AT PLAY IN THE FIELDS OF PATTERN:
THEORIZING PATTERN THINKING IN A MUSEUM OF ISLAMIC ART

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Abstract

This dissertation examines the interaction between a museum-going subject and a patterned museum object from two perspectives: scholarly writing about pattern and the experiences of visitors to the Aga Khan Museum in Toronto, Canada. Patterning is fundamental to human meaning-making, but in Euro-American theories of art, especially in categories of decorative art or ornament, it tends to be overlooked and under-theorized. In museology, visitors are rarely if ever asked about their responses to the patterned objects that they view. I combine situational analysis methodologies with digital humanities methods of data mining and data visualizations to compare my findings from my interviews with AKM visitors to scholarly writing about pattern. My argument arising from the comparison is that visual patterns on objects do not fulfil a "mere" decorative function, but have a narrative power that moves in the space between object and subject via their unique histories, interacting with the subject's histories and prior experiences to produce meaning that is situated, contingent, and embodied. Specifically, I highlight visual patterns on objects as transdiscursive, a term which describes their paradoxical nature as signifiers of meaning. I argue that they are fixed and fluid at the same time: fixed to the technical properties of their objects, but apt to appear on objects spanning many geographies and time periods. By approaching them in this way, I assign new prominence to patterned objects as conveyors of stories in museum gallery viewing. Finally, beyond this study, the methodological pairing of situational analysis and data mining that produced my new understanding of patterns has possibilities for future research beyond museology and pattern studies to pursue a broader set of questions.

Dedication

For my family, my basketful of puppies

who constantly show me the possibilities

for deep joy in the world.

"I arise in the morning torn between a desire to improve (or save) the world and a desire

to enjoy (or savour) the world. This makes it hard to plan the day" (E.B. White).[1]

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[1] as quoted in Shenker, Israel. 'E.B. White: Notes and Comments by Author'. *New York Times,* 11 July 1969, p. 43.

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Prelude: Into the Labyrinth[2]

Where was I? Ah yes, I was thinking about pattern. I was thinking about its

rhythms, for one thing. I was thinking about its habit of slipping into the background, into

the territory of the unthought. Pattern is always with me, like the beating of my own

heart, vitally necessary but just beyond my reach, as Mary Frame writes.[3] As Jacques

Derrida writes, "la chose même se dérobe toujours / the thing itself always hides away"

(*La voix et le phénomène* 117).

These threads of my thinking insistently weave back and forth, back and forth, as

I reflect on meanings hidden within patterning and visuality, patterning and materiality,

patterning and virtuality, patterning and narrative. All these threads interlace with one

another in an endless *enchaînement*.[4] Where are they leading me? What fabric are they

gradually building up and what will it reveal?

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[2] "La galerie est le labyrinth qui comprend en lui ses issues / The gallery is the labyrinth, which includes its own ways out within itself" (Derrida, *La voix et le phénomène* 117; Derrida, *Voice and Phenomenon* 89).

[3] "Floating just beyond the reach of hearing, the complex patterns come to us in snatches, tantalizingly regular, yet with variations and overlays that syncopate the rhythm" (Frame 113).

[4] In using this word in French, I am paying attention to Derrida's choice of it: "L'incarnation linguistique et la constitution de l'espace scriptural supposent donc un "enchaînement" de plus en plus serré de l'idéalité dans la réalité à travers une série de mediations de moins et moins idéales, et dans l'unité synthètique d'une visée. Cette synthèse intentionelle est un movement incessant d'aller et retour, travaillant à enchaîner l'idéalité du sens et à libérer la réalité du signe, chacune des deux opérations étant toujours hantée par le sens de l'autre, qui s'y annonce déja ou s'y retient encore. Par le langage, l'idéalité du sens se libère donc dans le labour même de son "enchaînement." / Linguistic incarnation and the constitution of written or scriptural space suppose, then, a closer and closer "interconnection" of ideality and reality through a series of less and less ideal mediations and in the synthetic unity of an intention. This intentional

Introductory Chapter, Thinking about Pattern

Since my childhood, I have been preoccupied with patterns. For many years I wanted to make patterns, mostly in cloth and yarns but sometimes in words. Now I want to think about pattern, to plumb its depths, to expose its secrets, and to better understand the rationale for its existence. I realize that this sounds ludicrously overambitious. But here it is; the task is before me.

I have narrowed my inquiry into pattern considerably by focusing on its role in two sites of concern: the permanent gallery of a museum of Islamic art, and the scholarly literature about visual patterns that appear on and in objects and works of art. In the first site, I have conducted interviews with visitors to the Aga Khan Museum in Toronto, Canada with the aim of investigating the encounter between a museum-going subject and a patterned museum object. In the second site, I have gathered scholarly views of pattern from the fields of museology, visual and material cultures, digital humanities, and from writings about pattern itself, especially about its role in systems of perception and cognition. In this dissertation I will report on my findings in these two sites before undertaking a comparative analysis of them with the aim of expanding the space for the interpretation of a patterned museum object, to give it more possibilities – to give it, in a way, more air to breathe.

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synthesis is an unceasing movement of going and returning that works to bind the ideality of sense and to free the reality of the sign. Each of these two operations is always haunted by the sense of the other; each operation is already announced in the other or still retained in it. Language frees the ideality of sense, then, in the very work of its "binding" ("interconnecting" [*enchaînement*])" (Husserl 87; Derrida, *Edmund Husserl's Origin of Geometry* 89).

For the purposes of this study, I need to distinguish between "patterning" as the umbrella word for a repeating set of circumstances, data, or actions, and "pattern" as the term for a visual pattern on a museum object. These two definitions are closely related in that visual pattern and its objects are enmeshed, in the sense that pattern actualizes in and on an object. I define a "patterned museum object" as a human-made object that exhibits regular repeat patterns as part of its structure or its surface; this definition encompasses objects often described using terms like "decorative art" or "ornament."

Patterning is fundamental to human meaning-making (Bateson; Frame; Roe; Washburn and Crowe) but in Euro-American ("Western") theories of art, especially in categories of decorative art or ornament, visual pattern tends to be overlooked and under-theorized (Ahani et al.; Bal, 'Visual Essentialism'; Blair and Bloom 153; Carroll 119; J. Jones; Luhmann). In recent museum display methodologies, the trend has been to use objects as "accessories to tell stories" (Dudley, 'Chinese Horse' 6), with figurative art considered the preeminent and potent vehicle for the telling. As Nicolas Luhmann puts it, "Painting, too, pushes its ornaments to the margins or the background which needs to be filled anyway – in order to foreground its figures" (121). Carol Bier maintains that norms of viewing and interpreting Euro-American art are focused on narrative, pictorial representation, and systems of proportion based on the human form, and therefore viewers accustomed to these traditions find patterned art hard to read ('CarpetMath: Exploring Mathematical Aspects of Turkmen Carpets' 38). I propose to remedy the lack or misdirection of theoretical attention to patterned art by highlighting visual patterns

with the aim of advancing a deeper understanding of patterning's role in human learning and understanding.

Research Questions

Two research questions drive my investigations in my two sites of concern: what matters most about visual patterns to interview respondents, and what matters most about visual patterns to scholarly writers. To explain each of my questions in more detail: first, in the museum gallery, how do visitors perceive patterned objects? To put it another way, how do systems of visual patterns on objects operate in the interpretive space of a contemporary museum of Islamic arts? Is pattern organized like a language in this context, perceived as systems of smaller units – like phonemes – grouped into larger systems – like sentences? This is a question about structure, but it is also a question about meaning. It is a leading question; that is, other questions arise from it such as, what does it mean to frame visual pattern as a language? How is pattern like language, and how is it unlike language? I posit that visual pattern communicates, and my inquiry focuses on how it accomplishes this rather than what the particular message is. My project is an exploration of how visual pattern communicates by exploring its relationships with visuality, materiality, virtuality, and narrative, and by examining how these concepts intersect and interrelate.

Initially I answered my question about pattern as a language with an assumption that I formed over many years of engaging with textile objects in my curatorial work with the Textile Museum of Canada. In answer to the question of whether quilts can be

considered art, Anna Chave notes that they are not art because they are "something else, just as complex and complexly aesthetic" (253).[5] Mamadou Diawara concurs with Chave, calling the European view of Kongo statues as art a "category mistake" (179).[6] The key concept that I borrow from Chave's statement is her resistance to legitimating patterned objects by calling them art. Applying her logic to my first research question, I argue that visual pattern is not a language because it is something else, something as complex and complexly communicative as language. It is both universally human and culturally diverse; it is a multiplicity. I make the case in this dissertation that the umbrella term, patterning, is a multiplicity of transmedial guides for thinking/action; visual pattern in objects is the trace or echo of that action. To look at a figurative representation is to look through a window at your own imagined life. To look at a patterned representation is to look at a record of moving through the world at a certain pace, in a certain way. I started my study with an impulse to investigate patterning as Gilles Deleuze's "dark precursor" (*Difference and Repetition* 119), and as Gregory Bateson's "difference that makes a difference" ('Form, Substance, and Difference' 459), but I quickly narrowed down my

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[5] Anna Chave wrote about the quilts of Gee's Bend, "Gee's Bend quilts are not art because their makers had in fact no concept of art; because until recently no one valued them enough to see to it that they acquired basic nutrition, health care and literacy, much less any knowledge of art . . . [the quilts] are as compelling, as layered and as exciting as art can be, or more so. But they do not amount to art because they amount to something else, just as complex and complexly aesthetic. That something else warrants less knowing into and more enquiry." I interpret Chave's "knowing into" as the same kind of "overlooking and under-theorizing" of visual pattern that I mentioned earlier.

[6] Diawara quotes John Ryle, "Whether you call these Kongo sculptures fetishes or power objects or ritual tools, one thing they are not is art. Or not until Westerners get their hands on them. To treat them as such is a category mistake, it is to fetishize the fetish."

focus to visual patterns as trace or record of patterning in the broader sense. I draw many

of my approaches to patterning as a fundamental organizing principle from the writings

of these two authors, as I discuss in Chapter Three. A detailed discussion of the position I

have arrived at as the result of my multisite study is the topic of Chapters Five and Six,

but here I will say that my initial assumption about this "something else" has not been

disproved by my findings but has been greatly deepened.

My first research question can be probed by restating it slightly. I can reframe

"how do systems of visual pattern on objects operate in the gallery" as "what is the nature

of the effect a patterned museum object has upon a viewing subject? Conversely, what is

the nature of the effect a viewing subject has upon a patterned museum object?" A start

can be made to answer this question by pointing to a world full of things by means of

which humans communicate with each other and with their environments. I suggest,

following Daniel Miller (38), that these things may both reveal and construct the realities

of the humans who use them. On the other side of the encounter, how can a viewing

subject have an effect upon an object? I posit that the viewing/experiencing subject

changes the knowledge ecosystem of an object – the earth, water, fire, and air that it

breathes – and that this transformation is ongoing, in fact never-ending. I go into detail

about this process by means of my comparison of findings in Chapter Five.

In the same vein, "what do museum visitors notice?" can be restated as, "does

visual pattern consistently slip into the background when any figuration is in a

representation? If so, why? If only sometimes, under what conditions?" I hypothesize that

this slip happens, but that a museum display works against the move to the background

by separating and highlighting patterned objects, making them objects of contemplation in their own right. When digital technology is used in a museum context to make patterns "come to life" through animation, this further draws the viewer's attention to them and enhances their performative quality. Pattern's quality of slippage into the background and its resistance to this slippage is a primary focus of my interviews at the Aga Khan Museum.

My second research question asks of the literature, what matters most about visual patterns to scholarly writers? What does the research emphasize? What does it elide? This question allows a historical and theoretical framing of past approaches to visual pattern. I approach it with ideas about representation from poststructuralism, and ideas about interpretation from hermeneutics. These two terms, representation and interpretation, have broad applications across disciplines, so it is necessary that I provide some clarification about how I am using them. In the scholarly literature, "representation" is perhaps the more vexed term of the two. It has been associated in recent conceptualizations of perception and cognition with its converse, non-representation, as proposed by such writers as Brian Massumi and Nigel Thrift. Ruth Leys offers a cogent explanation of non-representation and its cohort, affect:

> According to Thrift and other like-minded theorists, affective responses involve a kind of 'thinking' that takes place in a nonreflective, nonrepresentational manner in the form of embodied habits, that is, in the form of subpersonal bodily thinking that is said to precede cognition and intentionality (452).

When "representation" enters the museum field, it often takes on a political meaning, as in the politics of the representation of diversity. This is certainly how Andrew Dewdney et al. use the term (55). Further, Mats Alvesson and Kaj Skoldberg note that in poststructuralist thinking the meanings of representations are not fixed (200). While acknowledging the importance of attention to this aspect of representation in a public space, I take a somewhat different position, binding representation to interpretation: a representation of what Edward Said calls "brute reality" (1869) – whether it is an idea, a piece of writing, or a work of visual art – is an interpretation. It has been interpreted by its maker and continues to be interpreted, probably differently, by every subsequent viewer. This act of interpretation, I would argue, has its social/political aspects but before it is social it is individual; it is an individual act of perception and cognition. Sibel Bozdoğan, Said, and Gulru Necipoğlu promote an alternate way of understanding the cultures and products of diverse, Muslim-dominant societies, one that does not assume a canonical way of seeing that "sets up the world as a picture" and allows only one interpretation of that picture (Bozdoğan 39).

"Islamic art" is another category that needs definition in the context of this study. Like "Western culture," it is something of a misnomer, suggesting some monolithic entity, when in truth it describes the hugely diverse arts of Muslim-dominant societies over hundreds of years and thousands of kilometres of distance. Ladan Akbarnia et al call it a catch-all term, adding that "as a field that has existed only since the nineteenth century, Islamic art remains an artificial concept imposed upon the material culture of an enormous area" (8). As a primer, Stephen Vernoit provides a useful history of the

development of the field of Islamic art in the nineteenth century as objects began to come into the collections of European museums (24), and Edward Madden classifies the cultural production of these vastly diverse societies according to certain rubrics, among them the presence and sophistication of visual patterns on objects (234). I use the term "Islamic art" sparingly, preferring the terms patterned object and patterned art to refer to the objects I use in my study. I note that the objects I use may feature figurative imagery as well as pattern. In sum, my approach to them is not a totalizing one that attempts to pull them together into a universal system, but one that acknowledges and wonders at their diversity and variety.

Rationale and Significance

The museum imaginary is the conceptual site in which my investigation takes place; I picture it as a highly hierarchical and mediated site of collecting and displaying heritage objects. As a site, it is a spatial field and it is also a disciplinary field, subject to theoretical analysis and critique. A museum exhibition is the public face of the institution, and it always creates an imaginary world. In it, a curator combines objects, written texts, and, in the twenty-first century, multimedia devices to create an arranged version of a historical or cultural moment, with a strong point of view to match. It is within this public space that a private transaction takes place: the interpretive encounter between viewer and viewed. However, to describe it in this way may impute agency only to the viewer's side, and a limited, rather passive agency at that; rather, I hypothesize the transaction as one that is active and robust in both directions.

This current study is a continuation of a long engagement with the ideas that I propose in it. For my master's thesis in Interdisciplinary Studies, I worked with magic square symbolism on textiles in Muslim West Africa. Briefly, a magic square, the ancestor to Sudoku puzzles, is an arrangement of numbers in a square array in such a way that each row, column, and main diagonal adds up to the same sum. From their origins in ancient China, the numeric arrays that are today known as magic squares were considered models of the perfection of the universe (Cammann, 'Islamic and Indian Magic Squares. Part I' 183); this consideration has led to their use as components of talismans with the power to effect protection and healing for the wearer. Looking at the magic square as a "pattern engine," my thesis traced its transformations from a concept in the mind to its explicit representation in patterns on objects, then to patterns that refer to it obliquely, and finally to patterns on objects in a museum environment. Through this trajectory, I became interested in the way that the "magic" in magic squares operates as a kind of "logical depth" in the patterns on West African cloth that visually reference them. Similarly, the notion that the deep histories of patterns as protective talismans could be a part of their meaning-making agency inspired in me a drive to pursue the current study. In Chapters Two and Three I discuss in detail my views on the role of logical depth in visual patterns.

I also discovered that representations of magic squares on West African garments, viewed as communicative vehicles, combine elements of mathematics, magic, patterning, and language, and I needed to understand all of these elements in order to comprehend the magic squares' agency. Indeed, I have found that a study of pattern irresistibly glides

into these fields – the insistent repetition in patterns can be evaluated in terms of geometric structures (Washburn and Crowe, *Symmetries of Culture*), magic (Greenwood; Savage-Smith, *Science, Tools & Magic.*), ritual practices (Gell, *Art and Agency*; V. W. Turner), and even psychological syndromes like obsession (Graves, 'Pattern: A Psychological Approach'); through pattern, these structures, systems, and syndromes bleed into one another.

Alain Epelboin posits that textiles with magic squares written on them constitute "un métalangage non verbal transculturel" (150). My aim is to reposition pattern as a primary communicator in the interpretive space of a museum, to dismantle the notion that it is of negligible or inferior value compared to figuration, and to explore its modes of communication. Thus, my study may result in a deepening of attention to the dimensions of visual pattern on objects in museum contexts. Euro-American art theories tend to discount visual patterns on objects. Noel Carroll furnishes a clear example of this: he cites an Amish quilt as "beneath interpretation" (Carroll 119). In my view, if something is "beneath interpretation," it is, as Gilles Deleuze puts it, subrepresentative (*Difference and Repetition* 267), therefore enfolded, and, in my view, sure to be doing something interesting down there. It is not a question of raising patterned art up to be above the acceptable line of interpretation, but of going down there and examining it on its own ground and in its own terms. My hope is that my study will focus awareness on visual pattern's effects, especially in a museum of Islamic arts, and thus help to foster a more open space of "pattern thinking" for understanding those effects.

I define "pattern thinking" as a sensitivity to patterns as relational (DeLanda, *Assemblage Theory*; Washburn), non-Cartesian (Solymosi; Lefebvre), processual and fluid (Ingold, 'The Textility of Making'), iterative (Bateson, 'Style, Grace, and Information'; Deleuze, *The Fold*), and communicative (Hay, 'Passage of the Other: Histories'; Latour, 'On Technical Mediation') visual forms. As the title of my dissertation suggests, developing my thesis of pattern thinking is really my core objective, and the remainder of my study is dedicated to describing how I have formulated it through my investigations and to arguing in favour of it as an important new paradigm and a shift in perspective in museum interpretation. Given the unique role of visual patterns in the historic arts of Muslim societies, my approach is especially pertinent to the subject/object encounter at the Aga Khan Museum.

Furthermore, by giving patterned museum objects a role to play in the more general function of patterning in systems of perception and cognition, a widely acknowledged aspect of investigations in cognitive science (Neisser 150; Dawson 41), my study may provide a much-needed, robust, and multidimensional conduit between the theories and methodologies of the arts and humanities and those of the mathematics and sciences.

Limitations of the Study

It must be noted that I am a Canadian scholar of European heritage, equipped with an education in Euro-American philosophical and methodological approaches; it may be posited that I am unsuited to a study that investigates museum objects outside my own

background and cultures. However, I would counter that I have spent many years working on culturally diverse objects from all over the world as a museum curator and educator, first at the Textile Museum of Canada and then at the Aga Khan Museum, and I consider my understanding of patterns to be grounded in them. I might also add that my aim to propose a theory of pattern's meaning-making agency uses in its foundation the theoretical frameworks of Bateson, especially as interpreted by Peter Harries-Jones, and of Deleuze, especially as interpreted by Manuel Delanda. These are European scholars whose ideas about pattern nevertheless work against the dominant understandings of it in the "Western" art paradigm.

In fact, I find that "the West" is an extremely vexed and confusing term when it is used to refer to cultural products and concepts; for example, it is geographically inaccurate to refer to certain African societies as non-Western when their location is situated far to the west of other societies called "Western." I must assume that the "West" is shorthand for a conceptual space of European post-Enlightenment sociocultural norms that is assumed to be distinct from the sociocultural norms of any other conceptual space. Kwame Anthony Appiah maintains that "if Western culture were real, we wouldn't spend so much time talking it up" (4) and suggests that it has always been an artificial construct. It is far beyond the scope of this study to resolve the contradictions of the many uses of the "West" in the literature I review. I will note them as they occur in my discussions and analyses of the following chapters and will attempt to use more specific terminologies than blanket terms like "the West."

I must also declare that I am not dealing with the whole topic of twentieth-century art in terms of figuration and abstraction. I am nevertheless aware that the space of representation shifted, then changed dramatically in the late nineteenth and twentieth centuries, with, on the one hand, condemnations of the use of pattern in architecture by Adolf Loos, who equates plainness with modernity and claims that decorated surfaces are "primitive" (23); and, on the other, concepts such as the carpet paradigm of Joseph Masheck, who links the development of abstract impressionism in painting to the visual aesthetics found in carpets (98).

The question arises, what are the limitations of pattern thinking as an explanatory mechanism? I think it is fair to say that its limitations are my limitations. Because patterning as a field of scholarship is vast and truly interdisciplinary, pattern thinking has the potential for expansion to include the theories and concepts of scientific disciplines such as cognitive science (Dawson), mathematics (Henderson and Taimiṇa), biology (Ball), and philosophy (Stengers) that I can only touch upon and refer to in a very general way.

Overview of Chapters

The study has six chapters and four additional small pieces I am calling "interludes." The interludes are meant as a commentary on the main work of the study. They come from a place of condensed and elliptical thought, rather like poetry, and they walk beside the more methodological path of the chapters. In this sense, they can be said to come from the "possibility space" of the study (DeLanda, *Deleuze: History and*

Science 97). All illustrations are placed in sequence at the end of each chapter in which they first appear, and all tables are embedded in the chapter text. In addition, a digital portfolio of illustrations, plus links to digital projects, exists at

//bentleypbentley.myportfolio.com

The present introductory chapter, Thinking About Pattern, introduces the study's research problem, questions, and approach. Chapter One, The Methodology, elaborates on the methodology and methods used in the two sites of my investigation: first, the scholarly literature on pattern and second, the results of my interviews with visitors to the Aga Khan Museum Permanent Collection Gallery. The first site is, strictly speaking, a literature review; but it is also an analysis that I conduct according to the methodological principles of situational analysis, a recent variant of constructivist grounded theory (Clarke et al.). In grounded theory, theory comes out of the data that is gathered by the researcher. Constructivism posits that meaning is not objective and pre-existing but is co-constructed by the knower and the object of knowing. Situational analysis extends this notion by insisting that this interaction of knower and known is particular to a specific situation and cannot ever be idealized out of it. Further, the research approach differs from its parent in an important distinction: where grounded theory sees a unified, core theory as its final goal, situational analysis rejects this aim as totalizing and in fact impossible and looks for sensitizing concepts and integrated analysis to come out of the data. I use the assumptions of situational analysis to frame my review of the literature by seeing the literature itself as a situation – a site – in which my analyses, and the theories that arise from them, are formed by the experiences that I bring to the site; they are not

taken as any kind of eternal truth but rather as sensitizing concepts about pattern. I also use the theoretical and methodological apparatus of situational analysis in the second site, the interviews.

My data from both sites is imported into NVivo, a qualitative software package with an extensive suite of instruments that apply machine reading to data. Its mapping function allows me to make visualizations of my data and its coding functions organize terms into searchable groups. Chapter One features an exposition of my methods in detail but suffice it to say here that working in NVivo enables the development of theory grounded in the research. It also enables an approach characteristic of digital humanities, with that subdiscipline's emphasis on visualizing, machine reading, and auto-coding data.

In Chapters Two and Three, The Conceptual Site: Parts One and Two, I survey the past and current scholarly literature from the perspectives of the five fields in which I situate my study: museology, visual cultures, material cultures, digital humanities, and patterns' roles in perception and cognition.The museology section examines four interrelated questions: first, are museums only sites of authoritative knowledge, or can they also be hubs of pluralistic knowledge-sharing? Second, how does the dominance of "Western" cultural perspectives influence the role of museums in today's diverse societies? Third, how is digital technology changing the space of a museum and the "aura"[7] of its objects? Fourth, what is the role of the visitor in the sensory encounter between a museum-going subject and a patterned museum object?

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[7] The "aura" of a work of art is an important issue raised by Walter Benjamin, who defines it as "the here and now of the work of art – its unique existence in a particular place" ('The Work of Art' 20).

Because museums are primary sites of visuality, the second section's references deal with visual cultures. In this section of the literature review, I examine the positions of different writers on the semiotics of images, especially focusing on two related issues: figure/ground relationships, and the privileging of form over material and figuration over repeat pattern in art interpretation. These perspectives uncover two more issues that are important to my study of pattern: the profoundly acculturated nature of seeing, and the role of other senses than sight in the event of seeing.

The third section discusses references pertaining to material cultures. Here, the important themes are the debates about "thing theory," and the related notion of making as thinking. In the material cultures section, we are a long way from Carroll's meaningless Amish quilt. The references posit making as a mode of thinking, especially through repetitive and patterned movements, and repudiate the view of making an object through the force of will and muscle acting on inert materials.

Because the contemporary museum space can be either physical or digital, the fourth section lists references taken from the sub-discipline of digital humanities. My reading in this sub-discipline, albeit limited, indicates an approach among its scholars that is entirely "Western" in its assumptions. Here, I pose three questions: is coding – building digital objects – a theoretical activity or strictly a practical one? My second question asks, what is hidden about a seemingly transparent medium? Third, I ask, what is pattern's role in the configuration of software?

One important theme that arises from the writers in this section concerns the notion of hiddenness, which I believe to be closely allied to "beneath interpretation." In

terms of art criticism, I have mentioned Carroll's designation of the Amish quilt as

"beneath interpretation." In terms of digital technology, that which is hidden about

software can be scaffolding the whole system, much like the uninked lines in the Topkapi

scroll drawings that are not meant to be a part of the finished design (Necipoğlu, *The*

Topkapi Scroll: Geometry and Ornament in Islamic Architecture). These lines are not

discarded, for they are needed as an intermediate stage, but they are hidden from the

viewer in the final version of the drawing.

Finally, the pivotal Chapter Three, The Conceptual Site: Part Two contains

references that examine the theory and practice of patterning as a humanist endeavour. I

call this chapter pivotal because the references in it address patterning as a connective

tissue that enmeshes diverse fields of study: art, mathematics, anthropology, cognitive

science, philosophy, and sociology. My task here is to uncover and examine these webs

of connectivity, to help me to write my account of pattern thinking.

My questions reflect my particular concerns with pattern: first, in what manner

has visual pattern been fitted into the confining box called "decoration" or "ornament"?

Second, what is pattern's implication in systems of perception and cognition? My third

question is, how do visual patterns communicate with viewers? What, in turn, is the

nature of the viewer's response to visual patterns? If the viewer's response to figurative

art arises from emotion – from storytelling, from identity, or from personal feeling – does

their response to patterned art arise from the affective layer of their sensory functions?

My framing of patterning's role in systems of perception and cognition is

particularly informed by the work of two scholars of the twentieth century, Bateson and

Deleuze. I focus on Bateson's and Deleuze's use of the term "difference" as an operator in their systems of thought – for Bateson, in the "pattern which connects" (*Mind and Nature* 153); for Deleuze, in the flat ontology of becoming in which actual and virtual states fold and unfold into each other (*The Fold* 137). I also review literature on patterns as devices, on patterns' roles in systems of ritual and magic, and finally, on the "pattern thinking" of Bruno Latour. Chapter Three ends with my articulation of a conceptual framework for the study that is shaped by my responses to the literature in the five fields I have reviewed.

Chapter Four, The Experiential Site, features a report on my findings in the gallery interviews, as the title suggests, along with my analysis and interpretation of them. I begin with a description and evaluation of the Aga Khan Museum gallery space as the site for my inquiry. This is followed by an account of the gallery objects that I used for the interviews – in Clarke's terminology, my visual discourse materials (270) – and my analysis of them. My report on and analysis of the interviews I conducted proceeds in accordance with the principles of situational analysis and constructivist grounded theory: although I try to maintain an open-ended approach by beginning with a question – "What do you see?" – that could go anywhere, the resulting interviews are conversations I have had with the respondents, in which I inevitably become a co-producer of the views they express. The conversations take place in a fluid space that is never finished, because neither conversant is ever finished; the knowledge that emerges from those conversations is always situated, embodied, and contingent upon the situation in which it is expressed.

In Chapter Five, The Twisted Cord, I interrogate the results from my two sites of concern. I take the composite set of ideas that I have gleaned from scholars thinking together – or back and forth to each other – in Chapters Two and Three and compare it to the primary focus of my study in Chapter Four, the subject-object encounter in the AKM Permanent Collection Gallery, to develop new ways of thinking about patterns in a museum exhibition context. Some of my guiding questions are adapted from Clarke's recommended list:

- What discourse topics are in all datasets? What topics are present in some and not in others?

- What similar positions are articulated across datasets? What different positions are articulated?

- What do the consequences of these differences seem to be? (Clarke et al. 236)

In this chapter, my comparison of the findings from my two sites leads me to a reformulation of my thesis of pattern thinking. Specifically, what results from my analysis of the interview texts is the discovery that visual patterns, far from being nondiscursive, are in fact transdiscursive, rich sources of stories arising from multiple discourses, and that the stories develop out of a synergy of the patterned object's histories and the experiencing subject's histories.

Chapter Six, The Museum Imaginary, the final chapter of the dissertation, recaps the study's purpose and design and features an assessment of its outcomes. In this chapter, the notion of the museum imaginary serves as a focus for an exposition of the

space taken up in it by pattern thinking. I present my case for the agencies of patterns based on my findings in each site of concern. Patterns' communicative agencies arise from their transmediality, transculturality, and transdiscursivity. Furthermore, their stories are co-created in the charged and buzzing space between the experiencing subject and the patterned museum object. Imagination, far from being an abstracted and pure function of cognition, is lived in the body. The museum imaginary is an ideal site for its exercise and patterned museum objects are rich sources of its inspiration, for they are open-ended, open to interpretation like Deleuze's lines of flight (72), and further, in their likeness to puzzles – like Oleg Grabar's games of covering space (152) – to play.

My project seeks to meet Bardzell &Bardzell's criteria for a research design project that

> proposes a perspective-changing holistic account of a given phenomenon, and that this account is grounded in speculative theory, reflects a dialogical methodology, improves the public's cultural competence, and is reflexively aware of itself as an actor – with both power and constraints – within the social world it is seeking to change (9).

In other words, my project introduces a new, holistic, perspective-changing account of visual pattern that I call pattern thinking. As a self-reflective actor within the project, I bring all of my past experiences and beliefs to the task of theorizing a change in the social world of the museum by asking how it might be possible to improve the visitor's perception and cognition of patterns. Might one set up a dialogical methodology in which the literature about visual patterns has a conversation with visitors' actual

experiences? To ask these questions and to explore this view of patterns, this is the task before me.

Chapter One, The Methodology

The purpose of this chapter is to elaborate on the methodologies and methods that I use in the two sites of my study: first, the scholarly literature on patterning and visual pattern and second, the results of my interviews with visitors to the Aga Khan Museum (AKM) Permanent Collection Gallery. These are my two theoretical and practical sites of concern. I approach these sites with my research questions in mind: in the literature, what matters most about visual patterns to scholarly writers? In the interviews, what matters most about visual patterns to my respondents? In the following chapters I will provide specifics about each research site, demarcating each and analyzing the data I collected there, but in this chapter, I give an overview of my research methodology in theoretical terms: why I chose my methods and how they pertain to my topic.

I begin with a general discussion and rationale for using qualitative research and then move to the particular details of a branch of that method called situational analysis. I present first, my research design in each site and next, my deployment of the qualitative software NVivo to organize and analyze the data. My account of NVivo's affordances leads me into a reflection on prototype-making as a data visualization and research method. The chapter concludes with a summary in which I consider limitations and potential weaknesses inherent in the research design.

Overview of Methodologies

I conduct my study guided by the philosophical and methodological tenets of qualitative, as opposed to quantitative, research. Quantitative research measures the

validity of a supposition about something or its meaning by the quantity of verifiable data

collected about it. As a theoretical position it dovetails with logical positivism, an early

twentieth-century paradigm based on the idea that what makes propositions meaningful is

their verifiability. Knowledge is composed of verifiable propositions only. If something

cannot be verified, it is meaningless. This paradigm is at the root of a principle that one

method – the scientific method – can be developed across all the sciences to produce

objectivity in researchers and their results (Gibson and Hartman 14). In contrast,

qualitative research is defined by Linda Dale Bloomberg and Marie Volpe as "pragmatic,

interpretive, and grounded in peoples' lived experiences. Qualitative research is typically

enacted in naturalistic settings, focuses on context, and is emergent and evolving" (44). If

the quantitative approach finds qualitative research inexact and not evidence-based,

qualitative approaches view quantitative ones as "instruments inextricably tied to ontic

realms, enmeshed within systems of power and domination, unable to see beyond their

own technological frenzy and completely incapable of accessing the 'essential' or the

'primordial'" (K. A. (Keith A. Robinson 7). A qualitative research approach is obviously

the better choice for my investigations; it accords with my sense of knowledge as

contextual, emergent, and incomplete – I hold the position that meaning-making is a

search for interpretation, not for absolute truth.

A qualitative research approach contains various branches that come ever closer

to my formulation of meaning-making for the purposes of my study. As I mentioned in

the Introductory Chapter, the branch called grounded theory posits that theory is not

objective, universal, or preexisting, but that it emerges from the data (Gibson and

Hartman 1). Grounded theory is a theory/methods package, in that it has practical

methods to prescribe for its users; I find that NVivo facilitates one of the most important

of these, the constant comparative method, by the flexibility of its options; I will expand

on NVivo's assets later in the chapter.

Grounded theory also stresses that it uses induction as a hypothesis-forming

method, or reasoning from the particular to the general, rather than deduction, or top-

down reasoning. Furthermore, grounded theory gives prominence to abduction, a third

method of reasoning which is defined by Alvesson and Skoldberg as the ability to see

patterns to reveal deep structures (58). Abduction was first formulated by Charles

Sanders Peirce, a nineteenth-century American philosopher who is considered to be a

founder of pragmatism. He describes abduction as "The first starting of a hypothesis and

the entertaining of it, whether as a simple interrogation or with any degree of confidence"

('Chapter 11: Abduction and Induction' 209). The method operates by hunches and

"educated guessing" rather than by direct inference (De Waal 64). Abduction is

significant to several of the scholars whose writing I review in Chapters Two and Three,

and I shall revisit it there. Constructivist grounded theory arose as a refinement of

grounded theory; it stresses that meaning is continually constructed, and that it is co-

constructed in a network of agency that includes humans and non-human agents, both

animate and inanimate. Kathy Charmaz, an architect of the theory, maintains that " a

constructivist approach places priority on the phenomena of study and sees both data and

analysis as arising from shared experiences and relationships with participants and other

sources of data" (130).

Situational analysis, a recent variant of constructivist grounded theory, starts from the position that all knowledge-building and meaning-making is situational, in that a particular situation is the ground of all knowledge and cannot be separated from that knowledge (Clarke et al. 41). While grounded theory as originally formulated by Barney Glaser and Anselm Strauss stresses the pursuit of a substantive and formal theory, even a core, unifying theory (Clarke et al. 54), situational analysis resists this pull toward purity and seeks instead to find sensitizing concepts that emerge from the data and are always changing (Clarke et al. 349). Situational analysis has become my prime methodological approach, for three reasons. First, it is grounded in Peirce's philosophy of pragmatism in that it asserts the agency of objects – for my purposes, patterned museum objects – and the relative worth of multiple positions, not valuing one position above another, but seeking to understand the relationships between them (Clarke et al. 86, 174). Second, it emphasizes lived, embodied experience as the basis of all interactions. Third, it seeks to bring to light marginalized discourses, what is missing or what is normalized in a situation. In a sense that is significant for my study of a museum of Islamic art, situational analysis takes Michel Foucault's notion of the gaze as the arbiter of the situation (Clarke et al. 79). As I will discuss in the following chapters, the "Western" gaze is one of the most frequently cited and analyzed attributes in the literature I review.

While I do not claim that I am a by-the-book grounded theorist or situational analyst, I have paid close attention to the precepts of these research methodologies and have found that they complement the approach that I want to take in serendipitous ways. I was encouraged to discover that Jenny Kidd called grounded theory her approach in her

analysis of contemporary museums as multimodal media. In her study, her position is constructivist and reflexive, and she acknowledges that her presence, personality and reflections are strong influences on the data she collects at her museum sites (19). Like Kidd, I consider that my approach is deeply grounded in reflexive interpretation. My work with museums is based on my belief that each person, however young, brings his or her own unique life experience to an encounter with a work of art, and that learning is an active process of inquiry (asking questions), dialogue (exchange of ideas), and interaction. This pedagogical space creates room for speculation, interaction, and new learning (Bentley and Kana'an 17).

Research Design

My research design, then, arises from my aim to collect data in two "situations," which I am also calling my two research sites. In both sites, I proceed from the position that my personality and life experiences are bound to influence my findings, and that my work is a work of interpretation. My research questions are subsets of the very much larger question of how the human mind makes meaning. This is a vast topic, and my study deals with a very small constellation of questions within it. Figure 1 is a diagram showing where this constellation is located within the largest span of the topic, at 1. Its narrowing proceeds through 2: how the mind makes meaning through visuality, materiality, narrative, and virtuality, and 3: the role of patterning in meaning-making. I have specialized my questions even further by confining my inquiry to 4: the role of patterned art, and by specifying the site of inquiry as 5: the exhibition space of the

museum. This is not to say that I plan to take a narrow theoretical view of my study: in its richness and interdisciplinarity, the larger topic is the ocean my study swims in, and it thoroughly imbues my conceptual framework. But when the time comes to state my arguments about the findings of my inquiries – both the scholarly literature and the Aga Khan Museum interviews – I argue in the more specific context of viewers' meaning-making in a museum exhibition space.

In the following paragraphs I give a detailed account of my method, moving through the steps of charting the data in Word, importing it into Zotero and then NVivo, and the coding and mapping exercises I undertook to reveal my interpretive analysis and sensitizing concepts. I defend my decision to go into such technical detail here as follows: in grounded theory, the theory arises from the method; therefore, the method must be taken – and examined – as part of the theory. Coding, memoing, and making digital prototypes are meaning-making activities and how they are conducted influences what they reveal in important ways. As Lev Manovich put it, "A prototype is a theory" (as quoted in Galey and Ruecker 406). In addition, I am working in a digital environment, and the significance of this is not lost on me: I am doing digital humanities and my study is, in a virtual space, composed of zeroes and ones – just bits.[8]

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[8] "Pronouncing upon the thingness of things has historically been considered the special preserve of philosophers, but programmers, being the practical engineering types that they are, simply had to get on with the job. The things represented in software in one way or another all ultimately reduce to patterns of series of on- and- off switches, zeros and ones. No bit- pattern can represent anything without a program to interpret it. The meanings plied through natural language may, they say, be subject to the drift and swerve of an indefinitely deferred semiosis, but software's hermeneutic regress must finally bottom out. It's interpreters all the way down – then it's just bits" (D. Robinson 2).

In the first of my two sites, the literature on pattern, my inquiry proceeds in the more or less standard manner of a literature review: to begin, I enter into a Word chart my summary and analysis of each scholarly reference. I also include my insights on how the reference's author engages in a discourse with other scholars in the field, and how the reference is useful to my research. Next, I enter this writing into the citation software Zotero in the reference's fields for abstracts and notes. Zotero is a bibliographic software that allows users to import, aggregate, organize, cite, and share information gathered over years of research in one or many disciplines, to create a personalized electronic archive. All of the writing is then batch imported from Zotero into NVivo and becomes the data for coding and analysis. I go into detail about this process in my account of my method in the next section. However, here I note that by the time it is imported into NVivo, my data contains, not only the author's words and thoughts, but my words and thoughts about the author's piece of writing. This is reflexive interpretation in its essence, shot through and through with my perspectives and my lived experience.

In the second of my sites, the research inquiry at the Aga Khan Museum, my objective was to gather and analyse viewers' responses to patterned objects as mediated by two variables that affect how pattern is perceived and made sense of: the effect of figuration when it appears on objects along with pattern, and the effect of digital technology when it is employed in interpretive strategies by museum curators, designers, and interpreters. I planned to gather data by means of a series of personal interviews in the Permanent Galleries, where a selection of patterned objects is on display. To my knowledge, casual visitors to the AKM – and, I might venture to claim, to many other

museum galleries – are rarely surveyed to document their responses to the art on display. Olga Belova asks, "What if we asked ordinary people with no particular training in visual skills to share their ways of making sense of the visual? Studies involving viewers making sense of imagery are possible but extremely rare, as is research into imagery from phenomenological perspectives" (96). Official institutional surveys tend to have more of a marketing focus: what is sought is information like the visitors' postal codes, how they found out about the museum, and whether they would recommend it to a friend.

While the core of my project is not the patterned museum object, nor the museum-going subject, but rather the space between them, it was necessary to select certain patterned museum objects to take up the object position in that relationship. In this sense, my study concerns both the pattern and the object the pattern is on since the pattern only gains its communicative agency through becoming visible and tangible. In the object selection, I give preference to objects in textile media. My reasons for this are personal, professional, and scholarly. My process of learning about textiles has been lifelong. As a child, I learned how to cut and sew my own clothes from paper patterns. As a young woman, I spent several years designing and making costumes for theatre and opera and subsequently studied material art and design at the Ontario College of Art and Design. I have curated several exhibitions about various aspects of textile histories and cultural meanings and consider my understanding of these subjects to be both broad and deep. Furthermore, the patterning of textiles in both its formal and its cultural aspects has been my main concern in my study of them. With the exception of felt, all textiles are patterned objects. Even in textiles which feature figurative imagery, the underlying

structure of the textile is in a patterned arrangement, and the threads themselves are twisted and plied together in another pattern.

However, I did not focus exclusively on textiles. I give a detailed account of the AKM study in Chapter Four, along with information on the objects I worked with, but here I will say that the study focused on relationships, not only of the museum objects with the subjects, but also of the objects with each other. In the gallery, there is much evidence of what Gerhard Wolf calls transmediality and transmateriality:

> Transmedial phenomena here refer to those artistic forms or contents that are shared by or spread across various media: for example, an iconographic formula that can be found in marble reliefs, ivories, textiles, paintings, and metalwork . . . The various levels of transmediality rather schematically displayed here show many points of contact with the semantic field of the other term, that of "transmateriality." For a media-specific pattern can simulate one material in another – for example, by means of translating traditional textile patterns in wood or marble ('Vesting Walls, Displaying Structure, Crossing Cultures: Transmedial and Transmaterial Dynamics of Ornament' 104).

I spent time in the AKM Permanent Collection Gallery during two periods: the summer of 2017 and the summer of 2018. In the first period, my focus for the interviews was on three areas of the gallery: the introductory animation (figures 2 and 3), a group of Central Asian embroidered and ikat-dyed robes (figure 4), and a large oil painting on the west wall (figure 5). In the second period, the robes had been replaced by a group of

textile hangings, also from Central Asia (figures 6 and 7), and the painting had been removed. I worked with the textile hangings instead of the robes and substituted a display of small illustrations for the painting (Figures 8 and 9). I continued to ask visitors about the animation and added questions about an iPad on a stand showing details of paintings (figure 10). At the suggestion of Dr. Kana'an, in the 2018 sessions I also added a mosaic panel (figure 11), with the logic that a viewer might respond differently to an object that was all pattern with no figuration. Table 1 lists my choices in the two periods and figure 12 shows a floor plan of the gallery with the objects' positions marked.

Gallery objects Summer 2017	Gallery objects Summer 2018
Central Asian robes	Central Asian hangings
Introductory animation	Introductory animation
Oil painting of Fath Ali Shah	Painted illustrations
	iPad in Shahnameh area
	Mosaic panel

Table 1: Gallery objects for interviews

In the summer of 2017, I interviewed twenty-six casual visitors, six AKM teachers, and five AKM tour guides (the teachers conduct the school programs and the tour guides conduct tours of the galleries and the grounds for groups of visitors). In 2018 I interviewed another eleven visitors but decided not to interview teachers and guides any further, for reasons I will elucidate in Chapter Four. My method for the casual visitor interviews was as follows: first, I approached a visitor or small group of visitors near the west end of the gallery. I chose this location because it was near the end of the gallery furthest from the entrance and this meant that the respondents would likely have had the chance to walk through and look at several objects. To establish a connection, I started with, "Hello, I am doing a research study on how visitors respond to the art in the gallery.

Would you be willing to speak with me for a short time about this?" The response to this gambit was generally positive; I only had five visitors refuse to talk with me. When I showed them the clipboard with a consent form, a further three people did not want to embark on the interview if they had to sign a form. Once the formalities were successfully negotiated, I turned on my digital audio recorder and we began. My questioning was open-ended and neutral, based on questions like, "What strikes you about this; what is your first impression?" If the respondent did not mention pattern specifically, neither did I.

I followed a rough outline of questions in every interview, which I summarize below. This outline has emerged from my summative reading of the interview texts – I had only an idea to start with of asking, "What do you see?" The pattern of questions that I used developed spontaneously as a result of my conversation with the first respondent and remained consistent throughout all subsequent interviews.

1. The robes (2017) or *suzanis* (2018): What strikes you about them? What do you notice? Does anything you have seen in the gallery remind you of them?

2. The animation: Did you notice the animation when you came in? What are your impressions of it? Did you see anything in the gallery that reminded you of it?

3. The painting (2017) or manuscript illustrations (2018): What do you think of this painting / these paintings? What do you notice when you examine it

up close? What do you notice when you step back? Does it remind you of

anything else in the gallery?

4. (2018 only) Did you notice the iPad? Did you use it? What do you think of

this mosaic panel? Is it reminiscent of anything you have seen already?

At the end of a day of interviews, I transcribed the audio files into Word.

Using NVivo to Analyze the Data

As I did with the scholarly references, I imported the transcripts of the interviews

into NVivo and categorized the data according to codes. Coding the data is a method that

is basic to grounded theory, and indeed to qualitative research. Johnny Saldaña defines a

"code" in this usage of the term as "a word or short phrase that symbolically assigns a

summative, salient, essence-capturing and/or evocative attribute for a portion of

language-based or visual data" (3). Coding is the first step in making sense of the data; to

"code" a piece of data means to identify its attributes with the aim of finding more

general themes and trends in the data as a whole. This definition of "coding" is distinct

from the meaning of coding in computer programming; in qualitative research, the coding

action is really "tagging" or "keywording:" the researcher assigns a piece of data to a tag

that identifies it as an example of a particular attribute such as "viewer preconceptions,"

thus grouping it under that tag with other examples of the same attribute. Memoing is

another important tool in qualitative data analysis; as noted by Clarke, Friese, and

Washburn, writing reflective memos sparks important questions about core assumptions

and strategies (356). In NVivo, memos and annotations can be attached to any piece of

data, whether an interview document, a code, or a reference file; this makes the retrieval of past reflections much easier than rifling through a series of hand-written journals.

Among its affordances, NVivo has a map-making function that allows the user to create visualizations of possible attributes in a dataset. This function can be used to create the situational maps, social worlds maps and positional maps afforded by the situational analysis method (Clarke et al. 108). Situational maps outline the attributes found in the situation of the study and are created as a first foray into the material; social world maps show the actors, human and nonhuman, animate and inanimate; and positional maps schematize the various theoretical positions that the two previous maps point to. Although they are not labelled with these names in NVivo, I was able to adapt the mind map function to create my initial situational maps. I used this function to make five maps of the attributes that might be found in the scholarly literature dataset (figures 13-17) and three maps of attributes that I proposed to find in the interview dataset (figures 18-20). Once I completed these maps, I was able to automatically create the attributes as codes and begin coding my data according to these codes or, as I have said, tags representing attributes of the data. I grouped the literature maps under the title "What the research mentions about the mediating works of patterned art in a museum exhibition," and named the three interview maps "What viewers mention about the objects," "What viewers mention about the animation," and "Perceptions of the gallery experience." These titles kept me close to my research questions and made explicit the information that I was looking for in the data. As work progressed on my two datasets, I adapted, deleted, combined, and added to the attributes I had identified in my maps.

Once the first phase of coding was completed, I began using NVivo's features to run text searches, word frequency tests, and comparative queries in order to identify how many times certain phrases turned up in my coding of the data. This querying strategy is quantitative in that it gives me definite numbers, but it also functions as the "constant comparative method" of grounded theory. It can show me trends in the data, and, significantly, it can uncover what is missing in the data. Is there a code that I put on my mind map that no one mentions? Clarke, Friese, and Washburn stress that situational analysis pushes the researcher to "see positions not taken in the data, positions that remain unarticulated" (172).

Saldaña asks, "What are the three major codes, categories, themes, and/or concepts that strike you?" (186). Guided by this question, I made two new maps using NVivo's concept map function (figures 21 and 22). These maps attempt to answer my research questions; accordingly, they are named "What matters most about patterns in the literature" and "What matters most about patterns to respondents."

I turned again to the situational analysis theory/methods package for help in improving my understanding of the data I had collected, in order to find and formulate the sensitizing concepts and integrated analysis that the package identifies as its objective. I found that my observations of the Permanent Collection Gallery and its place within the Aga Khan Museum situation easily coalesced into a social worlds map, with the Museum functioning as an actor both material – as the physical building, and conceptual – as the museum imaginary. Also present on the map are the human actors in the situation – all of the groups who drive what happens there – and the non-human

actors, the gallery objects. Mapmaking in NVivo does not have a transparency

functionality, so I made the social worlds map in Adobe Illustrator in order to picture the

different actors as overlapping each other, thus sharing the space of the AKM. This map

is figure 23. By the same process of sifting through the queries and comparisons in the

literature dataset, I arrived at two positional maps (figures 24 and 25) that track the

dynamic relationships in patterned objects with visuality, materiality, virtuality, and

narrative. I will discuss these maps in detail in the next chapters.

One last map proved to be useful: to organize and clarify my thoughts about my

options for methodologies, I repeated my process on a new body of literature, entering

my annotations on the references I had collected about the various methodological

schools – summaries, analyses, connections, and relevance to my research – into a Word

chart, thence into Zotero's fields, and finally into NVivo. In NVivo I made a mind map of

attributes I might find in the data of literature about methodologies (figure 26) and

created codes out of them. In a sense, I was turning writing on methodology into a third

research site, so I could look at it as a situation. When I ran a query to reveal how many

times certain terms are mentioned in the literature, I found an emphasis on interpretation,

abduction, semiotics of images, and affect, and I used the insights to structure my

research design.

Using Prototypes as a Research Method

NVivo's ease of creating mind maps and concept maps and situational analysis'

situational, social world, and positional maps combine to help my meaning-making

along. Making prototypes has long been a basic process in my method: I make prototypes

in order to both visualize and formulate my ideas. The notion that a visual map, diagram,

or even material object is a prototype that not only reflects but actively creates ideas

comes from writings by various authors working in the fields of material culture, visual

culture, and digital humanities. Here I give examples from a few of them, plus an

example of my own prototyping practice, in order to zero in on data visualization as a

method of research, or, as Alan Galey and Stan Rueker put it, "how a prototype argues"

(405). My first example concerns how a physical prototype – in this case a speed bump –

argues. Bruno Latour explains,

> Instead of signs and warnings, the campus engineers have used concrete.
> In this context, the notion of detour, of translation, should be modified not
> only . . . to absorb a shift in the definition of goals and functions, but also
> a change in the very matter of expression. The engineers' program of
> action, "make drivers slow down on campus," is inscribed in concrete.
> Instead of "inscribed," I could have said "objectified" or "reified" or
> "realized" or "materialized" or "engraved," but these words imply an all-
> powerful human agent imposing his will on shapeless matter, while
> nonhumans also act, displace goals, and contribute to their definition ('On
> Technical Mediation' 38).

Latour's reasoning on how a speedbump argues can be expanded to encompass a

great many objects of human manufacture, including two examples that I mentioned in

the Introductory Chapter: the Amish quilt deemed by Carroll to be "beneath

interpretation" (114), and the Gee's Bend quilts that Chave maintains are not art because they are "something else" (253). Like the quilts, the prototypes that I make to think with are not art either, although they use art-making's tools to express their ideas: shapes, colours, patterns, foreground / background emphasis, and other elements and principles of design. A prototype is fertile ground for asking productive questions; for example, what is the Aga Khan Museum building a prototype of? It is full of patterning in its surfaces and structures; it projects wealth and privilege in its no-expense-spared walls of marble and granite, as well as its use of no-glare glass in the gallery cases. It also projects the love and dedication of the volunteer guides and greeters who inhabit and animate its spaces. To adapt a question from Clarke, Friese, and Washburn: as an actor in the situation under study, I ask, what work is the Aga Khan Museum doing in the world? What are visitors being told to do or think or be? Not to do or think or be (283)? And, to turn these questions around, what set of preconceptions about museums do visitors fit the Aga Khan Museum into? What do they want it to do or think or be? In Chapter Four, I discuss the complex picture that has emerged from the interviews in an attempt to answer these questions.

Stephen Ramsay and Geoff Rockwell put forward the advantages of creating digital prototypes as forms of argument, conjecturing that

> We may reject the understanding of the world put forth by a humanist
> using computational methods and even point to the output of those
> methods as evidence of insufficiency or error; but, if digital humanities is
> about using computers to provide robust interpretations of the world

(however contingent, provisional, and multiple), then it is manifestly not

incommensurable with humanistic practice (7).

To illustrate and critically reflect on how a digital prototype argues, I turn to my

past project, "Digital Learning about Patterns in Museums," a literature review on the

relationship between patterns, learning, and museums that I completed in a Directed

Reading course for Dr. Morbey. The end product of this project was twofold: the

literature review of all the references I consulted as an annotated bibliography and a

modified Venn diagram in Adobe Illustrator with spheres representing the four topics:

Patterns, Face-to-face Learning, Museums, and Virtual Learning (figure 27).

Where the four spheres intersect there are zones titled according to which of the

spheres is present and listing the most important references in the literature review.

Furthermore, the diagram is overlaid with a spiraling arrow. The arrow indicates the

direction of my research from the exterior zones, which contain only one topic, to the

centre zone, which contains all four. As my reading proceeds from the periphery to the

centre of the diagram, the questions to the authors that arise become more problematic –

especially questioning assumptions that technology always improves learning − until I

come to the centre of the graphic and to my central question: how can we think about and

then structure blended learning about patterns in museums?

In its first iteration, the project was only partly successful. Each of its two parts

was incomplete: the Venn diagram needed the Word bibliography in order to reveal its

arguments, and the Word bibliography by itself was awkward and opaque. I attempted to

solve this design problem by turning the Venn diagram into a digital prototype that had

interactivity: a user's click on any part of the diagram would cause the relevant text to appear at the side of the screen. I made the interactive prototype first in Flash, an animation software, and when I decided that the text / visuals proportion was becoming too cumbersome, I deployed all the assets in Omeka, an open-source web publishing platform for sharing digital collections and creating media-rich online exhibits. Omeka has been created specifically to be useful to scholars of the Humanities; graduate students and faculty can create projects to be maintained on the server of the York University library system. Neatline is a set of add-on tools for Omeka that is usually used to create maps and timelines. By treating my data as a map, I was able to set up the site to highlight a region of the Venn diagram when it was rolled over, and to display text for it when it was clicked on.[9]

I find my own answer to the question of a prototype as a theory by critically reflecting on my Neatline exhibition. I find that my diagram is already an argument, even in its static version, even just sitting on a printed page. Let us set aside the content or narrative that is carried by the words and just look, as Gregory Bateson suggests, at "not the message but the code" (*Steps to an Ecology of Mind* 130). The graphic form of the argument is structured by means of colour and shape: the shape of a circle is smooth and even, and the composite shape made by four of them is symmetrical and balanced. The four spheres are an identical size, although I give patterns the superior position. The spiral arrow acts to disrupt this field of symmetry, pointing to a dynamic path for the user

[9] The "Visual Patterns That Teach" Neatline site is available at
http://omeka.library.yorku.ca/neatline/fullscreen/visual-patterns-that-teach#records/1873

to follow. The user follows the path of the argument along the spiral to the conclusion at the centre, which takes the form of a question which, like Derrida's labyrinth, "includes its own ways out within itself" (*Voice and Phenomenon* 89). The colours of the spheres are simple in isolation, and more and more mixed along the path of the spiral, as the issues raised become more involved and complex, until the centre presents the most mixed colour of them all while asking the open-ended question that implies both a theoretical and operational answer. The Neatline version of the diagram gives the user the ability to navigate the spiral in an experiential way that may or may not be more effective than simply reading it on a page, but the great advantage to this model is the ability to navigate to the detailed content of references and commentary, and to travel from there to websites and examples at large. This allows for much more in-depth exploration of the content.

"Patterns That Teach" serves here as an example of a data visualization that both pictures and creates knowledge, in much the same way that my NVivo mind and concept maps advance my understanding of my data. Several scholars of digital humanities argue for the value of digital prototypes as critical tools in their own right (Drucker, 'Humanities Approaches'; Galey and Ruecker; Manovich). The issue seems to me to be partly driven by professional concerns among scholars who want their work to be recognized. The debate is like the one between art and craft. In that debate I take the position, following Chave, that craft doesn't amount to art because it amounts to something else, something just as complex and complexly aesthetic, just as compelling, layered and exciting, as art (253). By the same token, building digital projects is not

criticizing but something else, some other category of activity. It seems to me to be much more interesting and challenging to explore what this something else really is, rather than try to hierarchize it or equivocate it with an established and self-protective canonical discipline.

The work of making "Patterns That Teach" led me to a reflection on the role of pattern in the critical study of digital media as media, which is variously referred to as critical code studies, software studies (Berry 2), and platform studies (Bogost and Monfort 1). As Dan Dixon notes, pattern is a term that is used frequently in discussions of digital humanities, and in a "very unproblematic manner" (191). Whenever it is just assumed that a term can be taken for granted, it indicates to me that there is something hidden about it that bears investigation. In fact, this happens a great deal with the term pattern and its synonyms, ornament and decoration. Dixon speculates that pattern is a substitute for structure, a term that has fallen out of favour (191). This may be, but the fact remains that patterns are deeply implicated in software, and this had led me to an interest in investigating software's patterned nature. Federica Frabetti asks, what is software? She comes up with a list of definitions: it is hidden, a deep opacity (162); it is a cultural artefact (164); it is a distinctive form of writing (165); it is both a conceptual system and a material object (169). To these definitions I would add the most important one for my ongoing research: it is a set of instructions, or algorithms, or in other words, patterns. Willard McCarty writes, "If you only remember a single sentence from this brief essay, remember this one: the word computing is a participle – a verbal adjective that turns things into algorithmic performances" (254). Algorithmic performances is a very

good description of patterns in the broadest sense, one that takes them out of any strict relation to things and frees them to manifest in a myriad of ways, as visual patterning systems, as movements, or as strings of zeroes and ones.

Limitations of the Research Design

Several aspects of my research design point to its limitations, and in this section, I outline them. To begin with, I am limiting myself to examining visual patterns on human-made objects, to the exclusion of musical patterns, or mathematical patterns, because I lack the expertise to analyse these properly and in depth. For the same reason I am also excluding comparisons of natural and biological patterns to human-made patterns. In addition, I am limited by the very same qualities and experiences that drew me to this research in the first place: I am an older, Caucasian female who has spent her life working in arts organizations that have mostly older, Caucasian females as their demographic audience. I hear a nail being hit on the head when Mark O'Neill writes, "museums are institutions which carry out museum functions for the benefit of people who like museums" (96). My position is my unique bias, and it is only in the course of the AKM interviews that I have had the opportunity to hear other voices, as I will report in Chapter Four. Turning to the voices of the interviewees themselves, my method was arguably preferential on several fronts: I went to the Museum on certain days, at certain times of day, and I selected out of the steady stream of visitors those who seemed approachable. I made something of an effort to counter my tendency to approach visitors who looked amenable, but I was also limited by the fact that everyone in the gallery had

chosen to be there and had paid an entrance fee. I did not interview anyone under the age of twenty or over the age of seventy-six.

In the research site of the literature on pattern, I am limited by language. I am only able to read literature in French as well as English, and no doubt this restricts the scholars and schools of thought with which I am able to become familiar. Even in the literature that I did read, I often had the sense of being in Edmund Husserl's gallery that Derrida calls the labyrinth:

> Nous errons à travers les salles . . . Un tableau de Téniers . . . représente une galerie de tableaux . . . Les tableaux de cette galerie représentent à leur tour des tableaux, qui de leur côté feraient voir des inscriptions qu'on peut déchiffrer, etc / We wander through the rooms . . . A picture by Teniers . . . represents a picture gallery . . . The pictures in this gallery represent again pictures which for their part would make visible inscriptions that we are able to decipher, etc" (Derrida, *La voix et le phénomène* 117; Derrida, *Voice and Phenomenon* 89).

One scholar claims inspiration from another, earlier scholar, and in following that thread back I discover another one, and another, etcetera, and on and on. In other words, my review of the literature is limited by what I have been able to read, follow, and absorb. A similar conundrum arose in the interviews: as they progressed, I gradually formed the impression that the cohort of visitors to the AKM Permanent Gallery, whose responses to it are rarely sought, are a rich and varied source of ideas about the gallery's effects upon its public audiences. I became convinced that on any given day I would find

wandering through the gallery mathematicians, philosophers, theoreticians, educators, and artists, because that is who I found there via my interviews. I came to feel I could go on interviewing them forever and I would always come away with inspiring and insightful material.

However, I did find that the themes expressed in the interviews did not materially change from the first batch of interviews to the second, regardless of my move to include in the second batch a work of patterned art that had no connotative meanings that a viewer could latch onto in order to make sense of it (there is no figuration in the mosaic panel in figure 11 and it is clearly not a robe or a fountain or a dish). Therefore, I decided to call an end to the researching phase of my study and turn to reporting and analyzing the data I have collected, a task which I undertake in the next three chapters.

1. How the mind makes meaning

2. How the mind makes meaning through . . . { visuality
materiality
narrative
virtuality

3. The role of systems of patterning in this process

4. The role of patterned art in this process

5. The role of the exhibition space of a museum in this process
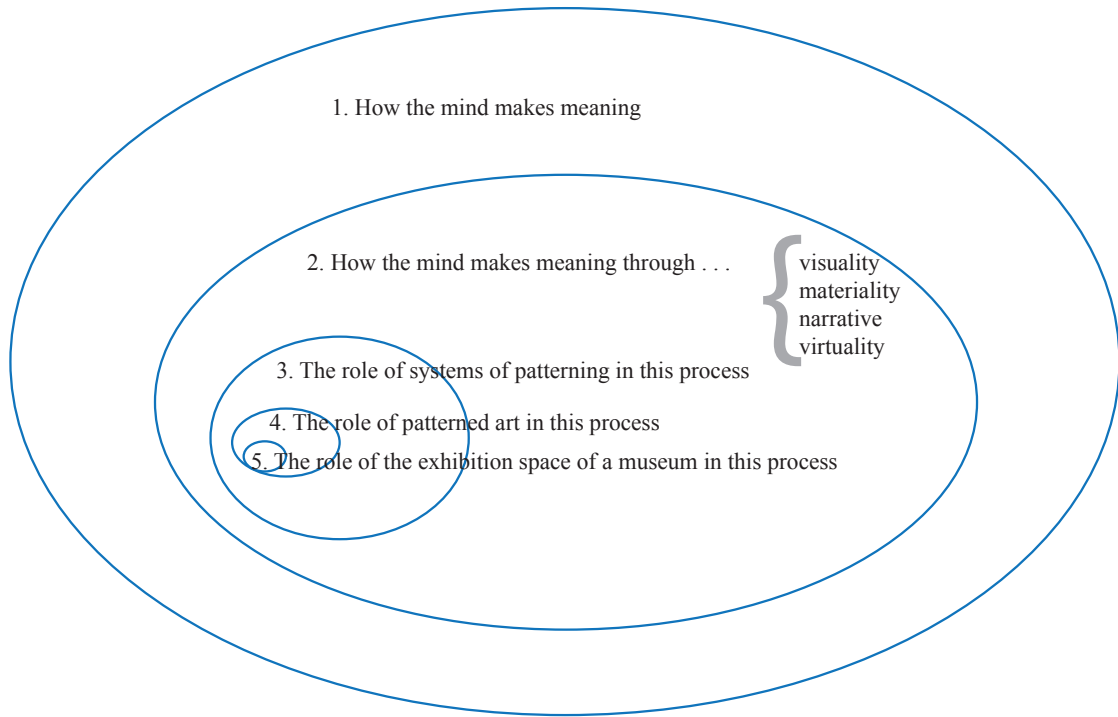
Figure 1: Where my study is located in the question of how the mind makes meaning

Figure 2: The animation corridor on September 15, 2014
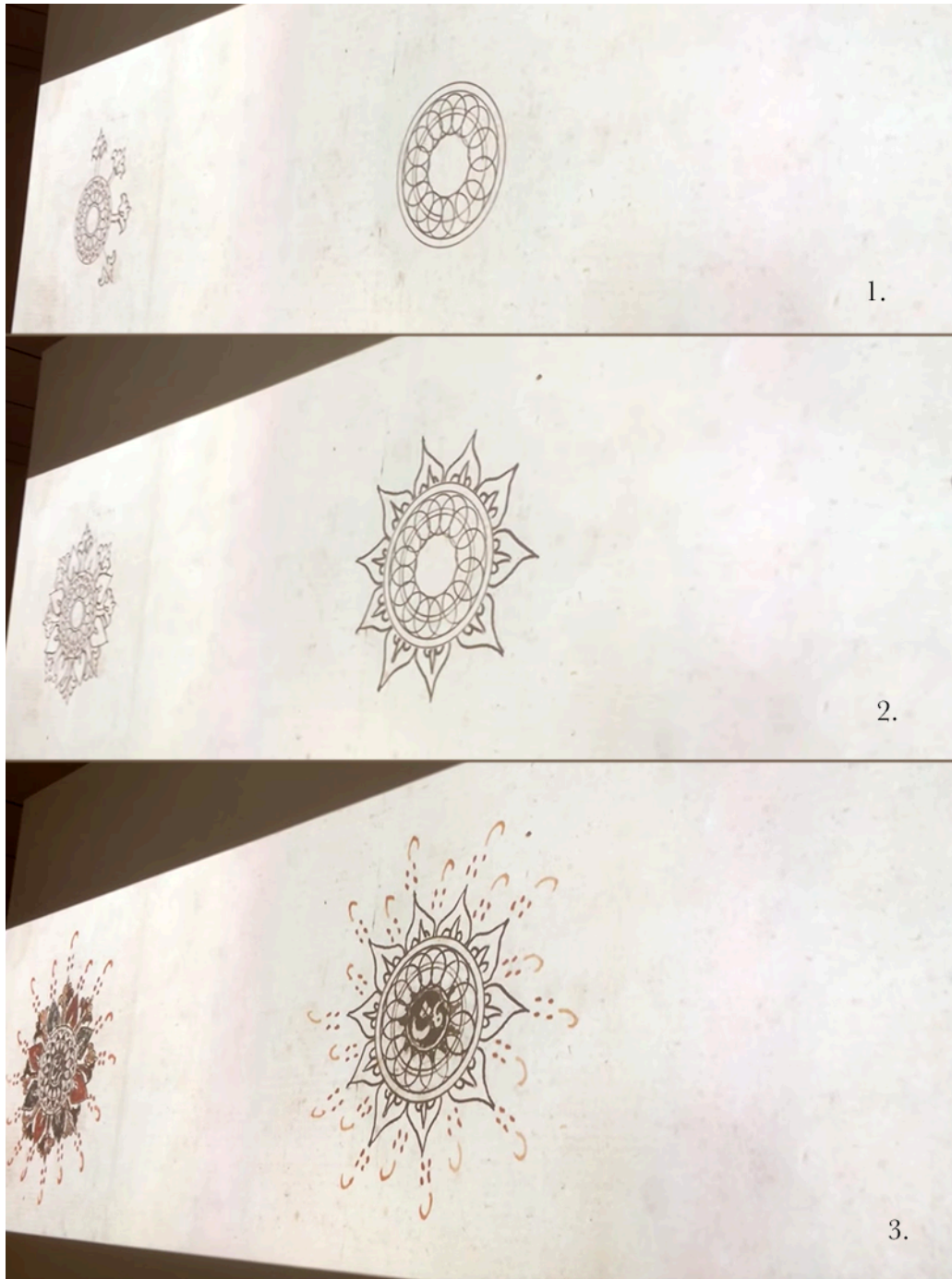
Figure 3: Three frames of the animation showing the development of two motifs

Figure 4: The Central Asian robes in the Permanent Collection Gallery

Figure 5: Portrait of Fath Ali Shah

Figure 6: Central Asian *suzanis* in the Permanent Collection Gallery

Figure 7: The *suzani* in figure 6, centre (Grube 4)

Figure 8: The case of illustrated manuscripts in the gallery

Figure 9: Detail from the manuscript in the case, right

Figure 10: A visitor inspecting the iPad in the Permanent Collection Gallery

Figure 11: The mosaic panel
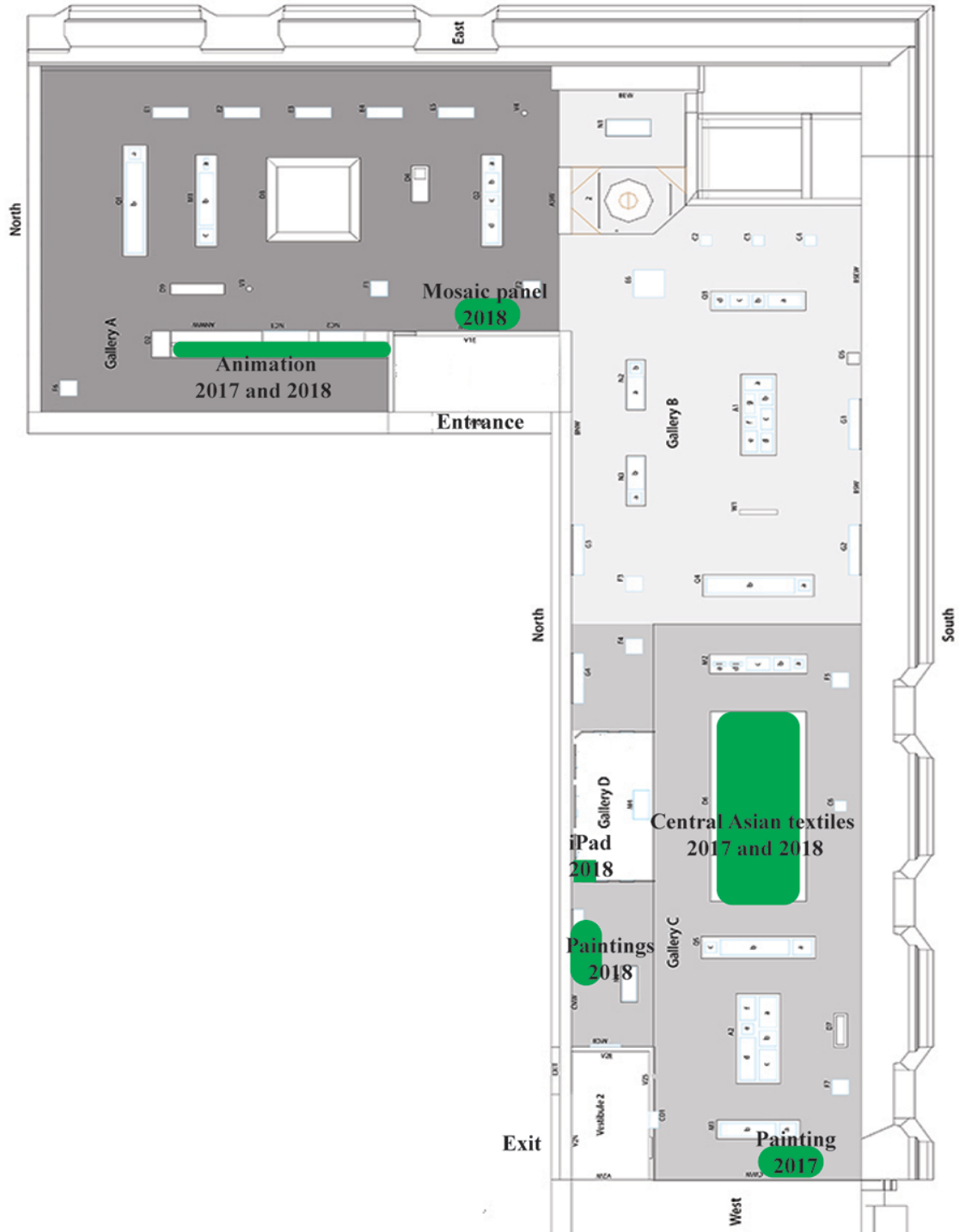
Figure 12: Gallery floor plan with object locations coloured in green
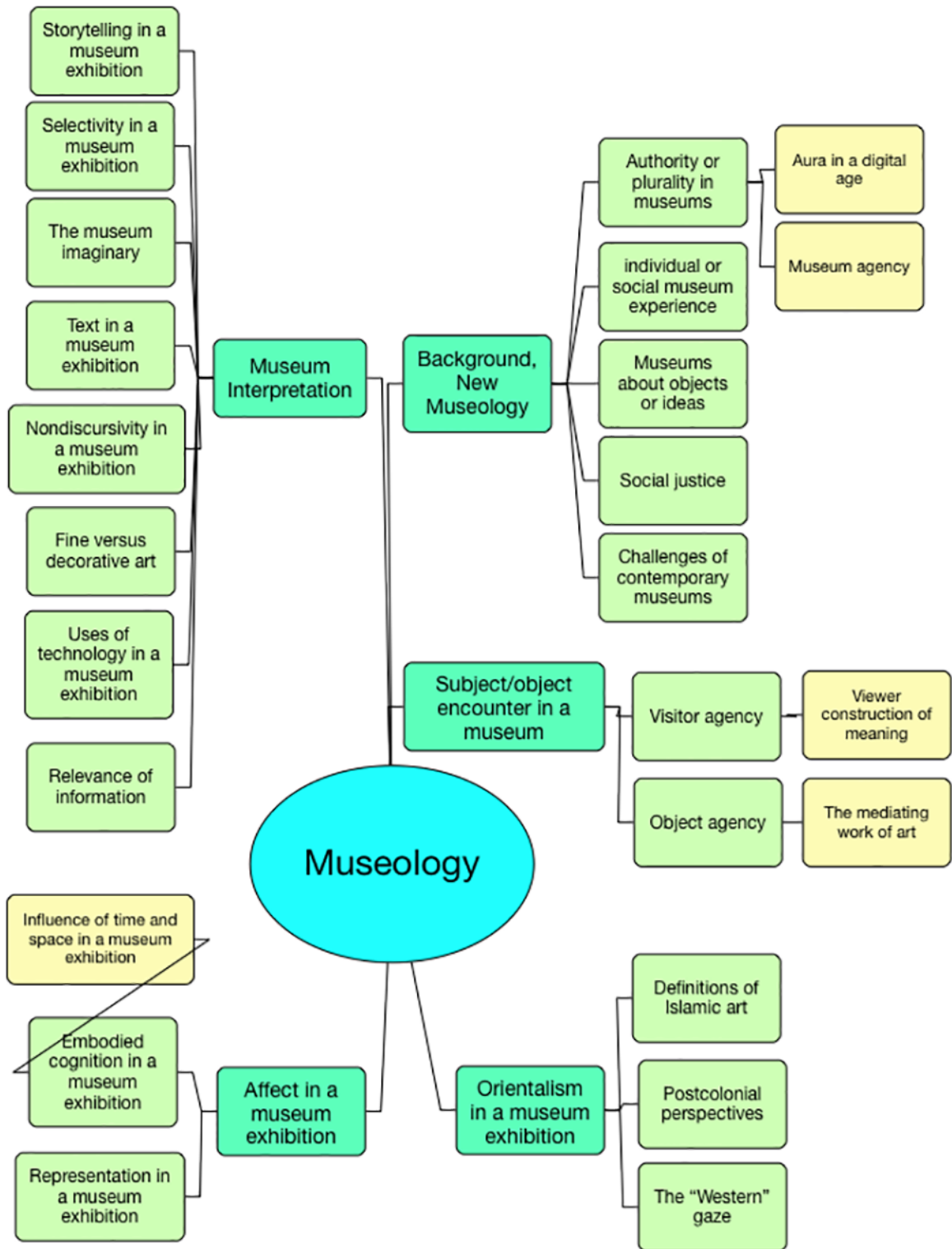
Figure 13: NVivo codes for Museology
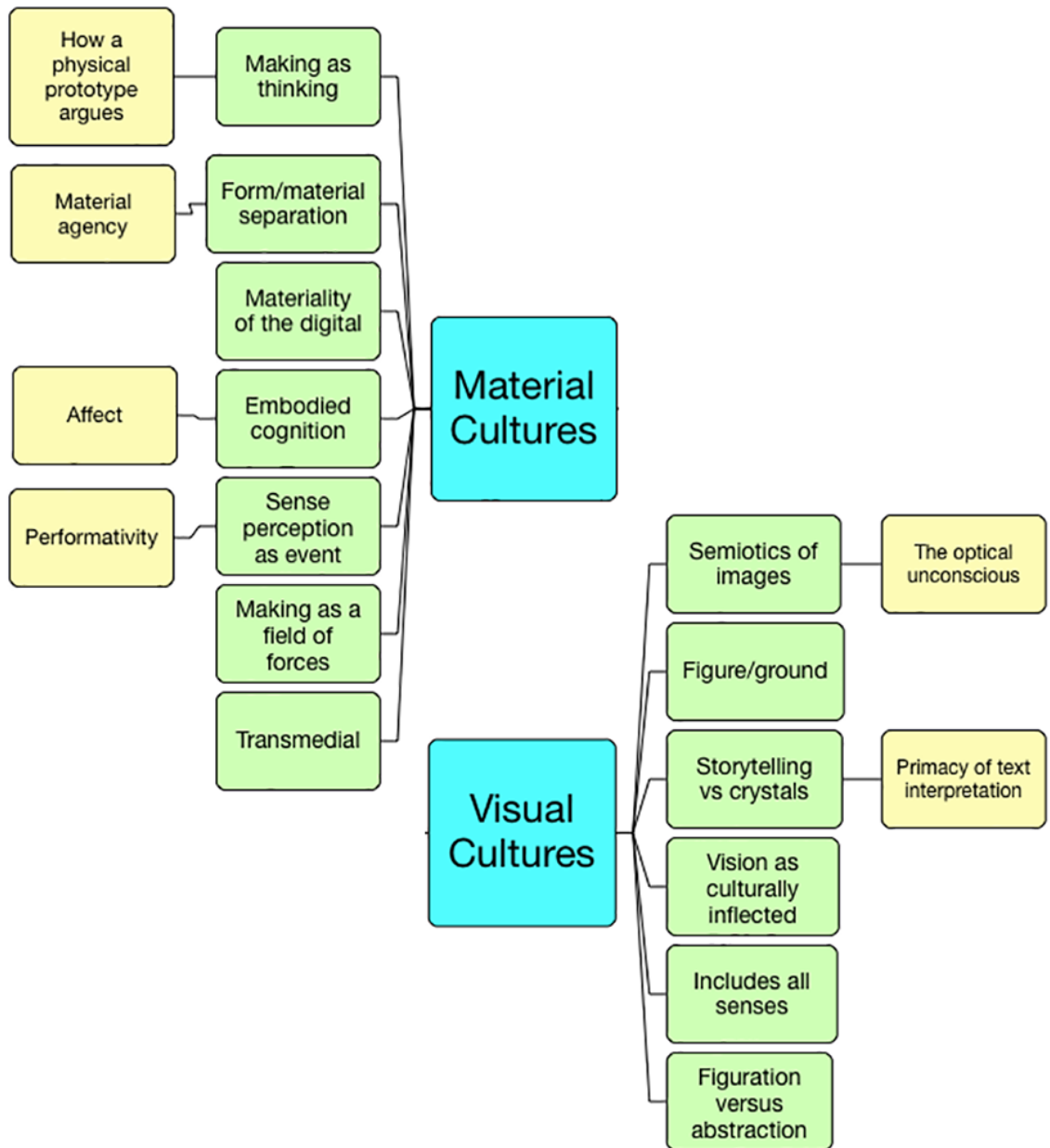
Figure 14: NVivo codes for Visual Cultures and Material Cultures
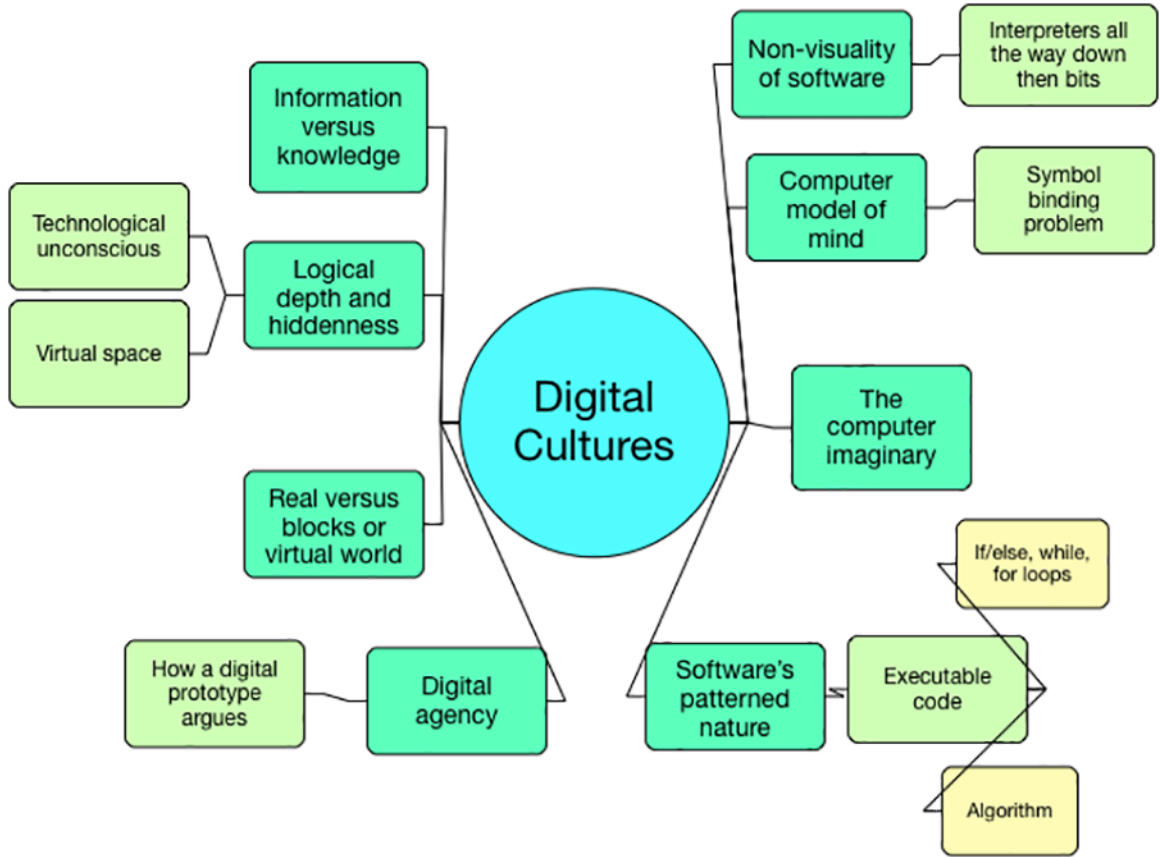
Figure 15: NVivo codes for Digital Cultures
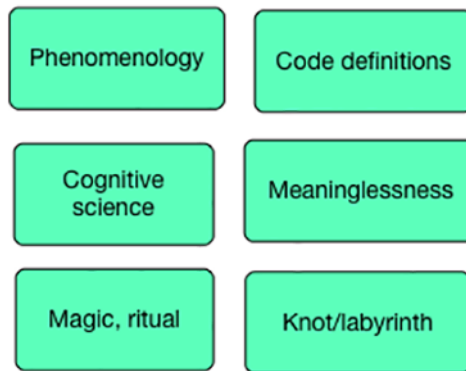
Figure 16: NVivo codes for Floating Ideas
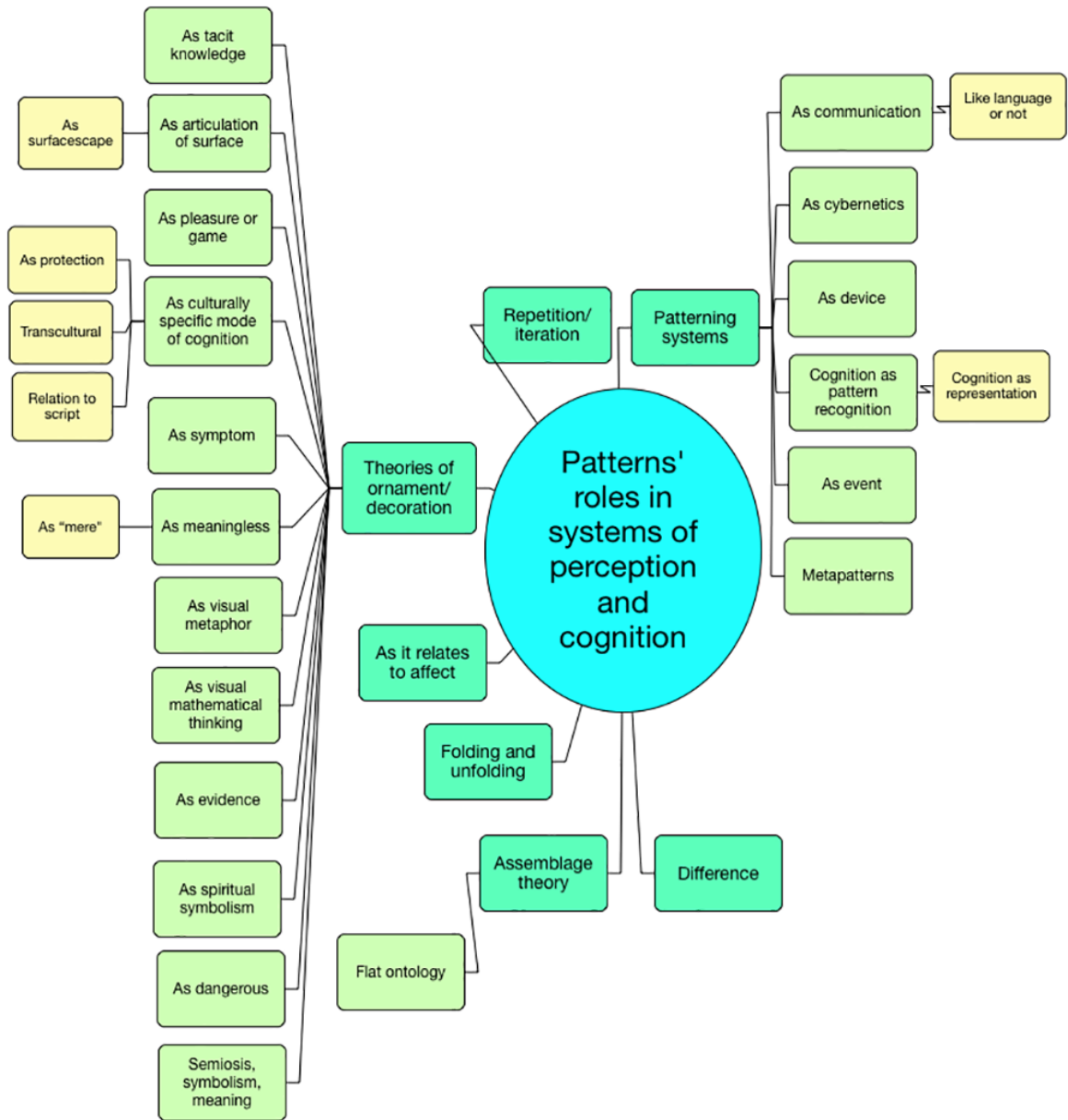
Figure 17: NVivo codes for Patterns

Figure 18: NVivo codes for Viewers' mentions of objects
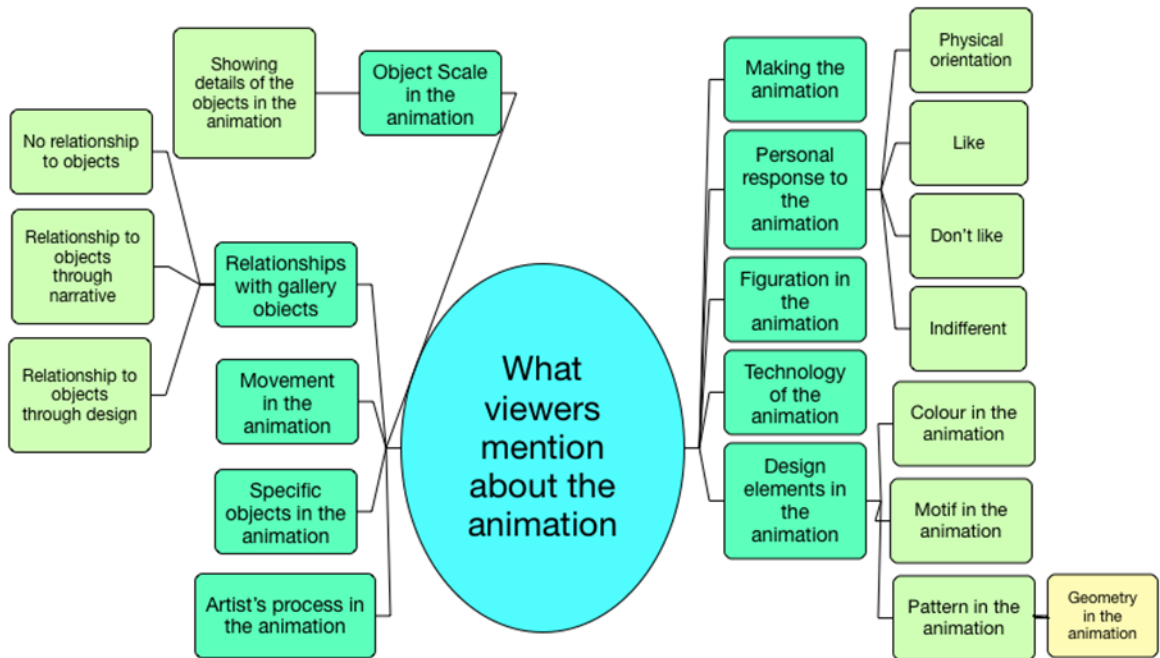
Figure 19: NVivo codes for Viewers' mentions of the animation
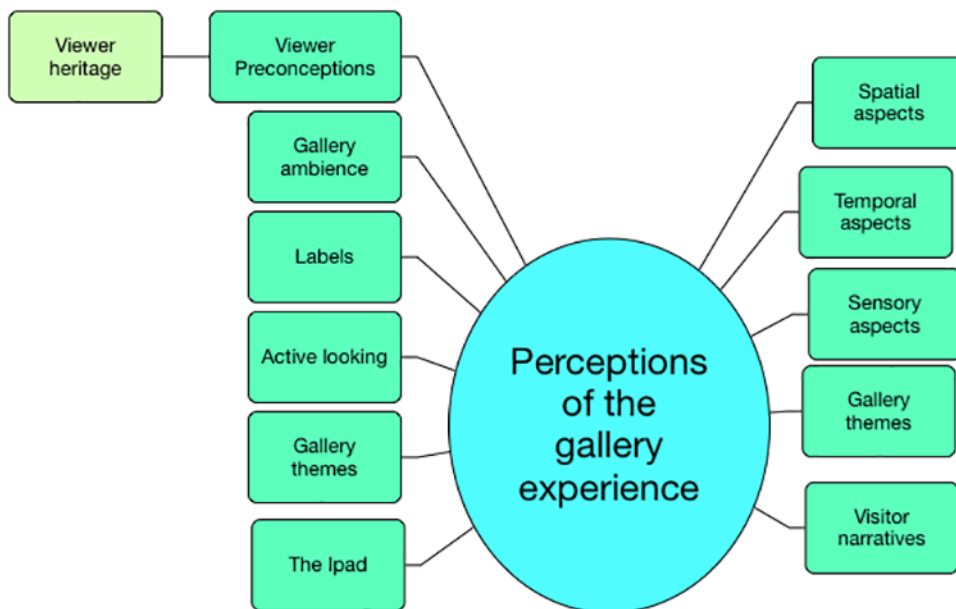
Figure 20: NVivo codes for Viewers' perception of the gallery
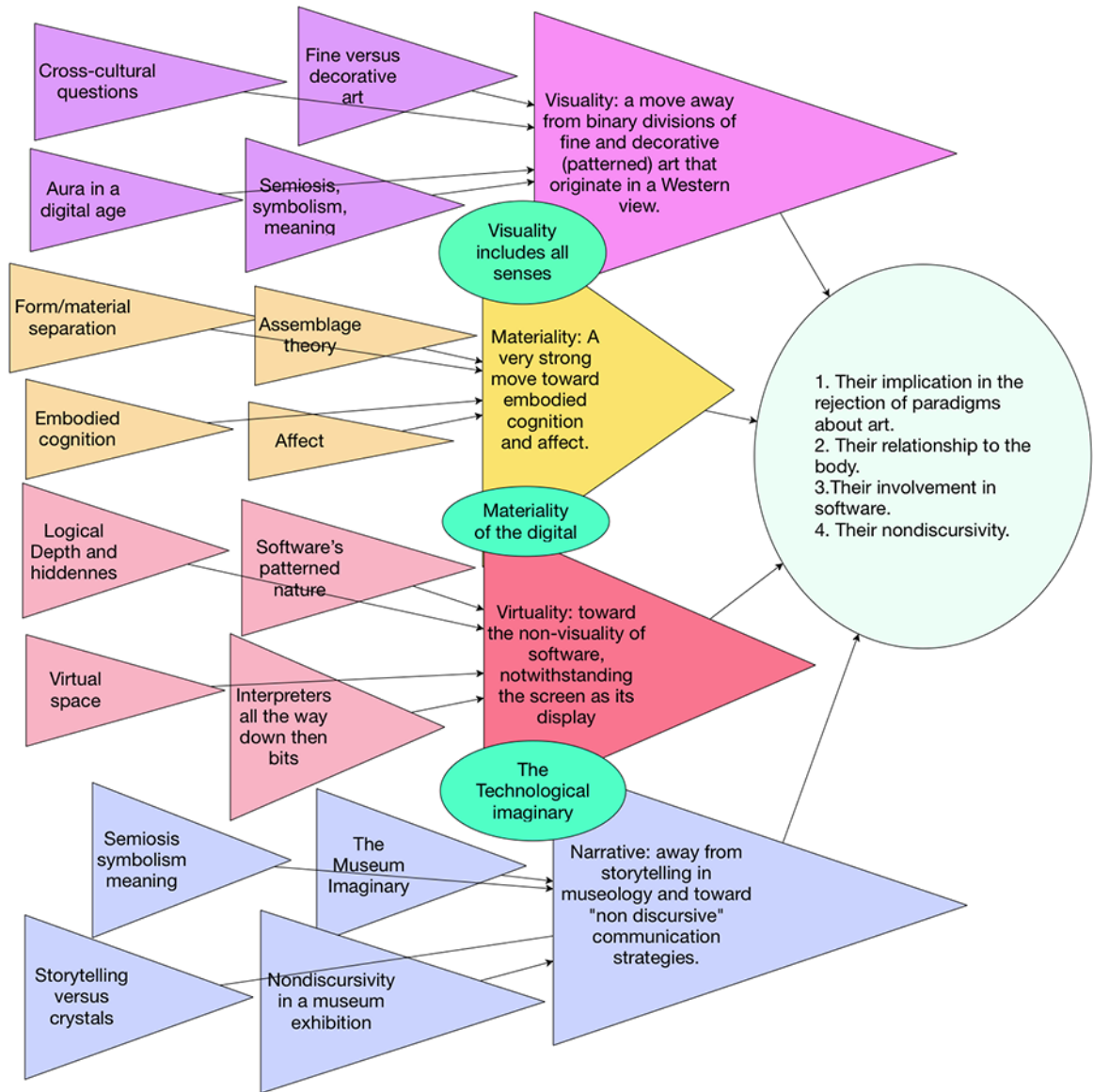
Figure 21: Concept map of what matters most about patterns in the literature

Colour

Pattern

Geometric pattern

Beauty

Visuality: Respondent remarks on beauty and relates it to colour and to pattern

Kind of object

Intricacy

How the object was made

Embodied cognition

Materiality: Respondent remarks on aspects of the objects' materiality - how made, used, how encountered

Relationships

Artist's process

Movement

Folding and unfolding

Virtuality: Respondent sees patterning as 'something from nothing' in the animation

Narrative elements

Relationships

Object heritage

Figuration

Narrative: Respondent readily constructs a narrative - this is a well-used faculty

1. Their visual beauty (affect amplifies intellectual reasoning;
2. Their materiality - they are in and on objects - the objects, whether physical or virtual, provide the portal to the patterns by making them visible and actual.
3. The sense of relationship in all objects, that it is a relationship and that it is fluid, a becoming;
4. Their connection to heritage: their story and the viewer's story.

Figure 22: Concept map of what matters most about patterns in the interviews
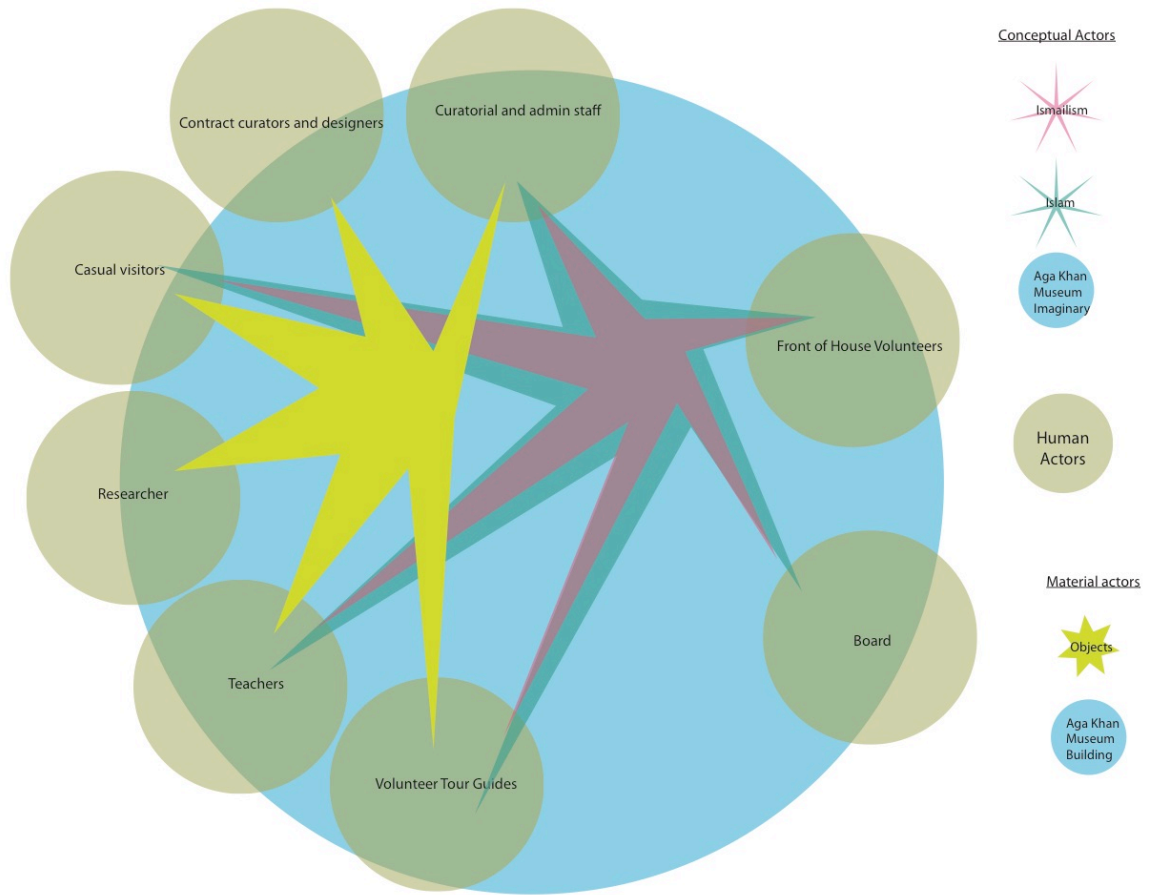
Figure 23: Social worlds map of the Aga Khan Museum

Perceived attributes of pattern on/in objects #1

+ | Meaningless and noticed   Meaningful and noticed

Visibility continuum

Flickering in and out of being noticed and made sense of

Meaningless and not noticed   Meaningful but not noticed

-   Virtuality continuum   **+**
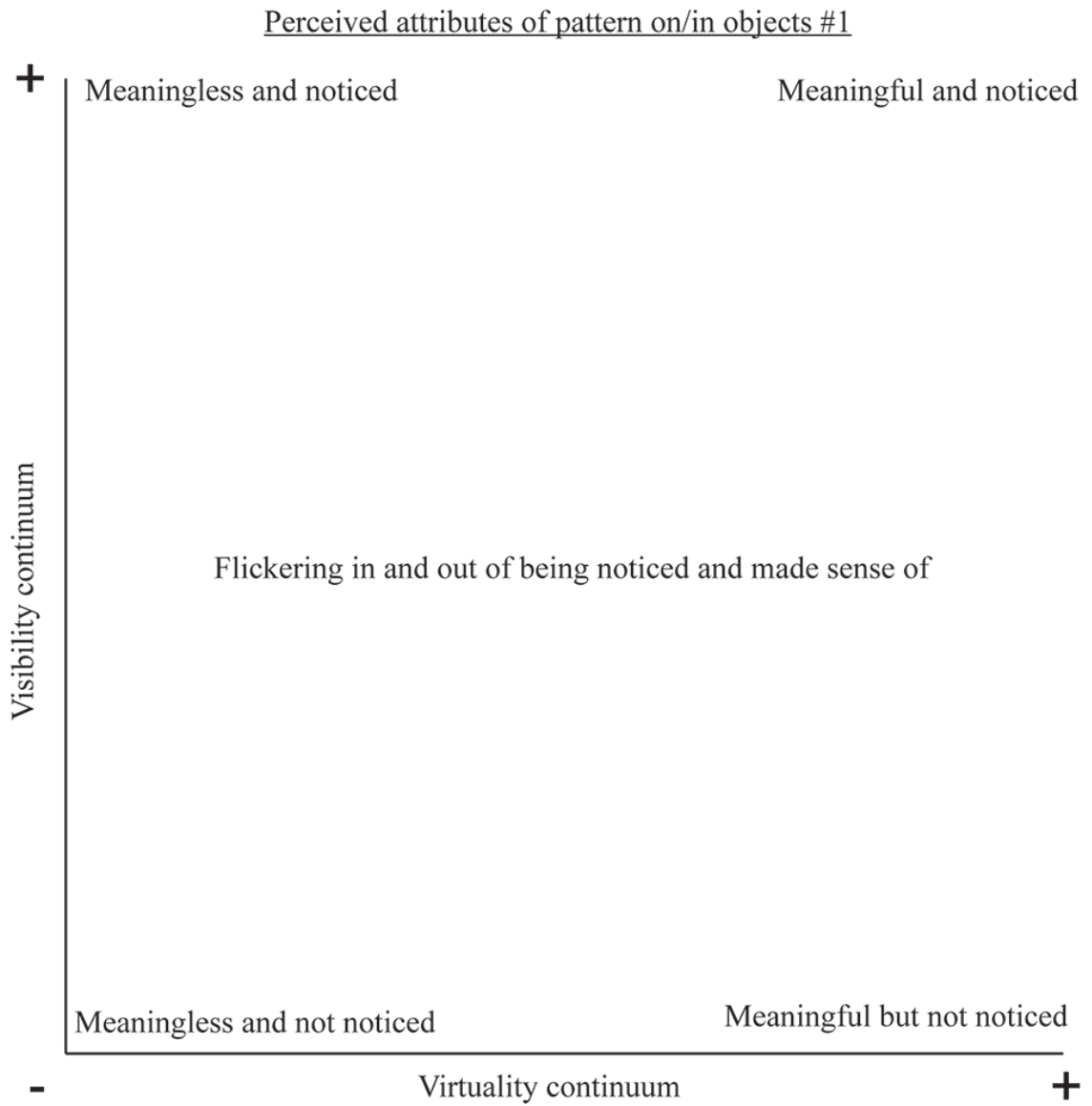
Figure 24: Positional map of the virtuality/visibility relationships in visual patterns

Perceived attributes of pattern on/in objects #2
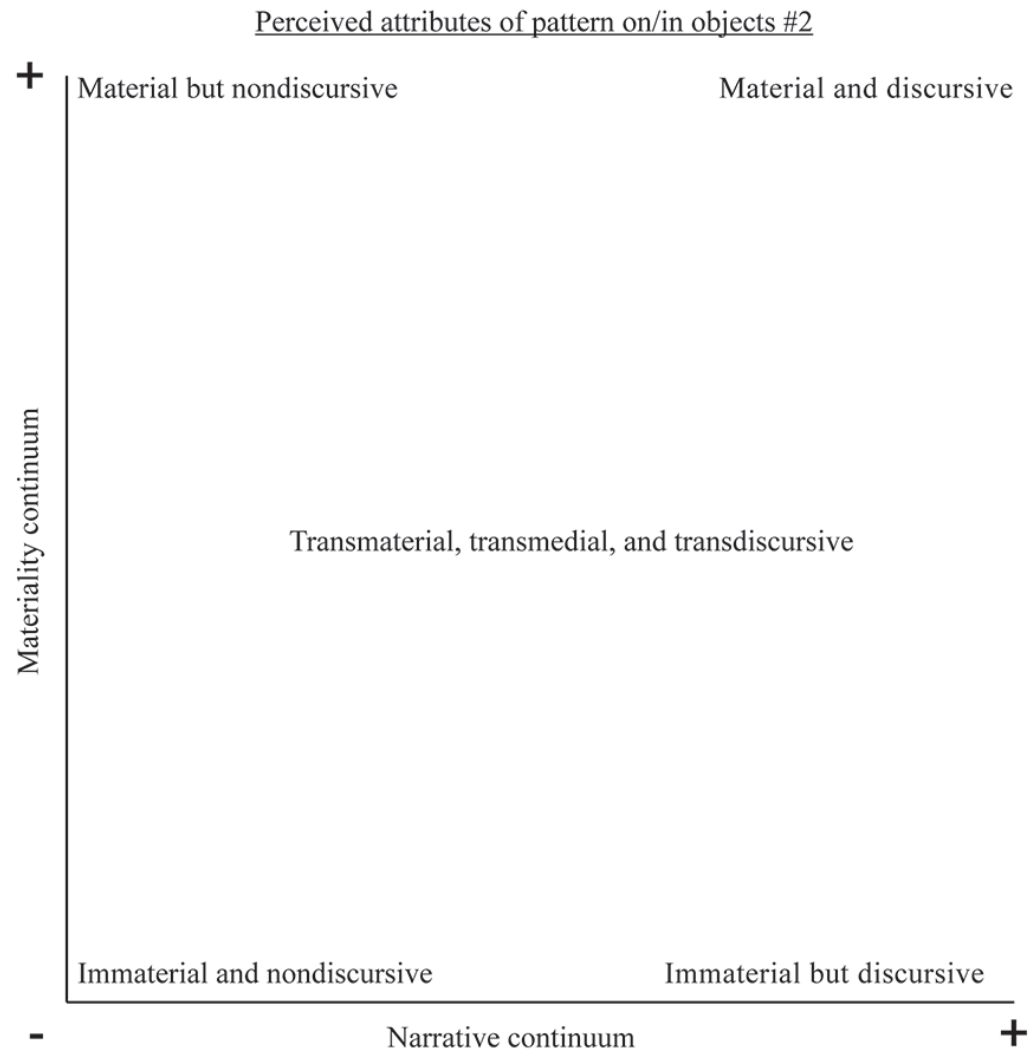
Figure 25: Positional map of the narrative/materiality relationships in visual patterns
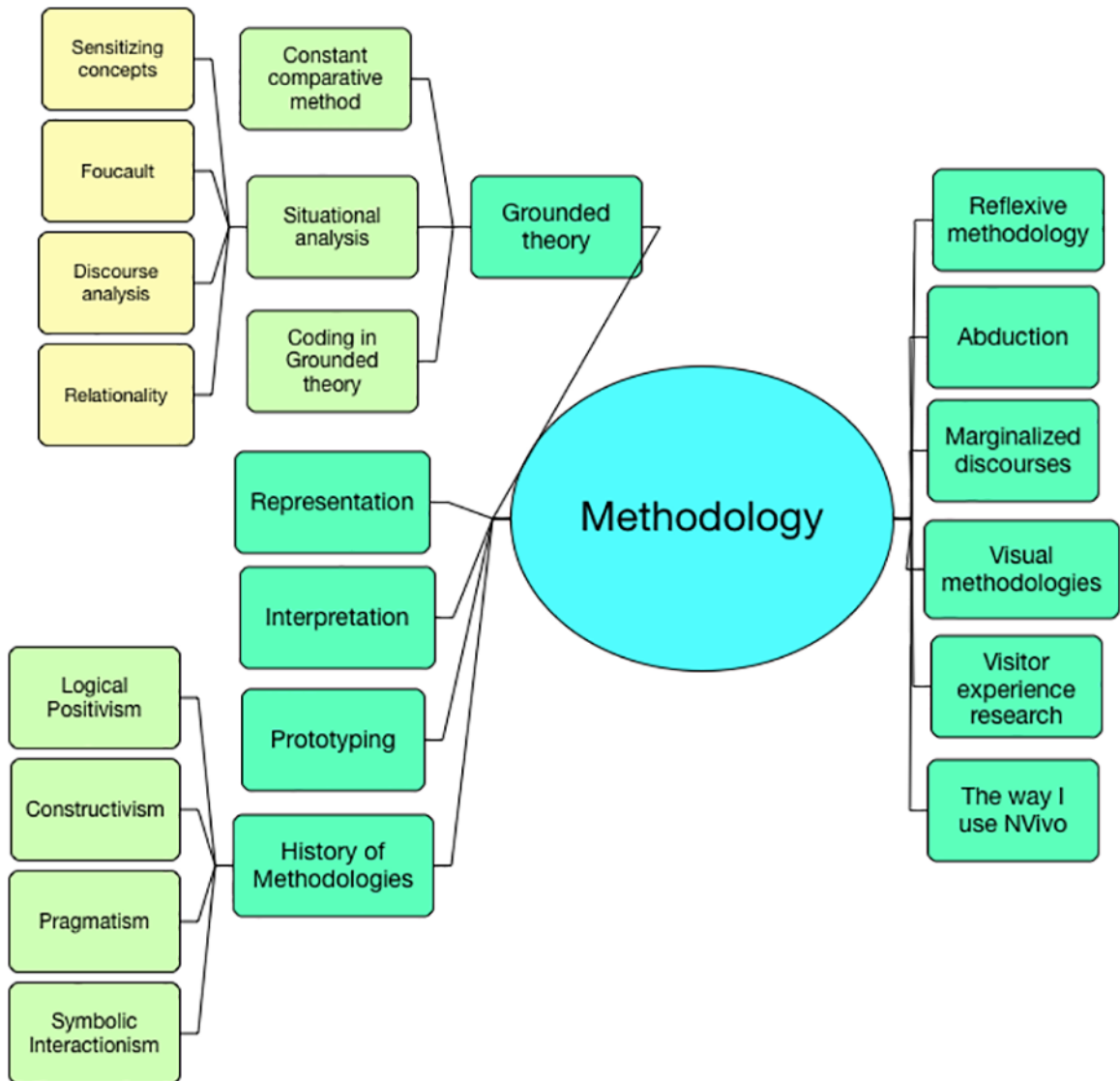
Figure 26: NVivo codes for Methodology
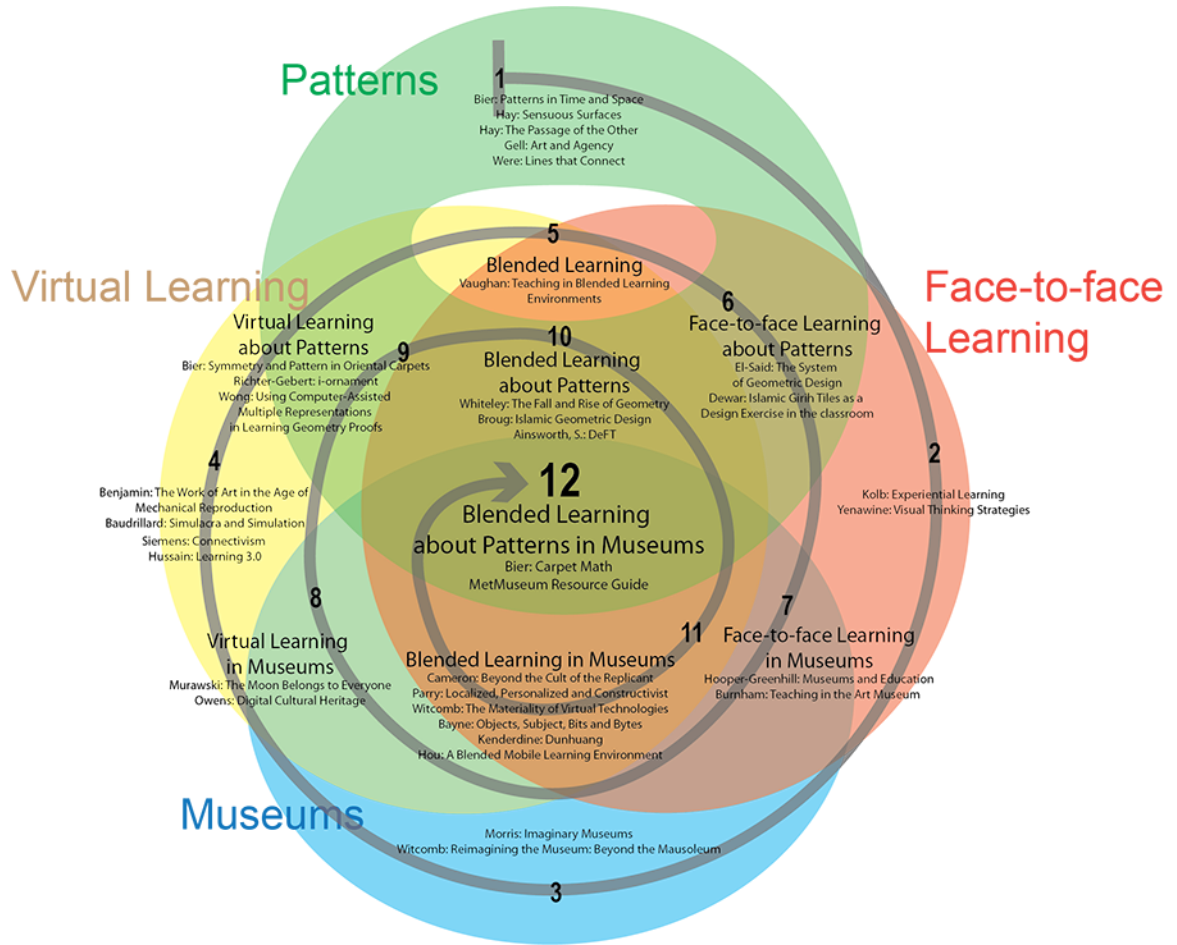
Figure 27: Venn diagram of "Patterns That Teach"

Chapter Two, The Conceptual Site: Part One

The research site for my inquiry in this chapter and the next is a literature review, and the research sample is drawn from scholarly writing about visual pattern in five fields of research that I consider pertinent to my study: museology, visual cultures, material cultures, digital humanities, and patterns' roles in systems of perception and cognition. Threaded through all five fields is the issue of nineteenth- and twentieth-century Euro-American theories versus more recent, more diverse approaches to pattern. I highlight this issue for two reasons. First, the AKM Permanent Gallery, the site for my interviews, displays a collection of objects from Asia; further, the objects I work with come from Muslim-predominant societies. Second, the issue of what is noticed and what is passed over or ignored by both museums and systems of ideas bears some resemblance to the issue of patterned art's diminution and figuration's exaltation in the art historical canon.

To perform this review of the literature on pattern's implication in the museum-situated subject-object encounter, I have sought out various sources, including books, articles in peer-reviewed journals, essays in topic readers, and dissertations. Three points may be noted here. First, I do not limit the time frame of my sources to the current period. I want to supply some historic depth to my analysis of writing on pattern, since the ways that the topic is dealt with in contemporary literature arise out of the historic literature, either as a reaction or a complement to it. Therefore, the time frame for my sources stretches back to the nineteenth century, when, as Gulru Necipoğlu mentions, the European fascination with Islamic ornament reached its peak (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 83). Indeed, the scholarship most

important to this chapter and the next comes from Necipoğlu, as well as from Walter

Benjamin, Alfred Gell, Gregory Bateson, and Gilles Deleuze. I examine the ideas about

pattern that are foundational to these five, with brief forays into the writing of other

scholars who inform or contest their thinking. I also examine the considerable debates

that have arisen around their arguments.

Second, the literature I survey does not always take pattern explicitly as its topic.

It may not be assumed, for example, that Deleuze's *Le Pli: Leibnitz et le Baroque* is a

primer on pattern's role in the world, but I find much in his writing that speaks of the way

Le Pli frames the world in a patterned manner, as I will argue in later pages. Third,

although I follow the normative format of a literature review, I remind the reader that I

am treating the scholarly literature as a research site; therefore, I am also reporting on my

findings in the analysis of the literature. It must be noted that all five fields reviewed here

are extensive and multidisciplinary; however, beyond general descriptions, my review

keeps to the narrow focus of their relevance to the museum gallery situation.

I view the intellectual work of these two chapters as a process of translation or

transmutation of the literature I review in the five fields into a conceptual framework of

four relationships: pattern and visuality, pattern and materiality, pattern and virtuality,

and pattern and narrative. For each field, I begin with references to foundational texts that

continue to influence recent scholars, either as an inspiration that they can build on or as

a provocation that they can react against. I then build my analysis of more recent

literature using the analytic mapping tools of situational analysis and the coding and

memoing methods of grounded theory that I have laid out in Chapter One. I look for

"what the research mentions about the mediating works of patterned art in a museum exhibition," the umbrella title of my mind maps of the scholarly literature (figures 13-17). Under this umbrella, most codes in the maps that I have created fit generally into one or another of the fields under investigation, with the exception of the codes in figure 16, which NVivo designates "floating ideas." It is not that these six codes do not have a place in the mind maps; rather, they have multiple mentions in all fields and therefore cannot be assigned to only one or two of them.

In my summary at the end of Chapter Three, I give an account of the process which has led me to make the concept map in figure 21, "what matters most about pattern in the literature." Finally, I report on my findings from the analysis of the literature as a research site and articulate the conceptual framework I have arrived at through this process.

Museology

The recent and current debates in the field of museology revolve around changing visions for museums. I am especially interested in debates that concern museums' roles as vehicles of communication. As I mentioned in the Introductory Chapter, I examine here four interrelated questions arising from these debates: first, are museums only sites of authoritative knowledge, or can they also be hubs of pluralistic knowledge-sharing? Second, how does the dominance of Euro-American cultural perspectives influence the role of museums in today's diverse societies? Third, how is digital technology changing the space of a museum and the "aura" of its objects? Fourth, what is the position of the

visitor in the sensory encounter between a museum-going subject and a patterned

museum object?

1. Authority or Plurality?

Eva-Maria Troelenberg proposes two opposing metaphors for museums, the

"temple" and the "forum" (2). The museum-as-temple is detached from daily life and

imbued with a kind of sacredness that comes from its authoritative presence on a higher

sphere. Andrea Witcomb likens the museum-as-temple to a treasure house that contains

objects valued according to their physical characteristics and that furthermore is capable

of communicating abstract moral qualities by means of these unique characteristics (105).

The temple is an apt model for the kind of traditional museum that came into existence in

post-Enlightenment Europe and became an instrument for social improvement in the

nineteenth century there (Barrett 110). However, this model is problematic in a dynamic,

rapidly changing environment: its very detachment makes it static, an unresponsive

monolith. Troelenberg recounts Jean Cocteau's comment that the Louvre in Paris is "a

morgue, where one goes to identify one's friends" and adds that this characterization

> . . . moves just slightly away from the idea of the 'temple' towards a more
>
> sinister sphere, while the double sense of the French term 'morgue,'
>
> designating a mortuary but potentially also alluding to an attitude of
>
> arrogance, hauteur, and self-containment, seems to open an ironic and at
>
> the same time nightmarish play with the image of the museum as well as
>
> with the attitude of the existentialist beholder (4).

The movement called New Museology replaced the temple model in the mid-twentieth century with the model of the museum-as-forum, an institution which provides open spaces of cross-cultural and social exchange to its communities (Troelenberg 1). If this change is indeed as widespread as Troelenberg claims – and my experience working as a museum professional concurs with Murray Ross's observation that there is still a significant percentage of the museum-as-temple cohabiting with the museum-as-forum (85) – what is the best way to accomplish this massive makeover? The scholars I surveyed in this field agree that the switch of metaphors has the potential to be a positive one, but they disagree on how this is to be accomplished. For example, Kylie Message and Andrea Witcomb see the current phase of New Museology enabling museums to play a transformative role for their communities by providing a space where different disciplines, theoretical approaches, and practices can meet (1), whereas Tony Bennett suggests the modern museum claims to be democratic and available to all but is really still racist, sexist, and based on bourgeois ideals of behaviour (97).

Paul O'Neill and Mick Wilson believe museums have undergone an educational turn, focusing attention on museums as sites not of either authority or plurality, but of education (21). The authors relate education to the circulation of ideas: rather than being primarily collections of objects, museums are primarily centres of ideas. Eileen Hooper-Greenhill concurs with this view, adding that "meaning is to be found neither wholly in the object nor wholly in the viewer. Meaning is dialogic – a dialogue between viewer and object" (117). In this dialogue, Phillip Yenawine asks, what kind of information is the most useful to a visitor? Is it of primary importance in a guided interpretation to include

actual information about the work of art, or is it enough to give the visitor a meaningful

experience of discovering the work for herself (25)? He comes down on the side of the

meaningful experience over the information, but other writers disagree. Rika Burnham

and Elliot Kai-Kee recommend asking no questions (109) while Mike Murawski and

Jackie Delamatre advocate a blended approach of some questions and some information

as the best interpretive approach (sec.1). These writers are exchanging views about

interpretation from the perspective of the museum, thinking about what kind of

information – or meaning – the museum has to impart to its visitors. They all argue from

the position that museums are centres of ideas rather than collections of objects. Other

writers use "stories" interchangeably with "ideas" as the central concern of museums. For

example, Leslie Bedford maintains that "These storytelling skills insure our place within

human society and probably imply that information not structured as a story is more

likely to be forgotten" (30). An opposing view comes from Sandra Dudley, whose

commitment to sensory engagement with objects I referenced in the Introductory

Chapter. Like Dudley, I tend to see museums, not as collections of objects, but as

communicating *through* objects. Message and Witcomb use the term "nondiscursive" to

describe this method of communication (xlvi). This term seems to me to confuse the issue

since what objects communicate is ideas, stories, and meanings. Objects in a museum

display communicate these ideas, stories, and meanings, not only through the official

means of displays and texts, which I am calling "museum agency," but through their own

agency, and, significantly for this study, through the patterns on their surfaces and in their

structures. By this statement, I do not mean to suggest a stance of "methodological

animism," as Gerhard Wolf puts it, but instead follow his lead when he terms the gallery encounter he has with a little, ancient, Chinese pot-bellied jar with two human feet as possessed of a "contingency of presence" and therefore as dynamic and generative ('Image, Object, Art' 159). I will come back to the implications of object agency in the section on the Visual Cultures literature.

2. Cross-cultural Questions

My second question for this field asks, are museums still in thrall to the narrative of visuality that ranks "fine" art above the decorative arts? The "Western" art canon is rigidly hierarchical, with figurative paintings and sculpture at the top of the hierarchy and "decorative arts" at the bottom (Weber 33; Necipoğlu and Payne 3). This paradigm appeals to visitors who are already fairly conversant with it due to either education or long exposure, or both. However, contemporary museums are anxious to attract a wider audience than these committed visitors. Andrew Dewdney, David Dibosa, and Victoria Walsh set out to investigate audiences at the Tate Modern in London, UK through a collaborative project that combined interviews, workshops and ethnographies, with the aim of recommending ways of diversifying its audiences. They found that there is a huge demographic that is absent from the museum for various reasons. The driver of this state of affairs is a basic misrecognition by the museum staff of the absent demographic: that it is composed of settled minorities, when in fact it is not settled and exists in a constant migratory state. In other words, appealing to this population's cultural origins, as has been done successfully in the past through exhibitions such as the Victoria and Albert Museum's *Shamiana: The Mughal Tent* (Sarmiana), would not be effective in reaching

the current potential audience. Dewdney et al term this unsettled condition "transcultural" and "transvisual" and claim it leads to transmediality, a state that is generally unfamiliar to conservative museum professionals (204).

An exception to Dewdney et al's claim that museums are stuck in a monolithic approach comes from Ruth Phillips, who writes as director of the Museum of Anthropology in British Columbia,

> These days, the lessons that objects teach in museums are accomplished not by fixing their positions within unitary sequences of temporal change and geographical location, but by a post-structuralist recognition that objects are capable of generating multiple meanings through the interaction of their material traits with diverse individual subjects (87).

Much scholarly thinking about diversity, based on the ability of one society to understand another, was affected by the 1978 publication of *Orientalism* by Edward Said, who wrote that "Oriental" societies have been conceptualized by "Western" ones in a way that has "less to do with the Orient than it does with 'our' world" (1875). This conceptualization hinges on the belief that only the "West" is progressive, while the "Orient" is stuck in an eternal past (1871). Necipoğlu takes up these views with specific attention to geometric pattern and ornament in Islamic art, pointing out the dominant assessment of the field's frozenness in time and space while contemporary Euro-American art and culture are perceived to change and expand ('The Concept of Islamic Art' 59). Her emphasis on the cosmopolitanism of the arts of Muslim societies recalls Dewdney et al.'s attention to the fluid nature of today's diverse museum audiences.

Necipoğlu's analysis of geometric art as a language in *The Topkapi Scroll* (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 231) is especially pertinent to my investigation of pattern, albeit with a hypothesis that runs somewhat counter to hers.

In her pursuit of the object's point of view in a museum exhibition, Dudley makes what I consider a category mistake similar to the one pointed out by Diawara of turning Kongo statues into art: she likens museum objects to colonized peoples in order to show how their encounter with visitors is a power relation, "ambivalent, contested, and shifting, influenced by an array of factors" ('What, or Where, Is the (Museum) Object?' 6). While Dudley is clear that she is using colonialism as a metaphor and not as a reference to actual colonialism as it has impacted museums and their publics, I would respond that the issue of colonialism is too raw and its evidence too obvious in a museum exhibition for the term to be used as a metaphor; it seems a mark of disrespect, an insult to the historical realities of the millions of human beings who suffered under the injustices of colonialism. The presence of the objects of global cultures in museum exhibitions is overwhelmingly due to the evils of imperialism and colonialism and turning them into art or referring to them flippantly as colonized in their current location is far from adequate compensation for the forces that got them there.

3. Effects of Digital Technologies

The subject of my third question for this field is the effect of digital technology on a museum space. Jenny Kidd takes up the notion of transmediality and applies it to museums' current practice of deploying digital media in service to gallery interpretations. Citing "the auratic function of cultural texts, a problematic nowhere more evident than in

the museum or art gallery" (120), Kidd contends that digital technology amplifies the remix, aura shifts, and *bricolage* activities of contemporary museums (122). Her contention turns my focus to Walter Benjamin's influential appraisal of the aura of a work of art, with particular attention to its "shifts."

Benjamin's *The Work of Art in the Age of its Technical Reproducibility* was written at a time when photography and cinema were the new media; however, his notion of the way these media change a work of art's authoritative aura is just as pertinent when it is applied to the digital age. Benjamin proposed that the development of photography altered the aura of authority inherent in a work of art by replicating it, thereby destroying its uniqueness ('The Work of Art' 22). Jean Baudrillard develops Benjamin's notion further, envisioning a contemporary world that is full of simulacra without any originals (69), or a museum where every object is a simulacrum in the "hyperreality of culture" (47). I note here that the "masterpiece" paradigm[10] upon which the notion of the artwork's aura is based underlies the museum-as-temple metaphor, which in turn informs art theory's approbation of figurative art, while "reproducibility" is a quality of patterned art, one which sometimes engenders suspicion of its automaton-like repetition (Araujo 14). The innovation in Benjamin's time was technology's ability to make multiple copies of a work of art. In today's museums, it is the digitization of museum objects' images, and indeed of the museum experience itself, that is the contemporary version of Benjamin's age of technological reproducibility and Baudrillard's simulacra. While

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[10] For an assessment of the notion of masterworks in Islamic art, see *After One Hundred Years: The 1910 Exhibition "Meisterwerke Muhammedanischer Kunst" Reconsidered* (Lermer and Shalem)*.*

Benjamin takes an ambivalent position on the benefit of the aura's devaluation, and

Baudrillard characterizes the negative effect on cultural life by simulacra, other writers

believe digital technology has the potential to make museums better at what they are

trying to do but differ in the methodologies they suggest using to accomplish this, and in

the theories underpinning their methodologies. For example, Ross Parry is unfailing in

his support for the positive effect of digital technologies on museums' abilities to provide

visitors to virtual sites with enhanced educational experiences (290), while Fiona

Cameron worries that the quality of museum digitization projects is not high enough and

this will negatively affect whatever uses the data is put to in the future ('Museum

Collections, Documentation, and Shifting Knowledge Paradigms' 72).

In contrast to Benjamin and Baudrillard's equivocation, André Malraux celebrates

the increased accessibility of works of art by creating a *Musée Imaginaire* in which all

the works of art in the world are available to all through reproductions (*Musée imaginaire*

257). Walter Grasskamp extends Malraux's idea of liberating works of art from their

corporeal origins to claim that "medial ubiquity" based on digital multimodality is the

work of art's new aura, one more powerful than whatever Benjamin might have

conceived (304). However, I would argue that this new aura is just like the old one if it

gives precedence to the same "masterpieces." In my view, Malraux's real innovation in

his *Musée Imaginaire* is to open the gallery doors to global art, which inevitably means

opening the doors to much more patterned art.

4. The Agency of the Subject-Object Encounter

My fourth question for the field of Museology investigates the position of the visitor to the museum in the museological literature. How does the scholarship view how museum visitors make sense of what they are experiencing? Stefan Weber suggests the museum needs to help visitors comprehend the art they are viewing but does not recommend how this is to be done (53). The usual methods include organizing displays thematically or chronologically and adding interpretive text panels to the displays. Necipoğlu points out that objects of Islamic art were originally meant to be seen *en masse*, activating multiple responses in their viewers and users, and asks "*whether* and *how* these layers of meaning can be communicated to the diverse audiences of the museum" ('The Concept of Islamic Art' 75).

So far in my review of the museology literature, the focus has been on a museum's role in sense-making, or museum agency. Is sense-making, then, all in one direction, from the museum to the visitor? Or is there, can there be, a co-construction of meaning in the subject-object encounter? If there is such a co-construction, then each element in the encounter has agency, an ability to affect events and each other. The factor of agency, where it resides and how it operates, is a key motivating factor that I take up now and that I will return to in its various guises – the agency of viewers, of objects, of digital technologies, and even of museums – throughout this study. In my discussions of agency, I am guided by Gell's definition of it: "Whenever an event is believed to happen because of an 'intention' lodged in the person or thing which initiates the causal sequence, that is an instance of agency" (*Art and Agency* 17). Here, in considering the

subject's and the object's co-construction of meanings, I am dealing with the agency of viewers and of objects.

In Dewdney et al's view, visitors have agency in their exchange due to their new subject position of transculturality and transvisuality:

> In terms of what is happening for the viewer in an art museum, a new intersection can be identified between the mediation involved in the position of the transcultural subject and the remediation of the visual field in the technical networks. From this new intersection, it is no longer possible to imagine that the viewer can sustain a relationship to the painting without the effects of remediation and the transcultural being present. The stance of informed scholarship and the position of the confirmed aesthete will only work to hold such effects in abeyance for so long (203).

This observation indicates that there is a move in museology from a paradigm of a visitor's response to the artwork as scholarly and aesthetic to one complicated by transcultural and digital factors. Bradley Taylor charts this move as one from object-oriented to visitor-oriented experiences, which he characterizes as a move from fixed to fluid meanings, and as increased sensitivity to the effect on visitors of the physical gallery space (180).

In summary, if my review of the literature on Museology is looking for the places where pattern is, what I find is more the places where pattern is not – an absence of mentions of it, or at the very least its dismissal as "mere," a frill or a support. For

example, Fatemeh Ahani characterizes decoration in architecture as nothing more than a

"pleasing arrangement" (25). Adolf Luhmann maintains that "mere decoration must be

distinguished from art" (121), while in a *Guardian* review of a William Morris ceramics

exhibition, Jonathan Jones answers his own question, "Is this art?" with "No, it is merely

craft" (2). In the field of Museology, I must conclude that figurative art is the art that is

noticed, discussed, and theorized. That said, the kind of museum I am most familiar with

is the art museum rather than the ethnographic, science, or natural history museum, and it

makes sense that an art museum contains – well, a lot of what is considered art according

to current paradigms. However, many art museums, including the one in which I base my

research inquiry, also contain works of decorative art; that is, ceramics, textiles,

metalwork, and pieces of buildings. These works may have figurative elements but also

feature patterns either exclusively or with figuration. As I have stated in the Introductory

Chapter, I am calling these works "patterned art" for the purposes of this study, while

being aware that the very term "art" is vexed. The debate of what is or is not "art" is not

one that I am concerned with here, except to note that in my view many aspects of it are

culturally specific to and arise out of the Euro-American art canon, and I tend to agree

with Alfred Gell that "there is no quality in the art-object, as material vehicle, that

definitely qualifies it to be, or not be, an artwork. Whether it is or is not is dependent on

whether or not it is taken to be one by the art world" (*Vogel's Net* 220). In situating my

study not in the patterned object – whether it is or is not "art" – nor in the museum-going

subject but in the space between them, I investigate the agency of each party and the

effect of visuality on their interaction. To further my investigation, I turn now to the field of visual cultures.

Visual Cultures

I ended my review of the Museology literature with a passage discussing notions of art in a museum exhibition context. A sense among cultural and art historians of the limitations of such discussions led in the 1990s to the birth of a new, expanded field called visual culture. The new field, as conceptualized by Irit Rogoff,

> . . . opens up an entire world of intertextuality in which images, sounds, and spatial delineations are read on to and through one another, lending ever-accruing layers of meanings and of subjective responses to each encounter we might have with film, TV, advertising, art works, buildings, or urban environments (24).

Rogoff alludes to a dimension of visual culture – its inclusion of all senses – that I will come to with my last question for this section, but to begin, I deal with visual culture's perspectives on the sense of sight, or, as Olga Belova puts it, the event of seeing (120), specifically seeing objects in the context of a museum exhibition. For the purposes of this section, "seeing objects" means seeing images of those objects, and this is how I am using the word "image" in what follows. In this light, I pursue four questions: first, what is a patterned image's position in a semiotics of images? Second, beyond a semiotic interpetation, how do patterned images come to a viewer's attention? Third, how is vision culturally inflected? Fourth, can vision be separated out from the other senses?

1. Semiotics of Images

Semiotics is a vast field of study and its comprehensive history and interpretation is an undertaking far beyond the scope of this study; however, it is important to start with one of its founders, Charles Saunders Peirce, and to track his influence on writers who take up his ideas and apply them to images. Peirce developed a theory of signs as a logical system to clarify human cognition:

> A sign, or *representamen,* is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen ('Chapter 7: Logic as Semiotic: The Theory of Signs' 98).

Peirce's writings influenced Alfred Gell's theory of art and agency (*Art and Agency* 13), Gregory Bateson's use of abduction in his formulation of "the pattern which connects" (*Mind and Nature* 153), and several theorists of digital humanities who adapt his division of signs into index, icon, or symbol to the workings of code (D. Robinson; Drucker, 'Graphesis' 22; Guillory 343). Peirce's theories are also important for grounded theory and situational analysis, as I mentioned in Chapter One.

In *Art and Agency,* Gell proposes to approach an art object as an index, a term he borrows from Peirce's typology of signs. According to Robert Layton, one of Gell's interlocutors,

> An index refers to an object by virtue of being really affected by that object. The shadow on a sundial is an index of the time of day, a weathervane an index of wind direction. An iconic sign, such as a picture of a horse, or an onomatopoeic sound (woof, neigh), has some of the same characteristics of the thing it denotes. An icon is a sign of an object to the extent that it is like that object. A Peircian symbol is arbitrarily associated with what it denotes, and this is the case with the vast majority of the words in any language. The link between the word (symbol) and the object is wholly established by convention (452).

For Gell, indexes operate as agents within a defined matrix of interactions with their prototypes, their recipients, and their makers that he calls the "art nexus" (*Art and Agency* 29). Gell calls his system a social agency of objects in that it concerns the social relations between persons and things, and persons and persons via things. He makes it clear that he excludes aesthetics as criteria for the classification of objects as artworks or artifacts and that he refuses an interpretation of art that sees it in semiotic terms, as a kind of language (*Art and Agency* 7). Gell uses the term abduction to denote the way an index can infer meaning. In his desire to avoid references to language or aesthetics in his discussion of art objects, he finds that abduction can signify a non-linguistic inference, and can lead the recipient (the viewer or user) to draw conclusions about what the index

means, by a series of cognitive steps. He gives as an example the finding of a chipped stone that he may decide is a prehistoric hand axe and therefore takes home and puts on the mantelpiece as an ornament. This example shows how arbitrary and changeable this meaning may be – the chipped stone may not be a prehistoric hand axe at all. What sets the chipped stone in motion along its way is the inferential scheme, or abduction, whereby he thinks this is what it is (*Art and Agency* 16).

Chapter Six of *Art and Agency* is devoted to an analysis of geometric art. Gell suggests that this kind of art, which he defines as "(non-representational, or marginally representational) decorative designs" (*Art and Agency* 73), occupies a special place on the art nexus matrix. Because it does not necessarily represent an object in the physical world, it lacks a relationship to a prototype. Therefore, Gell proposes that a geometric pattern and an index – the art object – are "one and the same" (*Art and Agency* 75). Gell calls geometric patterns mind-traps. He writes, "We are drawn into the pattern and held inside it, impaled as it were, on its bristling hooks and spines" (*Art and Agency* 80). He goes on to define geometric patterns' ability to entrap the viewer as their essential quality. This kind of agency comes from their always seeming unfinished to the viewer because of the difficulty said viewer has in deciphering them (*Art and Agency* 81). According to Gell, this captivation is the mechanism that binds people to things. He gives the example of a South Indian *kolam*, a kind of knot pattern drawn in white powder, and speculates that the viewer cannot extract individual loops from the design. This attribute, he infers, relates to the *kolam's* apotropaic protective agency – he calls it "cognitive

stickiness," a blockage in the viewer's ability to understand the object (*Art and Agency* 84–86).

Gell's ideas about patterned art objects are important to my study of them. I agree with his assessment that the density of some patterns' convoluted designs can draw the viewer in, catching her on its "barbs and spikes," but I think Gell gets caught on his own "barbs and spikes" as he has set up an elaborate system for figurative art that involves an interaction between agent, patient, object, and recipient, and he cannot neatly fit patterned art into it. Much more persuasive in my view is Alfred North Whitehead's notion of "prehension" to explain an object's agency. Whitehead avoids any vitalism – the attribution of cognitive structures to non-organic entities – by describing prehension as unconscious apprehension (as cited in Crawford 95) T. Hugh Crawford allies the term with metalsmithing and calls it "thinking hot," for wrought iron has a grain that prehends any attempt to work with it (95). I am personally very familiar with the prehensiveness of textile materials, that curious limpness, stiffness, or twist of their threads that make them want to go in a direction, resisting or even defeating a maker's efforts to make them go in another.

In their responses to Gell's system, his interlocutors take issue with his theories: Robert Layton argues that Gell's theory is unworkable because it minimizes the role of culture in humans' engagement with art objects, and that indexes – understood as art objects – depend on cultural convention (460). Howard Morphy concurs with Layton's view, arguing even more strongly that Gell's arguments are flawed by his exclusion of aesthetics and semiotics (8). As I mentioned earlier, Gell performs the exclusion by

defining an art object as "taken to be one by the art world."[11] Nicholas Thomas brings

museums into the discussion by declaring that museums are prime sites for the

examination of the object/human manifold that Gell proposes, and he calls for practices

of curation and interpretation that make objects' agency visible and questionable (204).

On a positive note, Susanne Kuchler claims that critics are wrong to assume that Gell

discounts culture and aesthetics. Rather, he introduces a new system by which objects,

especially patterned ones, exert a "cognitive stickiness" that operates through culture and

aesthetics, but that also references Bateson's theory of cognition as mind plus

environment ('Threads of Thought' 35). In fact, Gell's pronouncement that "cognition

and sociality are one" (*Art and Agency* 75) dismantles one of the binary oppositions that

bedevil museology: are museums primarily sites of individual or social experiences?

Gell's statement implies that they are both, because it is pointless to separate these two

kinds of experiences.

Other writers who have addressed the question of the semiotics of images include

Mieke Bal, Norman Bryson, James Elkins, and Jonathan Hay. Each writer approaches the

topic from a different angle. Bal and Bryson consider Peirce's semiotic system a useful

conceptual tool to apply to interpretations of visual art (174). They reject Ferdinand de

Saussure's semiotics as a system arising out of linguistics that links signified and

signifier in an entirely arbitrary relationship. As they explain, "There is nothing about the

idea of a tree, for example, that indicates that the sound 'tree' can be made to correspond

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[11] In my view, it seems a contradictory move to exclude semiotics from your theory, given that it is built upon the elements put forward by Peirce, one of semiotics' founders.

to it; but can the same be said of images?" (195). Like Gell, Bal and Bryson are concerned with the relationships between an art object and a viewing subject; while the former charts these relationships as occurring in a network populated by the artist, the art object (index), the recipient, and the prototype (what the index points to), the latter use the terms "senders" (artists), "receivers" (viewers), and "context." Beyond all of this terminology, Bal and Bryson conclude that a semiotic approach to art interpretation presupposes the existence of codes by which the art object can be understood. They borrow some of these codes from narratology and apply them to visual art, attempting to show that images are able to narrate stories by means of culturally accepted correlations between sign and meaning (202). The writers specify that it is necessary to approach the work of art as a whole, arguing that to approach it atomistically makes it into a thing, not an event (194). In another piece of writing, Bal delimits the field of semiosis to exclude both the materials of which the work is made, and the technical aspects, like brush strokes, paint thickness, and lines. These elements she terms subsemiotic and therefore beneath the level of interpretation (*Reading 'Rembrandt'* 400).

      I have already drawn the reader's attention in the Introductory Chapter to Noel Carroll's statement that an Amish quilt is "beneath interpretation," and I draw a straight line from his statement to Bal's, even though she refers to painting and he to textiles. He dismisses textile objects categorically, while she gives a technical rationale for the dismissal: qualities like materials and techniques are uninterpretable because they fall beneath notice.

James Elkins addresses Bal's dismissal by resolutely turning to just those elements in paintings that she terms subsemiotic and writing a book about them, *On Pictures and the Words That Fail Them*. He contends that "no graphic mark is merely a sign, but none is a 'technical,' 'meaningless' gesture made only in service to some higher significance" (78). Although Elkins cites W.J.T. Mitchell's contention that using a semiotic approach privileges a text interpretation of images (9), he nonetheless devotes a sizeable section of the book to his theory that writing, images, and numbers originated together in prehistory. Elkins writes from a Euro-American perspective, but his comments about the closeness of calligraphy and pattern on prehistoric artifacts, and the difficulty of identifying which is which, have resonance with one of Islamic art's most striking characteristics, the use of calligraphy interchangeably with pattern, and sometimes as pattern, in its material arts.

Elkins does not see patterned art as meaningful in semiotic terms. His few references to "decoration" are in relation to the difficulty of telling it from writing, and it is obvious which of them he considers meaningful. In contrast, Jonathan Hay writes about pattern as a meaningful component of art; I will return to discuss more of his ideas in the section on pattern. Here, I am concerned with his view of the subsemiotic elements that Bal dismisses, and Elkins advances. Hay's semiotics is different again from Gell's, Bal's, and Elkins' notions of it. The reason for this may be partly disciplinary: like Elkins, Hay is a historian of art, not an anthropologist like Gell, or a cultural theorist like Bal. However, unlike Elkins, Hay formulates his theory of the mediating work of art not only out of semiotic operations, but also out of material ones ('The Mediating Work of

Art' 435). Where Elkins is concerned with graphic marks in a purely formal way, Hay goes further into the "subsemiotic" realm, showing how the very silk and ink that comprise a painting on silk can convey meaning via what he calls elsewhere its "surfacescape" (*Sensuous Surfaces* 67) or "articulation of surface" ('Passage of the Other: *Histories'* 66). His vision of the viewer experience is that it must include the texture of the silk on which the ink is laid to portray a mountain. This is the meaning of Hay's articulation of surface: the mountain melts into the silk, it is not separate from the silk – and the mediation, which is to say interpretation, or the power of the work of art to convey its meanings, is not separate from the viewer's sensory perception of the ink and the silk. I will return to this important concept in my consideration of the fourth question in this section.

2. Vectors of Attention

Figure/ground relationships deserve a particular focus here partly because they are essential to perception – Elkins notes, "without a contrast between one thing and another, I cannot know anything" (79) – but also because a working hypothesis of my study is that when there are figurative elements in an image, they come to the foreground of a viewer's attention, while patterned elements recede into the background. Figure/ground ambiguity is a feature of many patterned surfaces; for example, in the marble panel in figure 11, the eye picks out as the foreground now the light stone, now the dark. However, my hypothesis is that figure/ground ambiguity is never a feature of a surface that has a recognizable figurative depiction on it.

Elkins' interest in the subsemiotic leads him to a treatise on the figure/ground relationship in images that highlights it as a logical system, even a Boolean one. He speculates, "If a figure can be seen as a 'negative space,' then it has become the opposite of what it was, and if a figure is *on* a ground, then that is the opposite of its being *in* a ground" (113). However, Elkins posits the relationship as ambiguous and changing, and suggests that his approach to figure/ground is more psychological than logical. He links the perceptual phenomena surrounding figure/ground to Benjamin's statement that "It is through the camera that we first discover the optical unconscious, just as we discover the instinctual unconscious through psychoanalysis" ('The Work of Art' 37). The optical unconscious holds what the optical conscious, the conscious event of seeing, does not see. It is there, but it is not noticed. My argument is that pattern inhabits this space of the optical unconscious, by virtue of its being on objects that are beneath interpretation, as Carroll maintains, or in lines and shapes that are subsemiotic, as Bal and Bryson claim, or even so manifested with form that it is seen as 'mere' material, as in Elkins' view.[12]

In contrast to Elkins, Hay deploys his notion of surfacescape to put the ground of an image in its proper position, inextricably enmeshed with the imagery, whether abstract or representational:

> The importance of the concept of ornamentality and the damage it has
> done can hardly be overstated….In practice however the surfacescape that
> the master Chinese artisan sought to create included within itself both

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[12] See my review of Material Cultures, question 2: Making as Thinking, for an example of the inextricability of form and material in a basket.

'ornamentality' and support, the two united and impossible to disentangle in a single topography of sensuous surface that also includes the object structure of which surface is usually thought to be the exterior manifestation. (*Sensuous Surfaces* 75).

As in their approaches to semiotics, Elkins means by figure and ground the imagery alone, with no reference to its materiality, while Hay insists on keeping ground and imagery together in a double meaning of ground: both the material substrate of an image and its background imagery.

Another approach to patterned images as vectors of attention comes from Barbara Stafford, who argues strongly for the arts and the brain sciences to draw closer together and share research (*Echo Objects* 208). For Stafford, the psychodynamics of images bridges the cognitive sciences and the arts through the primary concern that those disciplines share: namely, how the brain makes meaning from images (*Echo Objects* 171). In this light, she sees memory as non-narrative, more of a montage of images, like, for example, the structures of crystals or intarsia. She quotes Benjamin as noting in his incomplete *Arcades Project* that history has a habit of decaying into crystallized shapes, not stories (*Echo Objects* 154).[13] Furthermore, Stafford denies the normative notion that language is the royal road to knowledge (*Echo Objects* 76); rather, thought is an image

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[13] Benjamin actually wrote, ""History decays into images, not into stories." (Benjamin, *The Arcades Project* 476), but Hannah Arendt interprets this to mean that in Benjamin's thinking, the process of decay is a process of crystallization (Arendt as quoted in Schwartz 51). See the interlude between Chapters Three and Four for Arendt's longer quote and my reflection on the implications of this for my study.

(*Echo Objects* 148). In voicing this provocative view, Stafford challenges what she calls "the 'language of thought' hypothesis to put a more complex notion of image back on the table and at the interface of brain-mind with external reality" (*Echo Objects* 171). In Stafford's model of this interface, pattern recognition and pattern generation replace the 'language of thought' hypothesis in the creation of meaning ('Crystal and Smoke' 11).

3. The "Cultures" of Visual Cultures

In his critique of *Art and Agency*, Ross Bowden faults Gell for assuming that what people value about artworks is the same cross-culturally (312), and for preventing his discipline of anthropology from "solving many of the most interesting problems in the study of art cross-culturally, such as . . . why there are no close parallels of the modern Western concept of 'art' in the indigenous languages of Sub-Saharan Africa, the Americas, or Oceania (320). I would answer Bowden by suggesting, first, that such a sweeping statement plunks modern "Western" art on one side of a divide and a huge and multifarious assortment of cultures on the other; and second, that he might consult Chave's inference that these cultures are doing much more interesting things in their own ways than practicing modern "Western" art.[14]

However, Bowden does have a point, namely that when theorizing about culturally diverse ways of seeing, Euro-American writers tend to make sweeping assumptions about those ways, based on their own theories. Here we are back to the cross-cultural questions I discussed in the Museology section. In a 1954 essay that

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[14] See Introductory Chapter, f6.

presciently articulates many of Said's and Necipoğlu's points, Mehmet Aga-Oglu states that the attributes assigned by Islamic art specialists such as Richard Ettinghausen to the arts of Muslim societies as having a religious basis – for example, the abstraction of naturalistic forms and infinite patterns – have in fact an economic and technological basis; furthermore, these attributes are widespread in all cultures of the East from the Mediterranean to China (200). Bence Nanay attempts to rationalize cross-cultural ways of seeing by conjecturing that it is not what one sees but what one pays attention to that changes, and indeed over time. Following Michael Baxandall's notion in relation to Renaissance painting, Nanay calls this a "period eye" (263). Finally, Hay suggests a theory of the intercultural that happens in the space between cultures, while reminding the reader of the constitutively hybrid nature of cultural systems ('Intercultural' 7). He recommends, along with Bal and Bryson, seeing the artwork as event rather than thing, operating via displacement ('Intercultural' 9). In my view, Hay's way of seeing goes a long way toward solving the conundrum expressed by Dewdney, where the transculturality and transvisuality in contemporary museum audiences is out of sync with the usual portrayals of cultures in museum exhibitions. In particular, well-displayed and interpreted patterned objects have the potential to communicate these very values to audiences, since they express the unique transcultural and transmedial properties of pattern, as is pointed out by Kidd, Taylor, and Necipoğlu. To what extent this is happening in the context of the Aga Khan Museum Permanent Gallery is the subject of Chapter Four.

4. Other Senses Than Sight in Visual Cultures

With my last question for this section, I begin to move into my consideration of the field of material cultures. In a diatribe against what she calls "visual essentialism," Bal writes that "the act of looking is profoundly impure" and that this quality is better served by the methodologies of visual culture than of art history ('Visual Essentialism' 9). She is concerned in her essay with how museums can be venues for visual culture: the essay was originally meant as a critique of Eileen Hooper-Greenhill's book, *Museums and the Interpretation of Visual Culture*. In the same vein, Constance Classen stresses the importance of the senses in museum visitors' experiences of the objects they view, and laments the exclusion of touch in the museum context (201). Olga Belova concurs, adding that the visual encounter is necessarily a bodily one. In an essay that is especially relevant to my study, she gives an account of a focus group study she conducted on the ways participants engage with visual images. She bases her conceptual framework on Maurice Merleau-Ponty's phenomenology, in which every visual contact with the world is sensory and "lived-out" (97). The findings of her study validate her hypothesis of the visual encounter as spontaneous, bodily, and processual (105).

Ingrid Monson references Merleau-Ponty as well, making the point that the new model of consciousness as embodied in cognitive science owes a debt to his claim that interaction with the world is dependent upon the inseparability of perception and action (50). I find Monson's remarks particularly relevant to my study, since she explores pattern through her perspective as a musicologist. While I am not equipped to add patterns in music to my repertoire of concerns, here I note that her discussion of mimesis

and repetition in music, as well as its "rhythmic feel" (39), have direct applicability to visual patterns. My questions for the next field, material cultures, are sparked by Monson's articulation of "embodied knowledge" (38).

Material Cultures

The twenty-first century has seen a marked increase in scholarly attention to materiality – coincident with the rise of digital technologies – but the roots of this attention can be found much earlier. "Material" is referred to differently by different writers, who sometimes pair it with, or oppose it to, form. It is called "medium" by Luhmann (102), "matter" by several writers (Whitehead; Deleuze, *The Fold*; Bois et al.; Ingold, 'On Weaving a Basket'); and "surfacescape" by Hay (*Sensuous Surfaces*). Material cultures are the cultures of the material: how they are envisioned by their societies, how they are developed, and, importantly for material cultures, how they are cultivated, or enculturated. These processes of materiality are of interest to many fields, but I narrow my focus to those questions which concern the relationship of pattern to material cultures. First, how is pattern implicated in theories of embodied cognition, thing theory, and affect? Second, how is making as thinking theorized as a patterning activity? Third, what is meant by the materiality of the digital?

1. Embodied Cognition, Thing Theory, and Affect

Thinking about pattern inevitably strays for me into thinking about how the mind makes meaning. Does the mind recruit pattern recognition in this vital process? The discipline of cognitive science, called by neuroscientist Gerald Edelman a blend of

psychology, computer science, linguistics, and philosophy (228), identifies three models, listed from earliest to most recent: classical, connectionist, and embodied (Dawson 1). The embodied model concerns me here, but to fill in some background, the classical model posits the mind as a computer, working on a symbol system that makes meanings through representations that, taken together, form the "language of thought" hypothesis that Stafford and Edelman react against (Edelman 230). This model held sway in cognitive science from its development in tandem with the invention of the first serial computers in the 1930s until it was successfully challenged in the 1980s by the model of neural networks, or connectionist cognitive science. Connectionism rejects the notion that the mind is a computer operating on predetermined symbol systems and posits instead that networks, whether biological or artificial, acquire knowledge through experience (Dawson 199). Both these models of cognition base their operations on representations, and on pattern recognition (Dawson 201; Bechtel 43). In contrast, embodied cognition puts forward the view that "thought is not transcendent but depends on the body and brain. It is *embodied*. Meaning arises from relations to bodily needs and functions" (Edelman 234). It may seem that embodied cognitive science wants nothing to do with pattern, since it rejects the classical and connectionist view that pattern recognition works by way of representations. However, Edelman's theory of meaning-making through re-entrant loops is a pattern recognition theory, although the pattern is not a representation but a dynamic process that involves constant learning and adapting.[15]

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[15] "To summarize: the brain carries out a process of conceptual self-categorization. Self-categories are built by matching past perceptual categories with signals from value systems, a process carried out by

Embodied cognition is taken up by several writers on material cultures; to give

two examples, Kuchler, a powerful reinterpreter of Gell's theories of art and agency,

ascribes embodied cognition to things themselves, not just to peoples' perception of

them. She maintains that embodied cognition and material culture are linked through

things' ability to shape knowledge ('Materiality and Cognition' 226).

Tim Ingold also writes eloquently about embodied cognition, especially vis à vis

making, discussed in my next question. Here I note that he brings the concept of

embodied cognition to its very ground by claiming that

> we should no longer speak of relations between people and things, because
>
> *people are things too* . . . This is not to treat persons as anything less than
>
> what they are, let alone to compare them to objects rather than subjects. It
>
> is rather to find a way beyond this troublesome dichotomy (*Making* 94).

Thing theory, a conceptual byproduct of embodied cognition, is theorized by Bill

Brown and others as a way of understanding the particular ways in which the

subject/object encounter is a reciprocal one (Brown, *Thing Theory*; Brown, 'Object,

Others, and Us'; Gosden; Keane). For Brown, thing theory can also be called object

culture, the means by which objects store the knowledge of a particular culture ("Objects,

Others, and Us" 188); either term implies that objects have more meaning in them, or

---

cortical systems capable of conceptual functions. This value-category system then interacts via reentrant connections with brain areas carrying out ongoing perceptual categorizations of world events and signals. Perceptual (phenomenal) experience arises from the correlation by a conceptual memory of a set of ongoing perceptual categorizations. Primary consciousness is a kind of 'remembered present'" (Edelman 119).

dimensions around them, than the purely material. Brown also advances the notion that objects store a culture's memory in an immaterial or conceptual way, but that this memory is displaced by the object's move into a museum (Ibid. 206). For Daniel Miller, materiality is central to the way humans understand ourselves, and, beyond even that, "the things people make, make people" (*Materiality* 38).

In a move that seems to me one of unnecessary dualism, Brown separates things from objects and claims that "things lie beyond the grid of intelligibility the way mere things lie outside the grid of museal exhibition, outside the order of objects" (*Thing Theory* 141). By this statement he raises three questions that I address at particular points in my study: the first question, what determines an object's suitability for "museal exhibition"? is one I have already asked in my questions for museology, and answered by means of a quote from Gell (According to Gell, calling it art is sufficient). My second question, interrogating what value judgment Brown is putting on the word "mere," is one that I have addressed in my questions for museology. I turn to the third question now.

What does Brown mean by claiming that things lie outside the grid of intelligibility? Are they "beneath interpretation"? I do not know if Brown was referring to affect theory when he wrote these lines, but for something to be outside intelligibility, it is either inexplicable because it is dead or inanimate, or it belongs to the precognitive layer of functioning that affect theory has staked out as its own.

In a sense, affect theory permeates all five fields that I review, but I put its exposition in my discussion of material cultures because of its insistence on affect's bodily nature. The concept of affect arose out of the writings of Gilles Deleuze,

especially out of his theories of the virtual and the actual as states of the real, and of

becoming as different from being (DeLanda, *Intensive Science and Virtual Philosophy*

121). Recent writers such as Brian Massumi and Nigel Thrift have extended Deleuze's

ideas of affect: Massumi detaches affect from emotion, equating it with intensity and with

possibility, both Deleuzean concepts (88). For Massumi, all of these terms are corporeal;

for him, "the body is as immediately virtual as it is actual" (91). Thrift adds that affect is

a phenomenon happening between bodies as well as within them, as "a set of flows

moving through the bodies of humans and other beings" (*Non-Representational Theory*

236). These other beings include things which, according to Thrift, have the agency to

"enact themselves amidst the system of the world" (*Non-Representational Theory* 160).

Ruth Leys delivers a strong critique of affect theory that accuses its theorists of

perpetuating the old mind-body dualism by insisting that affect never crosses the

consciousness divide (442); I concur with this, as it is my impression that the processes of

becoming and the relationships of virtual to actual states are fluid in Deleuze's

conceptualization of them, continually transforming one into the other by means of

difference (*Difference and Repetition* 183). He pictures them as two definite sides, or

mirror images of each other, and posits that "there is no virtual which does not become

actual in relation to the actual, the latter becoming virtual through the same relation"

(*Cinema 2* 69). In my estimation, Massumi locks affect into a prison, fashioning its bars

out of Deleuzean intensity, "a nonconscious, never-to-be conscious autonomic remainder.

It is outside expectation and adaptation, as disconnected from meaningful sequencing,

from narration, as it is from vital function" (85).

I search fruitlessly for mentions of pattern in writings about affect. It is as if pattern is so far beneath interpretation that even affect theorists do not notice it. However, some new writing by Jan Slaby and Rainer Mühlhoff theorizes affect differently from Massumi, putting more emphasis on the relationality of affect as a verb, in its original sense of affecting and being affected, so that affect refers to both a "dynamic relational ontology and also – or thereby – to the impression made, or trace left, on entities by their dynamic encounters with other such modes" (3). With the mention of trace, I recall my characterization in the Introductory Chapter of pattern on objects as a record of a dynamic encounter and can begin to see how the perception and cognition of patterns inhabits an affective, or virtual, layer of cognition through an embodied connection. But my position is never to keep it there. Part of pattern's mobility involves its shifting, in the viewer's apprehension of it, in and out of virtual and actual states – folding and unfolding, revealing and concealing, now in the foreground, now in the background.

2. Making as Thinking

For Ingold, material culture studies the object, where visual culture studies the image, and neither discipline has paid any attention to their making. He faults Gell for treating the art object as a finished work to be analyzed and not the results of an anthropological study, albeit not a text, photograph, or film (*Making* 7). I take his statement to mean that an object treated in this second way is a prototype, making statements about the world around it – and within it – as expressively as a written text, a photograph, or a film can do, just in other materials. In fact, Ingold claims that "materials think in us, as we think through them" (*Making* 6). He illustrates this process by asking

the reader to imagine weaving a basket, a patterned form if there ever was one: the basket comes into being gradually through the interaction of the weaver's hands manipulating the strands of material. The emerging form has an inside and an outside simultaneously, so it is not a case of the weaver applying a pattern to the surface; it is a case of a field of forces, the force of the weaver and the force of the material – its stiffness, thickness, or, conversely, recalcitrant limpness – creating the pattern together ('On Weaving a Basket' 87). What is this basket a prototype of? Depending on its place of origin, it may be a prototype of poverty versus wealth, of plenty versus scarcity, or of permanence versus transience. I would not call this nonlinguistic expressiveness "nondiscursive" as Message and Witcomb name it. Discursive can simply mean communicative.

Warren Seelig focuses on the maker's experience, arriving at the same conclusion as Ingold: the made object emerges through the engagement of weaver and material. He notes,

> Typically, there is a mindset, which is obsessive (sometimes to the extreme), and the desire to self-impose a regime of laborious activity where there is a deep belief that spirit is incarnate in material. Constructing surface involves dynamic participation between the body, material, and the psyche where there is the need to employ our hands in the activity of making. Along with this is the intense feeling that there is life and animateness in things, in objects, and in materials which make up the physical world. (22).

Primary to the process Ingold sets out is the sense of life in materials and the artist's need to make, or, putting it more strongly, her compulsion to construct in tiny increments. This obsession with detail gives the work a profound emotional charge (Ibid. 22).

Kuchler calls this interlacing action of hands a form of "formulaic thought" which "makes possible associative strings, fashionably described by the term *abduction*, that connect up the world of the material with the world of humankind" ('Materiality and Cognition' 225).

3. Materiality of the Digital

My last question for material cultures is a logical bridge to the field of digital humanities, next reviewed for this study. What place can embodied cognition have in a virtual experience? Leslie Bedford asserts that objects in a museum exhibition can be brought to life by digital technologies "without necessitating a hands-on experience" (30), thereby dispensing with embodied cognition entirely. This relatively unnuanced stance is shared by other proponents of digital technologies in museums, sometimes with the legitimate intent to protect extremely fragile locations (Kenderdine), or sometimes because the novelty of digital technologies is appealing (Roussou). In contrast, Nigel Thrift takes a more complex approach to the materiality of the digital by identifying three new material registers that arise from the changing nature of materiality in the digital age: screens, software, and the body ('Beyond Mediation'). The first two registers are obviously the new ones – they are mediated by machines and indeed are dependent on machines for their production. Software, in particular, is a "technological unconscious," a

kind of traffic where you see the effect but not the thing ("Beyond Mediation" 241).

Thrift makes the point that the body is so changed by the omnipresence of the digital in

peoples' daily lives, that it is so restructured by devices bearing flashing screens and

buzzing software, that "technology inhabits us" ('Beyond Mediation' 247).

In the section on Museology, I examined the impact of digital technologies on the

ways that museums communicate with their audiences in both physical and online

galleries. The increasing prevalence of these technologies has had the effect of

dematerializing museum objects, which leads in turn to a reevaluation of their agency.

This dematerialization has an effect in turn on the subject/object encounter. It may seem

like a profound glimpse into the obvious to state that museums are about objects;

however, recent trends in museology have turned away from this assumption in favour of

the notion that museums' messages are about ideas and stories. As Sandra Dudley writes,

"There is a current, indeed dominant, view within museum studies and practice that the

museum is about information and that the object is just a part – and indeed not always an

essential part – of that informational culture" ('Museum Materialities: Objects, Sense,

and Feeling' 3). As I noted in the museology section, Dudley is a museum scholar who

advocates for the reinstatement of sensory engagements with objects as central to a

visitor's museum experience. Her commitment to sensory engagement with objects

reflects her concern with embodied cognition, a set of ideas about the nature of cognition

that is important to my investigation of pattern.

Digital Humanities

Throughout this review I have been moving closer to the question of digital technologies' effect on the subject/object encounter under study. If the humanities is, broadly speaking, the study of what it means to be human, the sub-discipline of digital humanities brings the humanities' critical instruments and perspectives to bear on the study of how digital technologies are changing what it means to be human. This is my definition, based on those aspects of digital humanities that relate to my study of pattern's implication in perception and cognition; others may define the sub-discipline in other ways, depending on their field of study. For example, an English literature scholar might say that it is the application of digital methods to aid in the critical analysis of texts. This approach reflects the side of digital humanities that is a practice, rather than a body of theoretical and critical analysis; however, my view is that, especially where the digital is concerned, theory and practice tend to blend into each other and inform each other.

My three questions for this field stem from my concern with pattern's function in digital media, especially in its inner workings. My first question attempts to clarify definitions of code and coding as the nuts and bolts of digital fabrication. My second question asks, what is hidden about a seemingly transparent medium?

Third, I ask, what is patterning's role in the configuration of software? I am particularly concerned in considering this last question with the entries in *Software Studies*, a collection of essays on code edited by Matthew Fuller. The authors make some important links between software and patterning; for example, Ted Byfield concludes that the most useful definition of information, "a difference which makes a difference"

('Information,' sec.3) comes from Bateson ('Style, Grace, and Information' 459), whose work I return to in the next chapter.

1. Reflections on Code and Coding

The word "code" is used differently in general parlance than it is in regard to computing. I identify three distinct meanings for "code." First, it refers to social conventions that are enacted in language or in behaviours. The linguist Roman Jakobson maintains that the code of a language is metalingual, in that it is not a part of the language, but performs a glossing function to ensure that the addresser and addressee are using the same meanings for the terms they are using (69). This is the way Bal uses "code" to outline culturally shared codes of viewing in her discussion of "receivers" of art, in a gallery context or not (202). Luhmann also discusses codes for understanding art in the same manner, although he imposes a condition that the code for his purposes is binary, and the binaries he chooses to best represent the reception of art are art/not art, and beautiful/ugly (191).

Second, coding as it is used in qualitative analysis has a different meaning. It is a process of distilling, finding an essence of meaning in the amorphous data. In NVivo, codes are called nodes, like nodes in a network, implying that they are particular points along vectors where meanings tend to cluster.

Third, the definition of "code" as it applies to computing is algorithmic: it is, according to Florian Cramer, "a transformation rule for symbols into action" (9).

Computer code has a fascinating recent history that merits a separate study;[16] I only touch upon the features that emphasize its relationship to patterning.

In its contemporary form, computer code features three levels: a programming language written by programmers that is understandable to humans, the most recent languages being the easiest to read and learn; an assembly language, sometimes also written by programmers but most often now interpreted by a machine compiler or interpreter; and machine language, written in zeroes and ones that a computer can understand. Figure 28 is a hypothetical example of the three levels of a piece of computer code that, if it would run, would place an image of a triangle on the screen.

It may seem that what we have is, on the one hand, two meanings of code that are richly and subtly cultural in nature, and on the other, computer code as a purely mathematical algorithm. However, I review digital humanities writing, including Cramer's, that makes a claim for the fully cultural nature of computer code as well.

In "Critical Code Studies," Mark Marino argues that code already has meaning beyond its functionality since it is a form of symbolic expression and interaction, "a social, semiotic system employing grammar and rhetoric." For Marino, code is a text. He goes on to compare it to

> a musical score, a play script, blueprints, circuit diagrams, or any print
>
> text, since none of these can be processed or executed without being read.
>
> Or perhaps code is more like a spell or incantation: to read it is to cast it
>
> (7).

---

[16] See *The Information: A History, A Theory, A Flood* for a full history of computer code (Gleick).

Cramer expands on Marino's last statement, undertaking to write a reconstruction of the cultural and imaginative history of executable code (9). He starts much earlier than does James Gleick, whose account begins in eighteenth-century England with Charles Babbage's Analytical Engine, inspired by the jacquard loom (109). Cramer takes the reader much further back, starting with the Greek mathematician Pythagoras and the history of combinatorics, defined as formal-technical manipulation of symbols, usually alphabet- or number-based (64). He examines historic prototypes of combinatoric logic, including the Kabbalah and Ramon Lull's *Ars generalis ultima* (1305), that purported to derive philosophical-theological statements through formal computation (36), arguing that the kinds of "word magic" featured in these prototypes are ancestors of executable code and proposing that "the technical principle of magic, controlling matter through manipulation of symbols, is the technical principle of computer software as well" (15).

Cramer's historical revisioning of the road to computer code highlights an aspect of it that is strikingly Anglo-American: it is written predominantly in the English language. This fact reinforces the argument that computer code is not neutral but rather deeply culturally inflected. Adrian Mackenzie, writing in 2008, points out that the internationalization of software is proceeding very slowly; part of the reason for this is the general assumption that software is already built on models of universality such as binary numbering systems, the Universal Turing Machine, and global technoculture itself ('Internationalization' 1). Mackenzie argues against this assumption, claiming that

> The very same construction and manipulation that transform numerals
> (graphic forms) into numbers (things in relations of plurality), constitute

bodies in structural relationships. Interpellation is one way of theorizing

the ritual hailing that brings bodies of all kinds into forms of subjecthood

in relation to number. This singularizing effect is deeply embedded in the

graphical writing systems on which software so heavily draws. The very

existence of a numeral zero has intense cultural specificity that passes

from India through Arabic to medieval Italian calculation techniques

('Internationalization' 3).

Mackenzie was writing ten years ago; it might be expected that there has been an

increase in the development of non-English-language programming languages since then.

However, the results of Sayamindu Dasgupta's and Benjamin Mako Hill's 2107 study

reveal a similar state of affairs today, with Scratch, written for children's education, being

almost unique in programming languages to offer a translated version, and then in only

five languages: Portuguese, Italian, Brazilian Portuguese, German, and Norwegian

(Dasgupta and Hill 35).

With all of code's cultural and metaphorical implications, then, can it be claimed

that the practice of its writing is a theoretical activity? The debates about making as

theory are as lively among digital humanities scholars as they are in material cultures.

Here, the making refers not to making physical objects, but to making software. The

scholars ask, is building digital objects – coding – a theoretical activity or a purely

practical one? Johanna Drucker cites the rise of digital information graphics – maps,

charts, and graphs – to argue that visualizations are in a very real sense knowledge

production ('Humanities Approaches' 5). Similarly, Alan Galey and Stan Rueker focus

on design as an intellectual method and advocate in favour of viewing digital objects as forms of argument (406). This is another way of phrasing Willard McCarty's claim that talking about "comput-ing" rather than "comput-ers" turns "'things' into algorithmic performances" (254). Galey and Rueker also cite Manovich's declaration that "a prototype is a theory" (407), a statement that is taken up by Stephen Ramsay and Geoffrey Rockwell and expanded into an epistemology built on an assumption that building – coding – is scholarship (5). Natalia Cecire is alone in raising doubts about the one-to-one concordance between coding and theorizing implied in a statement such as "a prototype is a theory," and cautions about the efficacy of throwing out the language-based tradition of criticism upon which the discipline of Humanities is based" (1).

2. Logical Depth and Hiddenness

"Logical depth" refers to the paradox of apparent transparency in a medium whose processes are increasingly hidden, a point made by Thrift in his posing of software as a "technological unconscious" ('Beyond Mediation' 241). The quality of hiddenness also arises from computing as an essentially nonvisual medium: Cramer explains, "The internet is accessed largely by graphical browser and client programs but with the constant awareness that non-graphical codes are running underneath the system" (98).

Charles H. Bennett provides the foundational concept of hiddenness in computing with his definition of logical depth, a phenomenon that factors into a piece of information

or a solution all the calculations an originator had to do in order to arrive at it (3).[17]

Wendy Chun maintains that the computer is nonvisual and nontransparent, but it has

fostered a primary focus on visuality and the belief that it affords more transparency than

other media ("On Software" 27). Axel Fliethmann explains this seeming contradiction:

how can a medium that is all about visuality be nonvisual? He offers the reason that

"digital technology treats image and text as the same form within the opacity of its code,

and can only visualize both as different forms on its surface" (55). In other words, the

computer screen is the surface interface. All available information is visible on the screen

and can only be seen or heard. But the code creating these seen and heard forms is text

and only text – and almost always English text – which the machine has to translate into

patterns of zeroes and ones.

Laura Marks relates logical depth to the Shia Islamic terms of *zahir*, exoteric

knowledge, and *batin*, esoteric knowledge, and by extension to computer-generated art,

which is, in cybernetic terms, about the code, not the content. Another connection is

made by Frederica Frabetti, who takes up Derrida's concept of deconstruction as a

method of unpicking a conceptual system to ask, "What is it that has to remain unthought

within the conceptual structure of software" (8)?

---

[17] In algorithmic processes like those computed by a Turing machine, a logically 'deep' or complex object is one that requires a lengthy calculation. Bennett argues that complexity includes a kind of buried redundancy consisting of all the calculations the originator had to do in order to arrive at a valuable piece of information. He refers to the halting problem – whether a computer program will continue running forever to try to solve a problem.

Scott Dexter and Adrian Mackenzie address hiddenness as a result of the layering

of functions in object-oriented softwares that result in more and more functions being

hidden and inaccessible not only to the user but also to the programmer. Dexter describes

Alan Turing's experiments with mechanical computation in which Turing found that a

complex calculation needs to include "disposable intermediate figures" that are just there

to assist fallible human memory ('The Esthetics of Hidden Things' 130) − an example of

Bennett's logical depth. He goes on to recount the rise of object-oriented software that

organizes information into sets as economies of memory allocation and then conceals the

sets from the user and from other programmers ('The Esthetics of Hidden Things' 140).

This new quality of hiddenness in software – that it has layers inaccessible even to the

programmer, making it possible to hide its workings, is allied with, but not identical to,

logical depth. The former quality of hiddenness has resonances for Chun with a

somewhat pernicious normalizing function, a tendency to take certain assumptions for

granted. Chun urges the reader to critically interrogate software, because "reducing

ideology to software empties ideology of its critique of power—something absolutely

essential to any theory of ideology" (44). In contrast, logical depth marks Deleuze's

possibility space, a fertile space that dwells in the virtual as opposed to the actual layer of

the world (*Difference and Repetition* 102). Taking up Bennett's and Turing's

interpretation, I would argue that suppositions, beliefs, and paradigms reside there as well

as calculations that are no longer needed; for Deleuze, alternate versions of historic and

mythic events are in virtual space, where Caesar did not cross the Rubicon (*The Fold* 98),

Sextus did not rape Lucretia (*The Fold* 61), Adam did not sin (*The Fold* 104), and the

labyrinth has no thread because Ariadne has hung herself, presumably with the thread (*Difference and Repetition* 56).

For Mackenzie, sets as devices in object-oriented programing are so ubiquitous that they are considered trivial and, as Carroll remarked about the Amish quilt, "beneath interpretation." In a further move that references Deleuze's multiplicity theories and software, he mentions Deleuze's resistance to set-based thinking: "A vital multiplicity for him . . . has no parts or elements. It only has intensive differences actualizing as extended things, with boundaries, with orderings" ('Set' 230). Deleuze's sentiment about vital multiplicity resonates with Elkins' and Hays' reflections on the subsemiotic elements of visual images, and all three can be understood in relation to elements of code that are considered "trivial." In a passage entitled "Why Study the Paint?" Marino defends studying code critically because it is not "merely" a means or procedure, it is a text (7). This seems to me to be a case of a writer justifying his attention to code by giving it a status of importance. I reiterate here my purpose is not to elevate pattern up above a sub-interpretive or subsemiotic level, but to go down to where it is and examine it. In so doing, I am looking for what it is in visual pattern that takes it beyond decoration or ornament, with their connotations of supplement – as I said, on its own grounds and in its own terms. Elkins, Hay, and to some extent Cramer, provide clues about where to look, and how to interpret what I sense about pattern: that its meanings are subtle, paradoxical, hidden, labyrinthian, and even slippery and evasive. Pattern hides on purpose.

3. Software's Patterned Nature

In my discussion of the literature on code a picture emerges of software as the immaterial partner of the software/hardware pair. Perhaps software as a category is an amalgam of all the code – the symbols – issuing instructions to the hardware. Cramer frames software as "algorithms as control logic that was abstracted from the machine" (121). In other words, software is instructions: the programmer writes them and then the computer runs them. This process is an exact replica to how patterns are created. It is also just like loom weaving. Cramer goes on to note that

> the technical distinction between software and hardware is blurry itself. Is instruction code hardware once it is burned onto an EPROM, is it software when it is stored in an erasable flash ROM? . . . Is, for example, a human brain that performs a computation a piece of hardware? (123)

Cramer's last question pulls the argument back to the level of the body, and to the question addressed earlier, what is material about the digital? It appears to me that the picture drawn by Thrift in answer to that earlier question of humans attached to their devices with "flashing screens and buzzing software" visualizes the state of many if not most museum visitors. As they perambulate the galleries, they are experiencing with their bodies their own digital devices – as well as the digital gallery enhancements. It follows that what they are experiencing bodily in this interaction is the software. Because so much of what they can experience in galleries is visual as opposed to corporeal, visitors' prime sensory interaction is with the software, not with the art. I will argue in Chapter Six

that the digital space, used in this way, facilitates contact with the mythic space of the

museum imaginary.

At bottom, the code that makes the devices perform is written in zeroes and ones.

In a reflection that recalls the pictures in the Dresden gallery that made Derrida write, "la

chose soi-même se dérobe toujours" (*La voix et le phénomène* 117), Derek Robinson

claims of software, "It's interpreters all the way down – then it's just bits" (2).

Robinson's statement expresses how patterned software is; indeed, the very fabric of

software is patterned. In the higher-level programming languages, "if," "while," and

"for" loops form the pattern that issues instructions to the machine:

- For (this distance) (or this duration), move forward;

- While (this condition) is true, keep going;

- If (this condition is false), stop, turn back, turn left, or turn right.

These instructions are translated by the machine interpreter or compiler, which

then issues the zeroes and ones that the machine understands and can operationalize. The

lines sound exactly like pseudocode, a preliminary version of computer code often used

by programmers to organize their thoughts. They also sound like the steps for navigating

a maze.

In summary, the claim of digital humanities is that the digital field – and indeed

science generally – needs the kind of deeply humanistic critique that the humanities

knows how to provide. If "visual cultures" and "material cultures" have become

important fields of scholarship in their own right, I would add that "digital cultures"

could be so named because it interrogates the social and cultural determinants of digital

technologies. Furthermore, the writers I review here provide, not only critique, but an entry into the layered, metaphoric poetics of software. Wilfreid Hou Je Bek calls the loop "the foremost poetic entity in programming" (1) and Scott Dexter recounts how code appears to hide and be invisible in the same way our bodies are invisible to us ('Toward a Poetics of Code' 4). I end this chapter with Frederica Frabetti's list of software's attributes that I would suggest is a good way to characterize software's patterned nature:

1. hidden – deep opacity;
2. full of cultural meanings;
3. a distinctive form of writing;
4. a set of instructions;
5. a conceptual system;
6. a material object (161–69).

```
class Triangle {
        …
        float surface ()
        return b*h/2;
        }
```
} High-level programming language

```
LOAD r1, b
LOAD r2, h
MUL r1, r2
DIV r1, #2
RET
```
} Low-level assembly language

```
0001001001000101
0010010011101100
10101101001
```
} Machine language
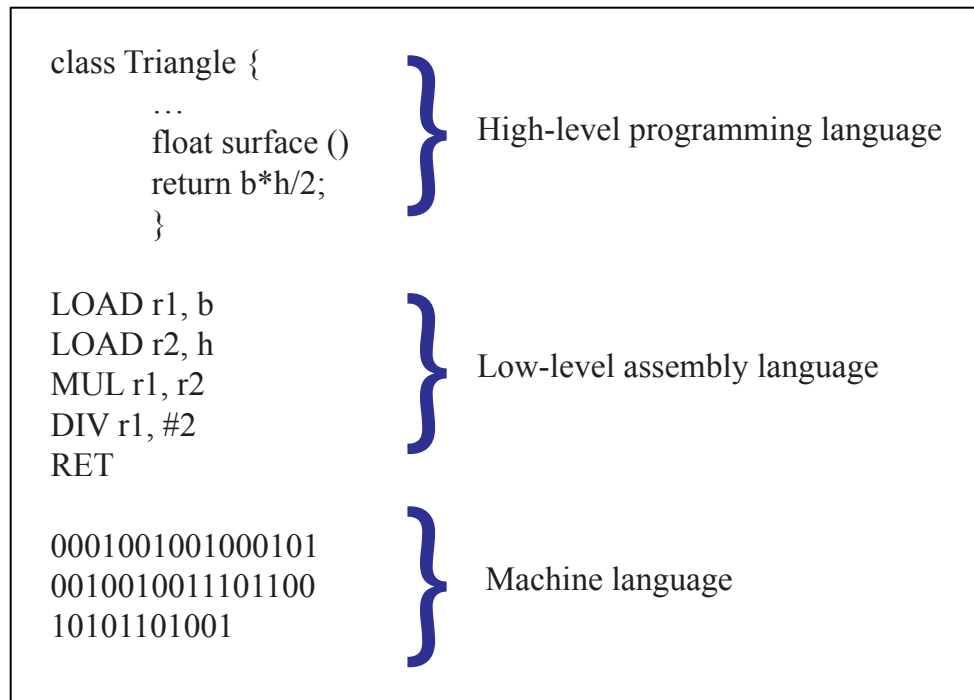
Figure 28: Levels of Programming Languages

Chapter Three, The Conceptual Site: Part Two

Patterns' Roles in Systems of Perception and Cognition

Throughout the previous chapter, pattern has been the constant subject of my inquiries and my reflections, like a puzzle piece that I am trying to fit into its place. Now, I turn to pattern directly to investigate its broader biography through the writings of its interlocutors past and present. To reiterate, my questions reflect my particular concerns with pattern: first, in what manner has visual pattern been fitted into the confining box called "decoration" or "ornament"? Second, what is pattern's implication in systems of perception and cognition? Figure 29 is a timeline of writers important to my first and second questions, to situate them in their period and to show them relative to each other. My third question for this field is, how do visual patterns communicate with viewers? What, in turn, is the nature of the viewer's response to visual patterns?

1. Historic Approaches to Visual Patterns as Ornament or Decoration

My first task is to identify a point in the long human history of making patterns on objects as the starting date for my survey of historic approaches to visual patterns. I choose to start in England in the nineteenth century, for two reasons: first, that century's obsession with ornament arose in response to vast quantities of objects from Asia and Africa arriving in public and private collections. They came as a result of worldwide European imperialism, as soldiers, missionaries, and diplomats took advantage of the paroxysms of history to acquire, through "theft or purchase" (Belting 166), the precious objects of conquered nations. Second, a great many of these objects came from places

where Islam was the dominant religion, and their systems of applied and structured patterning stirred fascination and awe in an intellectual milieu that was horrified by the design debasement of machine-made objects. Perhaps for this reason, the kinds of visual patterning systems that European writers like Owen Jones and Alois Reigl admired had a distinctly Asian or even specifically "Islamic" character. As Necipoğlu writes, "The European fascination with Islamic ornament . . . reached its peak in the nineteenth century" (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 61).

The British architect and designer Owen Jones published *The Grammar of Ornament* in 1856. He was inspired by the Islamic geometric patterns of the Alhambra palace complex in Granada, Spain, and used them as a touchpoint to propose the thirty-seven unifying laws of ornament. In the book's introduction, he sets out these propositions as comprehensive instructions for creating ornament that is beautiful and uplifting, a benefit to its society and an antidote to the design found in mass market objects. Jones' propositions are philosophical, technical, and even social. They dictate that all good design exhibits principles based on nature; furthermore, the decorative arts are generated from architecture, which in turn arises from its era. Balanced compositions, where nothing needs to be added or removed, create repose in eye, intellect, and affections. In technical terms, ornament should be based on geometry. Lines should flow out of a parent stem, and where colour is used, quiet hues like blue should be applied on the receding surfaces of a composition, and bright ones like yellow on advancing areas. Lastly, Jones pronounces that all social classes should be educated in art (7).

Following the thirty-seven propositions are sections detailing the visual

ornamental styles of nineteen cultures and civilizations, with illustrations printed in the

new technology of chromolithography. These sections separate the styles completely

from their substrates; the material world is absent here. In an appraisal of the *Grammar*,

John Kresten Jesperson argues that Jones' system isolates the principles to establish

ornament as "the irreducible element that is a gestalt whole. Decoration is the distribution

of that element over a carpet, a wall, a dado, a frieze, a dress, or a cup" (151). Thus, Jones

creates a primacy of form over material – and the superiority that attaches to this primacy

– that influences artists and scholars working in European art historical practice for

succeeding generations. According to Rémi Labrusse, the *Grammar* and its fellows in

other European languages "obsessively set off in search of primeval forms and identified

them in the so-called Orient . . . the 'Orient' was a way out of history, in a utopian world

of eternally valid meanings" (324).

In this survey of historic approaches, I trace the enduring influence of Jones'

system and its eventual, partial dismantling by recent theorists, Hay and Necipoğlu

among them. I use the term "partial" because there is ample evidence that ideas of the

superiority of form over material, with its concomitant associations of meaning to one

and not the other, crop up in contemporary art critical discourse; for example, in his

recent review in *The Guardian* of an exhibition of ceramic art, Jonathan Jones claims that

> Art is the opposite of decoration. It is deeper, stranger, wilder. The
>
> constraints of craft make it very hard to turn an *objet d'art* into an artistic
>
> masterpiece. It was different 500 years ago. The difference between art

and craft had not yet been invented. Islamic medieval tiles are part of a

vast vision of paradise that transcends modern rationality. But in modern

times, the well-crafted object is a commodity, a product. It's luxury

decoration (para.9).

It is discouraging to read a sentence like the second last one in a contemporary,

progressive newspaper. Contained in it is a multitude of assumptions, among them that

Islamic historic material culture has one vision, that vision is religious, and that vision is

timeless, while modern rationality rushes past it. These assumptions do a great disservice

to an indeed vast practice, but one of "kaleidoscopic diversity" (Akbarnia et al. 12).

Alois Riegl is the other nineteenth-century theoretician of ornament that I include

in my survey, with the rationale that, like Jones, his theories have had an enduring

influence on succeeding legions of artists and scholars. In *Stilfragen /Problems of Style:*

Foundations for a History of Ornament, Riegl holds to Jones' convictions that all art is

inextricably tied to nature (14), and that the principles of ornament can be conceptualized

in universal schemes (33). He gives precedence to the leaflike motif known as the

arabesque, whose genealogy he traces from the Greek acanthus leaf through early Islamic

art to modern times (229). However, his views diverge from those of Jones in his

preoccupation with objects: in his lifetime, his most sustained task was to catalogue

oriental rugs, and he wrote extensively on metalwork and jewelry. In Christopher Wood's

assessment, what Riegl claims to be doing in his theories of ornament and what he is

actually doing are at odds:

In Riegl's analysis, then, the fibulae are both decontextualized, that is, treated as disembodied apparitions, and historicized. But the thesis of this paper is that the anthropological, pre-aesthetic working of the artifacts is nevertheless inscribed in his text. Riegl's book is, after all, a book about objects (164).

Ernest Gombrich gives a useful précis of nineteenth-century European writing on patterning. Although the relevant chapter in *The Sense of Order* is titled "The Psychology of Styles," it is not a psychological work, but an assessment of "Western" style theory in decorative art, especially in the nineteenth century. Its value for this study derives from the author's expansiveness in attempting to codify how ornament fits into a more general theory of art and architecture. He does not aim to answer the questions of universality or cultural relativity, or of pattern as a language rather than another system, but rather attempts to organize the rules of ornament to fit them into a more general theory of art and architecture ('The Psychology of Styles' 210). However, his method is limited to European art-historical approaches, where figuration is inevitably considered more interesting than pattern.

In early twentieth-century architectural theory, the reaction against ornament was extreme and widespread. Adolf Loos' explicitly racist essay "Ornament and Crime" epitomizes the reaction with assertions such as "No ornament can any longer be made today by anyone who lives on our cultural level" (23). The preference for sleek, unadorned buildings and objects was associated with high Modernism, and largely ended with its demise, but a fascination with ornament continued on throughout the period at

the peripheries of scholarship. Different writers have envisioned ornament according to a variety of interpretations. I present some of them here, separated into three approaches: making, viewing, and using.

The first approach of ornament making features theories of ornament as visual mathematical thinking. Primary among these is anthropologist Dorothy Washburn, who collaborated with mathematician Donald Crowe to analyze visual patterns produced by diverse cultures, finding their structures to be consistent with the principles of line and plane geometry ('Chapter One: History and Theory of Plane Pattern Analysis'; 'Introduction: The Role of Pattern in Culture'). Carol Bier also makes a valuable contribution by reflecting that number, shape, and the nature of space are deployed in Islamic geometric patterns to express spiritual and philosophical concepts. She asks, "What if we pose the question differently and ask, how can knowledge be visualized? Can we perhaps view geometric pattern in Islamic art as a representation of the rational intellect, and thereby perceived as proof for the existence of God?" ('Number, Shape, and the Nature of Space' 270).[18]

Another approach to ornament's making sees it as evidence of a kind of unthought knowledge (inferring that the real knowledge is evident in text). David Brett surveys the history of pattern theory from the nineteenth century to the present and concludes that the primary purpose of decoration is to generate pleasure in the onlooker

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[18] In this passage, and in her approach generally, Bier does not utilize a totalizing approach to Islamic art, but refers to its manifestations in a particular period – in this case, the ninth century CE – and a particular place – Abbasid Baghdad.

(4). He argues that decoration operates through tacit knowledge and defines this term as opposed to reason, thereby limiting it and placing it in a hierarchy below fine art (Ibid. 255). He writes from the perspective of European art; his few references to Islamic art include a mistaken claim that the roots of its aniconism lie in Neoplatonic mysticism (Ibid. 8).[19]

Brett maintains that "the powers of the decorative are precognitive and preconscious and our knowledge of them is always in large measure tacit" (255). Brett's statement is an arrow pointing straight to the theories of affect I have discussed in my section on material cultures, with implications that I will need to untangle further in Chapter Five. Beyond its significance for affect theory, Brett's vision of decoration as unconscious is entangled with his assessment of orientalism as a driving force behind decoration's popularity and dissemination in the European nineteenth century. In his view, orientalism was about the "West's" view of itself rather than any clear view of Asian cultures but he sees it as a beneficial influence since it allowed repressed Europeans to have an alternative fantasy life full of sexuality and colour (151). He even describes the Arab Hall of Lord Leighton as a place of erotic playfulness, interjecting –

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[19] Mehmet Aga-Oglu notes that "The factors that caused the prohibition of pictorial art in Islam were manifold. The attitude originated in the monotheistic concept of Judaism; later it was widely propagated in early Christianity, resulting in iconoclasm, and then was readily accepted by al-sunna" (191). I submit this quote as one rationalization by one author for the preponderance of pattern in Islamic art. There are many other possibilities, but no definitive one. I would add that in my view, aniconism is not an accurate term to apply to Islamic art; representations of humans and animals were not used in religious art, but there are magnificent examples of figural art for secular use. For example, see the illustrations of Persian paintings in the gallery of the Aga Khan Museum pictured in figure 7.

incredibly – that the tiles were, in fact, looted from a ruined mosque and include inscriptions of "Allah" (153). It is noteworthy that "marginalized discourses" are in evidence in Brett's statements, as he treats the looting and the religious significance of the items looted as inconsequential asides.

Scholars writing about the second approach, ornament's viewing, interpret it as, variously, a culturally specific mode of cognition through visual metaphors (Frame; Lizardo; Washburn); as pleasure, or a game of covering space (Grabar; Brett); psychologically as a symptom, or as dangerous (Hay, 'Passage of the Other: Histories'; Gell, *Art and Agency*; Grabar; Gombrich, *The Sense of Order*; Graves, 'On Seeing Through Pattern'; Graves, 'Pattern: A Psychological Approach'); and, finally, as meaningless, "mere" decoration (Gombrich, *The Sense of Order*; Jespersen; Malraux, *Musée imaginaire*). From an anthropological perspective, Peter Roe attempts an analysis of geometric patterns on textiles from the Upper Amazon that uses a linguistic analogy: according to his system, a line is a letter, a shape is a word, and a pattern is a phrase or sentence. A paragraph is likened to the design field, where the wholistic meaning goes ('At Play in the Fields of Symmetry' 241). In my estimation, while Roe does the invaluable work of infusing meanings back into patterned objects that have been considered "merely" decorative, it does visual pattern no service to push the grammatical analogy this far.

The third approach, ornament's using, envisions it as the spiritual symbolism of "lost" cultures (Cammann, 'Symbolic Meanings in Oriental Rug Patterns: Part I'; El-Said et al.); and even as talismanic protection (Cammann, 'Symbolic Meanings in Oriental

Rug Patterns: Part I'; Gombrich, *The Sense of Order*; Meller and Kushner). Not all of

these approaches to ornament are significant to me in my pursuit of patterns' roles in

perception and cognition. I am particularly interested in the interpretations that, first, set

ornament up as dangerous or a symptom, because that works against the idea of pleasure,

which seems to me to be an interpretive cul-de-sac; that, second, acknowledge patterns'

longstanding importance as protective devices in many cultures, including Islamic ones

(Savage-Smith, *Science, Tools & Magic.* 59); and that, third, see nothing in ornament,

which is to say that ornament is beneath interpretation. All of these readings of ornament

further my argument of visual patterns as possessing logical depth, outside the notions of

connoisseurship that drive so much museum practice.

To complete this survey of historic approaches to ornament, I would like to turn

now to three theorists whose ideas find a resonance with my own: Jonathan Hay, Graeme

Were, and Gulru Necipoğlu. Writing about Chinese pattern, Hay adds a new term,

surfacescape, to the debate, defining it as a way of seeing decoration topologically rather

than exclusively as something that is added to a surface ('Passage of the Other: Histories'

65). His aim by means of this term is to "reactivate decoration as a theoretically

productive category" (Ibid. 69). One of the main hinges of his theory is the notion,

recalling logical depth, of the ability of ornament to incorporate residues of doubt and

anxiety as symptoms of "seduction by the enigmatic signifier that comes from elsewhere"

(Ibid. 69).

Hay has appeared in every section of this review so far, contributing his views on

the semiotics of images, on the implications of materiality on the mediating work of art,

and on the intercultural as the space between cultures. Here I will add that his elegant blending of form and material into his concept of surfacescape makes possible a view of the object's eloquence that is only hinted at by other writers (Luhmann; Wood). He pierces the fog of scholarly method that obscures understanding by prefacing his presentation at a conference on ornament with the following remarks:

> The last couple of days have shown that it is easy to have a discussion about ornament as if we all at least know what it is when we see it. Coming to the discussion from a non-Western field, though, I am leery of any unspoken consensus on theory or method. I prefer to see any assumptions out in the open ('Passage of the Other: Conference' 2).[20]

Graeme Were sets out to explore pattern as a type of meta-media that transcends any of its instantiations while remaining inextricably bound to them (3). As an anthropologist of Pacific societies, he has kind words for Owen Jones thanks to the latter's comments that patterns painted on bark cloth show "evidence of mind" that is absent from the work of Jones' own "highly developed civilization" of Victorian England (O. Jones 12). Were also takes up Gell's theory of pattern that sees the patterned object as thought-like in nature, rather than, as in Grabar and Washburn and Crowe, locating knowledge outside the patterned form so it merely represents ideas in society (10).

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[20] The two citations for "The Passage of the Other" refer to two versions of the essay, one in the form of a presentation at a conference that I attended, and the other in a published collection of essays on ornament.

Were's reformulating of Gell's system strikes a chord; it makes me see for the first time what is the issue affect theorists may have with the word representation:

> Objects are like exuviae, or reptile skins, that shed, leaving traces here and there. These hollow skins (as representations) are gathered (as perceptions) and internalized (as memories) before later being reconstituted (as objects) . . . objects are the workings of the mind (11).

This passage impels two thoughts to arise: first, in this view, representations are traces, so much dead skin as it were, but they are a necessary part of the cyclic processes of becoming undergone by patterns. Second, these morsels of dead skin may be seen as waste products, like the "unassimilable waste" in Rosalind Krauss' and Yve Bois' treatise on *informe*, to be "crushed like a spider or expectorated like mucus" (79). Or they may resemble the last classification of animals in Borges' fictitious taxonomy, "those that from a long way off look like flies" (para.6). In just such ways do patterns as representations on objects lie hidden in plain sight, not meaningless, not waste – beneath interpretation.

In her significant body of writing on ornament, Necipoğlu aims to remove it from the suffocating container of art historical approaches that envision ornament as purely decorative and thus essentialize and collapse it into "formal taxonomies of the timeless arabesque" ('Early Modern Floral' 132). She proposes a new framing that takes its non-European histories into account. Unlike Owen Jones and, more recently, Fatemeh Ahani and David Brett, Necipoğlu makes no attempt to differentiate the terms ornament and decoration, and she opens up its interpretation to multiple approaches, including its

longstanding, multivalent involvements in artisanship and materiality, its transmediality, and its use as an artistic currency of exchange in global and local contexts (5). In a refutation of the popular view that "Islamic art is predominantly decorative and hence devoid of meaning or contextual specificity" ('The Concept of Islamic Art' 61), and by extension, that Islamic art has featured no theoretical discourse or system, she introduces the seven fundamental typologies of decorative design that were formulated in Safavid Iran: "*islāmī* (Islamic), *khatā'ī* (chinoiserie), *farangī* (Frankish, European), *fassālī* (compartmentalized), *abr* (cloudlike, marbled), *dāq* (human and animal heads), and *girih* (knotted, geometric interlace)" ('Early Modern Floral' 136). Through the revelation of this counter-history of ornament, Necipoğlu revitalizes the study of Islamic art as a "loosely connected, multifocal and multivocal arena of inquiry . . . a multicultural 'civilizational' category, just like Western art" ('The Concept of Islamic Art' 64).

Necipoğlu's major opus, *The Topkapi Scroll*, examines the *girih* as a system of patterning that is not universal, but rather "a contextually circumscribed mode of design that emerged and spread in a particular conjuncture" (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* x). Her approach to pattern accords with my own, with two caveats: first, I have already mentioned my working hypothesis that it is not fruitful to approach visual pattern as a language, corresponding its smaller and larger units to language's phonemes and morphemes. I am moving toward viewing its communicative power more in the context of its role in a patterned object's agency, or prehension, as I detailed in Chapter Two. Second, in an intellectual terrain that is littered with vexed terms bearing unsatisfactory definitions – for example, representation, interpretation,

decoration, and even "Islamic art" – I have a problem with "ornament," a term in frequent use in Necipoğlu's oeuvre. In its general usage, the term implies that pattern is an add-on, a supplementary frill to make things prettier. I am interested in patterns as communication vehicles. I am also interested in patterns as deep structures, as they indeed are in textile media. How do patterns on the surfaces of such objects intermingle with, scaffold, support, or contradict the structures they overlie?

Finally, Avinoam Shalem and Eva-Maria Troelenberg offer a persuasive interpretation of ornament in Islamic art, claiming for it a power and an agency that derives from "sa capacité d'agir comme un agent ou un médiateur d'idées et même d'émotions / its ability to act as an agent or mediator of ideas and even emotions" (72). In turn, the authors attribute this ability to a complex of factors that combine ornament's evocation of the vital energy of nature with a distillation of that energy into more or less abstracted forms. I concur with their view, having sensed visual patterns' function as nature's mirror, but a mirror that is expanded, distorted, and graphicized.

2. Patterns in Systems of Perception and Cognition

I turn away now from pattern in ornament to take my inquiry in a different direction by asking the question, what is patterning's implication in systems of perception and cognition? Here I review literature that does not take patterned art as its subject but that nevertheless has much to say about it that is relevant for my study. Is patterning, in itself, a system or systems? Perhaps the question can only be answered contextually, as in, which systems? Systems of visual art? Software systems? Biological systems? The

views of patterning expounded by the literature that I examine in this section encompass all three, interchangeably and sometimes all at once.

In the Introductory Chapter, I introduced the reader to Gregory Bateson's important ideas about pattern, "the difference that makes a difference" ('Form, Substance, and Difference' 459). In his quest to map a theory of culture and art, Bateson is more interested in the manner of transmission − the code − than the content of the artwork ('Style, Grace, and Information' 129). For him, art is communication, and pattern allows some of the information to be unconscious, as an economy. In his study of the relationship between form and material, he defines the study of mind in cybernetics as a circuitry of differences ('Form, Substance, and Difference' 465). Peter Harries-Jones connects Bateson's ideas about difference even more strongly to patterning and details how during his life Bateson resisted the pigeonholing of his work into the intellectual trends of the day – including Darwinism, which he saw as reworking the old metaphors of power (*A Recursive Vision* 28) – but also systems theory and mysticism. Some of the foundations for Bateson's theories can be found in the writings of Charles Sanders Peirce – another intellectual maverick whom I have named for his influence on Gell. In *Mind and Nature*, Bateson uses Peirce's idea of abduction as a method to explain evolution, which he characterizes as "the pattern which connects" (*Mind and Nature* 8). In addition, Bateson's theories of organism and its environment as forming a unit of being and doing ('Form, Substance, and Difference' 465) come straight from the writing of Alfred North Whitehead, a nineteenth-century philosopher who opposed the separation of mind and

body, "the dualism which gradually developed in European thought in respect to mind and nature," that has shaped philosophical thought since Descartes (Whitehead 149).

In Chapter Two, I noted how affect theory arose out of Gilles Deleuze's concepts of virtual and actual states of being. I return to Deleuze now to develop a fuller assessment of his writing in relation to pattern thinking. The key works that I am interested in are *Difference and Repetition* and *The Fold: Leibniz and the Baroque*. In these works, he presents a vision of the world activated by principles of multiplicity – ideas are potentialities with multiple different relations (*Difference and Repetition* 183) – and immanence – ideas are not fixed but always in a state of becoming that recalls Frederick Nietzsche's notion of eternal return (*Difference and Repetition* 41). In *Difference and Repetition,* he describes how the world is continually coming into being – "Every body, every thing, thinks and is a thought to the extent that, reduced to its intensive reasons, it expresses an Idea the actualization of which it determines" (*Difference and Repetition* 254) – and the larval subject unfolds in an asymmetrical evolutionary process (Ibid. 215). There is an element of the game in this, a "throw of the dice" (Ibid. 197) which moves difference and repetition out of the realm of rigidly repeating causality and toward an unfolding in a spatiotemporal dynamism (Ibid. 214).

Deleuze's concept of centres of envelopment as necessary to the larval state anticipates *The Fold*. There, he critiques and reinterprets Gottfried Leibniz's picturing of the universe as an infinite series of folds, with the European Baroque period (ca 1600-1750) as its guiding trope. Leibniz works against René Descartes' idea of a rectilinear world organised along x and y-axes, with clear separability. He takes the monad – a unity

that envelops a multiplicity – as a fundamental unit that cannot be divided further. All organisms, organic or inorganic, are composed of monads (*The Fold* 27). Deleuze develops this idea into a vision of the world in accordance with twentieth-century mathematical and scientific discoveries in fractal geometry like Helge von Koch's curve and Benoit Mandelbrot's Julia set (Ibid. 16). The world is an event of folding and unfolding. It is on two floors, the lower floor being matter and the upper floor the soul. The upper floor folds over the lower floor (Ibid. 104). Deleuze ties this model to quantum mechanics and logical depth by designating a world comprised not only of what happens but of all the possibilities that may happen, only one of which can happen. His distinction between the terms "actual" and "virtual" captures the idea of a possibility space. Both actual and virtual are real, but an actual event is one that is actualized and therefore visible, while a virtual event, while no less real, remains a possibility (*Difference and Repetition* 183). He ties this distinction to ethics by positing a more desirable, indeed a more spacious world by introducing the possibility space in which Adam does not sin and Sextus does not rape Lucretia (*The Fold* 61). In both works, his vision is intensely visual, graphic, and mathematical, and full of productive ideas about patterning as a system of perception and cognition.

In a third work, Deleuze adopts the phrase "crystal-image" to address the way time works in postwar twentieth-century cinema. He posits the crystal image as a reflection in a mirror, "perception on the one side and recollection on the other" (*Cinema 2* 79), maintaining that the actual image is the present and its reflected image is the past. Deleuze's use of a crystal as a metaphor for time recalls Benjamin's, Arendt's, and

Stafford's use of it, especially when he likens it to a polygon with growing sides, as in a prismatic reflection in a jewel– a multiplicity (*Cinema 2* 70). Visual pattern has just this property of multiplicity, like Deleuze's crystal image, and it too is an image of time, a time-image, in the same way Benjamin's crystal – as evoked by Arendt – crystallizes time.

Just as Harries-Jones helps me understand Bateson's ideas, I am aided in deciphering Deleuze by the interlocution of Manuel DeLanda. In an attempt to reconstruct Deleuze's world and make it more understandable to philosophers of science, DeLanda offers a theory of morphogenesis based on the notion of the different (*Intensive Science and Virtual Philosophy* xiv). In the process, he explicates many of Deleuze's difficult terms, including his use of the virtual – the notion of possibilities that exist prior to what actually happens. This idea is one that links to patterning through the related concepts of hiddenness and logical depth, which I mentioned in the Digital Humanities section as key elements in the perception and cognition of visual patterns.

During their lifetimes, Deleuze and Bateson were aware of each other's work. Both writers make inventive use of the term difference, and both argue in favour of principles of multiplicity rather than dualism in shaping their versions of perception and cognition (Harries-Jones, *Upside-down Gods* 136). Deleuze and Felix Guattari include references to Bateson's theories of the double bind in their writing (88), and Guattari tackles Bateson's theories directly in *The Three Ecologies* (54). Deleuze's concept of the virtual is allied for me with affect and in turn with logical depth and hiddenness, through its designation according to DeLanda as "unactualized capacity to affect and be affected"

(*Intensive Science and Virtual Philosophy* 65). These terms, logical depth and affect, are allied to pattern through pattern's predilection for being in the background, beneath interpretation, and they are allied to embodied cognition through Deleuze's notion of the possibility space, a plane of being which is real but not actualized, which nevertheless is experienced bodily (Rose 9).

Another way besides those of Bateson and Deleuze to view patterns' roles in systems of perception and cognition is to examine how they operate as devices. *Inventive Methods: The Happening of the Social* is a collection of essays examining "devices" for social and cultural research. The definition of devices includes types of objects, for example a tape recorder, but also types of concepts or metaconcepts, such as a list or a pattern. Each device is investigated as an agent of transformation in a sociocultural arena ("A Perpetual Inventory" 9). The collection is similar in format to Fuller's *Software Studies* in that it consists of several short postings on specific topics rather than article-length essays. The postings most relevant to my project are "Pattern, Patterning" by Janis Jefferies, and "Pattern" by Paul Stenner. By offering a view of pattern as physical evidence of abstract knowledge, Jefferies focuses on what can be seen or otherwise physically experienced, but she also mentions patterning's game-like qualities and destabilizing potential (129). Overall she views pattern as a device for making sense of the phenomenal world, while Stenner is more interested in patterning as a social figure, like a dance, that continues even when the performance is complete and the performers are gone (140).

As I mentioned in Chapter One, Dan Dixon reflects on the use of the word "pattern" as a substitute for "structure," a term that has acquired a negative cast in recent Humanities writing (191). Dixon sees pattern as a process, a method, or a device (Ibid. 201). What it is a method of depends very much on the context. In software, pattern is inherent in repetitions of zeroes and ones at the basic machine level, while additional layers with different patterns render the software readable by a human. Dixon's concern is with patterns as devices for knowledge production. He cites Bateson's work with biological and cybernetic patterns as support for his notion that "patterns are repeated shapes and structures which are the observable features of an underlying system" (Ibid. 195)

I have already referred to the category of magic as a system of perception and cognition: in my review of digital humanities literature, I quote Cramer's view that "the technical principle of magic, controlling matter through manipulation of symbols, is the technical principle of computer software as well" (15). In referring to magic, I must remind the reader that I refer, borrowing Necipoğlu's terms, to a "multifocal and multivocal" cultural tradition in world history, which I can only touch upon for the purposes of this study. The way in which objects affect subjects – and vice versa – has long been studied from diverse perspectives, and one of the most important perspectives comes from anthropology's documentation of traditions of magic in different societies. The investigations of Alfred Gell ('Technology and Magic' 8), Susan Greenwood (151), Constant Hamès and Alain Epelboin (170), and Victor Turner (207) are of importance to my study, since all these anthropologists contribute insights about visual pattern's

relationship with ritual and magic. In addition, art historians writing about pattern have attributed the origin of certain motifs and patterns to apotropaic functions of protection (Cavallaro; Cammann, 'Symbolic Meanings in Oriental Rug Patterns: Part I'; Grabar; Meller and Kushner). Like pattern, the word "magic" is used in contemporary parlance to describe many kinds of phenomena, from Disney to Wicca. I am dealing here only with the kind of magic defined as "talismanic," for this is the kind that is associated with the visual motifs and patterns portrayed on objects that are the focus of my study.[21]

I am interested in talismanic magic as the logical depth of certain visual patterns, evidenced by some of the scholarship that has been done on symbolism appearing in Islamic material cultures. I have already mentioned Hamès, Epelboin and Camman in the Introductory Chapter, for their writing on this aspect of magic squares' symbolism was useful to my study of West African patterned textiles. In addition, Camman has made attempts to interpret the enigmatic symbolism of oriental carpets, which are considered by dealers and most scholars as purely decorative ('Symbolic Meanings in Oriental Rug Patterns: Part I' 6). He contends that the patterns are rooted in systems of faith among the people who made them, and functioned as a symbolic language whose purpose was bound up in obvious and subtle ways with talismanic protection ('Symbolic Meanings in Oriental Rug Patterns: Part I' 17). By the same token, Susan Meller writes about Central Asian robes that their patterns derive from symbols of protection, especially of mothers

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[21] For more information on talismanic magic in the Islamic context, see *Magic and Divination in Early Islam* and *Epistles of the Brethren of Purity: On Magic* (Savage-Smith, *Magic and Divination in Early Islam*; Callatay and Halflants).

and children (115). I will return to Meller's writing in the next chapter, in my discussion

of the Central Asian textiles that I used in the AKM interviews.

Like pattern, and indeed like language (Derrida, *Voice and Phenomenon* 74),

magic in this context can be viewed as essentially performative; for example, Constant

Hames defines it as "un ensemble d'idées et d'actions qui modifient le cours naturel

d'événements / a set of ideas and actions which affect the natural course of events"

(Brenner 7). My position on magic as a form of communication, developed from research

into both its European and its Islamic expressions, is that it entails an alternative

paradigm or worldview to the logical positivism and subject/object, nature/culture

binaries of modern science. According to Randall Styers (7) and Morris Berman (83) on

the Western European history of magic, and Michael Muhammad Knight (61) and Emilie

Savage-Smith (*Magic and Divination in Early Islam* xxii) on its place in Islam, magic has

a history of operating for humans as "another form of rationality, just as astrology and

alchemy were logical systems of explanation" (Savage-Smith, *Science, Tools & Magic.*

10). Magic has been discarded, refuted, and even ridiculed, but it is still with us as logical

depth, partly because, as Styers puts it, "magic maintains remarkable potency as the

'unthought' of modernity" (170).

The last system I wish to examine in this section is the Actor-Network theory

(ANT) of Bruno Latour. This is a theory that is not on its face about pattern at all, and

especially not about patterned art objects, but it contains a great deal of "pattern

thinking." In laying out his theory, Latour starts by describing networks which redefine

space as "neither social nor 'real' space, but associations" ('On Actor-Network Theory'

371). His claim that a network is not a thing, but the recorded movement of a thing ('On Actor-Network Theory' 378), can be taken word-for-word to define what a pattern is. In the same vein, his account of networks as possessing no inside/outside or foreground/background is a characteristic of many geometric patterns. Latour even asks, "What happens when a circulating object leaves the boundary of a text" ('On Actor-Network Theory' 379)? This is exactly what happens in museum exhibitions when the subject and the object negotiate their own meanings, irrespective of all institutional means of interpretation, and it goes on happening as Latour describes: "The circulating object goes on circulating and goes on getting its isotopy from what other actors do to it" ('On Actor-Network Theory' 379).

3. Patterns Communicate, Viewers Respond

Having come this far in my pursuit of how patterns communicate, I now feel prepared to ask the question, what do they communicate? Are they meant as puzzles, are they meant to be pleasing, are they meant as sanctifying, are they protective, are they lucky? As Necipoğlu argues,

> Just as there is no single universally accepted symbolic meaning for the *girih* [star-and-polygon pattern], a total absence of meaning simply would have been unlikely . . . far from embodying an imagined *horror vacui* of the Islamic psyche, the covering of surfaces with variegated patterns reflected a desire to create densely charged semiotic environments (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 222).

Necipoğlu's pronouncement about the meanings of Islamic geometric patterns as densely charged semiotic environments contributes to my growing sense that where patterns are concerned, I must look, following Bateson, not for the content but for the message. Reflecting on Whitehead, Bateson wrote,

> One of the roots of cybernetics goes back to Whitehead and Russell [in the *Principia Mathematica*] and what is called the Theory of Logical Types. In principle, the name is not the thing named . . . the message "let's play chess" is not a move in the game of chess ('Form, Substance, and Difference' 483).

"Not the content but the message" explains why the concept of representation is essential to the interpretation of works of art: a thing represented is not a thing; it is the interpretation, the message about the thing. Patterns are full of information but it is in the form of crystals, in the same sense that Benjamin describes history's crystallization (Benjamin and Arendt 51) and that Deleuze attributes crystalline properties to time (*Cinema 2* 80). The densely packed, complexly interlaced surfaces are communicative but not linguistic, and attempting to make them so is, as Diawara puts it, a category mistake. Perhaps the information that they communicate is mathematical, and in particular, geometrical and topological: Necipoğlu's words recall Bier's interpretation that Islamic geometric patterns represent a visualization of mathematical knowledge and thus of humankind's place in the cosmos ('Number, Shape, and the Nature of Space' 5).

How do viewers respond to these densely charged environments? My report on the findings of my interviews at the Aga Khan Museum in Chapter Four will reveal more,

but at this point the literature suggests that there is a difference in the way a viewer experiences a patterned or a figurative image. Visual pattern speaks in a different language from figuration: it speaks through materials and techniques as well as through symbolism and semiotics. This is where affect comes in as a vector of communication, through the experiencer's felt responses to a patterned object.

Report on Findings and Conceptual Framework

My conceptual framework is a synthesis of my investigations into the five research fields I have examined in Chapters Two and Three. My starting point was to make a grouping into these fields of the scholarly literature that I chose as germane to my topic, and to perform a coding exercise using NVivo to track what the literature mentions about the mediating works of art in a museum exhibition. I describe my process in detail in Chapter One; figures 13 to 17 show my initial maps of codes. As the review progressed and I noted the larger themes in the literature, my thinking began to coalesce around four theoretical relationships that recurred throughout and that seemed to form networks of interpenetrating meanings: pattern and visuality, pattern and materiality, pattern and virtuality, and pattern and narrative. I used NVivo's map-making functionality to make a concept map (figure 21) that visualizes the ways that major themes – "sensitizing concepts" – have emerged from my review of the literature. Expressed as findings, they align with my four theoretical relationships.

1. Pattern and visuality: Gell's and Necipoğlu's move away from the binary divides of the "Western" art canon creates space for envisioning patterned art as, not inferior to figurative art, but different.

2. Pattern and materiality: the move toward embodied cognition by Kuchler and Ingold revisions patterned art objects in terms of their inherent intelligences.

3. Pattern and virtuality: in software, pattern enacts Robinson's, Chun's, Cramer's, and Frabetti's expositions of computable code as nonvisual, hidden, and full of cultural meanings.

4. Pattern and narrative: the fact that museum objects are increasingly seen as sites of knowledge generation, as articulated by Dudley and Witcomb, changes the focus of their interpretation away from narrative – using text to convey meaning, and toward nondiscursivity – using objects or images to convey meaning.

My third finding concerning pattern and virtuality requires an explanation of my rationale in using the term "virtual." On one hand, virtual is often used as a synonym for "digital" in discussions of computerized experiences: for example, according to the Virtual Reality Society, virtual reality is

> a three-dimensional, computer generated environment which can be explored and interacted with by a person. That person becomes part of this virtual world or is immersed within this environment and whilst there, is able to manipulate objects or perform a series of actions ('What Is Virtual Reality?', para.5).

In addition to this meaning, virtual is the term used by Deleuze to refer to a state of reality which is opposed to an actual state. Deleuze theorises that these two states comprise reality and that life is in a constant state of becoming, moving from virtual to actual and back again (DeLanda, *Intensive Science and Virtual Philosophy* 9). While these two definitions are not identical, my adoption of the term allows me to include both kinds of phenomena – the virtual as digital experiences and the virtual as a possibility space – in my framework. What brings them into alignment with each other, I argue, is their implication in imagination. In each kind of virtuality, the viewer's experience is freed from obedience to actuality while being bound to it, just as Derrida wrote of the interplay of text and its meaning,

> . . . chacune des deux opérations étant toujours hantée par le sens de l'autre, qui s'y annonce déja ou s'y retient encore / Each of these two operations is always haunted by the sense of the other; each operation is already announced in the other or still retained in it (Husserl 87; Derrida, *Edmund Husserl's Origin of Geometry* 89).

My conceptual framework, then, emerges out of my reflections on these four relationships of pattern to visuality, materiality, narrative, and virtuality. Figure 30 is a visualization of the framework that makes clear where the fields of Museology and Patterns that I used in my literature review have gone: all four relationships are within the sphere of the Museum, and pattern links to each of them. I call the framework "pattern thinking." According to pattern thinking, the perceptual forms of patterning, of which patterns on objects are traces or records, are intensely relational, nonlinguistic yet

communicative; embodied yet imaginative; and often in the background or the borders –

of artworks and also of perception – yet always in movement, constantly flickering in and

out of visibility and perceptibility, just as if they are crossing and re-crossing the

actual/virtual divide.

Pattern thinking is a way of conceptualizing and theorizing – and pulling apart

and examining – the networks formed by pattern's roles in visuality, materiality,

narrative, and virtuality. In particular, the networks feature some specific actions that I

have marked in this review as patternlike: Deleuze's folding and unfolding, Chun's

revealing and concealing, Elkin's figure and ground, and Latour's networks. My desire to

visualize these actions drove me to make a prototype in paper. I was inspired to do this by

Deleuze's description of actual and virtual states of being as mirror-images (*Cinema 2*

79), and by Delanda's comment in reference to Deleuze that the actual and the virtual

states are "a single flat ontology with two sides, one side populated by virtual problems

and the other by a divergent set of actual solutions to those problems" (*Deleuze: History

and Science* 104). I made a diagram to be printed two-sided on a sheet of paper. The

diagram is a geometric pattern of four squares; each square is divided with vertical,

horizontal, and diagonal lines into eight right-angled triangles. Figure 31 shows one of

the four squares, blank on the left and with labels and colours on the right. Note the

bright colours diagonally on one side and the pale colours on the other side which

indicate actual and virtual states of the terms. The blank version has reflectional

symmetry, but the addition of my four terms, each term repeated twice, turns the square

into a pinwheel with rotational symmetry. The four-square version is illustrated in figure

32. After folding, only the brightly coloured triangles will be visible. Once I had printed the diagram and affixed the two sides, I folded it into a "fortune teller" puzzle, an origami game often played by children to test each other's preferences by putting different words, numbers, or images on the triangles, then manipulating the puzzle with their fingers to show different combinations. An example of a folded puzzle is in figures 33 and 34.

My paper prototype illustrates four things for me: first, it reminds me how magnitudes of complexity can develop in even a relatively simple pattern of the geometric type that my puzzle is: each unit square has rotational symmetry, but the square in the centre of the puzzle has to have a different arrangement for the puzzle, when it is folded and manipulated, to always reveal three out of four different terms on its face. When I flatten it out to follow the logical path of the pattern, I have difficulty finding it. My eye is dazzled, takes a wrong turn, and I have to go back and start again. Metaphorically, the puzzle is a labyrinth, trapping me in its twists and cul-de-sacs.

Second, philosophically, the puzzle makes concrete the way the virtual and the actual can coexist in the real: in my model, the surface area covered by the paler shades of colour, representing virtual states, is much larger than that covered by the actual states in bright colours. Third, the puzzle demonstrates the folding of the actual states of being over the virtual states so that the virtual is never seen but is nevertheless necessary. If the pale coloured triangles are removed, the puzzle falls apart into fragments. The virtual and the actual triangles do not change places but the terms of visuality, materiality, virtuality and narrative – the problems and solutions, as Delanda calls them – appear and disappear by the actions of folding and unfolding of the puzzle operator. Finally, by making a

material representation of my conceptual framework as a fortune teller puzzle, I invoke

pattern's playful side: that it is, as Grabar writes, "a game of covering space" (152).

In the next chapter, I apply my framework of patterns as vectors of

communication that operate according to the forces of difference in a flat ontology to the

museum visitor experience, where visitors enter with their own agendas and construct

their own meanings from the physical and digital offerings. I pay particular attention to

the "sensitizing concepts" (Clarke et al. 33) that have come out of the literature review,

pointing to what is missing: the "marginalized discourses" (Clarke et al. 238) which, I

suggest, track back to the form/material divide that has permeated European schools of

thought. An analysis of this and other key issues raised in this review must wait for my

discussion in Chapter Five, when I compare my findings from the two research sites in

my study.

Interlude: The Code Beneath the Skin

"Geschichte zerfällt in Bilder, nicht in Geschichten / History decays into images, not into stories" (Benjamin, *Das Passagen-Werk* 594; Benjamin, *The Arcades Project* 476).

"What guides this [Benjamin's] thinking is the conviction that although the living is subject to the ruin of time, the process of decay is at the same time a process of crystallization, that in the depth of the sea, into which sinks and is dissolved what once was alive, some things "suffer a sea-change" and survive in new crystallized forms and shapes that remain immune to the elements, as though they waited only for the pearl diver who one day will come down to them and bring them up into the world of the living" (Arendt as quoted in Schwartz 51).

"Quand l'image virtuelle devient actuelle, elle est alors visible et limpide, comme dans le miroir ou la solidité du cristal achevé. Mais l'image actuelle devient virtuelle pour son compte, renvoyée ailleurs, invisible, opaque et ténébreuse, comme un cristal à peine dégagé de la terre / When the virtual image becomes actual, it is then visible and limpid, as in the mirror or the solidity of finished crystal. But the actual image becomes virtual in its turn, referred elsewhere, invisible, opaque, and shadowy, like a crystal barely dislodged from the earth" (Deleuze, *Cinéma 2, l'image-Temps* 95; Deleuze, *Cinema 2* 70).

When history decays into images – this is memory, this is also art – the images reveal their crystal shapes. The decay has removed all the extraneous matter, the flesh, revealing the skeletons, and these skeletons are crystalline in shape – patterned, in other words. They are the code beneath the skin.

Writers important to theories of decoration/ornament

Graeme Were ca.1972-
Jonathan Hay 1956-
Gulru Necipoglu 1956-
Dorothy Washburn 1945-
David Brett 1937-2015
Oleg Grabar 1929-2011
Schuyler Camman 1912-1991
Ernst Gombrich 1909-2001
Adolf Loos 1870-1933
Alois Riegl 1858-1905
Owen Jones 1809-1874

1800 1825 1850 1875 1900 1925 1950 1975 2000 2025

Charles Sanders Peirce 1839-1914
Alfred North Whitehead 1862-1947
Walter Benjamin 1894-1940
Gregory Bateson 1904-1980
Gilles Deleuze 1925-1995
Adolf Luhmann 1927-1998
Alfred Gell 1945-1997
Bruno Latour 1947-
Tim Ingold 1948-

Writers important to theories of patterns' roles in systems of perception and cognition

Figure 29: Timeline of writers
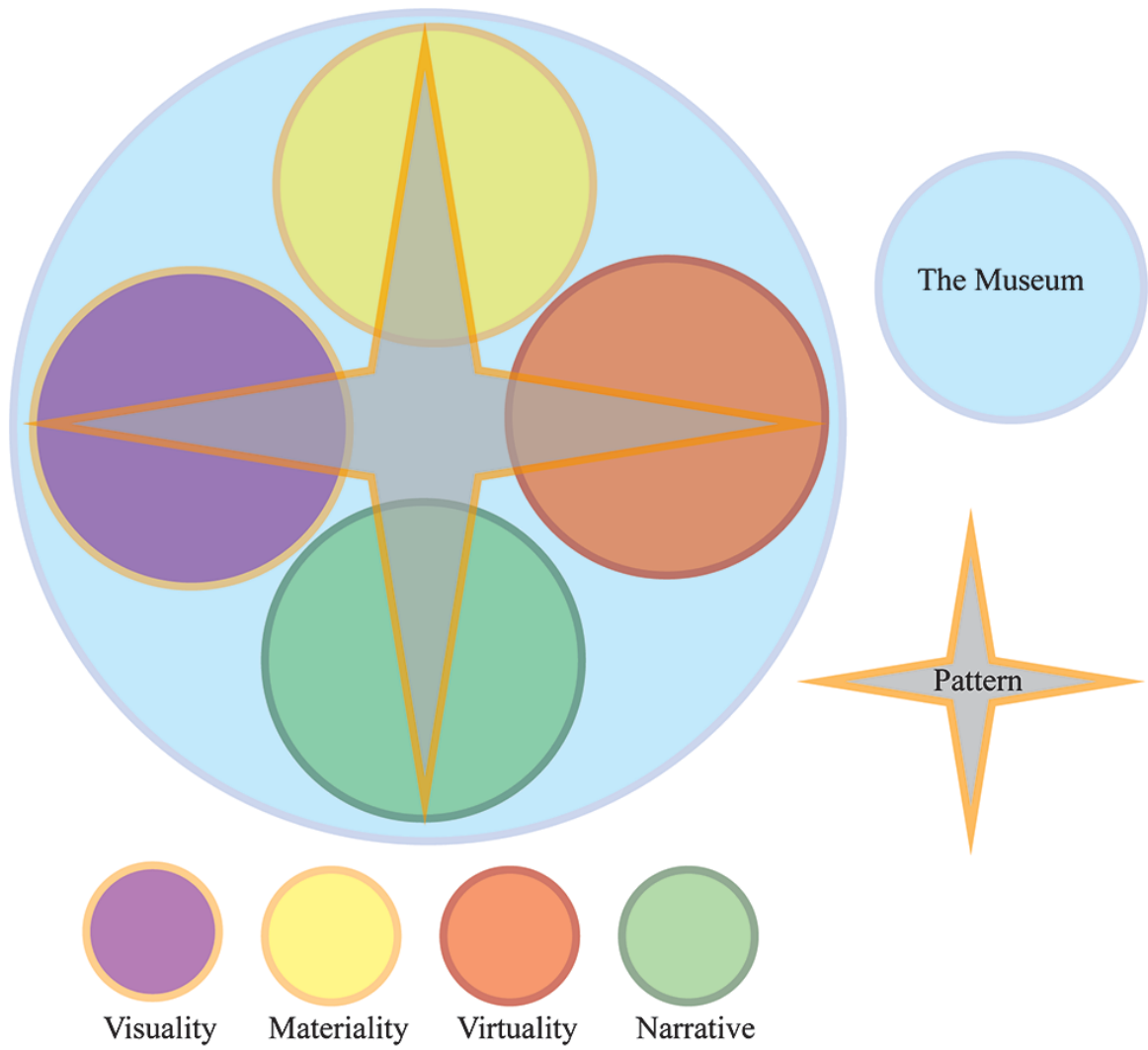
Figure 30: Emergent conceptual framework for the study
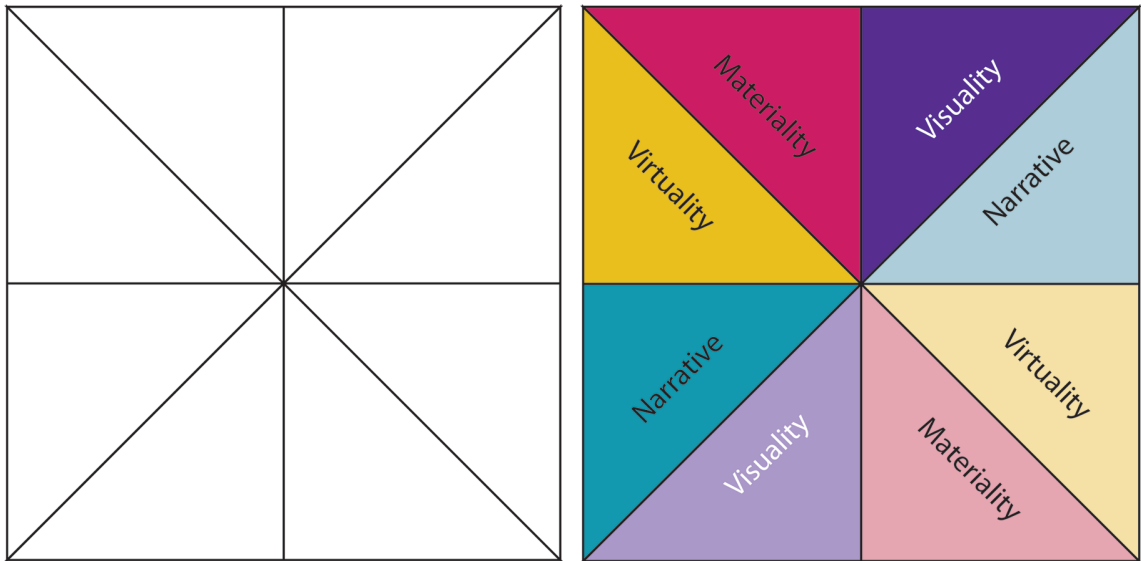
Figure 31: Unit for the paper puzzle prototype
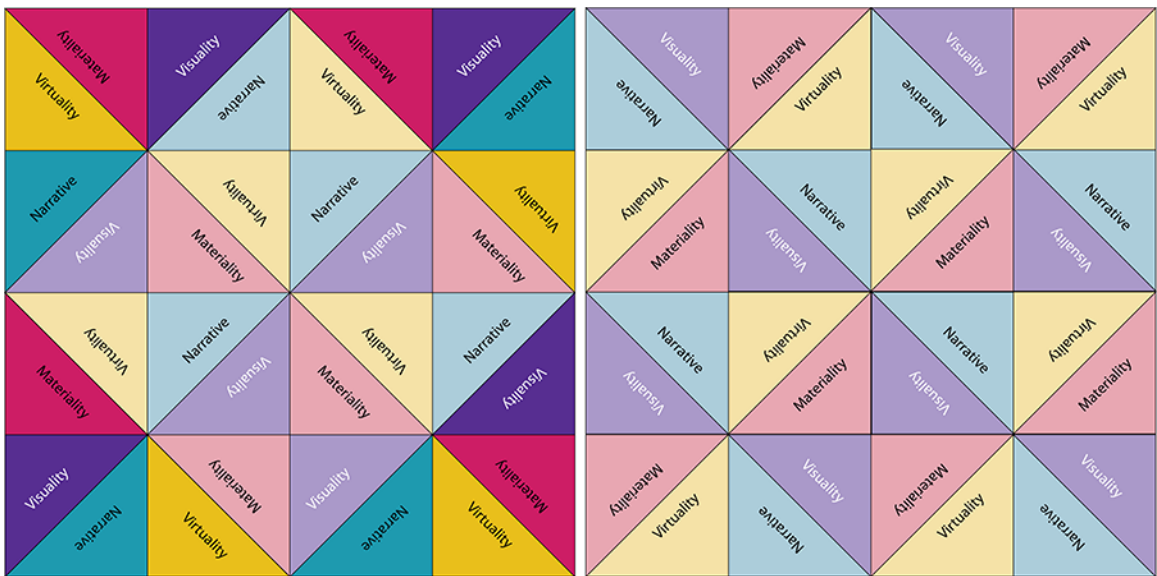
Figure 32: The paper puzzle before folding

Figure 33: The paper puzzle prototype, actual side (outside)

Figure 34: The paper puzzle prototype, virtual side (inside)

Chapter Four, The Experiential Site

My aim in conducting interviews with gallery visitors was to collect their responses and insights to works of patterned art in the Permanent Gallery so I could compare these responses and insights to the theoretical thinking in the literature. In this chapter, I give a detailed account of the gallery interviews at the Aga Khan Museum. As I laid out in the Introductory Chapter, my working hypothesis is that, when figuration is present in an object, it tends to draw viewers' attention away from any visual pattern that may also be there.[22] I also posit that it is not fruitful to approach pattern as a language – corresponding its smaller and larger units to language's phonemes and morphemes – because that is not how viewers think about it when they come upon it in a gallery object. I have cited how pattern's transcultural and transmedial nature makes it a meta-medium according to Were (3), or, in Epelboin's terminology, "un métalangage non-verbal transculturel" (150), but I do not find it useful to attach "meta" to pattern or its descriptors, for this puts it at one remove from its materiality. I want to keep pattern in this study firmly grounded and entwined with its material manifestations, its objects. I hypothesize that this more holistic view of pattern is closer to viewers' actual experience. In order to give credence to my two hypotheses, I have needed to see if there was any evidence of them in peoples' actual responses to the art on display in the gallery. The Aga Khan Museum Permanent Gallery has proved to be a rich source of these responses.

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[22] This hypothesis stems from my extensive experience in studying patterns plus my observations of peoples' responses to works of art in museum galleries.

I begin the chapter with a description of the Aga Khan Museum as the research site, followed by a discussion of my subjectivity in the situation. I outline the typical gallery experience, then pick out the three main object types – textiles, paintings, and digital objects, and their examples – and my reasons for choosing them as the objects I would ask people about. Then I take the reader through my research sample for the interviews I conducted, my findings from the interviews, and my analysis and interpretation of the data I collected. Where it is relevant, I direct the reader's attention to my application of grounded theory and situational analysis methodologies, and point out the coding, memoing, and mapmaking activities I have undertaken in NVivo to help me with my analysis.

The Aga Khan Museum

In Chapter One, I conceptualized the Aga Khan Museum as a prototype and asked what it may be a prototype of. My social worlds map (figure 23) pictures the actors in the Museum situation as a diagrammatic response to that question. I omit the large numbers of schoolchildren who come to the site regularly, since I did not include them in my study. On the map, the Museum is both a material actor – as the physical building –and a conceptual actor – as the repository for all the beliefs, plans, and designs of all the actors who contributed to its making and contribute to its acting in the world today. I note here that the two Museums I portray are really one – that is, how the building is constructed and laid out has a powerful magnetic pull on the actors who come in and out of it. This is in line with my positioning of situational analysis as incorporating both theory and

method, and with my philosophical view of form and material as not separate from each other but rather interacting in a field of forces. Conversely, in a series of deeply reciprocal relationships, the beliefs, plans, and designs of the Museum's actors are incarnated within the building and steeped into its very walls.

If I were able to represent the social worlds map as three-dimensional and animated, it would be continually moving, with the circles of actors, human and otherwise, moving into, through, and out of the blue sphere representing the Museum. The circles move farther in and farther out corresponding to their function: curatorial and administrative staff are more invested in the Museum, for example, than independent contractors, and casual visitors are the least invested of all agents represented on the map. As well, there are important conceptual actors that touch the human actors in varying degrees of influence: the Museum was conceived of and built under the aegis of the Aga Khan, the hereditary leader of the Ismaili Muslims, to house his family's art collection and to provide an important cultural centre for the Canadian people. The Museum building is sited on a tract of land in Toronto, Canada that also contains the Ismaili Centre and the Aga Khan Park. Therefore, Islam is a conceptual actor that touches some of the circles, and Ismailism is within it, moving with it, and touching many of the same actors. However, it must be noted that the Aga Khan Museum is a museum of Islamic, not Ismaili, art, and that visitors and invested actors may be Ismaili, Muslim, of another faith group, or of no faith group.

I have referred to "thing theory" as a way of envisioning objects as constituting knowledge in addition to reflecting it. In this sense, the objects on the social worlds map

are material actors that touch human actors, again in varying degrees. Some actors, for example the front-of-house volunteers and staff, have no or minimal interaction with the objects in the galleries. For other actors in the Museum the interaction with the objects is constant and sustained. This kind of interaction characterizes the casual visitors whom I interviewed: they come to see the objects, they seek them out, and they pay close attention to them.

Researcher Subjectivity

I count myself as one of the human actors who had a small part in the realization of the Museum, having acted as its first Education Manager for four years before its opening to the public. In addition, I am on the social worlds map as the researcher and interviewer, since, as I wrote in the Introductory Chapter, I am a co-producer of the views expressed by the interview respondents. My role is accurately defined in the following statement by Clarke et al, "The researcher is designer, actor, interviewer, observer, interpreter, co-constructor of data, writer, ultimate arbiter of the accounts proffered, and to be held accountable for those accounts" (35). I view my subjectivity or reflexivity in the study as an analytic resource rather than a complication of my point of view; everything that has made me is what I can bring, as participant and researcher, to the study.

The Gallery Experience

I embarked upon the interviews with certain assumptions about how visitors perceive and make sense of pattern on or in the objects in the gallery. The museum space is highly structured and mediated by several factors: first, technologies of display – for example, where to walk, stand, or sit, the casework, the lighting, and viewers' proximity to the object – have a pronounced effect on the perception and cognition of patterns; second, technologies of interpretation accompanying objects – for example text and digital interactives – enhance or confound visitors' responses. As evidenced by my recounting below of a "typical" gallery experience, I view this gallery as evincing an atmosphere of solemnity, verging on sacredness, from the low light levels, the fact that the space is set apart from the rest of the museum, and from the mostly precious nature of the objects themselves. This specialness then attaches to all the objects, including the patterned ones, even if they had mundane functions in their original lives. Of course, visitors' own level of pattern literacy – their knowledge of cultural histories – also has an effect on how they receive the patterns that they see.

When a gallery visitor comes into the Permanent Collection Gallery, she opens double doors and turns left into a darkened corridor with a giant animation playing in a loop against one long wall. The eight-and-a-half-minute animation (figures 2 and 3) is a series of vectorized renderings of gallery objects that seem to redraw them in real time. An invisible artist's pen draws and writes lines, patterns, and inscriptions, and fills shapes with colours. Many geometric designs are recomposed from scratch and then fade into photographs of the objects that they are on, mostly architectural fragments or painted

manuscript illustrations. As she walks down the corridor, the viewer can see

demonstrated on the wall how a particular design, pattern, figurative scene, or

calligraphic panel is structured. In addition, she can see it in hugely enhanced scale – the

animation makes it possible to see clearly details that would be very hard to see in the

dimly lit gallery.

Having traversed the animation corridor, the visitor emerges into the gallery

proper (see figure 12, the gallery floor plan), and sees on the north wall a large world

map with spots of light going on and off in different regions to indicate successive

dynastic periods in Islamic history. The gallery is structured along roughly chronological

lines, so the earliest Qur'an folios and manuscripts are in cases directly in front of the

map. Other objects of glass, metalwork, textile, and wood are arranged in cases,

interspersed with cases holding different kinds of manuscripts. The layout of the gallery

guides the visitor to walk in one direction, spending relatively more or less time perusing

the cases of objects as she walks, and reading the text panels and labels. In time, she

comes to a right turn and follows it, as the panels, texts, and objects proceed

chronologically through successive regions and civilizations, to end with objects and

paintings from eighteenth-century India and nineteenth-century Iran. Finally, she exits the

gallery through double doors, walking back out into the main atrium.

The Three Main Object Types and Examples

In the large, L-shaped gallery which I have just described, there are some key

object types that I selected to concentrate on for the interviews: these are textiles,

paintings, an architectural fragment, and some virtual objects, including the introductory

animation. The exact objects differed in the two periods of my interviews (see table 1),

mainly due to regular gallery rotations. I have already introduced the objects and the

gallery floor plan in Chapter One (figures 4-12) and made a case for giving a general

precedence to textiles in the objects I chose to ask interview respondents about. Here I

would also note that the transmediality of patterns is strongly evidenced in textiles from

Islamic visual and material cultures. In fact, in a highly influential essay titled "The

Draped Universe of Islam," Lisa Golombek maintains that "textiles in Islamic society

fulfilled more than the functions normally expected of them in other societies. This

obsession with textiles, if one may call it so, can account for some of the major

characteristics of Islamic art in general" (25). Golombek goes on to substantiate her thesis

by presenting six proofs, all of which are abundantly in evidence in the objects of the

AKM Permanent Gallery. While she does not use the term "transmediality," her proofs

all illustrate it: whether shown in linguistic or visual ways, whether the patterns are lacy

or interlaced, she argues for a "textile mentality" in which "bookbindings, wood carving,

architectural faience, and Koran pages all look like carpets" (36).

 The gallery objects in the context of their display are, in situational analysis

terms, my visual discourse materials. I undertake here to provide short descriptions of

them and to rationalise my choices. For reference, the gallery label texts are in Appendix

A. First, the Central Asian robes on a platform in the middle of the gallery (figure 4) are

examples of woven, ikat-dyed, and embroidered garments made in Central Asia in the

nineteenth century.[23] In a catalogue of the Marshall and Marilyn J. Wolf collection from which the robes were borrowed, Ernst J. Grube explains that they were made for special occasions, "like wedding dowries and furnishings for the bridal bed, fittings for horsemen and their horses, and the general embellishment of reception rooms and places where rulers and their court, or the women or the elders of a clan gathered" (3) but gives no more details about their use or symbolic significance, preferring to focus on aesthetics and historic details. Susan Meller fills in Grube's sketch, indicating the talismanic nature of much of the robes' patterns, especially of the triangles or *tumars* that appeared on many of them, echoing motifs on the women's jewelry (123).

The embroidered hangings called *suzanis* that replaced the robes in 2018 (figures 6 and 7) are from roughly the same time and place, nineteenth-century Central Asia. Like the robes, they are used for special occasions such as weddings, and like the robes, their surfaces are embroidered or woven with auspicious embroidered motifs. According to Meller,

> One small area was often left unfinished . . . Central Asian women were loathe to arouse the jealousy of the evil eye. Auspicious symbols, each bearing various meanings – such as pomegranates (fertility), birds (happiness), water vessels (purity), teapots (hospitality), and *tumars* (protective amulets) – were often integrated into the patterns. The borders themselves served as protective devices to keep out *jinns* (165).

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[23] For more information about the robes, I direct the reader to an online exhibition I created at http://omeka.library.yorku.ca/exhibits/show/like-a-butterflys-wing

In another passage, Meller writes more specifically about the borders and fringes, "Evil spirits were thought to gain access to a person through the opening of their clothes, so trimming was sewn around all the edges as a preventative measure" (105). In the gallery text for the robes, there is no mention of their talismanic aspects, although all of them feature fringe and intricately woven border trims.

The second object type that I chose was exemplified in the first interview period (2017) by a large oil painting on the west wall of the gallery. It is a painting of Fath Ali Shah, a ruler in nineteenth-century Iran (figure 5). The figure of the Shah is realistic, although there is a striking distortion of perspective in his position and that of the throne upon which he is seated. The background is minimal, but the figure's robe and accessories and the throne are intricately patterned, to the extent that the figure seems indistinguishable from the throne. In my second interview period (2018) the painting had been removed from the west wall, and I replaced it in my object list with a case of 15th- and 16th-century Persian manuscripts of stories and poems whose illustrations, again, feature patterned and figurative elements in combination (figures 8 and 9).

Third, the mosaic panel (figure 11) was an addition in the second interview period. Including it in my questions entailed walking with interview respondents back through the gallery to an earlier section, an intervention that I was hesitant to make at first, but one to which respondents readily agreed.

The fourth object type is digital, exemplified mainly by the large, immersive introductory animation at the entrance to the gallery (figures 2 and 3). In 2018 an iPad had been added to the alcove of sixteenth- and seventeenth- century manuscript

illustrations of the Persian epic *The Shahnameh* (figure 10). The iPad shows a selection

of the illustrations overlaid by a virtual magnifying glass which can be moved by the user

over different areas to highlight details. Neither the animation not the iPad have label

texts.

 In summary, why did I choose these particular objects as my discourse materials?

My rationale stems from my attempts to find relationships among them, whether through

materials, designs, or stories – to find their transmediality, in other words. My attempts

raised questions and I looked to the interview respondents for answers. I already had

tentative answers to my questions, supported by the literature I had surveyed: in the first

interview period, I saw a clear relationship between the Central Asian robes and the large

painting on the west wall, since both are richly patterned and both feature items of

clothing. It also helped that both robes and painting were prominent and colourful, real

attention-getters – and big things, in a gallery filled with small things. In the second

interview period, the switch on the central platform from robes to *suzanis* was a positive

one for my study, since the *suzanis* are from the same cultural milieu as the robes, but

their function is not as clothing; therefore, they are arguably more abstract in nature. A

viewer cannot use the category "clothing" as a means by which to understand them, and

the gallery text (Appendix A) mentions nothing about the *suzanis'* function. What

alternate category might the viewer refer to as a substitute?

 By the same token, the mosaic panel (figure 11) looks like nothing other than a

piece of pattern. Like so much in the gallery, it is a fragment of something bigger. What

is the hook, or, channeling Gell, the barb or spike that would pull the viewer in? In this

case, the label (Appendix A) prompts the viewer to look for similarities to the fountain nearby.

As for the digital objects, the animation is an impressionistic sequence of images that slowly transform into objects as they appear to be drawn by an invisible hand. The images appear and disappear on one side of a darkened corridor that visitors must traverse in order to reach the main gallery. How do these dreamlike visions affect them?

I interject here a general comment about object labelling in the Permanent Gallery: as is the common practice in art and ethnographic museums, text labels for material objects vary from the minimal listing of place, period, materials, and techniques, to a few paragraphs of commentary about the objects. The label form can be regarded as a kind of paratext, used to fill in important details about an object that would not be apparent from looking at it. In the AKM permanent gallery the labelling tends toward the minimally informative with an emphasis on aesthetics and historiography rather than insightful interpretation or narratology. Since the animation and the iPad are given no labels at all, they could be considered paratexts themselves, since they contain interpretive information about the objects, albeit not in textual format. I have approached them as objects and gathered respondents' views of them, but their stance as paratexts – as supplementary and interpretive devices – increases their complexity, for it pushes them into the realm of the possibility space where the user is confronted by the objects in virtual, not actual, space.

Research Sample

Chapter One contains a brief description of my research sample for the Aga Khan Museum interviews and my method of approaching visitors to the Permanent Gallery. Here, I add some demographic information about the forty-eight respondents, and thoughts about the differences and similarities between the three groups I interviewed: thirty-seven casual visitors, six contract teachers, and five volunteer tour guides. Figures 35 and 36 are charts of demographic information about the respondents. Figure 35 shows the relative ages of respondents and figure 36 shows where they currently live. A young person is reckoned as under forty-five years of age, middle age is from forty-five to sixty-five, and old age is over sixty-five. The charts demonstrate that the respondents' genders – thirteen men compared to thirty-three women – and their places of habitation – overwhelmingly in Canada, with half the respondents living in Toronto – are strongly weighted in favour of women who live locally.

The chart in figure 35 and my ongoing observations in the gallery concur with my overall impression that visitors to the Aga Khan Museum Permanent Gallery tend to be more women than men; however, recent tourism studies in Spain and Greece indicate that the percentage of men to women is more evenly balanced, although women still predominate (Antón et al. 1414; Mavragani 42). The findings in figure 36 can be partly explained by the fact that I asked respondents only where they are currently living, not their place of birth or ethnicity; however, I was surprised that in the summer, a high tourist season in Ontario, there were not more visitors from afar. In the context of my own study, I note here that I make no claim to universality or impartiality: the interview

demographics reflect who was in the gallery on those days, whom I decided to approach, and who agreed to talk to me.

In addition to differences among the casual visitors, I encountered differences between the casual visitors and the contract teachers and tour guides. These differences arise from the fact that both latter groups are trained in what to include in the tours and programs they deliver to the public. As a result, over half of the teachers and tour guides I interviewed mentioned the "arabesque:"

> Well what are the themes in the gallery? To exhibit the art through the Muslim art but interacting with the regions they crossed through, especially the silk route. And adding on to that if you look at the books of Mansour and Ibn Sina for example, even books on geometry or medicine have this kind of iconography and they relate to the geometric patterns that you find in the Muslim art. So they kind of intertwine and they're very much related, the arts and what it is they are representing. So we are coming back to the first visual feast [the introductory animation], to the iconography, the calligraphy, the arabesque, and the geometric patterns (0021, AKM tour guide, older woman).

"Arabesque" is a term invented by European writers such as Jones and Riegl in the nineteenth century to describe the vegetal repeat patterns they were seeing in Islamic art. As a word that belongs to a body of theorizing that is now regarded by Necipoğlu and other contemporary scholars as orientalist and reductive ('Early Modern Floral' 132), it is generally avoided by contemporary writers on pattern. It is for this reason that I did not

interview any more teachers and tour guides in my second round. I am happy to include them as respondents in my findings, since they spoke to me sincerely and often spontaneously of their responses to the gallery objects, but I realized that I was much more interested in the responses of the general public, who had not necessarily been told how to categorize the art, or at least not in the form of a script to use for gallery tours.

Research Findings

This section presents the findings that resulted from my process of interrogating and reflecting upon the interview data, aided by the codes, memos and maps I made in NVivo. The initial mind maps, "What viewers mention about the objects," "What viewers mention about the animation," and "Perceptions of the gallery experience" (figures 18-20), provided the initial codes that I used to categorize the interview data. After my first pass through the transcriptions, I went back and read them a second time, and this time I opened the analysis up to include the set of codes I had used for the data in the literature (figures 13-17). By doing so, I began the process of comparison and evaluation that will be my concern in Chapter Five – although my focus here is the interview findings, the points of confluence are already apparent in the data. Appendix B has the results of an NVivo search of all codes that I applied to the interview texts in the study.

By categorizing the data in terms of these codes, I have seen four larger themes emerge – or, following Clarke et al, sensitizing concepts – that clearly relate to the four relationships in the conceptual framework proposed in Chapter Three: pattern and visuality, pattern and materiality, pattern and virtuality, and pattern and narrative.

1. Pattern and visuality: the respondents mentioned the visual beauty of the objects they were asked about, relating this quality closely to colour and to pattern.

2. Pattern and materiality: the respondents persistently related to the objects in terms of their materiality – the patterns were mentioned as being in and on objects. In other words, the object provides the portal to the patterns by making them visual and actual.

3. Pattern and virtuality: a sense of fluidity and "coming into being" in relationships among objects was a recurring theme in the interview responses, especially in responses to the animation.

4. Pattern and narrative: respondents expressed an awareness of objects' histories and how it connects to their own histories through stories – the objects' stories and the viewers' stories.

Table 2 shows the thirty most frequently used codes in my data analysis. It is colour-coded: codes that highlight visuality are in purple, materiality in blue, virtuality in red, and narrative in green. Thus, the conceptual framework that I articulate in Chapter Three also underpins my findings from the interviews; this framework is diagrammed in the concept map, "What matters most about patterns to respondents" (figure 22).

What follows is a discussion of each finding accompanied by passages from the interviews. I will use the chart in table 2 as a guide in my discussion.

Code	# Mentions coded
Artist's process in the animation	10
Relationship among objects through patterns	10
Semiosis, symbolism, meaning	10
Imagescape versus surfacescape	10
Tile	10
How the object is_was used	11
Movement in the animation	11
Labels	12
Islamic art	12
Spatial aspects	15
Embodied cognition in a museum exhibition	15
Viewer histories and narratives	17
Calligraphy	17
How the object might feel	17
Object motif	18
Folding and unfolding	18
Clothing	19
Object design elements	20
Ceramic	22
Geometric pattern	23
Figuration in objects	24
Textile	25
Object histories	32
Gallery themes	34
Object colour	37
Narrative elements in objects	38
Object pattern	38
Relationship among objects through design	40
How the object was made	40
Beauty	43

Table 2: The top thirty codes from an NVivo search run on interview texts, in order from smaller to larger number of mentions.

First, I report on my findings in each theme with the help of NVivo queries and then I reflect on what the finding might mean for this research situation. By giving a voice to the respondents in their own words, I seek to illuminate aspects of the subject/object encounter that I have identified as my concern in the study. By including at times my questions as the interviewer, I establish the interview process as a conversation, an exchange of ideas and impressions that is always bidirectional.

Theme One: Visuality

Of the forty-seven respondents, thirty-three mentioned the beauty of the objects; fifteen mentioned both beauty and pattern. In a similar numerical comparison of object beauty and colour, nineteen mentioned both beauty and colour.

Code	# Mentions
Islamic art	12
Object motif	18
Object design elements	20
Geometric pattern	23
Object colour	37
Object pattern	38
Beauty	43

Table 3: Frequent codes related to visuality in the interview texts.

As well as tabulating numbers of respondents who mentioned certain terms or concepts, it is possible in NVivo to discover how many mentions there are of a term or concept, sometimes multiple times in one interview. For clarity, the chart in table 3 lists the number of mentions coded to terms that I selected as noteworthy for pattern's relationship to visuality because of the way they are linked in the interviews, sometimes in the same breath. The following passage expresses the closeness of these terms:

Interviewer: my focus is how people are making sense of the art, how they're responding to it, so really its very open-ended – but one thing I've been asking is if the [Central Asian] robes could talk what would they be saying, what would they be talking about?

Respondent: Singly, or –

Interviewer: Or in a group.

Respondent: The history is fairly murky, because of the age, the time, some of the violence that would have existed. But these are colourful beautiful patterns. They have a sense of tranquillity, not like the violence that was all around them. So it was almost that you could wrap yourself up in it and it would keep you warm but maybe also mentally there's a sense of protection there. (0010, older man).

This comment is striking not only by the way the visitor puts beauty, colour, and pattern together, but also for his attempt to link these qualities to the purpose of such patterns: that they are meant for protection in a violent time. A similar combining of themes in a response is typical of many of the interviewees' comments, as seen in the following passage:

Interviewer: These robes, what are your impressions of them?

Respondent: What I'm struck by is the colours, what good condition they're in. It's such a fragile material yet they're in such fabulous condition. This one for example is almost contemporary. You can picture

someone walking down the street wearing that robe. Their aesthetic

beauty.

Interviewer: If they could speak, what do you think they would speak of?

Or what is doing the expressing in them?

Respondent: I find the patterns are doing the expressing. Even the wear

that you find on them can be doing the expressing. Particularly with the

older ones, they always have this wearing on the back of the robe. We

don't really know why it's destroyed on the back versus the front. Maybe

they were buried in it, so you see the wearing on the back. It's cut for a

person who's a horseback rider, so maybe they were thrown off the horse.

Or maybe it's the way it was stored.

Interviewer: They were stored in such a way that only one part hit the

light.

Respondent: They speak about experiences, many different types of

experiences. (0017, AKM teacher, young woman)

In this comment, the respondent moves from the robes' beauty to their materiality

as she imagines the life of a robe, its stresses and wear marks, and later, its life as an item

in a storage closet or a museum vault. This passage thus can be read as an observation on

the object's visuality entwined with its materiality, and their relationship to pattern. It

highlights the expressive force of the surface of an object: its surfacescape, to borrow a

term from Hay (*Sensuous Surfaces* 67). Its expressive force can come from pattern, but it

can also come from wear.

Theme Two: Materiality

Of the forty-seven respondents, thirty-two made some mention of the objects' materiality, with a comment about how the object was made or used, or about its physical attributes and its materials, or with a combination of these comments. The chart in table 4 isolates only those codes related to the materiality of the objects.

Code	# Mentions
Tile	10
How the object is_was used	11
Spatial aspects	15
Embodied cognition in a museum exhibition	15
How the object might feel	17
Clothing	19
Ceramic	22
Textile	25
How the object was made	40

Table 4: Frequent codes related to materiality in the interview texts.

The codes in table 4 show respondents' fascination with making, especially in the absence of any figuration depicted on objects. In the case of the robes, for example, their fabrication was raised in many interviews. The following passage illustrates this fascination:

> Interviewer: Is there anything you see in them [the *suzanis* (figure 6)] that's familiar to you from what you see in the gallery? Any bigger themes?
>
> Respondent: I do see the patterns, I've seen tiles with these.
>
> Interviewer: Anything else you're curious about, wish you knew more about?

Respondent: I'd be really interested in knowing how they made these types of things. Nowadays we have like machines and everything, but back then many years ago you'd have to be very skilled, how many years would you have to practice to produce something like this, how expensive are these things, I'd be interested to know (0039, young man, 2018).

Other codes in the table indicate the concrete nature of respondents' observations. Tiles, ceramics, clothing and textiles are frequently mentioned. The latter types can no doubt be accounted for by the fact that I specifically asked them for their thoughts about items of clothing, but when I asked them what other objects they were reminded of, they were free to note anything they had encountered, and frequently connected the object they were looking at to ceramics, whether tiles or crockery, or to architectural pieces. In the following excerpt, a three-way conversation ensues about the painting of Fath Ali Shah (figure 5):

Respondent one: I love it. It's very stylized, you know that it has been done according to rules. There is no freedom of the artist who painted it, he has done it according to predetermined rules. But within that predetermination is fantastic style. But the background doesn't go at all with this ornate chair and costume. It's another style, different colours, another era. So I cannot integrate – you know, there's three things here: the background, the costume and chair, and the beard. And I can't integrate the three of them.

Interviewer: That is fantastic. Thank you. Do you see anything in this painting in the rest of the gallery? Are you making connections between what you see here and what is all around you in the galleries? Are there any things that join up for you?

Respondent one: Um no. Nataley?

Respondent two: I'm struck by the similarity of the patterns on his clothes and the chair. The chair looks like the inlay in some of the boxes earlier, and tilework, the fountain back there….

Interviewer: there is this thread that's running through all of the artworks and even in the screens I just noticed as I was looking, as I was asking you, I looked over at the screens and thought, yeah, it's there too.

Respondent two: The geometry.

Respondent one: The geometry, the patterns. I find this painting really interesting because as I said, there are these three things going on and they're not really integrated (0005, older woman and young woman).

In a sense, every moment of every interview is an instance of the code "embodied cognition in a museum exhibition," since one needs to be an incarnated being to be in the gallery at all, feeling and seeing and having an experience. Therefore, I narrowed the parameters of this code to include what I call "active looking," where a respondent mentions using their body to maneuver into a better position for viewing the object, as in this excerpt about the Fath Ali Shah painting:

If I wasn't up close I would not be able to tell that it was special, I would think it was just regular clothing, but when I move closer I see that it was thoughtfully done, every piece was thoughtfully put in there (0009, young man).

In considering how interviewees respond to patterned objects' materiality, it is noteworthy that they are also responding to the space they are in, a space which is itself an enormous, walkable patterned object. Moreover, this particular one is embellished with patterns like the ones they are seeing in the art. Some respondents make comments about this, for example in the following passage:

Respondent: I also think lighting in the museum is very interesting. I was reading about the concept of *nour*, emulating the concept of light, looking at the building from afar it expresses that, but going into the gallery it is very dim, obviously because you don't want to damage the art, these little punctures in the wall [referring to the punctured skylights] – I think it would be really interesting to see how it changes throughout the day. I'm used to the dim lighting in museums that depict non-Western art, with a kind of exoticism, orientalism, and this museum doesn't have that feeling. Interviewer: I'm interested because I get that impression too. It is a modernist building. What do think about the space outside the gallery? Respondent: I like the idea of the courtyard which is an Islamic characteristic combined with a modernist building. The combination of the

old and the new. Islamic art is often relegated to the past, so the fact that it

is in a modernist building that's amazing.

Respondents' attention to the objects' materiality is illustrated by another code,

"How the object is / was used." Assumptions about the object are strongly affected by

display strategies, including placement, orientation, space around objects, and orientation.

One respondent was misled by the way the *suzanis* were arranged on a low incline into

thinking they were carpets:

I don't know if they are carpets, at first I thought so, but then looking

closer, are they bedspreads, or textiles that should be on the wall? My

initial reaction from the cue of the natural light was that they were

something to lounge on (0035, Middle-aged woman, 2018).

Theme Three: Virtuality

As I outlined earlier, my pattern of questions emphasized relationships among

objects in the gallery. Many interviewees responded with depictions of these

relationships, and their depictions were based mainly on relationships through design.

Code	# Mentions
Artist's process in the animation	10
Relationship among objects through patterns	10
Movement in the animation	11
Folding and unfolding	18
Relationship among objects through design	40

Table 5: Frequent codes related to virtuality in the interview texts.

Table 5 lists forty responses, the third highest number in the list of the top thirty responses (table 2), compared to ten responses specifying relationships through pattern, and seven responses for relationships through narrative.

Thus, the notion of relationship among objects is a strong theme in the interviews – actively promoted, I have to say, by my questioning. In the literature, this kind of relationship is termed transmediality by Dewdney, Kidd, and Necipoğlu among others, because the evidence of the relationship is its appearance on a specific medium. Pattern is cited as an important vector of transmediality. In the interview exchanges, pattern is mentioned as moving through and among objects in a transmedial way, although the specific term is not used by respondents.

In this theme, I focus on the animation and the iPad as virtual elements in the sense that they are digital technologies. As I mentioned in Chapter Three, in this study I am always working with a double meaning for virtual: first, Deleuze's meaning and second, "virtual" as another term for "digital." In my view, they both exemplify the possibility space, the space of folding and unfolding, of shifting in and out of becoming, as this excerpt illustrates:

> Interviewer: Did you notice the animation when you came in? What did you think of it?
>
> Respondent: It was interesting, it was cool, especially the way the colours were spreading. You mean the reflection, the projection, right? It was nice.
>
> Interviewer: Did you feel that it was a good introduction to the gallery?

Respondent: Kind of. I really didn't thought [*sic*] about anything else, I was just walking – it was cool, like it comes from nothing to something like within minutes.

Interviewer: That's a nice way to put it.

Respondent: I didn't stay there for too long, just walked by it (0027, older woman).

With the code "folding and unfolding," I captured all the comments in the interviews about the phenomenon of "becoming" in the animation. Just as, in Theme Two: Materiality, every comment comes out of embodied cognition, in this theme every comment on the artist's process, relationships, or movement could be interpreted as a comment about folding and unfolding, manifesting and disappearing from sight, for this is what the animation appears to do. More than one visitor was taken aback by this, as the next passage shows:

That was beautiful. I found it quite dizzying though. It was as though someone was sketching it as you were watching it, and the colours and how all the flowers and the animals came up, but I found I couldn't stand and watch it for too long. It was dizzying (0018, Older woman).

Theme Four: Narrative

Theme four addresses the role of narrative in the subject / patterned museum object encounter. Table 6 lists the codes related to narrative in the interview texts.

Code	# Mentions
Semiosis, symbolism, meaning	10
Imagescape versus surfacescape	10
Labels	12
Viewer histories and narratives	17
Calligraphy	17
Figuration in objects	24
Object histories	32
Gallery themes	34
Narrative elements in objects	38

Table 6: Frequent codes related to narrative in the interview texts.

I assumed going into the interviews that the theme of the objects and respondents' histories would be the most strongly related of the four themes to figuration. To be sure, figuration in the objects seems to draw out stories, and when figuration is present, respondents go straight to the narrative – the imagescape, to use Hay's term, as opposed to the surfacescape or material and design elements of the object. However, my findings indicate that visual patterns on objects also inspire respondents' stories, as I will make clear in this section.

The effect that figuration has on what viewers notice is most pronounced in the responses to the Fath Ali Shah painting, perhaps because the figure in that painting is so arresting. Most respondents do not comment on the painting's materiality – unlike the comments about the robes, no one mentions what a lot of work it must have been to paint it – and the responses focus on the power of the figure and the richness of the jewels surrounding him, regardless of the fact that the canvas is packed, not with jewels, but with abstract mosaic patterns painted in oil paint with a brush. The perspective changes when a respondent moves in to look at it closely:

Interviewer: Looking at it strictly visually, is there anything about it that strikes you?

Respondent: I'm struck by the amount of adornment. The jewelry, the headpiece, the chair. He must have meant so much to the people.

Interviewer: How does the painting change up close?

Respondent: Now my viewpoint is shifted from focusing on the jewels and the adornment, to the fabrication of the patterns, the intricacies, they're probably symbolic too, why that flower was designed like that and placed in that position (0026, Young woman).

The effect of figuration in an object thus appears to take away the sense of its presence as an object, to take the focus of attention away from its surfacescape – the resonances of its sensory aspects– in favour of its imagescape – the history and the story. In the process, patterns are perceived, not as patterns, but as what they might depict. The patterns in the painting are perceived as jewels, with all that they suggest of opulence, wealth, and power – the viewer makes that leap.

Many respondents were moved by the figuration to cite their cultural background as a response to the objects, as in this passage:

Respondent: This is the one I came to look for.

Interviewer: Really, why?

Respondent: I don't know if you've heard of our diamond jubilee celebrations, for the Ismaili Muslims. When we were being addressed by

our Imam, he had this exact same painting in his house, and it was one of

the pieces that were being displayed when we were watching it live.

Interviewer: I think this Shah is an ancestor of his.

Respondent: This is Fathi Ali Shah. This Shah is the one who got the title

Aga Khan and it has continued through the four Imams that came after

him (0026, Young woman).

However, as I maintained earlier, just as many respondents spoke about their own

histories in relation to the robes, mentioning their colours and their patterns. One

respondent used pattern as opposed to figuration as a way of understanding an object, in

this case the mosaic panel:

Respondent: Well the architect in me is automatically drawn to all these

pieces here, my heritage, my dad was from Hyderabad, India, so we've got

a Mughal empire kind of in our background, so growing up we had

snippets of that, so this kind of architectural element combined with my

background, plus my British mother's interest in geometric pattern, all

these other outside influences draw my eye to the more architectural

pieces in the room. So this piece specifically, I was appreciating it because

of the fact that there are three arches, I don't even know what this is

particularly.

Interviewer: It's not known, I don't think.

Respondent: The combination of the pieces, the colours, the geometric

pattern, then I would probably want to know where is it from, so I would

go to the label then stand back here again (0035, Middle-aged woman, 2018).

One respondent was even moved by the mosaic panel to give a detailed interpretation of its relation to the ancient religion of Mithraism:

Interviewer: So if art is communication, what is this piece saying to you?

Respondent: if it was in an Iranian mosque, this type of design shows what we call *shamseh*, lights of the sun. Lights of the sun have the rays. If you go to a mosque, I could show you. But if the prayer goes here, if you go to the *mihrab* –

Interviewer: Yes, on the *qibla* wall.

Respondent: the leader of the prayer stands there and the other people follow him. The *mihrab* shows the light of creation. *Mihrabs* come from an older religion than Islam. It goes to Mithraism. Mirthra means sun. it is an old religion. In Islamic art you can see the *shamseh*. In old Persian it means sun.

Interviewer: does Mithraism predate Zoroastrianism?

Respondent: Zoroastrianism doesn't have a specific time because some scientists believe 8,000 years. Very different timing, but for Mithraism the timing is more fixed: 290 years before Jesus. Mithra is an Iranian prophet. Most temples are in Iran. Even the last supper is a Mithraism tradition, not a Jesus tradition.

> Interviewer: you're talking about the symbolism here, so what about these stars? Do they figure into the symbolism as well?
>
> Respondent: this is *shamseh*, rays of sun, this is a Mithraism symbol that entered Islam and the Muslims think they developed this symbol, but they did not (0042, Older man, 2018).

Besides the figuration and the pattern, there are other vectors of communication in the gallery that visitors look to for information and insights: gallery texts and the inscriptions and writing on some of the objects. There are two codes in table 6 that refer to the textual aspects of stories: "labels" and "calligraphy." In these codes I categorized interviewees comments about the texts they encountered in the gallery. In the code "labels" I collected interviewees' responses to the gallery didactics and object labels they encountered. My purpose was not to evaluate the texts as interpretive devices, but to understand viewers' responses to them as paratexts in support of the visual, material, virtual, and narrative qualities of the objects themselves. Because of the particular style of the gallery texts in the Permanent Gallery – more concerned, as I have noted, with aesthetics and historiography than interpretation – I found that visitors' curiosity about the objects tended to be deflected by the label writing. One respondent, a tour guide, expresses it this way,

> Interviewer: Do you find visitors are picking up on the themes in the gallery?

Respondent: I think there's a huge difference between a tour and someone who's just walking through on their own. We don't know because we don't engage with just people.

Interviewer: That's what I've been doing, and I'll share my results with the Museum.

Respondent: People after the tour say they never would have known by reading the labels (0032, AKM tour guide, middle-aged woman).

My analysis of the second code, calligraphy, is more fruitful. Calligraphy is one of the highest art forms of Islamic societies, and there is quite a lot of it on objects in the gallery. Respondents commented on it in various ways – although none of them mentioned that they were able to read the Arabic and Persian scripts, they noticed the calligraphy as a significant feature of the art on display. In Chapter Two I made note of Elkin's comments on the interrelationship of calligraphy and pattern, and although I do not have the expertise to analyze the relationship in detail for this study, I am aware that the closeness of these two forms is in evidence in many objects in the gallery, with script accompanying pattern and even sometimes acting as pattern.[24] Indeed, as I continued to code, memo, and map my interview data, it struck me that when I am referring to "language," I really mean "writing." In light of this new insight, the respondents'

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[24] There is a vast literature addressing the relationship between calligraphy and ornament. For example, the reader is directed to the edited collection of essays, *Word of God, Art of Man: The Qur'an and its Creative Expressions* (Suleman), *The Mediation of Ornament* (Grabar), and "Inscription: On the Surface of Exchange Between Writing, Ornament, and Tectonics" (Sarkis).

comments about the presence of calligraphy on the objects comes more sharply into focus.

The gallery objects are full of writing; the visitor meets it first in the animation. If a viewer does not understand the languages, the tendency is to view the writing, especially the many short inscriptions, as patterns, for the similarities are many. Border patterns are linear, and so are border inscriptions. One respondent points this out:

> Interviewer: Did you pick up anything that reminded you of that animation as you were going through the gallery?
>
> Respondent: Now that you say, yes. So the idea of the beams and the motifs on the beams, and things in a linear fashion, things would be like that.
>
> Interviewer: So you noticed some similarities between what was on the animation and what was on the beams.
>
> Respondent: Yeah. And what was on the tiles.
>
> Interviewer: So when you say designs, what kind of designs do you mean?
>
> Respondent: So ok what I noticed walking in, it wasn't any scripts, it was, not a star per se, it looked like a beetlenut leaf, and for instance like that idea (0004, Young woman).

Summary

I return now to the hypotheses I set out in the beginning of the chapter to reflect on their validity in light of my findings. Articulating them as questions provides a

framework for my interrogation of the data I collected in the gallery. First, is figuration indeed given more attention than pattern by viewers? Second, is there any evidence in the interview data that visual patterns are indeed communicating meanings, and is it therefore valid to use words like "discursivity" and "transmedial" to describe their method of communication?

The first question is easier to formulate an answer to than the second. My finding is that the respondents do not talk about theories and concepts; they make concrete observations. When they look at patterned objects, they talk of them as objects – their beauty, their colour, and their making. When they look at figurative works, even if those works feature significant patterns as well, they go immediately to the stories they perceive in them, either real or imagined. Therefore, I posit in answer to this question that I have found a tendency in respondents' perceptions for visual pattern to take a background position if there is any figuration in the object. If there is no figuration, as is the case with the robes, *suzanis*, and the mosaic panel, respondents come up with a different story about them. Their speculations about how the object was made or used may be regarded as kinds of stories, but they are always grounded in the objects *qua* objects. The robes have no figuration, but they are items of clothing, so that is what was noticed and remarked upon. The *suzanis* are not clothing but their display was on a platform with a low incline, so they were called carpets. In contrast, figuration has a story that is not connected to its housing – the tiny, intricately painted daubs in the Fath Ali Shah painting are seen as jewels, not paint.

My answer to the second question must be tempered by my understanding that of the gallery visitors I interviewed, while all were intelligent and no doubt many were pursuing intellectually demanding careers, none were theoreticians of art, galleries, or history, and none would be inclined to use specialized terms in their conversations with me. The clues I found suggesting a response to visual pattern in these terms are therefore my conjectures only.

In the Introductory Chapter, I characterized visual patterns as types of transmedial guides for thinking/action. In this chapter, I have reported that interviewees responded positively to my questions about relationships among gallery objects, linking them predominantly through design elements. I take this to be evidence of their recognition of the transmediality of visual patterns as they jump categories fluidly and continually from textiles to tiles to architectural revetments, to the gallery structure itself. The effect of all this jumping, I would argue, is to situate pattern as constantly moving from virtual to actual space – it manifests in this or this object, always recognizably itself in any of its manifestations, while also being something more. I call that something more its transmediality, whose native state is not one of being instantiated in this or this object, but one of becoming, and whose place of residence is thus the possibility space of the virtual. The animation performs this condition of pattern by drawing it, by bringing it into being over and over again, and there are many mentions of this phenomenon in the interviews.

Finally, I come back to the questions from Chapter One about the subject / patterned museum object encounter that is the topic of my study: what is the object

telling the subject to do or think or be? What is the subject telling the object to do or think or be? As Bal and Bryson write,

> Standing somewhat to one side of the work of interpretations, semiotics has as its object to describe the conventions and conceptual operations that shape what viewers do – whether those viewers are art historians, art critics, or the crowd of spectators attending an exhibition (184).

In other words, semiotics is not interpretation exactly, but the work of assigning meanings according to societal and cultural norms of meaning. Viewing the encounter this way, what meanings are assigned and what meanings are not assigned? In the next chapter, I investigate possible answers to this and other questions.

Interlude: The Silent and Silenced Actor

"Inspired by feminism, pragmatism, Foucault, and Deleuze and Guattari, situational analysis intentionally seeks to represent all the social worlds and discourses in an arena, amplifying the silent and silenced, specifying implicated actors and actants, and seeking out their (possibly quite marginalized) discourses" (Clarke et al. 238).

"Art does not reproduce the visible. Rather, it makes visible" (Klee).

"If you wish to get hold of the invisible, you must penetrate as deeply as possible into the visible" (Beckmann).

In this mass of data that I have collected from my two sites with their social worlds and discourses, what is given a voice? What is silenced? What is visible? What is invisible? There is one marginalized discourse that keeps nagging at me. When I go looking for it, I find it peeking out at me from where it sits, quivering slightly, on its perch in the possibility space – on top of the box wherein pattern stores its meanings. It is magic, the silent and silenced actor in both arenas.
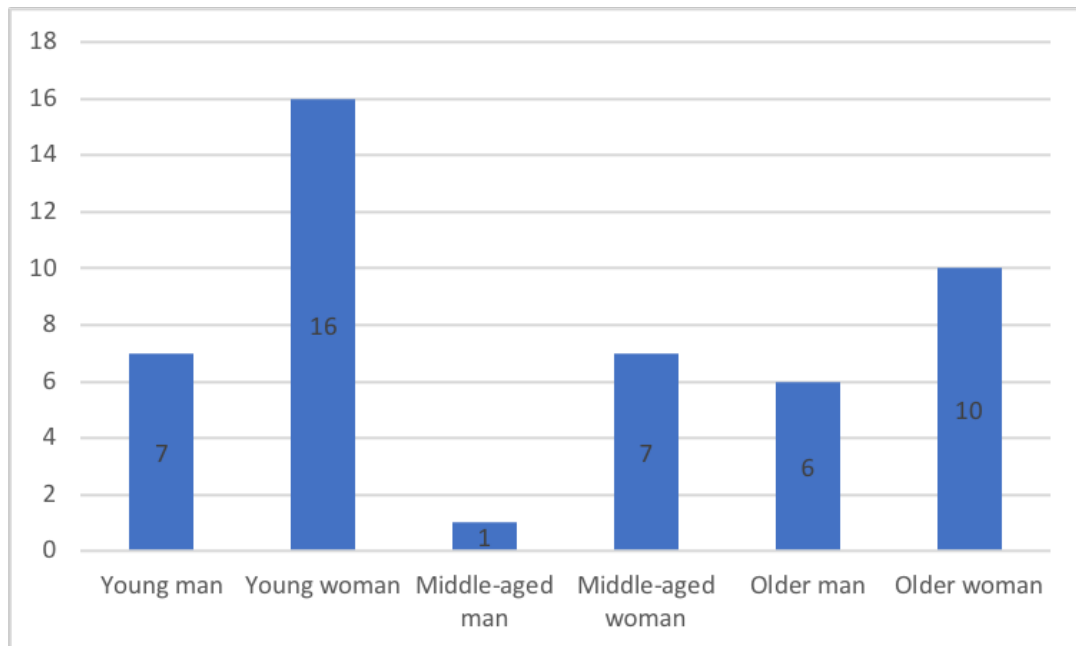
Figure 35: Chart indicating interview respondents' ages
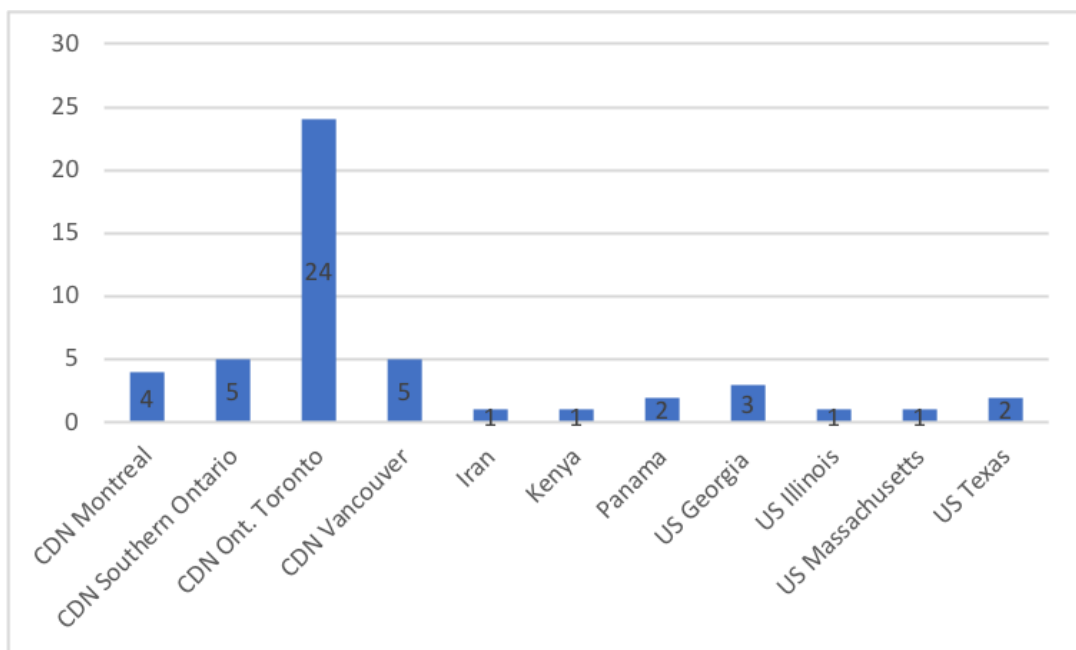
Figure 36: Chart indicating interview respondents' current place of residence

Chapter Five, The Twisted Cord

In this chapter, I undertake to fashion from my findings a twisted cord of related concerns. Each ply of the cord is spun from the main themes that I have found in my two research situations. In the scholarly literature about visual patterns, I found an overriding concern with patterns' transculturality and transmediality, with their roles in the digital realm, and with their communicative qualities. In gallery visitors' responses to patterns, I found significant attention to patterns' beauty, to how they were made in objects and how this is represented digitally, and to patterns as vectors of objects' histories.

What emerges out of this process of coaxing the two plies to twine together will form the basis of my meaning-making of the study: my formulation of pattern thinking, a new way of thinking about patterns in relation to their visuality, materiality, virtuality, and narrativity. My methodology continues to be informed by the tools of grounded theory and situational analysis and facilitated by means of NVivo's coding, memoing, and mapping affordances.

The comparison begins with a restatement of my research questions. Following this is an appraisal of the findings in each research situation, guided by the questions adapted from Clarke et al's depiction of comparative mapping as a form of discourse analysis (236). The comparison is structured by the headings of my four theoretical relationships. The chapter culminates with a summative statement articulating the results of the comparison and their implications. As I have made clear in the previous chapters, I am looking for sensitizing concepts and marginalized discourses, this time in comparing the two sets of findings from my data. In a sense, these two terms are on opposite ends of

a continuum of responses to patterns: the former term delineates what people, whether scholars or visitors, are sensitive to, what they notice, wonder about and theorize about – and importantly, what they value. The latter term describes what they do not notice, what escapes their attention, and what they do not value.

I start by restating the research questions I listed in the Introductory Chapter:

1. How do systems of visual pattern on objects operate in the interpretive space of a contemporary museum of Islamic arts? a) Is pattern like a language in this context? b) What is the nature of the effect a patterned museum object has upon a viewing subject? What is the nature of the effect a viewing subject has upon a patterned museum object?

2. What matters most about visual patterns to scholarly writers? What does the research emphasize? What does it elide?

As my aim in this chapter is to weigh the differences and similarities in my two research situations, I find that it is appropriate at this point to combine the two questions, and to ask simply, what channels does the communication between viewing subject and patterned museum object run along? Are the communication channels language-like? Are they image-like? Are they, to use Benjamin's and Arendt's terms, crystal-like? I embarked upon the research with assumptions about how the channels run: first, that they are obscured by figuration, that the presence of any figurative imagery in an object or an image causes the patterned elements to slide into the background. My second assumption was that it is not useful to liken visual patterns to language in large part because patterns are nondiscursive. I took this position in the Introductory Chapter when I wondered if it

was productive to connect figurative art to storytelling and patterned art to affective sensory functions. In the course of this chapter I will trace my discovery that the research findings confirm my first assumption, but that my second assumption is not validated. In a way, I may have been asking the wrong question, as the section on narrative will make clear.

With these questions in mind, I embark upon a comparative mapping and analysis of the data I have gathered in both of my research situations, the scholarly literature about pattern and the interviewees' responses to pattern – what scholars articulate compared to what people going through a gallery articulate. In my analysis I am at pains to avoid setting up yet another binary, that of scholars "theorizing" and visitors "experiencing." In the interviews I conducted, visitors theorize about their experiences, but in a different way from scholars: their discourse is less formal and structured and less in academic parlance – and it is more direct, as befits the circumstances of the interviews' conversational style. In essence, I am using the interview responses as a testing ground for the scholarly theories. How close are they to each other? Where do they diverge?

Comparing the Findings

My evaluative tools are the guiding questions I mentioned in the Introductory Chapter, taken from Clarke et al:

- What discourse topics are in all datasets? What topics are present in some and not in others?

- What similar positions on these topics are articulated across datasets? What different positions are articulated?

- What do the consequences of these differences seem to be? (236)

I will address these questions in turn in each of the following sections, using as an organizing rubric my conceptual framework of relationships (figure 30).

Following the findings comparison, I add an additional evaluative question that highlights the Museum as the social world of the study. As I stated in Chapter Three, the five fields I started out with metamorphosed into the four categories of my conceptual framework. The field of museology became the social world of the museum in which I was examining patterns' relationships to visuality, materiality, virtuality, and narrative and therefore, like pattern, it was present in all of them. However, it is important to be mindful of my findings in the scholarly writing about museums and to compare it to my findings in the interviews in order to develop my picture in Chapter Six of the museum imaginary. Therefore, I end the comparison with this discussion.

1. Visuality

This section compares theoretical writing about patterns and visuality to visitors' experiences of seeing patterns in a museum gallery. I examine similarities and differences in these two approaches according to three sensitizing concepts that arise out of both situations: beauty, transculturality, and semiosis or symbolism – the meanings people attach to what they are seeing. Following this, I discuss the phenomenon of the optical unconscious – literally, what is not noticed – as it pertains to my findings.

First, I find that gallery visitors' remarks about the objects' beauty are simple and straightforward; for example, one interview respondent says, "It was beautiful. Because they made art through geometry. I really liked the fact that through patterns they made beauty" (0009, young woman). In contrast, approaches to patterns' visual beauty in the scholarly literature are more various and vexed. The visual beauty of patterns is used as a metric to measure worth, as Owen Jones formulates in *The Grammar of Ornament*: "True beauty results from that repose which the mind feels when the eye, the intellect, and the affections are satisfied from the absence of any want" and "Beauty of form is produced by lines growing out one from the other in gradual undulations" (5). Writing a hundred and fifty-six years later, Stephan Weber connects beauty to "taste," which he frames as "the correct classification of objects in an established system of beauty and meaning" (46), noting the capacity of taste to build bridges to the past (43). Oleg Grabar attempts to define ornament's function with his statement:

> All that is reasonable to conclude is that decorative forms can sometimes be identified or described in terms of qualifying attributes like symmetry or simplification independent of their motifs, that more complex meanings may or may not be found in them, but that they definitely do (or at least are meant to) carry beauty and provide pleasure. To say this, however, is hardly helpful without knowing what beauty or pleasure is (42).

In his review of *The Mediation of Ornament*, Rudolph Arnheim calls Grabar to account for his statement that ornament's function is to carry beauty to its viewer, calling it a fallback to an old-fashioned relic of aesthetics ('Mediation Review' 219). I concur

with his view, and note in addition that assigning this and only this function to visual

pattern is like telling it to just stand there and look pretty, and leave the serious

intellectualizing to the art. This trivializing of pattern, calling it "mere," is widespread

among scholars of art, museums, and visual culture. I have cited examples of this

thinking in Chapter Three from Niklas Luhmann and Fatemah Ahani in writing about

ornament in art and in architecture respectively; in another example, André Malraux

declares that the most beautiful piece of furniture is only an object, while a painting is a

voice (*Museum without Walls* 232). In another review Arnheim wrote, this time of

Gombrich's *The Sense of Order*, he falls back himself on the old-fashioned relic of

aesthetics, calling ornament "cheerful fantasies of shape, remote from the grave

responsibilities of the representational arts and rarely touched by the anxieties of the

human condition" ('Order Review' 37). In other words, he characterizes visual pattern as

a fun-loving, simple – even "primitive" – child. This frankly condescending and

diminishing view of patterned art is alive and well in the twenty-first century, as

evidenced by Jonathan Jones's comment in *The Guardian* that a decorated object is

ultimately soulless (2). Far more interesting in my view is Gell's thesis that visual

patterns are dangerous – that they ensnare the viewer in the barbs and spikes of their

geometric shapes. However, this view of pattern is a far cry from respondent 0009's

heartfelt appreciation of beauty through patterns. Her response seems closer to Grabar's

appraisal. In fact, in comparing the literature and the interview texts, I am aware that

Grabar's view of pattern as calliphoric (a carrier of beauty) and ternopoetic (providing

pleasure) (43) is exactly what interview respondents expressed to me. Even so, on closer

examination and reflection, I realize that what is missing from the interview texts is the "mere" aspect of beauty. There is no "mere beauty" in the interview texts; there is only beauty.

The second sensitizing concept, patterns' transculturality, reveals more accord in the responses of scholars and gallery visitors. Both the literature and the interviews contain many statements about patterns' movements through time and space, across continents and vastly different societies. I have included some of these statements by Gulru Necipoğlu, Jonathan Hay, and Graham Were in Chapter Three. I add another example here to reinforce how increasingly important this quality of patterns is to many scholars in current research on patterned art. Finbarr Barry Flood writes about Alois Riegl's puzzlement over the presence of a particular vegetal motif in sixteenth-century Persian carpets. In his attempts to create a teleological history of the arabesque, Riegl did not recognize that this motif, a type of calyx-palmette, came from China with the Mongol invasion of the thirteenth century. This is evidence, Flood maintains, of the "possibility of different origins, diachronic rates of change, and even differential temporal trajectories for modes of vegetal ornament that appear in combination on a single artifact" (84).

The following quote from the interviews is an example of the same sentiments expressed in a different way:

> Interviewer: did you happen to notice anything in the gallery that you'd seen in the animation? Because much of it is in the gallery. And we're interested if people are picking up on that.

Respondent: It is basically the basic geometry of Islamic architecture. You cannot limit it to one country, you know like people say ok this has mainly Persian influence, but it could have originated from any part, and being worked on and differentiated in other parts of the Islamic caliphate that they had through history. Some parts of it has Spanish influence, some has Persian influence, Indian influence, Turkish, we might not have it in the museum but through the world when you go to exhibits like this you see the Italian influence or the French influence in Islamic architecture (0009, young man).

The third sensitizing concept I want to compare in my two situations is one I assigned in NVivo to a code called "semiosis, symbolism, meaning." In this code, I gathered references to the meaning-making of patterns undertaken by scholars and by gallery visitors. I have already discussed beauty as a response to patterns; in that discussion, I am separating what people see (the beauty of patterns) from what sense they make of what they see (the meaning they assign to the beauty of patterns). Here, I turn to two other perspectives on the meanings of visual patterns: first, their spiritual symbolism in an Islamic context, and second, their relation to the body of knowledge grouped under the category of talismanic or operational magic. In the camp of the first perspective, Seyyed Hossein Nasr assigns a clear spiritual symbolism to Islamic geometric patterns and their reflection of the natural world:

What can be the significance of such complicated geometric patterns on the surfaces of mosques and mausoleums? Besides directing attention to

the Centre which is everywhere and nowhere, untying the knots of the soul

and preventing subjectivism, these patterns also have another significance

of a remarkable nature. Although on the surface of things, they represent

the interior structure of corporeal existence or matter as this term is

understood in its general sense. Recent research by several scientists has

revealed extraordinary similarities between these geometric figures and

configurations and the inner structure of material objects both animate and

inanimate discovered through the electronic microscope and other modern

techniques (48).

Keith Critchlow extends this reasoning to include the significance of their

mathematical operations:

It is to be constantly recalled that the spatial controlling factor of Islamic

geometric pattern is symmetry – which is represented in itself by the most

fundamental symmetrical set that a given pattern can be equally folded

into. By the same analogy, symmetry can be viewed as reflections of unity

(60).

Issam El-Said is the most technically sophisticated of these three scholars of the

cosmological approach to Islamic patterns, giving detailed instructions on constructing

patterns based on the square, or the square root of two, and the hexagon, or the square

root of three (El-Said et al.)

Gulru Necipoğlu brings a different slant to the debate about the spiritual

significance of Islamic patterns, on one hand proposing a view of ornament (her term for

visual pattern) that includes semiotic signification ('Early Modern Floral' 132) and on the other speculating that the development of the star-and-polygon motif is related to the Mutazilite school of philosophy.[25]

All four scholars are working counter to dominant Modernist ideas about decoration and ornament that give them the trivial connotations I mentioned in the discussion of beauty. In the interviews, there are similarly many mentions of possible meanings attached to patterns – one respondent, a mathematician, reflected that the patterns looked more rounded than triangular or square. Others noticed circle motifs and mused on what they might mean. I will return to the importance of symbolism in the section on narrative.

The second perspective I wish to examine on the meanings of visual patterns is their significance for forms of magic. I find that this assignment of signification – their symbolism as protective talismans, for example – shades into a marginalized discourse, given the pervasive antipathy to magic in modernist paradigms of knowledge, but there is some scholarship that examines it, and two respondents make comments related to it. To reiterate my points in Chapter Three, scholarship comes from Schuyler Camman, whose interpretations of the symbolism of oriental carpets depends on the motifs as protective talismans ('Symbolic Meanings in Oriental Rug Patterns: Part I' 12), and from Susan Meller, whose work on the Central Asian robes I have quoted in Chapter Four. In a

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[25] The Mutazilites, operating in ninth-century Baghdad, posited a metaphoric and nondeterministic approach to Islam based on the atomism and Neo-Platonism found in the Greek manuscripts that were then being translated into Arabic (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 95).

similar vein, André Malraux maintains that all art was originally a fetish of a religious nature, and that this was transformed beginning with the Renaissance into the way we view art today (*Museum without Walls* 206).

The references to talismanic protection in the interviews come from an older man who muses that a cross on one of the robes may symbolize protection, and from a tour guide who notes of a robe, "I let them know the women don't put their arms through the sleeves, they wear them over their heads, it's a protection for them. A protection against evil really is what it is, and they have different colours for different ages" (0032, AKM tour guide, middle-aged woman).

I turn now to other marginalized discourses in responses to pattern and visuality. The most striking one, mentioned already in Chapter Two, is the lack of attention to patterned objects in the museology and visual culture literature; they are regarded as beneath interpretation, as I have argued in previous chapters. In contrast, pattern plays an important role in respondents' discussions about the gallery objects and the museum itself. The following exchange makes this clear:

> Interviewer: If you could formulate any kind of thread that's going through the whole thing, what would you pick?
>
> Respondent: The floral patterns that you see, the animal patterns, the connectedness that a lot of this has with nature (0010, older man).

Some marginalized discourses in this section can be grouped under the phrase "optical unconscious." This term has a genealogy that dates from Benjamin's writing; it is taken up by Elkins to advance his argument that images are not subject to semiotics but

work according to their own kinds of systems (xii). In his resistance to a semiotic interpretation of visual art, he skates very close to the concept of meaninglessness, since what is not noticed cannot have any meaning or can only have a hidden meaning, a meaning that is not actualized. In a similar vein, in the visitors' responses to the Fath Ali Shah painting, they do not notice the patterns, some not at first until they are very close to it, and some not at all. They never see the jewels as patterns – they see only the imagescape, to use Hay's terminology, and not the surfacescape. Therefore, the patterns remain invisible while the jewels are visible. In one final example for this section, one respondent remarks, "I feel nothing" when asked what he sees in the robes. Here, he does not see, so he does not feel.

To sum up this section, my testing of theories of pattern and visuality against the interview findings yields these insights: first, in both situations, beauty is a sensitizing concept in responses to pattern, but in the interviews, there is no purposeful ranking of it below figuration. Second, the sensitizing concept of transculturality is present in both the literature and the interviews. Third, speculative theories in the literature about visual patterns' meanings are derived from mathematical, philosophical or religious ideas (Bier, 'Number, Shape, and the Nature of Space'; Critchlow; Nasr; Necipoğlu, *The Topkapi Scroll: Geometry and Ornament in Islamic Architecture*; El-Said et al.) – but in the interviews it is clear that gallery visitors largely find the meanings of patterns in stories. I will take this idea up again in the section on narrative. Finally, a discussion of patterned objects is notable by its absence in the literature on museology, visual and material culture, but attention to patterned objects is a strong finding in the interviews. However,

it is the case among respondents that pattern is not noticed first, or at all, if figuration is represented in the work of art.

2. Materiality

My four criteria for comparison in this section are embodied cognition, making as thinking, transmediality, and form/material separation. These are all sensitizing concepts that have arisen from my findings in the literature and my interviews in the gallery. Where the first criterion is concerned, I have been arguing throughout this study for a vision of visual patterns in and on objects as experienced bodily, by peoples' senses, and have found support for this idea in cognitive science's theories of embodied cognition. For example, Ellen Esrock writes of cognition as embodied and situated in time and space, using the example of a museum visitor responding to a painting of a woman embroidering a handkerchief by feeling a tension in the fingers (788). As I discussed in Chapter Two, I have also found many references to sensory responses in the literature on museology and visual and material culture, fields that theorize the experience of engaging with works of art (Classen; Dudley, 'Museum Materialities: Objects, Sense, and Feeling'; Golding). In anthropology, Suzanne Kuchler's reflections on Albert Gell's notions of object agency lead her to wonder how thought can conduct itself in things and to remark, "as intelligence is designed into everyday products we are reminded of the premodern notion that there is no inanimate matter" ('Materiality and Cognition' 209). A theoretical framing of the gallery encounters between visitors and objects as embodied is borne out by the interview data as well. One respondent comments, "I'd love to touch the texture of the material, but I can't" (0025, older man), while another gives as her reason for leaving

the gallery iPad alone that "I didn't want to touch it. I didn't know who else had touched it" (0036, middle-aged woman).

The second criterion, making as thinking, is evidenced in the interviews by many comments expressing curiosity about the making process and an admiration for those who had made them. I mentioned in the last section that gallery visitors tend to notice the imagescape – the story – of the Fath Ali Shah painting, not its surfacescape – its materiality, as it were. However, one young woman showed unusual sensitivity to the work that went into its making, "I think there's something about the intricacy of this type of art, that sometimes we lose in our modern world, just that time and patience that someone may have put into a painting like that" (0028, young woman). This sensitivity to making is deeply connected to the embodied cognition process of experiencing objects in a gallery, like the itchy fingers of the person viewing the painting of a woman embroidering. The patterned movements of the woman pushing and pulling her needle through fabric results in a patterned cloth. The viewer standing in front of the painting experiences an echo of this patterned movement in her own body, in her own fingers. The viewer enters the imaginative space of the maker.

There is a substantial body of literature exploring making as thinking or thinking through making that references pattern-making, either directly or indirectly; for example, Tim Ingold's oeuvre contains many mentions ('On Weaving a Basket'; 'The Textility of Making'; *Making*). On the other side of the argument, some scholars refuse to countenance the prospect of pattern-making as a complex thinking process. George Saliba attacks Necipoğlu's contention that Mutazilite philosophy could have any

connection to the design of geometric patterns (640), while Gombrich assumes that makers of such patterns were shown how to make them with compass, ruler, or string (*The Sense of Order* 86). I wonder if these two scholars ever tried to make a complex geometric pattern with only a piece of string or a ruler, and I wonder whether their view of its making would have been altered by the attempt.

I found many examples of the transmediality[26] of patterns, my third sensitizing concept, in both the literature and the interviews. Gerhard Wolf defines transmediality as "those artistic forms or contents that are shared by or spread across various media" ('Vesting Walls, Displaying Structure, Crossing Cultures: Transmedial and Transmaterial Dynamics of Ornament' 105). I use the term to articulate visual patterns' way of appearing in one material or another, always themselves and always different. In my pattern of questions for respondents, I asked repeatedly if there was anything in the gallery that reminded them of what we were looking at, and the responses tended to be transmedial. The respondents perceived that the patterns in the gallery were manifesting in many different materials; one respondent expressed this quality as "appearing in not just the robes but I think the art in general, like the mosaic appearances of the sword, the

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[26] I must clarify that I am not using the term transmediality in exactly the same sense that scholars of communication media use it. For example, Henry Jenkins defines transmedia storytelling as "a process where integral elements of a fiction get dispersed systematically across multiple delivery systems for the purpose of creating a unified and coordinated entertainment experience" (1). My use of the term defines it as visual patterns appearing in different visual media, whether physical (textile, ceramic, architectural) or digital.

whole appearance" (0027, older woman). A group of respondents expressed patterns'

transmedial properties in more depth:

> Interviewer: [Looking at the Fath Ali Shah painting] Do you see anything
>
> that reminds you of something else in the gallery? Is there a theme?
>
> Respondent One: In the painting, they are showing me the everywhere the
>
> same design. And there is, what it's called, diamonds, hexagon designs,
>
> Interviewer: You're talking about patterns.
>
> Respondent One: Yes. Patterns on the side, everything. When you see all
>
> this thing it is the same.
>
> Respondent Two: The culture was coming from everywhere.
>
> Respondent One: He is sitting to show the position from the side.
>
> Interviewer: He's sitting this way but he's facing this way. This painting is
>
> fascinating to me because it's so different from anything else but it has the
>
> same kinds of things in it that the other art does.
>
> Respondent One: Ismaili culture, Muslim culture, they're showing from
>
> every angle this way. When you go to a mosque, or any place you see all
>
> kinds of designs, on paint, they are using for long, long time. That's what
>
> they're showing for this picture, is everything is like –
>
> Respondent Three: This is our culture, so you can see this everywhere.
>
> You go to jamatkhana, you go to a mosque, you see it everywhere (0031,
>
> Young man, older man, older woman).

This excerpt is remarkable, for the discussants are expressing a characteristic of much geometric pattern on objects, that it does not appear to have an orientation. They have noticed this property of the patterns they have seen in the environments they frequent and have connected it to the painting via the main figure's lack of orientation in the picture frame.

My fourth criterion for comparison in materiality is based on an NVivo code that I call "form/material separation." This concept has engendered philosophical debates pro and con for millennia. The hylomorphic model of the form/material interaction has the human agent manipulating and controlling physical materials that are essentially dead. This tradition of thought is called by Nigel Thrift "the form-matter model so common to Western thinking" (*Non-Representational Theory* 155). The other side of the debate, which has form and material working together in a field of forces to create actualities of all kinds (Ingold, 'On Weaving a Basket' 82; Latour, 'On Actor-Network Theory'; Gell, *Art and Agency* 229), has gained purchase in theoretical thought especially through embodied cognition as the model for how the mind works (Dawson 1; Edelman 234). It operates through a kind of network thinking which is imbued with pattern thinking, epitomized by Gregory Bateson's "pattern which connects," and Bruno Latour's actor network theory, which operates, as I wrote in Chapter Three, like pattern thinking: "not a thing, but the recorded movement of a thing" ('On Actor-Network Theory' 378).

To try to find evidence of this philosophical debate in the interview responses, very lively through it may be in theoretical discourse, is not fruitful. However, there are subtle shifts of emphasis in the ways respondents refer to what they are seeing that

suggests to me that they are sensing the agency of the objects in addition to the agency of their makers. There is a fluidity in the way they respond to the objects, and a lack of separation of form and material. They do not differentiate; they talk about the form and the material as one. A respondent remarks while looking at one of the robes, "It seems to have a spiral figure. Where there's a centre and it comes out, there, there, there, there, it seems to be like a flower, like some sort of four – like a star of some sort" (0018, young man).These shifts into speaking of material as form become more marked when they are responding to the animation, for reasons that I will discuss in the section on virtuality.

Another theoretical discourse relating to embodied cognition is the one on affect theory. Again, it is alive and well in scholarly debates, but not evident in my conversations with respondents. This is logical, for affect as it is defined in the discourse about it has not an emotional, but a kind of pre-emotional, trans individual quality that is below the level of conscious thought (Massumi; Thrift, *Non-Representational Theory*). In its relation to the body, affect is a material unconscious: sensing without thinking. The closest I can come to seeing it in action in the interviews is in some respondents' awareness that they are walking within something bigger than their own lives; they are immersed in the experience and feel surrounded by Necipoğlu's "densely charged semiotic environments" (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 222). As one respondent put it, "You felt like you were part of what was being portrayed, sort of enveloped" (0032, middle-aged woman).

The material unconscious is expressed in the interview texts by the sense of touch, or rather, its lack. If discourse is a communication and is expanded to include more than

text, it follows that touch is a discourse, or a vector of discourse. This vector is not available to gallery visitors; the only object they are invited, or even allowed, to touch is the iPad in the *Shahnameh* alcove.

Summing up the comparison in this section, ideas about embodied cognition, making as thinking, and transmediality of pattern propounded in the literature are all glimpsed in the interview texts. Conversely, affect as a deep, unconscious human function is subject to much theorizing and debate in the literature, but is not evidenced in the interview texts except as it is lived in sensory responses to the objects and the gallery experience.

3. Virtuality

In this section, I compare the literature and the interview findings according to three sensitizing concepts: object aura in a digital age, coming into being or folding and unfolding, and hiddenness or the technological unconscious. In the interview texts, I am looking particularly at gallery visitors' responses to the animation and the iPad.

Where the first sensitizing concept is concerned, there is a marked difference between the literature and the interviews. Scholars, especially in museology, raise the question of the aura of a work of art, that specialness that Benjamin identifies with its distance from the viewer (Shalem) and with its uniqueness (Clarke et al. 271). Does digital reproduction destroy the aura of a work of art by turning viewers' attention to its glittering simulacrum, which is always, it seems, brighter and more enticing? To the contrary, Susan Hazan posits that digitizations of works of art have an aura that stems from the very fact that they are virtual (8). Fiona Cameron concurs, arguing that digital

representations of historical objects are objects in their own right, with a history and a

provenance ('Beyond the Cult of the Replicant' 70).

Today it seems that the "flashing screens and buzzing software" (Thrift, 'Beyond

Mediation') that are in museum visitors' hands engage them much more that does the

actual art. For example, the New Media Consortium's 2017 report notes that "practically

every visitor who walks into a museum or gallery today is carrying a smartphone" (10)

and that museums' content production has failed to keep up with technology. However,

my study did not find that there was a general preference in the interview respondents for

the virtual technologies on offer in the AKM Permanent Gallery over the physical works

of art. In fact, some respondents showed a distinct lack of interest in them, or even a

resistance. One respondent remarked about the animation, "I stood there for a few

moments and I was waiting for it to tell me something. And then it didn't. So I kept

walking" (0031, young woman). Another commented when asked about the iPad, "First

of all when I go to museums I don't necessarily go for these interactive things. I think it's

better to just look at the art, learn about the history. I mean, I can see this from home"

(0039, young man). The reason for these responses may lie in the attendance of an older

demographic to the Museum – however, both the aforementioned responses came from

younger visitors. It may be that visitors' interactions with digital devices, their own or the

museum's, are more nuanced than the literature suggests, and need a great deal more

careful inquiry.

My second sensitizing concept is related in the literature to coming into being, characterized by Deleuze as "becoming" rather than "being" (DeLanda, *Intensive Science and Virtual Philosophy* 121), or as folding and unfolding, as he writes in in *The Fold*,

> Nous découvrons de nouvelles manières de plier comme de Nouvelles enveloppes, mais nous restons liebniziens parce qu'il s'agit toujours de plier, déplier, replier / We are discovering new ways of folding, akin to new developments, but we all remain Liebnizian because what always matters is folding, unfolding, refolding (*Le Pli* 189; *The Fold* 137).

I consider the metaphor of folding and unfolding to be a foundational concept in pattern thinking, for it is an apt description of how visual patterns run through objects, materializing, as it were, through their manifestation in materials and dematerializing when the materials of the object wear out, break down, or fall apart. This process is one that the animation demonstrates beautifully. A respondent notices this process in the following excerpt.

> It's like a unique thing for us, because you never see that kind of thing. I thought at first it was only a picture but after a few minutes, they were running for everything, and then coming on the flowers, how they're growing, this is very very surprising (0031, older man).

Hiddenness or the technological unconscious is my third sensitizing concept relating to virtuality. In fact, it is both a sensitizing concept and a marginalized discourse, in that a great deal of theoretical attention is given to it in the literature, and it cannot be claimed that any attention is given to it in the interview texts, since the essence of

something unconscious is that it escapes notice. There is a paradox at the heart of digital

technology: it is nonvisual but manifested in a visual form. It is somewhere between

image and object: not purely an image because it has so much that is hidden, not purely

an object because it is represented on a screen. Derek Robinson expresses this very

paradox in his remark that software is "just bits" (163).

Summing up this section, I find that many respondents pay attention to the

"coming into being" of the objects in the animation, a process that I link to Deleuze's

characterization of the life processes of folding and unfolding from virtual to actual states

and back again. What they do not do is lean toward digital devices, their own or the

gallery's, in preference to their experience of the actual works of art on display. They

also show no awareness of the underlayers of digital technology, that I have linked to

logical depth and to Robinson's "just bits." Musings about the non-visuality of computer

screens are strictly confined to the theoretical arena.

4. Narrative

The fourth and final section in my rubric of comparison is narrative. Here, I

compare my two sets of findings according to three sensitizing concepts: viewer histories,

object histories, and storytelling in museums. Then, turning to marginalized discourses, I

take up the current that has run through my comparison so far: the hiddenness that

confounds communication, termed differently and with different nuances in previous

sections: the optical unconscious, the material unconscious, and the technological

unconscious.

Viewer histories and object histories, seemingly the very essence of the interface between subject and object in a gallery, have become the subject of debates on interpretive methods in museology. I have commented on these debates in Chapter Two, referring to Dewdney et al's position that there is no longer a fixed vantage point for viewer histories in our global environment (204), and to Yenawine's contention that the viewer's experience is more important than an object's histories (25). I found completely opposite views on histories in the interviews; in fact, most responses revolved around matters of histories, whether of the viewer, of the object, or of both. This finding leads me to infer that narrative is a vital vector of communication in the humming space between a museum-going subject and a patterned museum object, and it goes in both directions. On the one hand, stripping an object of its life story reduces it to an aestheticized event, devoid of any other meaning. On the other, assuming that a viewer's life story is irrelevant to their reception of an object takes something important away from them as well.

Issues of viewers' and objects' life stories lead directly into my third sensitizing concept, storytelling in museums. This concept is debated in museology: one faction strongly states that storytelling is the work of museums (Bedford; Mateos-Rusillo and Gifreu-Castells). Another camp just as strongly refutes this idea, arguing that the nondiscursivity of museum objects is related to affect, characterized by non-rational, emotional responses to them (Message and Witcomb; Dudley, 'Chinese Horse'). Once again, the primacy of stories stands out in the interview texts. Not only that, but it became obvious to me as I completed the analysis and then the comparison of those texts to the

literature that respondents considered both figuration and pattern as storytelling vehicles. In fact, the object with the most abstract geometric pattern, the mosaic panel, inspired two of the most vivid stories. I related one of them, related to Mithraism, in Chapter Four. Here is the other one:

> It says it's from a courtyard. The colour scheme brings that to mind and the geometrical design. In my art history classes, when you see an arch you're supposed to think about triumph. Ancient Greece, Rome, the Byzantines - because my art history teaching is very Christian-centric, when you see things in threes you're supposed to think about the trinity. Three is a number in Islamic thought. Rejecting the idea of the trinity, there's this *hadith* that says its *sunna* to do things in threes. It also might be visually pleasing (0041, young woman).

The term "nondiscursivity" as it applies to museum gallery objects needs some unpicking. If "discourse" is assumed to apply only to written and spoken language, then the term holds as an apt one. However, if the term is expanded to include objects and images, static or moving, the term nondiscursivity loses its meaning, for an object or image tells a story and conveys a meaning, just not through written or spoken language. It uses other systems of communication – for example, visual ones. How do visual patterns convey meaning without text? The answer partly lies in Benjamin's/Arendt's analogy of the crystal: Benjamin writes "History decays into images, not into stories" (Benjamin, *The Arcades Project* 476), and Arendt extends his meaning to infer the decay as crystallization, or, as I see it, skeleton-ization into crystal structures. Stafford rewrites

Benjamin's quote to read, "History has a habit of decaying into crystallized shapes, not stories" (*Echo Objects* 154). It is her framing of Benjamin and Arendt's thinking that I am thinking of when I claim that a visual pattern's story is in the shape of a crystal: the crystal tells the story, not nondiscursively but transdiscursively. This is the message about visual patterns' narrative power that the interview respondents were telling me, in this and other passages.

> I tell the children, it isn't just to admire the beauty, it's a story. It tells you what people were like, what they wore, what they ate, their lifestyles, so if you look at it from that perspective, it's a whole world, a whole story (0014, AKM teacher, middle-aged woman).

At the beginning of this chapter I wrote that I may have been asking the wrong question. In light of the interview findings, the question is not, is visual pattern like a language – it actually does have some similarities to, not language, but writing: visual pattern looks like inscription, with some caveats: for example, it often lacks a direction, being the same when viewed from one side or another, and it is often in infinite repeat – rather, the important question is, how does visual pattern communicate transdiscursively? The answer to this reframed question is found, again, in the interview findings: through beauty and colour, through lines, shapes and forms, and through memory: the histories of the viewer and of the object. If "patterns" are substituted for "forms" in the following passage, Grabar is able to shed further light on this question.

> As we know that some geometric forms were given meaning and probably that none can be said to be without possible meaning. The question is how

meanings – iconographic, semiotic, or symbolic – can be given or have in

practice been given to geometric forms. The circle may well be granted a

theoretical cosmic and metaphysical potential, but this does not mean that

every circle represents or evokes the universe or the totality of life. It is

not easy or abstractly logical to detect automatically matrimonial status or

social position in a combination of triangles or a set of straight lines. And

while it is legitimate at professional mathematical levels to see arbitrary

signs and numbers as a language, that language is hardly accessible to

most mortals. Therefore, the further analysis of the particularly rich trove

of geometric forms that occurs in the Islamic world should help clarify, if

not resolve, the more universal problems of how and why it is that

meaning can be attributed to geometry (129).

Amid all this talk of communication of narratives, there still remains the question

of marginalized discourses in the literature and the interviews. What happens when

communication fails, when nothing is seen and nothing is understood? The examples of

this in the literature point, as they do in visuality, materiality, and virtuality, to the

framing of the unconscious processes at work in the perception and cognition of patterns.

In human perception, pattern is an economy, a shorthand that allows some processes to

remain hidden (Bateson, 'Style, Grace, and Information'). This is also how computer

code works; in the most recent programming languages, many functions are automatic, so

the programmer is not aware of how they are built (Chun 29). In the interviews, I found

that some respondents noted the absence of information on offer in the labels and

didactics, pointing out that "it's a pity not to see the continuity. How did the piece end up here? There has to be a sort of relationship between me as a viewer and this. To feel it. I don't know that" (0042, older man). I consider a response like this evidence of a short circuit in the subject/object exchange.

My summative comments for this section concern the yawning gap in approaches to pattern in the literature versus the interviews. In the literature, even when it is the subject of the writing, visual pattern is trivialized as "just an aesthetic addendum" (Ahani et al. 30), as or at best as a kind of "tacit knowledge" (Brett 249) In stark contrast, visual pattern is a sensitizing concept in the interview responses; by definition, the respondents are sensitive to it. The beauty of patterns is highlighted, and it is not appreciated in a strictly aesthetic way, but as a storytelling vector. Storytelling is a vector of communication – it is as if the viewer feeds their life story into the exchange, and the object feeds back its life story. Thus, it is a live interchange, in both directions, a play of forces similar to the making of the object, and arguably just as creative. If it is short-circuited, as in the previous interview response, the interchange slides close to meaninglessness and the invisible does not become visible.

5. The Aga Khan Museum as the Social World of the Study

How does the literature's vision of contemporary museums compare to the social world of the Aga Khan Museum and to the average visitor's experience of it? The points of comparison that I want to make all have to do with museum interpretation, writ large: what a museum believes it is about and therefore emphasizes shapes its effects on its audiences. For example, I have already noted that visual patterns figure prominently in

the architecture of the AKM and their presence is mentioned in several interview responses. While I make no claim to an understanding of the AKM's internal visions for its organization, I am looking for evidence of its priorities as they are demonstrated in the design and interpretation choices for its Permanent Gallery, where my study is situated. My points of comparison are first, the relevance of information about the objects, second, connoisseurship and the preciousness of the objects, and third, museums as sites of education.

First, there is a marked difference in the importance attached to interpretive information about the objects by scholars as opposed to visitors. Several writers on museology argue for putting the viewer's personal response to the object first, even maintaining that historical or interpretive information is not necessary for a meaningful understanding (Ting; Yenawine). Some museologists oppose this view (Cameron, 'Beyond the Cult of the Replicant'), but the interview respondents all favour more contextualizing information about an object's life story than less. The second point of comparison reveals more differences between scholars and visitors. There is still a vein of connoisseurship running through museology's approach to the preciousness of objects (it could be called the "masterpiece" paradigm). This is not good news for patterned objects, since a certain hierarchizing of fine versus decorative art goes along with this approach (J. Jones; Weber). In interview responses, the emphasis is on meaning, especially connected to viewer and object histories.

My third point of comparison concerns museums as sites of education, specifically of enhancing cultural understanding and tolerance. Recent museological

writing highlights this function, no longer defining museums as "institutions which carry out museum functions for the benefit of people who like museums" (O'Neill 96). The contemporary model of the museum, in the literature at least, is an outward-looking institution with high educational potential. It seems to me that the Aga Khan Museum performs this vision particularly well, by creating an environment where visitors can experience the unique qualities of the historic arts of Muslim civilizations – not the ossified view of "Islamic art" that was invented by European scholars in the nineteenth century (Necipoğlu, 'The Concept of Islamic Art'). To be sure, there was a certain amount of grousing about the lack of interpretive text by some respondents – and I would prefer to see more interpretive strategies in the gallery, especially of the patterned art – but it can also be argued that the understated approach to interpretive texts enhances the ability of a viewer to make of the messages what she will; there is no preaching.

In sum, the contrast between museum theories and museum experiences leads me to the conclusion that the Permanent Gallery of the museum, while not being on the cutting edge of the interpretive strategies depicted in the literature – for example, there is very little interactive technology and interpretive texts are, as I mentioned, light – is on another cutting edge, perhaps a more inviting one according to interview respondents, by providing an atmosphere where visitors can walk through its dimly lit, patterned spaces and discover the beauties and the stories for themselves.

Summary: Pattern Thinking Reformulated

In building up his thesis of making as a field of forces, Tim Ingold states that a woven object has a surface on the inside and the outside simultaneously. Its fabrication is the result of the manipulation of those surfaces in tension with each other (Ingold, 'On Weaving a Basket' 82). I extend this notion to the plied threads – or cords, or yarns – with which the object is woven, and alter it slightly: it is not so much that a plied cord has a simultaneous inside and outside as that, following the twist of the two or more elements, the inside surface comes to the outside and is revealed and the outside surface moves to the inside and is hidden. In just this way, my prototype of a twisted cord as a synthesis of my findings exhibits this revealing and concealing: some of the findings, the sensitized ones, run prominently along the surface while others, the marginalized ones, run within the cord, hidden but still there and necessary for the structural integrity of the cord.

It is this action that Deleuze maps with his actual and virtual states, and it is this action that, I argue, characterizes the movement of visual pattern through stages of perception and cognition – the meaning-making of the pattern – in the experiences of viewers. In this chapter, I have attempted to show how this movement works, through visuality, through materiality, through virtuality, and through narrative. My prototype of a twisted cord shows me how the multiplicities of pattern can be structurally integral and manifold at the same time, in the same manner that a cord or thread is wound of many different elements and thousands of them form the network that is a whole cloth. The twisted nature of a plied thread exemplifies the torque and dynamic tension of pattern; it

is always becoming, never at rest. The cyclic movement of pattern thinking is a paradox of unity and multiplicity.[27] It is topological rather than flat, as T. Hugh Crawford makes clear in his description of woodworking:

> Woodworkers know that their practice unfolds between conscious imaging and tactile manipulation. Singularities emerge in the space between image and execution. Such singularities are topological rather than geometrical, but that science of surface is one of affect: topology is the study of felt surface, not measured depth (91).

In the twisted cord that is my theory of pattern thinking, the narrative element is much stronger than I anticipated at the start of the study. The finding that visual patterns tell stories, and how they do, comes directly out of the interview responses. In a process that seems like a textbook case of grounded theory, the theory has come out of the data, and it causes me to reformulate my thesis. Pattern thinking is related to affective processes, but only if those processes are defined not as irrevocably unconscious, but moving, as it were, from invisible to visible, from virtual to actual, from folding to unfolding. In fact, coming back to my NVivo mapmaking efforts, I find that the positional maps (figures 24 and 25) that I made as the final steps of analysing my data are useful charts of these processes. Positional map #1 pictures the visible/invisible and

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[27] I suggest that Deleuze does not quite capture this paradox of unity and multiplicity. In my view, his penchant for setting up conceptual oppositional binaries – for example, smooth and striated, royal and minor, and yes, even actual and virtual – gets in the way. Derrida comes closer with his conceptualization of the labyrinth of language, "qui comprend en lui ses issues / which includes its own ways out within itself" (Derrida, *La voix et le phénomène* 117; Derrida, *Voice and Phenomenon* 89).

meaningful/meaningless oppositions as continua, in the centre of which visual patterns flicker in and out of being. Positional map #2 performs a similar function for the immaterial/material and nondiscursive/discursive oppositions, but this time it is patterns' transmediality, transmateriality, and transdiscursivity that flicker in and out of being. It is as if the opposing poles act like magnets, holding the experiencer's perceptions of the patterns in tension in the centre of the field of vision, in the space between subject and object, thus giving these perceptions a space in which they can actualize and de-actualize.

How this more nuanced view of pattern thinking is given voice in the museum imaginary is the subject of my concluding chapter.

Chapter Six, The Museum Imaginary

The focus of this study has been the nature of the subject/patterned-museum-object encounter in a gallery of Islamic art. This encounter is what I have been probing, problematizing, and theorizing about throughout the previous chapters. In this chapter, I offer the conclusions I have reached as a result of my explorations in Chapters Two and Three of the literature, my findings in Chapter Four from the Aga Khan Museum interviews, and the comparison of these two bodies of data that I undertook in Chapter Five. My aim has not been to arrive at a core unifying theory of the encounter and the role of visual pattern within it, but instead to uncover the sensitizing concepts and the marginalized discourses that transpire in the charged space between the subject and the object. However, there is a consolidating process at work in this chapter, as my findings in both situations have come together and begun to point in a direction. Accordingly, in what follows I present five conclusions of the study and one general recommendation.

In listing and unpacking my conclusions and their significance, I seek to demonstrate the trajectory of my thinking about them, where they originate in the data, and how they have come to light. In using the word "pattern" here, I am referring to visual patterns on objects, the kind that are active in the subject/object encounter that is my concern. In point form, my conclusions are:

1. Patterns tell stories.

2. The telling of patterns' stories is a co-creative process in the subject/object exchange.

3. Patterns tell stories through their transculturality, transmediality, and transdiscursivity.

4. Patterns' stories run through sensory channels.

5. The AKM Permanent Gallery creates an imaginary world for the telling of patterns' stories, measured in time and space.

1. Patterns tell stories

First, I must make it clear that the ensuing conclusions all follow my discovery from the interview findings that patterns on objects, far from being nondiscursive, tell specific stories in specific ways. In the next four sections, I provide details for how they do this, but here I outline the steps in my thinking that led me to this and the following conclusions.

In the Introductory Chapter, I recounted my resistance to the trend in museology to think of gallery objects as "accessories to tell stories" (Dudley, 'Chinese Horse' 6), in other words, to ignore their material properties and to treat them purely as sources of information. I was in agreement with Dudley that this stance seemed one-sided: I was aware from the outset of, on one hand, the materiality of visual patterns – since they always manifest on objects – and, on the other, their immateriality – their mutability and variety. I undertook to probe this apparent paradox. My research questions took a two-pronged approach, asking how visual patterns are perceived and made sense of in two research situations: the scholarly literature about pattern and the responses of visitors in a gallery of Islamic art. I hypothesized, first, that visual patterns tended to slip into the

background in the presence of figurative images, and, second, that they were not similar

to language in their structure and communicative affordances. I did not concur with

approaches that theorized visual patterns' likeness to language by breaking them down

and analyzing them as if they possessed a syntax (Necipoğlu, *The Topkapi Scroll:*

Geometry and Ornament in Islamic Architecture 209; Roe, 'At Play in the Fields of

Symmetry' 241; Washburn 553). This one-to-one comparison to the mechanics of

language seemed forced and inaccurate to me, and an unsatisfactory way to characterize

visual patterns' communicative powers. I considered "nondiscursive," applied by Dudley,

Message, and Witcomb to gallery objects, as a better term to apply to the way visual

patterns communicate with their audiences in a gallery of Islamic art.

I mentioned in the Introductory Chapter my work on representations of magic

squares in West African textiles, the subject of my master's thesis. I cited Epelboin's

characterization of these representations as a metalanguage (150) and I thought to apply

this term to the visual patterns I was studying to explain their agency. However, as I

stated in Chapter One, my chosen methodology of situational analysis warned me off the

formulation of a "unifying" or "core" theory. As well, my strong inclination as a maker to

keep my pattern thinking grounded in patterns' materiality led me away from notions of

"meta."

In Chapter Three, I moved toward an approach to visual patterns that examined

them in light of a constellation of four theoretical relationships: pattern and visuality,

materiality, virtuality, and narrative. I used this approach to structure my conceptual

framework, arrived at in the chapter's last section, and I have used it to guide my thinking

in the remaining writing. My conceptual framework helped me to see the object agency

of the subject/object exchange as allied with Deleuze's conception of the world as a

constant coming into being from virtual to actual states and back again. I ended the

chapter with a prototype of a fortune teller puzzle which visualized for me this very

action.

In reporting my findings from the gallery interviews in Chapter Four, I wrote that

the interviewees did not relate to visual patterns if figuration was on the object they were

looking at, leading me to conclude that, based on my findings, visual pattern does indeed

recede into the background of the viewer's attention, superseded by figuration. Therefore,

I surmised that my first hypothesis was correct. Turning my focus to the second

hypothesis, I discovered that interviewees often found stories in the patterned objects, and

that their stories arose from their own histories, or from the histories they perceived in the

objects, or from both of these factors. Moreover, the stories that the respondents found in

the objects arose from who they were in that moment, their situation, past and present,

their profession, and their experiences in their lives. In a sense, this finding contributes to

an expanded definition of histories; the use of that term can include not only a person's

ancestry, but also their life experience.

The finding that interviewees found stories in patterned objects propelled a

reformulation of my thesis of pattern thinking in Chapter Five in light of my discovery

that the narrative aspect of visual patterns is much stronger than I suspected at the start of

my study. At the end of the chapter, my prototype of a twisted cord visualized for me the

various paradoxes of pattern thinking: the paradox of an ideality – patterning – and a

reality – visual pattern on objects – entwined with each other, in the same operation that Derrida expresses about language,[28] and the paradox of always moving between hidden and revealed/actual and virtual states, powered by difference and repetition, in the same operation that Deleuze formulates as the becoming of the world (*Difference and Repetition* 41).

2. The telling of patterns' stories is a co-creative process

A major finding of the interviews was that beauty was highlighted as the most important sensitizing concept: respondents mentioned patterns' beauty more than any other aspect of the objects and the gallery. More than merely mentioning it, respondents related the beauty of the patterned objects to making and to the expanded view of histories that I defined earlier. I interpret this finding to mean that beauty is a storytelling vector – a way that patterns tell stories. Respondents find meaning in the patterned objects' beauty – indeed, a story *is* a meaning. Moreover, the meaning is constructed, not in the object or in the subject, but in the space between them. This finding and my interpretation of it lead me to conclude that the making of patterns' stories and the meanings therein are a co-creative process, fluid, never finished, and always contingent on their situation. The beauty that the interview respondents found in visual patterns drew them in and sensitized them to the story of their histories and the patterned object's histories. Therefore, I conclude that beauty is not purely an aesthetic response to patterns;

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[28] See the Prelude, f4.

it is a meaning response, and it operates as a powerful attractant to viewers, thus enabling the subject/object interchange.

3. Patterns tell stories through their transmediality, transculturality, and transdiscursivity

The interview respondents were fascinated with pattern making in objects; this was another major finding. I relate this finding to the theories of "making as thinking" put forward by scholars in both material cultures and digital cultures, and I also associate it with the sensitivity to the artist's process shown by the respondents. Both these concepts demonstrate the unfolding and folding of patterns' stories as they flicker in and out of being, first through the makers' actions and then through the experiencers' responses – co-created in each case, as I have said. The essential action of unfolding and folding is how patterns seem to appear – always different and always themselves – on objects from many different cultures and, as the AKM Permanent Gallery exemplifies, in a wide range of materials. The transmediality and transdiscursivity of patterns stem from this action. I would take my thesis of the co-creation of meaning further to posit that the subject "rehearses" the maker's experience in making the object.[29] The jazz musician and musicologist Vijay Iyer describes the same process of active experiencing in music that I am arguing for in relation to patterned objects: he maintains that the musician/musical object/listener interchange is mutually constructive and that "any model of rhythm perception and cognition . . . must treat perception to some degree as a practice" (101).

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[29] The French verb for rehearse, répéter, better captures this process: in performing her response to a patterned object, the subject "repeats" the maker's experience.

I argue that the act of rehearsing the maker's process creates in the experiencing subject an understanding and a knowledge of the object on a deep level. To illustrate this act, I offer my own transmedial encounter with a dish in the Aga Khan Museum Bellerive Room. The object of my encounter is classified in a Sotheby's auction catalogue as a tenth century ceramic dish from Northeast Iran (Figure 37) that is covered with painted geometric patterns and calligraphy. Its catalogue entry reads:

> A very rare Nishapur or Samarkand slip-decorated pottery dish . . . of broad form with a recessed well and broad sloping rim, the footing low and slightly splayed, decorated on a pinkish-brown ground . . . The present example is one of the largest recorded pieces of the coloured ground group . . . The calligraphy reads: *al-jud min akhlaq ahl al-janna*, "Generosity is a disposition of the dwellers of Paradise" (*Sotheby's Arts of the Islamic World Auction Catalogue*).

I first encountered this object on a computer screen when I was researching educational activities that could be created from the objects in the AKM collection. Later, when the Museum opened in 2014, it was installed in a case in the Bellerive Room, and I went to look at it there. I selected this particular object for investigation because of the painted representation of the knot at its centre. My studies of patterns from mathematical, art historical and sociocultural perspectives have often led me to reflect on how those perspectives view knot patterns. In addition, my experiences with weaving, braiding, and other textile making have made me sensitive to interlace forms, so that I feel them as tactile forms as well as see them.

From the catalogue entry I learned how Sotheby's classified the dish: it is one of several pottery objects that were excavated from Nishapur in Iran and Samarkand, now in Uzbekistan, beginning in the early twentieth century. At the time there was widespread looting by Europeans in Iran and by Russians in Uzbekistan, but later expeditions were arranged by museums and other institutions, for academic purposes (Vernoit). How the dish came to auction in 2000 is unknown, but at that time it was purchased for the Aga Khan Museum collection.

The more I looked at the object, the more I was drawn to the knot pattern. Perhaps this was due to my aforementioned predilection for knot patterns, but I also think it was due to the fact that my desire to physically interact with the object itself by holding it in my hands was frustrated. To resolve this frustration, I decided to replicate the part of the object that I was most curious about, the knot pattern, in a physical material. The making of a physical model would also help me analyse how the knot pattern in the object's centre was constructed. I had tried repeatedly and at length to understand the interlacements by looking at the dish but I kept getting confused in my determination of which line was over or under which other line. At this point I thought that I could figure it out better by making a workable paper model of it. In addition, I reasoned that this exercise could lead to the creation of a hands-on, educational geometry activity that students could use in the AKM to help them understand how such patterns are constructed. I was not trying to posit the original method by which such a knot pattern may have been constructed at the time the object was made, although some of this kind of research has been carried out by Gulru Necipoğlu, who theorizes the use of underlying

grid lines that scaffold the final design but do not appear in it (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 231).

First, I made a digital sketch of the knot pattern and filled in the paths of its interlacements with two colours to distinguish two motifs made up of four circles each, the orange motif set at a forty-five degree rotation to the blue motif (Figure 38, left). The motifs in the object's knot pattern are somewhat deformed, as if someone pressed the edges in, so I made my own digital model with circles in order to see the motifs more clearly (Figure 38, right).

When I separated the two motifs from each other I could see that the painter had omitted the centre of the blue motif in the painting of the pattern on the object (Figure 39).

In my digital model the orange motif is superimposed over the blue one, while in the painting on the object the lines of the motifs are interlaced in a certain order. I wanted to understand the interlacements, so I isolated the four circles of each motif, printed them, and cut them out. Then I made a cut in each circle and wove them together, exactly following the order of the lines in the painted knot pattern as they crossed over and under each other. I still found it very difficult to keep track of the interlacements, so I assigned each circle a unique colour in another digital sketch (Figure 40), and I remade the circles with one side flattened. The finished model is shown in Figure 41.

Holding my paper model in my hands and moving the circles as they were held tightly by their interlacements, I finally felt that I understood the pattern's structure. For me, the key to understanding was the physical separation and manipulation of the

individual circles in the paper model. Once I understood the original order, I could see that the circles could be used to make new sets of interlacements and therefore new patterns. In sum, I used my experience as a pattern maker to perform again the original knot-maker's process, thereby understanding the object through the action of my fingers. It was a transmedial act, for I recreated a painted knot on a ceramic dish as an actual knot in paper strips.

The second term I attach to how patterns tell stories is transculturality. The transculturality of patterned museum objects is mentioned many times in the literature and in the interviews. It describes the fluidity Dewdney et al are talking about in museum audiences, a fluidity that responds not to a static notion of objects' histories but a to a mixed, changing, and contingent one (204). My thesis of the transdiscursivity of patterns comes out of the findings' evidence for patterned objects' transculturality and transmediality. Visual patterns are infinitely adaptable, with the capability of changing cultures and materials in their manifestations, and yet they are always recognizable. They are rooted in these two paradoxical aspects of their nature.

A third way that patterns tell stories is through the prehension of their objects' materials. In Chapter Two I described how Whitehead named prehension as the resistance of materials that dictates how they are fashioned. Prehension may apply, not only to the properties of materials, but also to the complexity or difficulty of a technique a maker uses on a material, as illustrated by my struggles to recreate the knot on the ceramic dish. This kind of prehension is abundantly evident in the densely layered, complex patterns on many of the Permanent Gallery objects. An object's prehensiveness

is an important way that patterns tell stories: if the object's beauty draws in its experiencer, its prehensive qualities activate her sensory responses, in a process similar to the one I cited from Ellen Esrock in Chapter Five of a viewer feeling a tension in her fingers while viewing a painting of an embroiderer.

Finally, visual patterns are transdiscursive – that is to say, active in the multiple discourses of visuality, materiality, virtuality, and narrativity, as I have argued in this study. In their manifestations on objects they belong to no one time period and to no one cultural group but have appeared and continue to appear in multitudes of sites, materials and expressions. They are fixed and fluid at the same time: fixed to the technical properties of their objects, but apt to appear on objects spanning many geographies and time periods. By approaching them in this way, I assign new prominence to patterned objects as conveyors of stories in museum gallery viewing.

4. Pattern's stories run through a subject's sensory channels

I am arguing that the subject rehearses the maker's experience in response to a patterned object. Furthermore, I maintain that the interchange is physical: an experiencer responds to the objects with her body, through her senses. I have cited many examples in the interview texts of visitors' active sensory engagements with the objects. This finding leads me to the conclusion that imagination is lived in the body, with both conscious and unconscious perceptions arising and receding. For me, this process best describes affect. Affective processes are not stuck in the precognitive level of the body's lifeworld – which is composed, as Bateson defined, of an individual plus her environment ('Form,

Substance, and Difference' 453) – but they are always moving in and out of

consciousness. According to this view, visual pattern and figurative image move in and

out of the subject's attention, each fulfilling their own role in the stories that an object

communicates; they are not opposed but complement each other. To illustrate this

phenomenon of figuration and abstraction exchanging roles in a narrative, I draw the

reader's attention to the short film *The Powers of Ten*. It depicts a rapid camera zoom that

pans outward by powers of ten (n^{10}) from a couple picnicking in a park to outer space,

and then zooms back in by powers of ten to finish on a subatomic view of the man's

hand. In the most macroscopic and microscopic segments, the viewer apprehends the

images as patterns while in the segments where the couple are recognizable, she sees

figures; yet it is the same world. It is only the perspective that is different (Eames and

Eames). Deleuze would call the macro and micro views "the little crystalline seed and the

vast crystallizing universe" (*Cinema 2* 81), assigning them to the virtual realm, while the

human-scale view is in the actual realm.

5. The AKM Permanent Gallery creates an imaginary world for the telling of patterns'

stories

In Chapter Four, in my analysis of the Museum as a social world, I mentioned that

the AKM Permanent Gallery features a light interpretive touch. This style of gallery-

making serves some of its audiences well, but others, including a few of my respondents,

commented that their attempts to find meaning in the objects were short-circuited. They

made statements about the animation such as, "I thought it was just light effects" (0024,

older man), and "I was waiting for it to tell me something. And then it didn't. So I kept walking" (0038, young woman). About the objects, they commented, "I feel nothing, nothing at all" (0024 older man), and about the gallery, "there is a sort of blackout between pieces" (0042, older man). I conclude from these findings that meaninglessness as well as meaning is part of the exchanges between subject and object. However, I must temper this conclusion with an insight that has arisen from my research in the literature on logical depth, hiddenness, and the virtual: if I take these theoretical positions seriously, then I must redefine meaninglessness as, according to logical depth, all the debris that floats in the river of history – or, as Bennett and Dexter assert, as all the calculations that have gone into a mathematical formula, including the discarded ones (C. H. Bennett 3; Dexter, 'The Esthetics of Hidden Things' 130). According to Deleuze's formulation of virtual and actual states, that which is without meaning is that which is in the virtual state, whence it may emerge as a possibility. In a sense, meaninglessness is as much a part of the subject/object exchange as meaning is – it has to be there, for it is the folded side of meaning. On the spectrum between pure meaning and pure meaninglessness are all the phenomena I have mentioned in earlier chapters in discussing logical depth, the formless, the virtual, and the hidden. These phenomena do not lack meaning; rather, like the uninked scaffolding lines in geometric patterns mentioned by Necipoğlu (*The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* 231), and indeed like the absent yet essential sections of the knot on the AKM dish, their meaning is hidden, folded, or "beneath interpretation." Gell is getting at this idea when he writes that magic haunts technical activity like its shadow or its negative contour

(*Technology of Enchantment* 224). I infer that he uses "magic," not in an anthropological sense but in the sense that technical activity – making of all kinds – has something hidden about it, something folded, like the other side of the fortune teller puzzle. Furthermore, I read his sentence to mean that logical depth, although it is beneath interpretation, haunts technical activity like its shadow.

In the gallery, I suggest that the juxtaposition of meaning and meaninglessness provides a sense of mystery and numinousness that contributes to the making of the Permanent Gallery's imaginary world. The sense of mystery originates from various sources, including the dim and dramatic lighting, the entry through a dark corridor that swirls with appearing and disappearing animations, and even the action of opening heavy, double-walled doors to enter and exit the space. But once the visitor is traversing the gallery and paying attention to the objects displayed there in succession, the currents of the subject/object exchange begin to course along the channels of transmediality and transculturality. Jonathan Hay calls transculturality "intercultural" and claims that it involves a slippage between categories that frees the object from its meaning, allowing it to float free of rigid interpretations (Hay, 'Intercultural' 8). I see the action that Hay describes operationalized in the light interpretive touch of the Permanent Gallery.

Jennifer Barrett points out that museums never display objects in the way they were originally intended to be seen (108). As Rachel Morris suggests, this is part of their appeal: they are "games of boxes within boxes" (6). My formulation of the museum imaginary aligns with these museum scholars' conjectures, and it is grounded in Malraux's *musée imaginaire*; but beyond his vision, my conception of the museum

imaginary expands the experiential space to include everything in the gallery that feeds imagination: the wall surfaces, the lights or their absence, the sounds, and even the smells and the feels. It does not authoritatively dictate meanings to the passive visitor; rather, it provides the conditions for imagination's activation. The visitor is free to sort through and take from these conditions what she will, according to her own histories and experiences, to create her own experience of the gallery. Indeed, this is the very process that visitors recounted to me over and over, in as many variations as there were visitors whom I asked to tell me.

The museum imaginary of my study is also inspired by Jacques Lacan's theory of the imaginary as one of the three orders or dimensions of the human psyche (1159). In Seminar XXII at the Massachusetts Institute of Technology in the 1970s, Lacan pictures the real, the imaginary, and the symbolic, as the cords of a Borromean knot. The knot is a topological structure that falls apart if one of its cords is removed. Lacan changes the structure by adding a fourth cord (figure 42), thereby illustrating in his prototype how the psyche can be held together by an inexplicable, yet integrating force (28).

Aspects of Lacan's imaginary pertain to my conceptualization of the museum imaginary: first, his prototyping of the psyche as a knot is a transmedial act, for he translates a psychological theory into a topological form, creating a "prototype that argues." Second, he maintains that "for something to exist, there must be a hole . . . It is around a hole that existence suggests itself. Now this hole, we have one at the heart of each of these rounds. Without these holes, it would not even be thinkable for something to be knotted" (10).

The museum imaginary is grounded in the notion that imagination is lived in the body and in the network of communication between a sentient being and an object. In a framing of the museum experience which highlights its poetics rather than its pedagogy, I take up Derrida's observation that the gallery is the labyrinth, but where he follows his thread of thought to premise the fall of Icarus from the sky (*La voix et le phénomène* 117), I liken the experience to a mythic hero's path of individual and collective heroism where memory is continually re-enacted.

A gallery visitor finds the path open to her and pursues it: to scale the castle walls, to travel down the dark corridors, to discover the hidden treasure. On the cover of *Images of the Art Museum* is an image that illustrates this vision: a still shot from Alfred Hitchcock 1929 movie *Blackmail* shows a chase on top of one of the British Museum domes (figure 43). Patterned objects enhance this version of the museum experience as a quest to unearth its treasures, for they are open to multiple interpretations and they express the element of play.

Implications of my findings for theory, research, and practice

I have argued for a vision of the museum experience as a poetic one involving the visitor's immersion in an imaginary world. The AKM permanent gallery uses the animation corridor, the animated world map, and the Shahnameh iPad to enhance the effect of entering an imaginatively rich, mysterious world. More research needs to be done to analyse the effects of digital technologies like these. I have only touched on the effect of visitors' own digital devices on their experiences in the gallery. Research has

documented the way gallery visitors use their phones to take photos of objects and post

them on platforms such as Facebook, Pinterest, and Instagram; and how they often

include themselves in their images (Marcus Institute for Digital Education in the Arts). A

deeper investigation of this phenomenon would reveal more insights of these effects and

how they may be used to further improve visitors' experiences in the gallery.

I have examined the museum visitor experience throughout as an individual one.

How does it change when it is a social experience, as it often is? This is another avenue

of research for future studies. Finally, beyond this study, the methodological pairing of

situational analysis and data mining that produced my new understanding of patterns has

possibilities for future research beyond museology and pattern studies to pursue a broader

set of questions in a range of instructional and cultural contexts.

My hope is that my research can lead to new interpretive strategies in museum

galleries that help remove perceptual and intellectual barriers that prevent people from

appreciating the values of patterned art in subtler and more sophisticated ways. I have

argued in this study for an expanded interpretation of visual patterns in a gallery's

materials, whether text, visuals or interactives, that expresses their narrative power,

leading to a renewed sensitivity to pattern thinking in the museum-going visitor's

experience. My thesis of co-creation of meaning in the subject/object encounter could

fruitfully be applied to all objects, not just patterned ones; however, I can only support it

in the context of my investigation of a specific set of objects on display in the Aga Khan

Museum Permanent Gallery, and of a very limited number of interview respondents. I do

not claim to have exhaustively fathomed all the mysteries that inhere in the perception

and cognition of patterns, only to have argued, I hope persuasively, for an expansion of

the space around them – as I wrote in the Introductory Chapter, to give them more air to

breathe.

Postscript: In the Labyrinth

"Culture is a built labyrinth of signification, and its beauty lies as much in the journey as in the destination" (Roe, 'At Play in the Fields of Symmetry' 233).

In the end, I come back to the labyrinth. Why does Theseus venture into the labyrinth? I find myself needing to provide an alternative version of the archetypal story of the hero's journey, a version powered by pattern thinking. Theseus ventures in to find the story, his story, at the centre of the labyrinth. Within the labyrinth is the story. Benjamin was right, but he did not go far enough: history decays into images, not stories, but within the images *are* stories. And everything that the stories tell is folding, unfolding, and refolding at the heart of the labyrinth, in the gallery of the museum imaginary, at play in the fields of pattern.

Figure 37: Dish, NE Iran, 1000s, earthenware, slip-painted, D 321 cm, AKM541
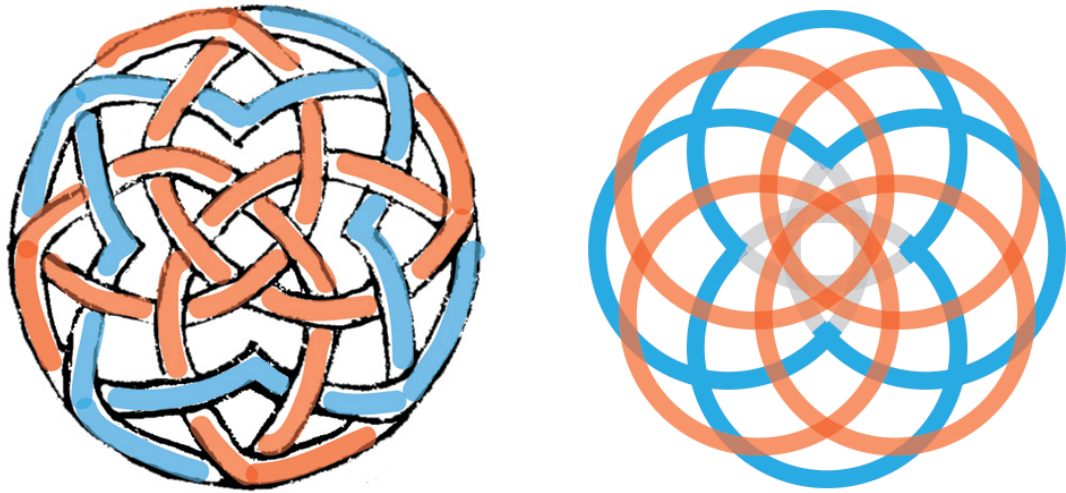
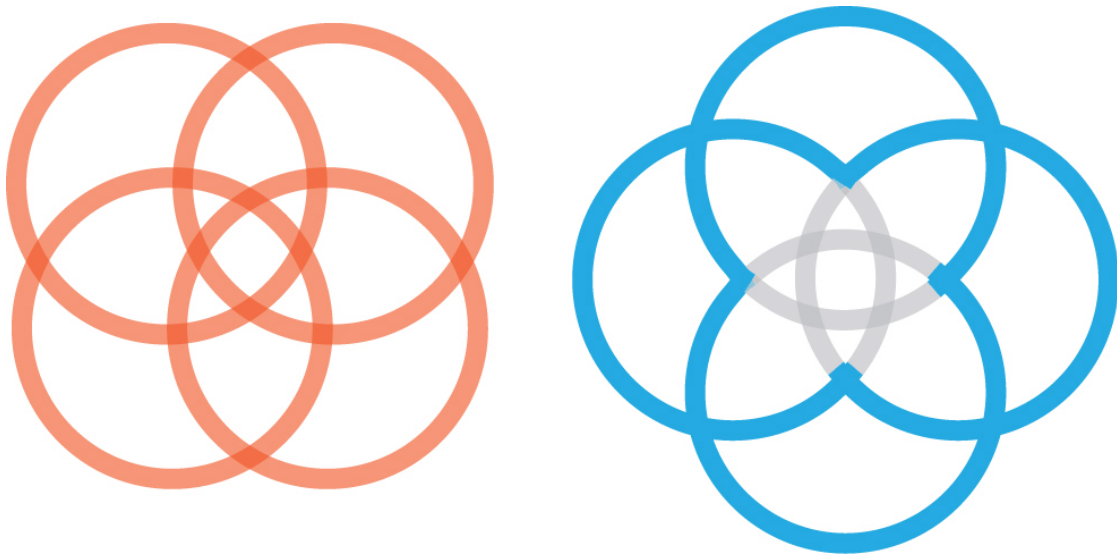Figure 38: My digital sketch of the knot pattern in the centre of the object

Figure 39: The two sets of motifs with the centres of the blue circles greyed out

Figure 40: The knot with colours

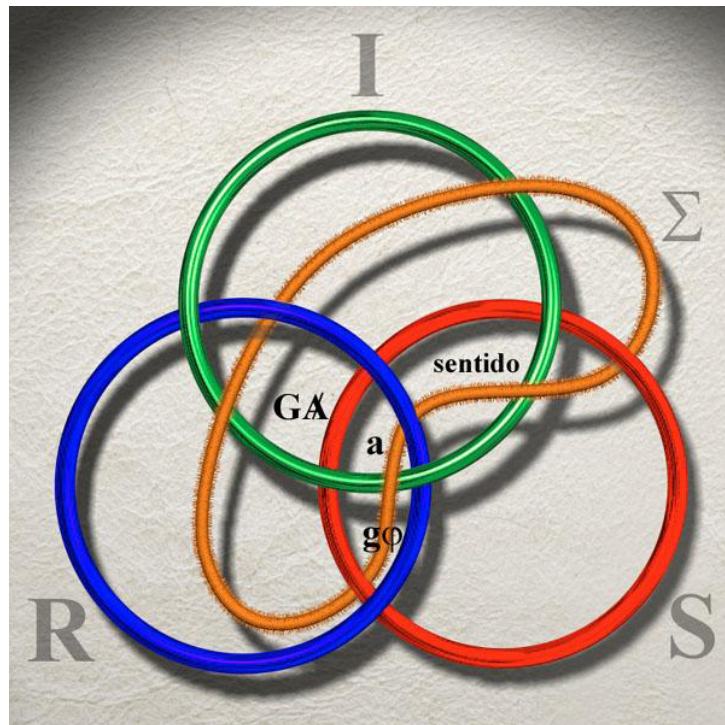Figure 41: My interlaced knot with paper strips

Figure 42: Lacan's prototype of the Borromean knot with integrating cord in orange[30]
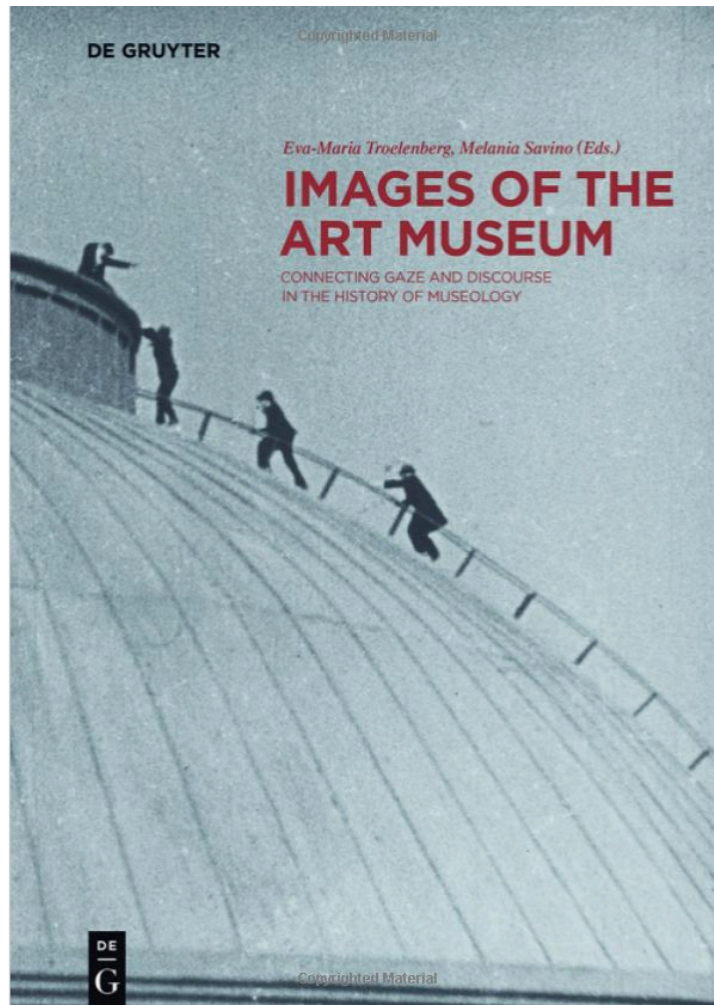
Figure 43: Cover image of *Images of the Art Museum*

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Appendix A: AKM Labels for Objects used in the Research Study

(Figures 2 and 3) Animation, no label displayed

(Figure 4) Robes and Mantles
Central Asia, 19th-20th centuries
Silk, cotton; plain weave, embroidered
On loan from the Marshall and Marilyn R. Wolf Collection, L2017.3.3-8

Embroidered and woven by nomadic Turkmen tribes of Central Asia in the 19th and early 20th century, these robes and mantles are most commonly associated with the Tekke tribe in Turkmenistan. The women's mantle (*chirpy*) was worn over the head as a cloak, covering the back and shoulders, with the so-called "false-sleeves" usually attached at the back. The tradition of wearing garments with false-sleeves can be traced back 2500 years in Central Asia but their original function is unknown.

(Figure 5) Portrait of Fath Ali Shah Qajar
Tehran, Iran, early 19th century
Oil on canvas
AKM503

(Figures 6 and 7) *Suzanis*
Central Asia, 19th-20th centuries
Silk embroidery on cotton panels
On loan from the Marshall and Marilyn Wolf Collection, L2018.15.1-3

These textiles reveal the wide geography of their origins through their patterns and choice of colours: some are attributed to Bukhara, while others are attributed variously to Nurata, Samarkand, Shahrizabz, Tashkent, Ferghana, and other places in Uzbekistan as well as Tajikistan. Bukhara and Samarkand both played a significant role as main cultural and commercial centres of Turkestan and of the Silk Road. Merchants and craftspeople came from all over to sell their goods in these cities. The technique of chain stitching, largely used to embroider Central Asian textiles, is an ancient tradition that has survived across the vast geography of Central Asia from west of China to the eastern borders of Iran, and from southern Russia to the northern borders of India. The art of making these textiles embraces rich, multi-faceted ethnic and cultural backgrounds. *Suzani* is the term that has been established for this patterned needlework, but it is also known as *keshte*. The terms derive from the Persian words *suzan*, needle, and *kashida*, a kind of needlework. The embroidered textiles of Central Asia display rich pattern variations: large medallions, multiple rosettes, rosette blossoms, and floral grids create spectacular pieces in an endless combination of colours. They demonstrate a joyful play of sparkling patterns and colouristic effects, including zoomorphic botehs, as seen on the textile with a yellow ground decorated with a rosette blossom pattern in the centre of the display.

(Figure 8 left) Shirin Sits on the Throne as Queen of Armenia

From the manuscript of *Khamseh* (Quintet)

By Nizami (d.1209)

Copied by Mahmu al-Shirazi

Iran, late 16th century

Opaque watercolour, ink, and gold on paper

AKM523

The *Khamseh* (Quintet) is a posthumous collection of five narrative poems composed by Nizami (d.1209), which begins with an ethico-philosophical poem, followed by four medieval romances. The *Khamseh* become a popular subject for calligraphers, painters, and illuminators to create richly elaborated copies of the manuscript in both Persian and Mughal Indian Empires.

(Figure 8 middle) Zulaikha Holds a Banquet

From a manuscript of *Yusuf va Zulaikha* by Jami (d.1492)

Copied by Abu'l-Makarem b. Abu'l-Fath b. Muhammad

Iran, dated 22 Rabi' al-Thani 936 AH / December 24, 1529

Opaque watercolour, ink, and gold on paper

AKM370

(Figure 8 right and Figure 9) Manuscript of *Kulliyat*

(A Complete Collection of Poetry)

Of 'Urfi Shirazi (d.1591)

Isfahan, Iran, dated Rabi al-Awwal 1057H/March-April 1647

Opaque watercolour, ink, and gold on paper

AKM273

(Figure 10) iPad, no label displayed

(Figure 11) Panel
Probably Cairo, Egypt, 15th-17th centuries
Marble and stone mosaic
AKM571

Fabricated from multicoloured cut stones, this mosaic wall panel is probably from the lower part of a courtyard. It is decorated with geometric patterns comprising six-pointed starts. Borders surrounding the three arches are decorated with a pointed arcade pattern. The same pattern can be seen on the eight-lobed steps of the Mamluk fountain in this gallery (AKM960).

Appendix B: Chart of Interview Responses

Codes	# mentions
Gallery experience	0
Objects	0
Object making	0
Personal response to the animation	0
Relationships among objects	0
No relationship to objects	0
Code definitions	0
Cognitive science	0
Knot/labyrinth	0
Magic, ritual	0
Like pattern	0
Like software	0
Phenomenology	0
Digital technologies	0
Computer model of mind	0
Digital agency	0
How a digital prototype argues	0
Information versus knowledge	0
Non-visuality of software	0
Interpreters all the way down then bits	0
Real versus blocks or virtual world	0
The computer imaginary	0
Logical depth and hiddenness	0
Technological unconscious	0
Virtual space	0
Software's patterned nature	0
If/else, while, for loops	0
Material culture	0
Affect	0
Making as thinking	0
How a physical prototype argues	0
Materiality of the digital	0
Form-material separation	0

Codes	# mentions
Material agency	0
Making as a field of forces	0
Performativity	0
Museology	0
Influence of time and space in a museum exhibition	0
Representation in a museum exhibition	0
Background, New museology	0
Authority or plurality in museums	0
Museum agency	0
Museums about objects or ideas	0
Social justice	0
Individual or social museum experience	0
Challenges of contemporary museums	0
Museum interpretation	0
Nondiscursivity in a museum exhibition	0
Selectivity in a museum exhibition	0
Storytelling in a museum exhibition	0
Definitions of Islamic art	0
Postcolonial perspectives	0
Subject-object encounter in a museum	0
Object agency	0
The mediating work of art	0
Viewer construction of meaning	0
Pattern's role in systems of perception and cognition	0
As it relates to affect	0
Assemblage theory	0
Flat ontology	0
Difference	0
Patterning systems	0
As communication	0
Like language or not	0
As cybernetics	0
As device	0
As event	0
Cognition as pattern recognition	0
Cognition as representation	0

Codes	# mentions
Metapatterns	0
Repetition/iteration	0
Theories of ornament/decoration	0
As evidence	0
As meaningless	0
As pleasure or game	0
As symptom	0
As articulation of surface	0
As dangerous	0
As tacit knowledge	0
Visual culture	0
Figure/ground	0
Semiotics of images	0
The optical unconscious	0
Vision as culturally inflected	0
Embodied cognition	0
Kind of object	1
Painting	1
Carpet	1
Fine versus decorative art	1
Uses of technology in a museum exhibition	1
Orientalism in a museum exhibition	1
As visual metaphor	1
As 'mere'	1
As surfacescape	1
Includes all senses	1
Storytelling vs crystals	1
Primacy of text interpretation	1
Relationship among objects through figuration	2
Relationships with gallery objects in animation	2
Relationship to objects though figuration	2
Relationship to objects through narrative	2
Meaninglessness	2
Relevance of information	2
Text in a Museum exhibition	2
As visual mathematical thinking	2

Codes	# mentions
As culturally specific mode of cognition	2
Sensory aspects	3
Temporal aspects	3
As spiritual symbolism	3
As protection	3
Building	4
Bowl	4
The museum imaginary	4
Figuration versus abstraction	4
Islam	5
Technology of the animation	5
Relationship among objects through materials	5
Aura in a digital age	5
Active looking	6
Religious symbolism in objects	6
Object mathematics	6
Making in the animation	6
Relation to script	6
Mosaic	7
Circle	7
Physical orientation	7
No relationship among objects	7
Relationship among objects through narrative	7
The "Western" gaze	7
Visitor agency	7
Affect in a museum exhibition	8
Gallery ambience	9
Imagescape vs surfacescape	10
Tile	10
Artist's process in the animation	10
Relationship among objects through patterns	10
Relationship to objects through design	10
Semiosis, symbolism, meaning	10
How the object is/was used	11
Movement in the animation	11
Labels	12

Codes	# mentions
Islamic art	12
Intricacy	12
Arabesque	13
Embodied cognition in a museum exhibition	15
Spatial aspects	15
Viewer heritage and narratives	17
Calligraphy	17
How the object might feel	17
Object Motif	18
Folding and unfolding	18
Clothing	19
Object Design elements	20
Ceramic	22
Geometric pattern	23
Figuration in objects	24
Textile	25
Relationship among objects through design	30
Object Heritage	32
Gallery themes	34
Object Colour	37
Narrative elements in objects	38
Object Pattern	38
How the object was made	40
Beauty	43
Total	863