-referenced by a physical impression of the counting token. The indexical marking that arises through the imprint of the counting object can be read through the projected fitting of the one back
into the other and understood through the removal of one from the other. This is a form of likeness where the mark is formed by the object and so is like the object and so very unlike it at the same time; it has selective qualities of what it is referencing. In the case of the bulla it is an understanding of likeness that has left resemblance to the particularities of what is actually being counted long behind. Here Rancière’s tight phrase ‘what suffices to stand for it’ ([2003] 2007: 76) seems particularly pertinent, with the displacement involved in the functionality of the counting token, and again as the token is prized off the surface and sealed inside the clay ball. The logics of one system are being restated through the logics of another, and through that task, a process of simplification or difference more keenly understood.

Retaining representation

The space between representation and visual resemblance is configured differently. Words appear to be foregrounded, with representation designating a relationship between visual or material artefacts and a spoken or written discourse. As W. J. T. Mitchell has described in practical terms, ‘the recognition of what visual images represent, even the recognition that something is an image, seems possible only for language-using animals’ (Nelson and Shiff in Mitchell 1996: 48). In shorthand representation is frequently paired with abstraction as though in opposition, but when pressured to expand it is hard to sustain this distinction. Representation does bring with it the context of an external referent that it is equivalent to, underlining that this is a ‘stands for’ rather than a definite ‘looks like’ relationship. Where representation becomes most problematically inflexible is when its ideological connotations weigh in, representation understood as pre-determined, a fully realized world-view, ready to be imposed.
David Summers draws attention to the root meanings of representation in order to establish some
space between representation and imitation. He emphasizes how representation carries the sense of
making something present, put before us in time and position, and also the sense of signification –
standing for something or someone (Nelson and Shiff in Mitchell 1996: 3–7). Both these associations
move representation towards the symbolic and away from resemblance. The ‘before us’ aspect of
representation resonates with discourses around painting that recall painting’s sense of facing or more
emotively call for ‘presentness’ as an attitude and address (Cavell 1979: 22; Fried 1998: 166–68).
Belting’s phrase ‘likeness and presence’ makes that discourse congeal into a personification and
rarefying of painting, carried by the iconographic tradition, but still evident in contemporary discourse
(Belting 1993; Mitchell 2005).

More useful for my purposes is representation’s connection to notions of equivalence and immediacy.
Through its early use in a monetary context, a representation is a payment considered in terms of
equivalent value, and importantly, a payment not to be deferred. The multiplicity of representation
becomes even more complex as James Ker describes how the Latin *repraesentare* contains a dual
meaning and function, ‘the rhetorical impact of “vividly recalling” and the economic impact of
“immediately paying”’ (Ker 2007, Abstract). The here and now-ness of this aspect of representation,
coupled with a pulling of something from the past, something remembered, into the present is worth
pausing on. Here is the memory prompt of the bulla, the unseen but accounted for objects contained
on the inside, and represented on the outside.

Built into the logics of the bulla is an exchange between modes of material manipulation: a concrete
system – the clay counting stones contained within, and a mark-based system – the notations on the
surface of the clay ball. The increased abstraction of the mark-based system over the concrete system
is very seeable in archaeological terms and in my understanding of the development of an abstract numerical system. The abstract notation standing for or representing the concrete tokens standing for and representing a counted out total of something. In these reiterations the bulla is able to refer to what is no longer visible while also containing it. This reiteration recalls a characteristic of painting, when it turns inwards, and these self-referential tendencies are addressed by Jacques Rancière in ‘Painting in the text’ ([2003] 2007). Rancière names them as painting’s tautology and contradiction, a ‘self-demonstration’, in which, ‘the same surface must perform a dual task: it must only be itself and it must be the demonstration of the fact that it is only itself’ ([2003] 2007: 71). Rancière links this to ‘the “formalist” dream of a kind of painting that turns its back on the spectator in order to close in on itself’ ([2003] 2007: 88). This form of self-closure has all sorts of essentialist connotations that are like a dead end for painting, removing it from itself as much as anything else. The reiteration of self-demonstration can seem like a closed loop and representation can be characterized as irrelevant or inadequate. But the reiteration demonstrated by the bulla feels communicative rather than closed, and representation can be understood as generative rather than dogmatic, as a facilitator of abstract thought. A constraint between picture and painting might enable representation to be retained under these dual circumstances of immediacy and recall, and in the context of a productive reiteration.

The material requirements of depiction

Depiction is the term that is most securely attached to picture and it can be identified with the mode of rendering at work in descriptive or imitative painting. Michael Podro’s positioning of depiction places it in a more open relation to recognition, recognition understood as a key perceptual function that we bring to pictures, but not one necessarily tied to the task of conveying the look of something known and identified in advance,
At the core of depiction is the recognition of its subject, and this remains so even when the subject is radically transformed and recognition has become correspondingly extended; it remains so not because we seek the subject matter despite the complications of painting but because recognition and complication are each furthered by the other, each serves the other.

(Podro 1998: 5)

In these terms the recognition that painting might prompt is not recognition as a conclusion, of something categorized and sorted, but as an experience that attaches and conditions our attention. Podro’s position depends on Wittgenstein’s, who questioned an idea of recognition based on an internalized visual comparison and matching, as when we say we carry a picture in our head (Wittgenstein [1969] 1974: 167). The notion of a pre-set mental image is one that seems to narrow the space that picture can operate in; however, picture and picturing do signal the imaginative participation of the viewer and begin to indicate something of the internal workings of looking. Picturing indicates a state of attention, a cognitive process of visualization, and it can also begin to indicate the abstraction in thought and association that painting involves. Podro’s sense of depiction is embedded with the particularities of paint, its material conditions are the unextractable context that recognition takes place in. The move between the actuality of paint and its manipulation towards depiction is supported by Richard Wollheim’s proposition of the ‘twofoldedness’ of painting (Wollheim 1987: 46–47, 72–73), or the intersections between material paint and descriptive intentions discussed by Georges Didi-Huberman ([1990] 2005: 229–75). Depiction indicates intention, the press and push of
Depiction has two main conditions: first our capacity to recognize through difference, and second, the intention to use the object that is materially present – the painting or drawing – to imagine what we recognize within it. (Podro 1998: 7)

Here the complexity of the bulla’s surface is worth returning to. The distinction of mark versus surface that might occur within the conventions of painting is not so sustainable. This is partly to do with the mark as indentation or impression, with no addition of a new marking material; thus, mark is inextricable from surface but also it is more apparent how mark makes a surface. The marking on a bulla can consist of distinct modes, with a pictographic marking often appearing underneath the numerical-based marks. The pictographic marking contains indications of forms we would name as animals or people, and is made by rolling a cylinder seal (Ifrah [1981] 1998: 99–105). This marking is understood as a personalized indication of ownership at the moment of making a contract or coming to an understanding. Early bullae would have solely had pictographic marking; the reiterative marking of the counting tokens on the outside was an innovation in form and conceptual understanding, and it is this reiterative marking that is more firmly depictive in Podro’s sense of the term. In addition, it is worth noting that the pictographic marking on the bulla takes the position of a ground, while the numerical marks take the position we would designate as figure. The pictographic has an allover quality; it can be rolled and rolled again and its generalized quality of pattern making is in contrast to the distinctness and intentionality of the other marks. The bulla provides a surface that resists the
hierarchy of figure and ground, and slips through certain expectations for the pictorial. Instead it signals how an extended category of visual imitation might operate as a background rather than a foreground; or how image can be ubiquitous rather than individualized; or how the intentionality of depiction can detach from an assumption of imitation while maintaining a response that can prompt recognition.

At a distance

I have found it useful to consider the constraints between picture and painting at a distance from picture and painting. The bulla’s material complexity avoids categorization and provides evidence of thinking made possible by the stuff one has in one’s hands. From the position of making paintings there has been the motivation to rethink an exclusion of picture without loosening the restrictions of painting, in short how to access likeness, representation and depiction by another route, to identify the complexity and instability of their connection to visual imitation and consider their opening up as examples of abstract thought. This is evident where the equivalence and immediacy of representation is seen as more pressing than a need for resemblance, or in the conceptual testing involved in the process of recognizing likeness, or when the material requirements of depiction impose themselves;

When painting suggests a comparison (it is like...), in short order it generally suggests another that contradicts it (but it is also like...”): so it’s not the system of comparisons or resemblances themselves, but rather the system of differences, of clashes and contrasts that will have some chance of talking about the painting. (Didi-Huberman [1990] 2005: 259)
The hollow clay ball of the bulla holds a physical trace of a thought process. From the object to the mark, to the mark made by and of the object, my understanding of concreteness, abstraction and representation as separate categories is less in dispute as I imagine holding the bulla and turning its enclosing surface over in my hand. Recognizing something as something is such a basic response that its complexity is hard to reckon with. Arthur Koestler, writing in the 1960s, described the involved cognitive processes at work in recognition;

*Similarity is not a thing offered on a plate [but] a relation established in the mind by a process of selective emphasis on those features which overlap in a certain respect... Even such a seemingly simple process as recognizing the similarities between two letters V written by different hands, involves processes of abstraction and generalization in the nervous system which are largely unexplained.* (Koestler [1964] 1975: 201)

These processes of abstraction and generalization are evidently at work within picture and painting, and they are at work within the logics of the bulla. As a composite of form and surface qualities the bulla is an evocative object, but I simply want to remember that the thinking lodged in the material circumstances of the bulla is one that picture and painting also share. The distance the bulla provides helps to rephrase the constraints active between picture and painting, to test the potential for finding new space while tracking over familiar ground.

**References**


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