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## ***The Memory Model Project***

### **An investigation of three-dimensional models as triggers and documents of recall**

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#### ***Models: Enchantment, Utility, and Art***

In this working paper, I will distinguish three types (or genres) of physical models: *Artisan miniatures*, *applied models*, and *models-as-art*. The aim is to prepare the ground for the discussion of what I call *memory models* – a specific hybrid of these genres and a type of model that has yet to be explored. In short, a memory model is a model that takes subjective (including ‘false’) recollections as its referent and thus contradicts common standards of what a model is considered to be. This discussion is, however, left for a separate working paper [[currently edited](#)]. The distinction of model types suggested here will also be valid beyond this specific context but no claim is made to account for *all* existing types of models. In particular, the taxonomy would have to be expanded to cover also mass-produced toys (including modelling kits), souvenirs, props in motion pictures, and miniatures that serve(d) as ritual paraphernalia. All three qualify as models according to the definition provided in *Part I* of these working papers,<sup>1</sup> but none of them is directly relevant to a theory of memory models.

In the following, the artisan miniature, the applied model and the model-as-art are described in terms of their phenomenological and epistemic qualities whereas they are approached from both the perspective of the viewer and the maker. As a *working paper*, this document does not claim to present a conclusive scholarly argument (this will be done later as part of the research project), but to summarise thoughts on the topic and bring together a variety of perspectives. Passages still worked on are indicated by “[...]”.

#### **Model Realms**

Exquisite dolls’ houses, model railways, miniature food, etc. are compelling for both children and adults alike, miniature parks attract millions of visitors, and model making is one of the most popular hobbies to be found. Plenty of magazines (such as *Artisans in Miniature*, *Dolls House World*, or *Miniature Collector*) are available for enthusiasts, along with internet forums and youtube channels. However, the specific appeal of such models has rarely been the subject of systematic inquiry. Existing accounts are mainly ‘one-off’ essays or books by writers with backgrounds as diverse as archaeology (Kohring, 2011), anthropology (Lévi-Strauss, 1966; Krasniewicz, 2015, 2016), poetry and

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<sup>1</sup> “The term *model*” describes “three-dimensional artifacts that represent real or imaginary entities by emulating these entities’ most salient or important features. What these salient or important features are is defined by the model-maker” (p.5).

prose (Stewart, 1984; Millhauser, 1983; Purpura, 2006), literary studies (also Stewart, 1984; King, 1996), psychology (Pollard and Carver, 2012, 2016), and psychiatry (Mack, 2007).<sup>2</sup> In the absence of an existing *discourse* or *miniature theory* and an established taxonomy, I will refer to all models primarily made to *enchant*<sup>3</sup> and in which craft skills are particularly emphasised as *artisan miniatures*.

As opposed to artisan miniatures, in science and engineering a discourse of models in these domains does exist. This *Model theory* (e.g. Black, 1962; Stachowiak, 1973; Wartofsky, 1979; Mahr, 2003; Monk, 2003; Toon, 2012; Weisberg, 2013; Gelfert, 2016), however, treats tangible models mostly just implicitly or as exceptional cases because its debates are essentially concerned with the intangible models of mathematics and science.<sup>4</sup> Physical models are granted somewhat more attention in education research where they are used in fields of teaching ranging from anatomy (Yammine and Violato, 2016) to the greenhouse effect (Shepardson, Roychoudhury and Hirsch, 2017). However, within the academic world, it is probably the discipline of architecture that has produced the broadest discussion of tangible models. Contributions come from the field itself (e.g. Echenique, 1970; Smith, 2004; Moon, 2005; Mills, 2011) as well as other disciplines including cultural and design theory (Busch, 1991), art history (Bredenkamp, 2005; Wendler, 2013), anthropology (Yaneva, 2008), and visual art (Frampton and Kolbowski, 1981). The practice and theory of models in science, engineering, education, and architecture revolve around their utility. In these applied contexts, models are not made to enchant but to solve problems or illustrate complex phenomena. Henceforth, they will be drawn together and referred to as *applied models*.

Compared to artisan miniatures and applied models, models used as sculptural media in visual art have received the least scholarly attention. “*While there are many theories and discourses both within and outside art history that are relevant to this topic,*” curator Ladislav Kesner observes, “*no comprehensive theory of models exists in contemporary art or cultural theory*” (Kesner, 2015, p. 10). Most existing contributions are published in exhibition catalogues and stem from curators (Gear, 1989; Rugoff, 2000; Trummer, 2005; MacFadden, 2010; Schmidt, 2014; Kesner, 2015), art and cultural theorists (Wendler, 2013; Krasny, 2009), and artists themselves. Artists’ views on the subject are mainly to be found in interviews and some on-topic essays included in anthologies that connect perspectives on models from various disciplines (Eliasson, 2007; Reichle, Siegel and Spelten, 2008;

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<sup>2</sup> It is interesting to note that scholars’ home disciplines often say little about their theoretical or methodological approach to models. For instance, Susan Stewart, James King, and John Mack (who have, arguably, provided the most comprehensive treatises on the subject), all follow broad, rather philosophical, trains of thought.

<sup>3</sup> The term enchantment is used here in agreement with Jane Bennett’s definition as being “*something that we encounter, that hits us, but it is also a comportment that can be fostered through deliberate strategies ... To be enchanted is to be struck and shaken by the extraordinary that lives amid the familiar and the everyday. ... The mood I’m calling enchantment involves, in the first instance, a surprising encounter, a meeting with something that you did not expect and are not fully prepared to engage. Contained within this surprise state are (1) a pleasurable feeling of being charmed by the novel and as yet unprocessed encounter and (2) a more unheimlich (uncanny) feeling of being disrupted or torn out of one’s default sensory-psychic-intellectual disposition*” (Bennett, 2001, p. 4,5).

<sup>4</sup> For an exception, see Chadarevian and Hopwood (2004).

Floris and Bill, 2011). For the purpose of this discussion, I will adopt – and eventually question – Kesner’s (2015) term *models-as-art* to designate small-scale models as a sculptural device.

Miscellany books such as the edited volumes by Reichle et al (2008) or Chadarevian and Hopwood (2004), as well as interdisciplinary projects like [A Working Model of the World](#) at the University of New South Wales, Sydney (2017) [...], highlight the fact that there are many different kinds of physical models, that theoretical accounts overlap, and that they can be brought into contact to mutually illuminate one another. This seems apt considering the scattered and largely unconnected theories regarding the enchantment, utility, and art of the model. In this vein, the distinction suggested here between artisan miniatures, applied models, and models-as-art is not posited as narrowly focused. With respect to models of excavation sites, archaeologist Christopher Evans argues that these “*worlds shown small*” involve “*the pleasures of a miniaturist phenomenology*” and conceptually straddle “*a divide between play and instruction*” (Evans, 2008, p. 156). The same could be said about miniature buildings in history parks, museum dioramas, many architects’ models, dolls’ houses, and other types of models (Kohring, 2011; Lee, 2014; Mikula, 2017). Memory models are an especially salient example of an ambivalent type of model. Before turning to this particular case in [working paper xy](#) [[>currently edited](#)] and other examples of *hybrid* model categories at the end of this document, it is helpful to discuss that in general artisan miniatures, applied models, and models-as-art emerge in different contexts and follow different agendas.

### **Artisan Miniatures (Models as Craftwork)**

*Miniature* has been defined as a sub-category of the physical model which is characterised by being “*the result of a conscious effort to attain complete realism*” (Pattinson, 1982, p. 6; also Millhauser, 1983, p. 132). As will be discussed below, the intrinsic fascination of such objects is appropriated by model makers in applied contexts as well as in visual art; however, miniatures are most of all associated with *artisan craft*. Artisan miniatures are models that are made to enchant and captivate the viewer and they are content with a decorative or domestic function. Instead of drawing attention to some idea or concept, yielding insights or raising questions, they invite the viewer’s reverie and sometimes explore the physical limits of crafting by reproducing real world objects at a tiny scale. Examples range from dolls’ houses, model railway accessories and all kinds of small-scale replicas made by hobbyists to the work of professionals making demonstration pieces and curiosities for museums<sup>5</sup> to material-specific peculiarities.<sup>6</sup>

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<sup>5</sup> See, for example, [Narcissa N. Thorne’s reconstructions of living spaces from eight centuries](#), Dan Ohlmann and others’ work for the [Musée Miniature & Cinéma](#) in Lyon, [Robert Off’s Miniature Room Company](#), or the reproductions of design classics such as those by [Michael Yurkovic](#).

<sup>6</sup> See, for example, [Matthew Simmonds’](#) marble models, [Dieter Cöllen’s phelloplastics](#), or the tradition of peach pit carving (Dietrich, 2009).

### *Miniature Appreciation*

There is certainly no quick and easy explanation why people enjoy miniatures. Flora Gill Jacobs, an authority on doll's houses, argues: "*Miniature things cast a sort of spell, and not all spells can be explained*" (Jacobs, 1965, p. 13). Moreover, people appreciate miniatures for a plethora of personal reasons and the way they are encountered is relative to specific viewing contexts (e.g. exhibition visits, looking at an heirloom, or contemplating one's own modelling work). It is remarkable, however, that almost everyone is intrigued by fine miniatures; thus it stands to reason that there are also some generic causes behind this appeal. Yet it is little surprising that some attempts have been made to explain the spell after all.

An obvious reason why miniatures affect us is their scale/size. Any object whose features and relative proportions we recognize, but which do not match our expectations in terms of size, evokes our attention (Millhauser, 1983; Stewart, 1984; Mack, 2007; Wells, 2016). However, this alone does not suffice to enthuse us, because the eye will '*blaze down*' as Steven Millhauser argues, "*in an act of fierce attention*" and "*hungry for detail*" (Millhauser, 1983, p. 131). This is "*is a point of utmost importance*", he points out because "*the eye seized by the miniature will quickly tire if it does not perceive thoroughness of execution*" and "*richness of detail*" (ibid.). Millhauser concludes that it is "*the relation between smallness and the amount of precise detail*" that "*is the measure of our wonder*" (Millhauser, 1983, p. 132). A similar view is held by John Mack as he associates the enchantment of miniatures "*with the fact that it hardly seems possible that these are created things*"; there are items within the miniature world "*that are thrilling to contemplate, but part of the thrill is the awareness that, despite its reduced scale, it possesses dimensions that escape me, one of which is how it came to be in the first place*" (Kohring, 2011, p. 47, similar also in 2011, p. ?). Fine craftsmanship and the skill and patience necessary to conceive tiny objects are probably further reasons for the allure of the miniature.

If the "*confrontation with the process of creating wonders in miniature*" is one kind of "*aesthetic perception*" (Mack, 2007, p. 47), another, is likely to be the simultaneous and transcendent overview they yield. According to Claude Lévi-Strauss, this even constitutes the miniature's most germane quality: Contrary to "*what happens when we try to understand an object ... of real dimensions*", he argues, "*knowledge of the whole precedes knowledge of the parts*", and even if readily comprehending an entirety is an illusion, the impression "*gives rise to a sense of pleasure which can already be called aesthetic on these grounds alone*" (Lévi-Strauss, 1966, pp. 23, 24)<sup>7</sup>. The instant overview makes miniatures '*less formidable*', Lévi-Strauss argues, and creates an illusion of authority and control over the little world. Stewart elaborates on this point: "*The miniature, linked to nostalgic versions of childhood and history, presents a diminutive, and thereby manipulatable, version of experience, a*

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<sup>7</sup> Lévi-Strauss' view echoes the basic principle of gestalt theory according to which the mind forms global wholes of perceived systems and objects that are something else than the sum of their parts (Koffka, 1935).

*version which is domesticated and protected from contamination*” (Stewart, 1984, p. 69).<sup>8</sup> Millhauser brings this argument to a head as he suggests that “*under the enchantment of the miniature we are invited to become God*” (Millhauser, 1983, p. 135).

Although the viewer feeling like a ‘giant’, is a widely accepted explanation of miniature allure (see also Busch, 1991; Purpura, 2006; Reichle, Siegel and Spelten, 2008), there are also arguments that put it into perspective. One factor mitigating the viewer’s feeling of control is her/his awe related to the craftwork. The viewer may feel superior to the miniature world and yet humble compared to its skilled and patient creator. Mack thus concludes that “*I can indeed possess aspects of it [the miniature world] ... but I am not in control of it*”; it makes me aware “*that I live in a world that, if I had to create these aspects of it for myself, would defeat me*” (Mack, 2007, p. 47). Another factor is the viewer’s physical exclusion from the tiny world. The doll’s house remains ultimately inaccessible. Thus both Stewart and Millhauser relativise the ‘omnipotent-giant-explanation’ of miniature enjoyment. For Stewart, the “*transcendent and simultaneous view*” is not primarily empowering but, quite the opposite, leaving the beholder “*trapped outside the possibility of a lived reality of the miniature*” (Stewart, 1984, p. 66; similar in Mack, 2007, pp. 75, 207). In the same vein, Millhauser reflects on the uneasy feeling of “*not fitting*” and an “*unfulfilled yearning to be part of that world*” (Millhauser, 1983, p. 135). This, however, may be part of the attraction: miniature appreciation may be linked to the very tension between feeling in control and getting left out.

An alternative approach to miniature appreciation assumes that the viewer does not draw much satisfaction from his giant position and overcomes the feeling of exclusion. In this vein, historian Richard Pommer argues: “*The spectator stands or soars far above, as powerful as a god; but in his imagination, he shrinks to Lilliputian scale to enter these structures*” (Pommer, 1981, p. 13; see also Kesner, 2015, p. 17; Gear, 1989). Some writers regard such empathy with the model world as in fact *the most crucial aspect of appreciation of miniatures*. Artist David Eastwood, for example, argues that “*the space of the model can transcend its miniaturization, intimately coaxing the viewer toward a visually immersive or voyeuristic experience, like peering through a keyhole*” (Eastwood, 2017, para. 11). Poet Lia Purpura goes yet a step further as she locates the viewer inside the model world: “*In dollhouse land, you can walk through the kitchen, living room, bedroom with your three inch high friend, and, face pressed to the window, feel the cushions of the thumbnail loveseat hold you*” (Purpura, 2006, para. 3).<sup>9</sup> Considered from this perspective, the miniature appears to be an object

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<sup>8</sup> Another version of this argument is presented by Ralph Rugoff as he asserts that dioramas form “*an isolated and inviolate space that is profoundly remote from that of the viewer, they call to mind Platonic archetypes rather than actual physical specimens. In effect, they function as images of themselves, dematerialized signs which we consume with a distanced fascination.*” (Rugoff, 2000, p. 13)

<sup>9</sup> Artist David Rushton confirms, that viewers of his interior models enjoy projecting themselves inside them: They “*are almost climbing inside the model ... as their own metaphor for interpreting it*” (Rushton and Elms, 2010, 8:03 Min.). A process of ‘projection’ has also been observed by architect Albert C. Smith in the process of working scale-models in design: “*The architectural small-scale model ... serves as a surface on which to project thoughts in an attempt to develop the perfect design (an attempt at a true definition of invisible things). The scale*

conveying a “*sense of secretiveness*” that the viewer is invited to unravel, that is, one “*of sharing private visions*”, as curator Josephine Gear (1989, p. 1) suggests.

The assumption that miniature appreciation is owed to a feeling of participation and sharing (as opposed to distanced observation) is incompatible with Stewart’s approach: “*That the world of things can open itself to reveal a secret life*”, Stewart argues, “– indeed, to reveal a set of actions and hence a narrativity and history outside the given field of perception – is a constant daydream that the miniature presents” (Stewart, 1984, p. 56). A daydream is nothing positive in Stewart’s view but an aspect of her general critique of the miniature as an object that triggers nostalgic sentiments. Like other authors (Gear, 1989, p. 1; King, 1996, p. 183; Lee, 2014), she observes that the evocation of childhood memories is crucial to the appreciation of miniatures and elaborates that they stage and idealise what has been lost in real life or is otherwise unattainable (also including a collective history, traditional handicraft, unaffordable items, etc.)<sup>10</sup>. However, whilst most people would probably agree that the attendant reverie is a positive quality of miniatures, Stewart does not. Discussing doll’s houses and historic situations re-staged in miniature theme parks, she criticises their separation from their original contexts. The function of miniature parks, Stewart argues, is “*to bring historical events ‘to life’, to immediacy, and thereby to erase their history, to lose us within their presentness*” (p.60). Similarly, the “*dollhouse-maker’s relative inattention to the exterior*” (p.61), and the creation of an idealised, “*perpetual and incontaminable*” space (p.62) will eventually frustrate the observer’s nostalgic longing. In summary, Stewart argues that miniatures are made and shown with questionable objectives which entail a promise that cannot be kept and eventually only enforces the viewer’s exclusion.

Stewart’s negativity is, to an extent, shared by Purpura as claims that miniatures “*don’t need us*”, but other than former, she identifies within this frustration, the miniature’s very attraction: “[W]e are drawn to them as any smitten lover might be, to a beloved who remains so close and yet just out of reach” (Purpura, 2006, para. 10). Hence, another kind of tension would play an important role in miniatures appreciation: The viewer is not primarily drawn between control and exclusion (as previously considered) but between attachment and exclusion. Notions of limbo – as opposed to a dominant feeling of power, affection, admiration, etc. – have been considered by various authors. In yet another register, this is also where Stewart sees the “*major function of the enclosed space*” and this “*is always to create a tension or dialectic between inside and outside, between private and public property, between the space of the subject and the space of the social*” (Stewart 1984, p. 68). In other words, there is a political element in miniature (buildings) and it unfolds if the viewer reflects on her/his own position in relation to the object. For Stewart, the tension is thus an intellectual one.

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*model provides architects a mechanism with which they can test and re-examine their ideas in this attempt. Sometimes, however, the projection of thoughts makes the scale-model ... appear to take on a life of its own. This life is a reflection of an individual’s imagination*” (Smith, 2004, p. 123).

<sup>10</sup> For some affirmative examples, see Kira Cochrane’s (2012) article [Dolls’ houses: it’s a small world](#) .

Although looking for a psychological explanation rather than positing a ‘politics’ of the miniature, curator David McFadden likewise focuses on the cognitive element as he compares the experience to other presentation formats: Miniatures, he argues, “engage us visually and intellectually by suspending our disbelief, and so position us somewhere between the theatrical and cinematic experience” (McFadden, 2011, p. 7). Our suspended disbelief, however, is challenged by our knowledge of the *mise-en-scène* of these realities: *[T]hey amplify our awareness that our perceptions are being manipulated by the visual clues presented. These are miniature worlds in which the phenomenon of seeing transports us mentally (and to some extent physically) into spaces and situations that we know do not truly exist*” (ibid). In film theory, this limbo is sometimes referred to as *suture*. The term is used to designate techniques that draw (or *suture*) viewers into a cinematic story world, letting them forget their role as spectators (Lapsley and Westlake, 2006, pp. 86–90). However, *suture* also describes those processes and cinematic techniques that remind viewers of that very role (Oudart, 1969, 1978; Dayan, 1974). Social scientist Daniel Dayan thus defines the system of *suture* as having “the function of transforming a vision or seeing of the film into a reading of it” (Dayan, 1974, p. 29). In a dark cinema, it may be effects like a shaking camera that cause a viewer’s shift between *seeing* and *reading*. In case of the miniature, slight differences in the degree of realism within the model or the conspicuous contrast between the model world and its life-size surroundings may have the same effect. In this vein, miniature attraction may, at least partially, be owed to the tension between immersion and realising that (or by which means) one is being immersed.

The notions miniature appreciation postulated by the different authors, their possible interactions as well as affective and cognitive consequences, are plausible but are ultimately hypotheses. Since (to my knowledge) no empirical investigation has been carried out yet, there is no data to confirm that one or the other type of response does indeed occur on a regular basis. So one is left to common sense, introspection and some psychological reasoning to decide why we feel drawn to miniatures. To be sure, our response will partially depend on how it is being directed. Gear draws attention to this fact as she highlights that artists consider carefully whether a work should be seen

*from on high, to create a feeling of omnipotence; or ... be viewed at eye level, which offers a sense of equivalence; or should the viewer, like Alice in Wonderland, look through a peephole? The size, shape, depth, and placement of this aperture in miniature box constructions are designed to guide our approach to the work and control our manner of viewing* (Gear, 1989, p. 1).

Yet, the orchestration of the viewer’s gaze depends on, and appropriates, intrinsic qualities of the miniature world. Accounts of experiences and some basic psychology can help explain these qualities. Generally speaking, however, the conclusion of Mack’s book on ‘*The Art of Small Things*’ (which accords with Flora Jacobs’ view quoted at the onset of this section) is yet to be challenged: The miniature’s “*capacity for continuing enchantment lies in its ability to evade complete comprehension*” (Mack, 2007, p. 207).

### *Miniature Making*

Whatever the reasons for the appeal of miniatures are, it is reasonable to assume that their *production* amplifies the experience of their contemplation. The model maker engages with the miniature for a longer period of time, often chooses an object precisely according to her/his interests, and tackles the material not only visually but also haptically. James Roy King lists a number of reasons why people enjoy making miniatures:

*[T]he desire to bring a strange, confusing, interesting, or even beloved object within their own control; to gain or impart some understanding of an object that is too complex to be readily understood; to create some ideal situation; to celebrate something; to facilitate the connection and display of objects; to confront challenges that the modeler believes can be met; to reconstruct some segment of the past or the faraway; to enjoy new forms of physical activity; to promote buying, selling, and trading; to encourage contacts with other individuals; and even to give full rein to the imagination. (King, 1996, p. 228)*

It is possible to expand the list of common motivations,<sup>11</sup> but what King's account sufficiently shows is that some ambitions are germane to the making of models, whilst others conform to the reasons why people spend time contemplating them.<sup>12</sup> This seems natural, as the maker of a model is, of course, also its first viewer. In this vein, Stewart's psychoanalytically inspired explanation of the appeal of model contemplation may be adapted to describe their creation. With her original claim that "*the interiority of the enclosed world tends to reify the interiority of the viewer*" (Stewart, 1984, p. 68), Stewart argues that the beholder finds personal (in her view, *nostalgic*) phantasies embodied and affirmed by the miniature object. If one agrees with Stewart, it is reasonable to assume that the gratification is amplified in the production of miniatures. Louise Krasniewicz interprets her as implying exactly this: "*she is saying we make miniatures to enact or reenact in tiny, enclosed, static spaces the traumas and chaos of our lives*", and further explains Stewart's use of the Freudian concept of "*interiority*" as referring to "*things we repress and which can get expressed safely in miniatures*" (Krasniewicz, 2015, para. 6). Along the same lines (but without Krasniewicz's scepticism) runs psychotherapist Phillippa Perry's explanation: "*If we have a doll's house*", Perry explains in an interview, "*we can make it a sort of mirror for our internal life. We have our internal life and – 'is it real?', 'is it fantasy?' – but we can make it real in the doll's house.*" (Hencken, 2015, 23:20 Min.). This interpretation expands the omnipotent-giant-explanation of miniature enjoyment to their production.<sup>13</sup>

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<sup>11</sup> For a similar account see Jordanova (2004, pp. 448–49).

<sup>12</sup> The first two reasons on King's list accord with why people look at miniatures: The idea of control over an object has been discussed in the previous section; *gaining understanding* will be treated below.

<sup>13</sup> This view is also shared by miniature artist Thomas Doyle who elaborates: "*The creation of small worlds gives us the illusion of control. In a world that grows ever faster and more chaotic, in a world in which we are bombarded with imagery, artworks in small scales allow us a place of retreat, where time has stopped*" (cited by



Some miniaturists argue – and Stewart lends support to the view – that the appeal of creating miniatures is rooted in a self-therapeutic quality (e.g. Off, 2010, para. 4). Such an effect has indeed been assumed by psychologists (e.g. Aite, 2008, pp. 51–52; Pollard and Carver, 2012) but an empirical or sufficiently reasoned theoretical account is still pending. For the time being, it is safer to consider model making as a form of *serious play* with the aim of appropriating some phenomenon or idea. This definition can include self-therapeutic notions but it frames the activity of model making more broadly and as one that connects the joy of making with an aspect of insight.

### *Miniature Epistemology*

The construction and contemplation of models often involves the study – and therefore promotes an understanding – of technical principles and structural relations of the objects being modelled<sup>14</sup> (King, 1996, chap. 3; Kohring, 2011; Pollard and Carver, 2012) as well as “*comments on, highlights, or rehearses aspects of the everyday*” (Krasniewicz, 2016, para. 9).<sup>15</sup> In this view, modelling is an instructive activity: “*The cleverer I am at miniaturizing the world the better I possess it*”, philosopher Gaston Bachelard (1994, p. 150) argues in a similar vein, and Pablo Picasso agrees that “[*t*]o model an object is to possess it” (quoted by Root-Bernstein and Root-Bernstein, 1999, p. 230). But why is that so? One reason may indeed be Lévi-Strauss’ observation that miniatures provide a unique opportunity to seize a complex object as a whole as opposed to gathering knowledge of its parts<sup>16</sup> – which is, in a sense, an epistemic notion of the omnipotent-giant-explanation of miniature enjoyment. The giant, however, does not necessarily enjoy her/his omnipotence as it was argued above but may also experience a crucial feeling of exclusion. This has quite different epistemic implications: “*Under the sway of the miniature I contemplate my isolation*”, Millhauser points out but luckily this “*contemplation is clean, uncorrupted by the impurity of terror*” (Millhauser, 1983, p. 135). This reminds of what the aesthetician Edward Bullough called *psychical distance* – a mode of engaging with artworks that is removed from practical concerns, and thus enables viewers (in the absence of any real threat) to better understand their own ways of reacting (Bullough, 1912; Funch, 1997, pp. 188–194; Cupchik, 2002).<sup>17</sup>

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Nuwer, 2015, p. 3).

<sup>14</sup> Artist Edwin Zwakman agrees: “*Children playing, architects planning, grown-ups building model railways in the attic. They all reconstruct life in order to anticipate, control, learn. The scale of the reconstruction determines whether it is a micro- or a macrostructure they try to understand.*” (Galerie Krinzinger / Bergen Kunsthall, 2005, p. 65)

<sup>15</sup> See also: Note 14

<sup>16</sup> Tracey Snelling concurs that working in small scale allows her “*to capture an entire place or location*” (cited by Chung, 2015, para. 10).

<sup>17</sup> “[*Psychical Distance*] has a negative, inhibitory aspect – the cutting-out of the practical sides of things and of our practical attitude to them – and a positive side – the elaboration of the experience on the new basis created by the inhibitory action of Distance” (Bullough, 1912, p. 89). Kesner elaborates: “*Artistic models ... are, by default, encountered by their viewers in the space of museum and gallery settings. Thus, the space the model depicts or implies with its contextual association is, in the viewer’s mind, juxtaposed with the safe and neutral gallery space in which the viewer sees the work*” (Kesner, 2015, p. 19).

Drawing on Stewart's arguments, an example of psychic distance with epistemic consequences in relation to miniatures stands to reason. In Stewart's opinion, the yearning for a return to some kind of ideal past blocks one's experience of the present: the miniature creates "*a type of transcendent time which negates change and the flux of lived reality*" (Stewart, 1984, p. 65). Consequently, miniature appreciation is meaningful in so far as it brings to awareness that it is indeed a symptom of escape. It has the "*capacity to make its context remarkable*" (Stewart, 1984, p. 46), rather than, for example, to preserve the memory and history of objects (e.g. Lee, 2014). From this perspective, miniatures' instructive value lies in bringing the reverie they engender to a critical awareness: The nostalgic sentiments they engender are owed to an (alienated, over-mediated, post-modern) existence that does not provide us with the kind of 'authentic' experience we find in the 'good old times' in miniature theme parks, doll's houses, model railways, etc.

A transition from nostalgic longing to greater self-awareness may be what Stewart would like to see as an effect of miniature contemplation (and production) but that it actually occurs very often, remains questionable. This, however, is also true for other epistemic merits that have been suggested. For example, we *can* turn to the ideology and history embedded in doll's houses and other sub-genres of the miniature (Stewart, 1984, p. 63; Paris, 2001, p. 223),<sup>18</sup> or, as Lévi-Strauss (1966, p. 24) suggests, we might contemplate alternative solutions that the miniaturist has excluded from her/his creation. These are interesting hypotheses regarding the kinds of insights that miniatures may yield. However – as the case with explaining miniature's intrinsic appeal – they remain mere possibilities until people's actual responses have been empirically examined. Up to now, what Millhauser observed three and a half decades ago still holds true: "*The realm of the miniature awaits its passionate and scholarly explorer*" (Millhauser, 1983, p. 128).

### **Applied Models (Models as Tools)**

According to philosopher Max Black "*the model is intended to be enjoyed for its own sake only in the limiting case where the hobbyist indulges a harmless fetishism*" (Black, 1962, p. 220). This disparagement ignores the epistemic merits of the miniature but the hobbyist and the artisan indisputably cherish the model primarily for aesthetic reasons and as entertainment. By contrast, in engineering, science, education, and design models exist to facilitate insights. To assume by implication that aesthetic aspects are merely a corollary to these models, would, however, be a misconception. Applied models intrigue audiences as diverse as pre-school children and building contractors and facilitate attention in situations ranging from the contemplation of a Roman fortress in a museum diorama to the presentation of a city development plan. The allure of the model<sup>19</sup> is

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<sup>18</sup> Compare working paper: *Home: Domestic Space 'through Memory through Model'*, section *Model Homes: Social Aspects of the Home, Remembering, and Modelling*.

<sup>19</sup> For a general discussion of the beauty models see King (1996, pp. 196–206) as well as his distinction of '*Beauty derived from Prototype*', '*Beauty and Fine Artisanry*', '*Beauty and the 'Folk'*', and '*Abstract Beauty*' as well as the '*Picturesque*' (ibid., pp. 29-35).

instrumental in any context where models are used to promote understandings or approval. The giant's perspective is a case in point. Models allow objects to be observed from perspectives otherwise impossible or difficult to adopt (e.g. a view through a building's ceiling). In doing so, they have a distinct advantage over alternative visual media (mainly illustrative drawings or plans) as models are not limited to a default number of perspectives. Contrary to descriptive texts, models do not translate visual cues into non-visual language and they do not deliver information seriatim (that is, according to an author's preferred order). For this reason, architects do not simply describe the buildings they propose but build maquettes and museum curators do not only use text panels but also costly dioramas. A key epistemic merit of models in applied contexts is thus that they expand visual and supplement verbal means of representation by providing spatial information simultaneously and holistically – poetically phrased by cultural theorist Elke Krasny: “*The longing for the dimensionality of understanding is stored up in the model*” (Krasny, 2009, p. 49).

#### *Applied Models' Epistemology: Issues of representation*

Photography, film and video are widely accepted as the media that represent reality most immediately but their employment is not always feasible. If so – e.g. because the object is too large or too tiny or does no longer or not yet exist<sup>20</sup> – text, graphics, and models come into play. Among these, models are, arguably, expected to mimic their object most comprehensively because they cover all its spatial dimensions. This tangible quality can also make them an alternative to represent an entity even if lens-based recordings are available. In fact, 3D recording techniques combined with 3D printing is leading to a growing number of models that are directly informed by (quasi-)photographic<sup>21</sup> imagery and which will probably further enhance our expectation of models being accurate renditions of nature.

The expectation of the model to represent its object truthfully is also important to the artisan miniature but the consequences in case of failure are incomparably small. If an artisan miniature does not portray its referent accurately, there will be no further repercussions than possibly the excitement of some critique of its maker. By contrast, in applied contexts, the referent's precise rendition is the model's whole *raison d'être*. The small-scale replica of a Roman fortress in a museum is justified by showing how the construction *actually* looked and the model of a molecule is worthless if it does not demonstrate its *actual* structure. Applied models must portray, concretise, exemplify, symbolise, or otherwise *represent* their referent most accurately. Although these are distinct functions, they all entail the expectation that the model stimulates people, as John Monk says in *The Book of Models*, “*to give accounts that could also be triggered by the object being modelled*” (Monk, 2003, p. 40).<sup>22</sup> As will be discussed below, contemporary model theorists have pointed out that this assumption is problematic

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<sup>20</sup> See also: Note 24

<sup>21</sup> These also include laser scanning and other non photographic recordings.

<sup>22</sup> Culture theorist Reinhard Wendler observes that the “*topos of representation, which is used in numerous varieties and variations*” marks “*the grand constant in the history of 20<sup>th</sup> century model theoretical discourses*” (Wendler, 2013, p. 166, translation mine).

but most people in science, industry, and education would probably agree that a good model demonstrates precisely: “*This is how the original is*” (Black, 1962, p. 221).

The main issue with this expectation concerns models’ material constitution. Models contain – inevitable or strategically employed – abstractions and omissions. Building materials, textures, colours, scales (and the limits of scaling details), the carefulness of execution, and presentation contexts influence *how* a model provides access to the object being modelled. King thus describes it as a “*psychic/physical space ... that operates by its own rules, and is compact, self-defining, and clean-edged*” (King, 1996, p. 47) and Lévi-Strauss expounds that models are never “*just projections or passive homologues of the object: they constitute a real experiment with it*” (Lévi-Strauss, 1966, p. 24). Both authors refer to artisan miniatures but their arguments spill across to the realm of applied models. In the same vein, architect Christian Hubert concludes that models must be posited “*somewhere between actuality and illusion*” (Hubert, 1981, p. 22; also Topalovic, 2011, p. 38) and Krasny elaborates that if the model represents or vouches for some reality, it “*at once always also clearly represents to us that its failure to adhere to this reality is inscribed upon this very representation or vouching*” (Krasny, 2009, p. 46). In other words, a model *shows* as well as *is* reality; it is a “*site of transfer*” that emerges in an “*encounter between realities and projections, between powers of imagination and dimensions of reality*” (ibid, p. 49).

Although challenging the representational paradigm, these arguments do not dismiss it altogether. Rather they draw attention to the fact that models’ own materiality *competes* with their claim to representation. A more fundamental critique can be launched drawing on deconstructionist arguments. Following ideas of philosophers such as Jacques Derrida and Michel Foucault, for example, one might contend that the determinability of reality and the possibility of its representation (in any medium) is contentious from the start [refs]. Such a critique entails that nobody has privileged or objective access to *how the original is*. Rather, any approach to first understand and then represent reality, is inevitably conditioned by interests, power relations, language games, and other non-objective factors [refs]. Modelling is, in this perspective, just like verbal or graphic representation first and foremost a way of describing [...].

This line of critique is not frequently used to raise doubts about models’ representational function,<sup>23</sup> but the post-structural legacy has almost certainly influenced contemporary model theorists who relativise the representational paradigm. Michael Weisberg, for example, regards models as “*potential representations of target systems*” (Weisberg, 2013, p. 171) and Bernd Mahr posits that they are “*usually related to pragmatic contexts*” and “*can be understood as embodiments of an hypothetical beind-so (Sosein)*” but cannot “*be assigned any truth*” (Mahr, 2008, p. 193, translation mine). Therefore, models must be regarded “*always only*” as a “*mode of a possibility*” (ibid.). To be sure, this mode is relative to the model’s use. Any *model of* something is also a *model for* someone and

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<sup>23</sup> For exceptions see Krasny (2009, pp. 48–49), Ostwald (2007); implicitly also Eliasson (2007).

some purpose. To convince potential commissioners, an architect may build a more detailed and perhaps prettier model than he would for sharing a vision with colleagues. A model of a human organ will be designed differently when its purpose is the education of pupils or students of physiology. Generally speaking, models offer administrators, educators, and specialists in various fields, a confined terrain in which the number of variables and the degree of unknowns is under their control (Scott, 1998, pp. 257–258; Kryder-Reid, 2015). It is interesting to note that models are also sometimes presented in court as evidence or to illustrate testimony but judges can exclude them on the grounds of their potentially misleading or prejudicial effects (Dombroff, 1985, pp. 44–65; Pitre, 2017, p. 575).

Being a *model for* implies a specific heuristic situation (Mahr, 2008, pp. 202–206). Particularly in research and education, *models for* are in the first place models for further thinking; “*the form mediated by the model marks the point of departure for our approach to a given problem*”, as Ingeborg Reichle and colleagues (2008, p. 10, translation mine) point out. For example, the small-scale replica of an ancient settlement can be intended to make us think about the conditions of life at a particular time and in a particular space, atom models allow for the development of theories about the structure of matter, and architects’ models disclose potential static and aesthetic issues that need to be resolved before a new building is constructed. These functions of applied models are essential and perfectly sound but it is important to be aware of a potential ‘*epistemic switch*’ (Wendler, 2013, p. 152). We expect models to represent reality but they also shape how we imagine this reality. We *know* that molecules do not look like braced billiard balls and that the interior of the earth is not a succession of coloured spheres, and yet, as Wendler (ibid.) argues, these visual forms have a powerful influence on how we think about these structures. Wendler describes the epistemic switch as taking what is in fact a *Vorbild* (‘pre-image’, inspiration) of thought for an *Abbild* (likeness, portrayal) – a mistake that underpins the dubiousness of the premise that models show us ‘*how the original is*’.

Despite these problems with the representational paradigm, models do evidently *not not* represent. A crucial epistemological value of models remains the elucidation of otherwise hidden phenomena and thus some (however tendentious) quality of representation.<sup>24</sup> As a way of recouping this quality, Wendler suggests to distinguish three epistemic situations in which models are applied. Firstly, models may be developed in research contexts that are characterised by a *lack* of information. A famous example is Frances Crick and James Watson’s *playing* with cardboard models, which led to the discovery of the structure of DNA (Wendler, 2013, pp. 98–115); another (not mentioned by Wendler), is Michael Avi-Yonah’s [\*Model of Jerusalem in the Second Temple Period\*](#). For this 1:50 scale model of the city in the first century CE, the archaeologist drew on descriptions from Jewish sources, the

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<sup>24</sup> Herbert Stachowiak summarises this function: “*Models of originals are constructed if the latter require enlargement or downsizing to become ostensive, if the modelling concerns an object that is too remote or accessible only under great danger (or in very long periods of time or by too expensive means, etc.), if confusing and embroiled events should be clarified, simplified, [or] concretised, if it is important to reduce the multifariousness of properties to a few basic relations, to explain [or] to anticipate [these properties] by [these basic relations]*” (Stachowiak, 1973, p. 139, translation mine).

writings of the contemporary historian Flavius Josephus and archaeological finds but completed the structure by “*archaeological and architectural imagination*” (Zandberg, 2007, para. 13; also Levine, 2002, pp. 201, 209). Wendler (ibid., p.152) along with others (Stachowiak, 1973, p. 133; Knuuttila, 2005, p. 1268) calls the suggestive function of these kinds of models a *pragmatic fiction*. Under this premise, the representational tenability of a model can be confirmed, modified, or abandoned, as further evidence emerges.

The second epistemic situation is one in which an abundance of information requires the “*interpretation of jumbled, onrushing sense data*” (Wendler, 2013, p. 158, translation mine). In this case, representation can be described as an “*apprehending sense-making*” (“*wahrnehmende Sinnstiftung*”, ibid. p. 160) and the model’s representational function as one of filtering information to reveal an object’s basic features or mechanisms. What these essential features or mechanisms are is determined by the model making researcher.<sup>25</sup> This category of models – that could also be described as *selective concentrations* of information – pertains mainly to theoretical models in science,<sup>26</sup> however, Weisberg (2013, pp. 7–9) discusses the [San Francisco Bay-Delta Model](#) (a landscape model for the purpose of studying various scenarios for a reliable freshwater supply in the San Francisco area) that may serve as an example of a related physical model.

Thirdly, models can be used for didactic purposes. In this case, their function is not to generate, but to illustrate information that “*is already at the disposal of those who teach and should now be made available to students*” (Wendler, 2013, p. 156, translation mine; similar in Knuuttila, 2005, p. 1268). The features being included in the model follow what the commissioner considers instructive for a particular audience. Salient examples are museum dioramas and many of the visual aids used in schools.<sup>27</sup> Architectural display models also fall into this category. All three epistemic situations maintain a representational claim, but at the same time they do not deny that this claim is relative to particular objectives.

#### *Epistemology and the design experience*

The interplay of aesthetic appeal and utility is perhaps nowhere as evident as in design practice. Instant oversight, for example, is one of the reasons why 3D-software has not fully replaced physical models in architecture and design. The latter tend to afford a better perception of scale (Yaneva, 2008; Sun *et al.*, 2014), and counteract the fact that designers lose themselves in irrelevant detail (Janssen, 2014, p. 80/81). This is important, for example, when architects manufacture *display models* in order to present their ideas to potential clients or the broader public. However, it is even more important when

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<sup>25</sup> In his summary of “*how representing using physical models works*”, Ronald N. Giere stresses this importance of “*selective similarity, where the selecting is done by the agent employing the model*” (Giere, 2011, p. 212).

<sup>26</sup> Wendler quotes historian and philosopher of science Gerald Holton: “*In science the problem is compounded by the technique of dealing with reality quite generally by transposing our interest from the awesome, confusing, dispiriting multiplicity to another plane, that of a simpler model.*” (Wendler, 2013, pp. 158–159)

<sup>27</sup> For a discussion of manifold examples see Chadarevian and Hopwood (2004).

they use models as a tool for generating this vision. Other than display models, *study models* (or *explorative models*; Dunn, 2007, p. 76) are provisionally rendered, and for the eyes of the designer and her/his peers only (Pattinson, 1982, p. 5). These types of models are, as architect Criss Mills explains, “*intended to be cut into and modified as exploration proceeds*”; they are three-dimensional sketches for examining “*qualities of alignment, proportion, and spatial definition*” (Mills, 2011, p. 12). Apart from yielding a comprehensive vantage point, study models afford the designer, as anthropologist and architecture theorist Albena Yaneva points out, “*a rich sensual register: tactility, visual richness, corporal accessibility and easy manipulation*” (Yaneva, 2008, p. 85). All this makes the study model, according to architect Albert Smith, “*a machine for imagining, for developing the free associations needed to develop new ideas*” (Smith, 2004, p. 123).<sup>28</sup> In other words, the giant’s perspective enables crucial, hands-on, variables. Unquestionably, laser cutting, 3D printing and other digital technologies are vital for the production of architectural models today but to generate ideas, the tactile experience is still highly esteemed by designers. Architect Mark English observes: “*Model making allows for ‘happy mistakes’, breakthroughs that originate in the non-verbal part of the mind. That just doesn’t happen when using a computer*” (English, 2015, para. 1) and many of his colleagues agree.<sup>29</sup>

Kinds of *knowledge* that derive directly from physical activity and become embodied in physical artefacts have been much debated and they are often considered inherent to the practice of designing (refs). The designer, as philosopher Donald Schön argues, “*shapes the situation, in accordance with his initial appreciation of it, the situation ‘talks back’, and he responds to this situation’s back-talk*” (Schön, 1983, p. 79). Similarly, King observes that model makers “*have little doubt about the significance of hands-on activity and the real knowledge it brings*” (King, 1996, p. 1; also Yaneva, 2008, p. 85; Kohring, 2011; Wendler, 2013, p. 84). To be sure, designers and other model makers also evaluate their non-verbal intuitions and it is only through such reflection, as Schön emphasises, that the practitioner

*can surface and criticize the tacit understandings that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness which he may allow himself to practice.* (Schön, 1983, p. 61)

In the same vein, Hal Chaffee assures on the website of the American Association of Professional Model Makers that “*model building is best when practiced at the intersection of both thinking and doing*” (Chaffee, 2010, para. 4). This assessment does not only characterise the epistemic situation of

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<sup>28</sup> See also: Note 9

<sup>29</sup> Architects Leth & Gori answer the question of how they see physical models as being relative to virtual methods by explaining that “*it is our experience that the scale model addresses issues like ... relationships between inside and outside, front and back, structure and detail, darkness and light far better than any rendering or 3D model*” (world-architects, 2014, para. 4). The American Association of Professional Model Makers assures that “[o]nce someone starts using materials and fabrication techniques they are able to refine their ideas to make them work” (APMM, 2016, para. 1). See also Yaneva’s study at OMA / Office of Rem Koolhaas (Yaneva, 2008) and Vincent Fecteau’s views cited in working paper: *Models of Homes in Contemporary Art*, section *Building Materials, Analogy and Abstraction*.

model making, but also highlights its particular challenge. Model making requires knowledge of the relative strengths and weaknesses of different mediums, as well as a capacity for analogising, abstracting and dimensional thinking. The combination of tacit and explicit knowledge, respectively of physical and cognitive skills makes model making a “*higher-order thinking tool*” (Root-Bernstein and Root-Bernstein, 1999, p. 230).

Judged by the different goals model makers pursue, artisan miniatures and applied models are distinct genres: one aiming to enchant and entertain, the other to generate or mediate knowledge. What makes applied models an interesting topic of scholarly exploration is not so much the question why people find them alluring<sup>30</sup> but how they facilitate understandings. However, both aspects intersect and they are, at varying degrees, relevant to both genres: Artisan miniatures are not devoid of epistemic functions and many applied models rely on aesthetic appeal. The allure turns instrumental though in getting audiences interested in a specific subject matter or concept. Moreover, the quality of simultaneous overview (the ‘giant’s perspective’) yields a medium-specific type of understanding and opens up unique options for experimentation to the scientist, educator, and designer. Models’ epistemic merits have attracted more scholarly attention than the psychology of miniature appreciation but the key question remains virulent: *How do models represent?* Not only does it concern the epistemic as well as the aesthetic aspect of models, it also connects the debates to a third genre of models: The model-as-art. Models in general often “*play between representation and objecthood*” and thus resemble certain agendas of Modernist painting and sculpture, as Hubert observes (Hubert, 1981, p. 20; similar in Kesner, 2015, p. 12). It might be interesting to investigate in how far artisan miniatures and applied models possess qualities of (Modernist) art or, as art critic Arthur Danto suggests, “*to imagine what could be meant by the object if it were the vehicle of an artistic statement*” (Danto, 2000, p. 139). This however, would be a rather indirect approach. I prefer to turn to models conceived *as* works of visual art from the start and to discuss how they tackle issues of representation.

### **Models-as-Art**

Visual artists have used physical models for centuries to study vantage points, perspectives, spatial arrangements, light situations, and other aspects of motifs they intended to paint or sculpt.<sup>31</sup> Today, artists continue to use models in the planning of installations or to imagine how large-scale objects will fit into galleries and other spaces. Although such models are occasionally presented as art objects in their own right (see the section on *Categorical Hybrids*), these are actually another variety of applied models and must not be confused with *models-as-art*. If, by contrast, Ilya Kakakov recasts what is allegedly his [Father’s House](#) (2002) in the shape of a model home resembling a stylised wolf’s

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<sup>30</sup> Whatever the reasons are, they will be virtually the same to artisan miniatures and applied models.

<sup>31</sup> William Gainsborough, for example, is reported to have “*framed a kind of model of landscapes on his table; composed of broken stones, dried herbs, and pieces of looking glass, which he magnified and improved into rocks, trees, and water*” (Sir Joshua Reynolds cited by Eastwood, 2017, para. 7). More than 700 of such maquettes can be seen at the [Museo dei Bozzetti](#) in Pietrasanta, Italy.



head or Antony Gormley fills a gallery with doll-like figures made of little iron blocks ([Memes](#), 2015), the model adopts a completely different – sculptural – manifestation. In the last few decades, the model in visual art has emerged from being an auxiliary device to a sculptural format.<sup>32</sup>

As a sculpture, the model is not only distinct from applied models but also from artisan miniatures although there is a certain overlap that can be intricate (see discussion below). At this point, a preliminary distinction between fine art and craft will be helpful. Designer Keith Cummings argues that this can be determined by the fact that the former possesses a “*threshold*” which the viewer “*is taken through and beyond*”; whilst a craft object “*acts more as a destination; its properties hold the viewer firmly within its spatial remit and aura*” (Cummings, 2003, p. 82). For philosopher Robin George Collingwood, this is the case if an artefact merely imitates an original or aims to evoke a predetermined emotion that is either intended to last (e.g. make the viewer indignant at some circumstance) or to be discharged again (e.g. inducing the temporary feeling of being in another world). Such “*representative*”, “*magical*” and “*amusement*” forms of art are, according to Collingwood, not “*art proper*” but belong to the realm of craft since they foreground technique and calculated effects (Collingwood, 1937, chaps II–V). In this vein it was argued above that the artisan miniature is content with a decorative and often domestic function and foregrounds craftsmanship, enchantment and, at times, nostalgic sentiments. By contrast, the model-as-art, takes the viewer *through and beyond* this remit by issuing a variety of challenges. Such works, Kesner summarises,

*are often made by contemporary artists in order either to advance our reflection of issues, in and beyond the arts, such as the relationship between representation and reality, the duplicity of images, and the constructive nature of our perception, or the relationship of the body to space, or to advance an ironic or critical view of culture, media, and society, increasingly tangled up in a web of representations and unable to see through them* (Kesner, 2015, p. 16).

The ambition to incite reflection is shared with applied models in research and education. As opposed to these, however, models-as-art do neither aim to solve a distinct problem nor to illustrate available knowledge. As works of art, they pose broad, open-ended questions that challenge the viewer to find her/his own meaning in them (Jozwiak, 2014). They aim “*to obtain and express how meanings multiply as a result of multiple references*” as curator and art historian Thomas Trummer argues, and this entails a disruption of the “*polar logic of model and original*” (Trummer, 2005, p. 25). The

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<sup>32</sup> Examples of themed exhibitions include (but are not limited to): *Miniature Environments* (Whitney Museum of American Art, New York, 1989); *Small World: Dioramas in Contemporary Art* (Museum of Contemporary Art, San Diego, 2000); *Model World* (Aldrich Contemporary Art Museum, Ridgefield, 2002); *Post\_Modellismus - Models In Art* (Galerie Krinzinger, Vienna, 2005); *Miniature Worlds* (Jerwood Space, London, 2006); *Otherworldly: Optical Delusions and Small Realities* (museum of arts and design, New York, 2011); *Small Worlds* (Toledo Museum of Art, 2011/12), *Speculative Spaces* (Robin Gibson Gallery, Sydney, 2013), *Dream no small Dreams* (Ronchini Gallery, London, 2013), *Was Modelle können* (Museum für Gegenwartkunst, Siegen, 2014); *Feel Big Live Small* (apexart, New York, 2015); *Model* (Galerie Rudolfinum, Prague, 2015); *Small Stories: Dream House* (National Building Museum, Washington DC, 2016/17); *A Working Model of the World* (UNSW Galleries, Sydney, 2017).

relation between the material reality of the model and its object has been identified above as a problem of representation concerning models in general; however, the *“interplay, or tension, between these two senses is absolutely central to most models in contemporary art”* as Kesner (2015, p. 12; similar in Trummer, 2005, p. 25) points out.

To be sure, the merits of models-as-art cannot be reduced to challenging our reflection in a more open-ended way than applied models do. If the enchantment (or aesthetics) of the miniature is relevant even to applied models, this is yet more distinctly the case with models-as-art. Artist Ilya Kabakov argues that appropriating the model form is like *“going back to childhood when you like to play with little things, maybe because we feel bigger and little things are under our power ... We can move them, destroy them, do whatever we want.”* (Kabakov cited by Battaglia, 2017, para. 4). In a related vein, Gormley says about his installations of little figures spread out across the gallery floor (*Memes*) that *“the most important part of the strategy ... is that they become vulnerable when placed in a room that we share with them and we walk about like giants. I hope that what this does is make us aware of our own scale and size, our own clumsiness”* (Gormley and Kesner, 2015, p. 108). Both statements reverberate aspects of miniature appreciation and it stands to reason that the *“sensuous and psychological effects”* of miniaturisation per se (Kesner, 2015, p. 10) are part and parcel with models in visual art.<sup>33</sup>

Artists put the sensuous and psychological effects of miniaturisation to work in two different ways. One is to challenge concepts of *modelhood* itself; in other words: to question and explore what it means for an object to be a model. Such works can usually be distinguished from artisan miniatures and applied models at a glance as they rely heavily on distortions and other formal abstractions. Sometimes in tandem with this quality, but sometimes also completely independent from it, artists also appropriate model aesthetics as a vehicle for the treatment of some specific subject-matter.

### *Questioning modelhood*

Hubert's and others' observation that models always exist in a field of tension between representation and objecthood can be rephrased as a challenge: If any model is necessarily an abstracted (simplified, distorted, selective, interpreted) rendering of a 'real thing' – how far can this abstraction be pushed without the model losing its connection to this referent? In other words: When does a model cease to be a model and turns into an autonomous sculptural object? Related explorations range from Fritz Schwegler's models reminiscent of the kind of miniatures people collect in type drawer display cases [\[link\]](#) to the landscape-diorama-like works of [Mariele Neudecker](#). Most often, however, explorations of modelhood target architectural models. This interest can be tracked back to Kazimir Malevich and

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<sup>33</sup> See also Kesner's discussion of the *“artistic strategies”* involved in model employment: *“the manipulation of scale and size, changing object affordances, exploring the materiality and its rhetorical effects, appealing to imaginative projection”* (Kesner, 2015, pp. 16–19 (citation: p.16)).

Georges Vantongerloo in the 1920s<sup>34</sup> (Kesner, 2015, pp. 15–16) but they have taken on greater significance in more recent artists' occupation with models.

Since the 1980s, Thomas Schütte has built maquettes of architectural structures from cardboard, wood, or metal often reducing them to basic shapes and constituents. Many of these works can be interpreted as a critique of (Modernist) architecture (“de-heroicizing manifestations of power and subjection”; Heiser, 2005, para. 2) and being themselves models “*for a better and more lovely world*” (Schumacher, 2010, p. 23). They can also be viewed, however, as a negotiation of what constitutes a model as such. In this vein, art historian Petra Kipphoff describes *Studio I* (and the same could be said about many other of Schütte's model works) as a

*strange hybrid between object of use, nonsense-object and sculpture. ... Does it not in some way resemble a doll's house, and architecture model, one of those toy houses that help enliven the scenery of a model railway? Yes and no: for all contexts and purposes the model is not model-like enough, not as pretty and homely and perfect as models ought to be. Thomas Schütte's models look rather like abandoned construction sites, forlorn homes, toys that have been in the basement. Then again: for pure nonsense-objects they are not crazy enough, too solid and almost [too] functionally constructed. And how do they work as sculptures? (Kipphoff, 1987, translation mine) , p.xy*

Kipphoff leaves this last question open but Schütte's works' affinity to the other model genres suggests that his maquettes are best viewed as a contribution to the on-going discussion of the relation between art and non-art. However, they are not just another example of a non-art thing drawn into an art context to observe its transformation in the new environment. Quite the opposite is the case, as curator Rainald Schumacher argues: Schütte's “*architectural models appear within an art context, they are self-evidently artworks, but visualize, as models, a conceivable 'other' – as if the concrete artwork in front of us is not the real or actual work itself*” (Schumacher, 2010, p. 23). The quasi-architectural models do not pertain to debates of what art is or under which circumstances something becomes art, but rather explores when something seizes to be art.

The ambition of exploring the divide between model and art is also evident in the work of [Vincent Fecteau](#). The sculptor explains that the “*model-like aspect*” of his works allows him “*to think of the pieces almost as propositions for art rather than art*” (Fecteau and Lewallen, 2009, para. 11). And yet, Fecteau's like Schütte's works do not require to be completed at another scale. They are self-

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<sup>34</sup> For what he called *Arkitektons*, Malevich arranged small rectangular plaster blocks that resemble models of skyscrapers. Also facing architectural challenges and experimenting with solutions inspired by abstract sculpture, Vantongerloo produced a number of model bridges, airports and cities. Both are purely experimental structures: buildings with no function or internal organisation but manifestations of sculptural thinking to address architectural issues. Although implicitly questioning the idea of modelhood, Malevich and Vantongerloo's chief interest was not in the concept of the model itself but in a formal language that could indeed inspire future building. Related examples are found to the present day. Degree shows of architecture students often brim with such visions.

sufficient.<sup>35</sup> Fecteau in particular pushes the concept of modelhood very far. Many of his papier-mâché and clay objects made between 2002 and 2014 look as if an architectural model has been fragmented, thoroughly kneaded, reshaped all over and brightly coloured. Elements reminiscent of features of buildings (such as a room corner or a window), are deformed and often turned inside out. The conflation of interior and exterior is also a salient feature of Fecteau's earlier, more conceptual, works made from foam core and cardboard. Many of them are highly abstracted house parts with photos of interior details applied to what appears to be the outdoor face of these model-like sculptures: A desk with a reading lamp, a look out of a window stuck onto a roof-like structure, an image of a corridor attached to the outside of an open cube...

Another artist taking a collage approach as well as one that conflates inside and outside is Ofra Lapid. In her work [Room Plan](#) (2014), Lapid compiles fifteen miniature interiors based on rooms the artist has lived in herself and ones designed by Adolf Loos. Elements reminiscent of furniture, wall segments, and platforms are partially laminated with photos of outdoor features such as rocks, a waterfall or brick structures, and dispersed across a large table. In effect, Lapid thoroughly dissects the idea of an interior model and, like Fecteau, replaces its representational claim with the presentation of an absurd, uninhabitable space.

Schütte, Fecteau, and Lapid question modelhood through strategies of formal abstraction: bricolage, extreme simplification, deformation, dissection. This entails the renouncement of scale preservation (which might already suffice to turn a model into a work of visual art)<sup>36</sup>. Fecteau's and Lapid's integration of photos further ruptures model conventions. This strategy is taken to yet another level as artists introduce moving images to the model world. In Graeme Patterson's multimedia installations models often accommodate little screens showing animated video sequences (e.g. [Woodrow, 2005](#); [The Secret Citadel, 2013](#)). Considering that both the miniature world and the allure of moving images foster our *suspension of disbelief* [...], this combination seems highly suitable for procuring immersive experiences. Patterson's videos are, however, digital stop motion animations with an obvious artificiality that rather enforces than suspends an awareness of the *mise-en-scène*. Moreover, many of the videos are staged as if they were miniature cinema shows inside the model world. By contrast, other artists have employed video screens behind the windows of model houses displaying recorded live action that suggests 'actual' goings-on (see, for example, Lynn Hershman Leeson's [Home Front](#) (1993-2011) and many of [Tracey Snelling's works](#)). This strategy thwarts a defining feature of the miniature, summarised by Stewart as offering "*a world clearly limited in space but frozen*" and thus

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<sup>35</sup> The fact that some of Schütte's models have been rendered in larger scales does not compromise this quality.

<sup>36</sup> Peter Eisenman, argues in this vein that when a model "*is no longer scale-specific, it supposedly becomes sculpture*" (Eisenman, Shapiro and Stamm, 1981, p. 124). Talking about her sculptural work, Tracy Snelling agrees: "*I never build to scale; rather, I eye the location or my sketch of a place and translate it organically, often mixing different scales for effect. At times, I will combine small scale with large scale in installations to explore the idea of what is real, and how reality is ultimately subjective*" (Snelling cited by Chung, 2015, para. 10).

always tending “*toward tableau rather than toward narrative*” (Stewart, 1984, pp. 48, 66). Patterson’s work grapples with this claim; video recordings seamlessly sutured into the frozen space render it obsolete. [...]

### *The model as a narrative vehicle*

Although many models-as-art can be theorised in terms of their capacity to question concepts of modelhood (Hubert, 1981; Trummer, 2005; Kesner, 2015), there is little evidence in artists’ own pronouncements that this is indeed their prevailing intention. This approach is rather an interpretive option that emerges as a corollary. Patterson’s *Woodrow*, for example, focuses on life in the Canadian prairie village where the artist’s ancestors lived and exemplifies “*how the complex entanglement of nostalgia, family history, and memory may be effectively brought to life through the use of miniatures*” (Alston-O’Connor, 2015, p. 248). In Snelling’s urban dioramas, the viewer becomes “*a voyeur, with permission to look into windows and behind doors that normally aren’t acceptable for viewing*” (Snelling cited by Chung, 2015, para. 10) and the same is true for Hershman Leeson’s *Home Front* in which the beholder becomes the witnesses of a marriage drama.

Arguably, most artists use the form of the model to share “*private visions*” (Gear, 1989, p. 1), induce a “*theatrical and cinematic experience*” (McFadden, 2011, p. 7) and employ the overall “*psychological effects of models on their viewers*” (Kesner, 2015, p. 16)<sup>37</sup>. Such narrative strategies appropriate miniature aesthetics, which creates the challenge to distinguish models-as-art from artisan craft. A theoretical distinction was suggested at the onset of this section but how does it work in practice? Usually, the model-as-art maintains some (and contradicts other) typical features of the artisan miniature. The works by Patterson and Snelling, for example, are embedded in mixed-media displays, whilst artisan miniatures tend to be self-contained little universes. Another strategy is the renouncement of enchantment. Kabakov’s *My Father’s House* and Hershman Leeson’s *Home Front* are examples of works that are decidedly *disenchanting*; other cases in point would be [Jake and Dinos Chapman’s war-ravaged Hell dioramas](#), [Michael Ashkin’s polluted and desolate landscapes](#), and Ai Weiwei’s recreations of scenes from his life in a Chinese prison ([S.A.C.R.E.D.](#), 2013). All of these works retain a relatively high amount of detail. There are also examples, however, that renounce this typical feature of the artisan miniature and retain elements of enchantment. An example is Marvin Gaye Chetwynd’s [Diorama](#) (2012): a row of five crudely rendered model rooms, remotely reminiscent of museum display cases in which rituals and built structures of past civilisations are re-created. These model rooms are, as art critic Nikita Mathias says, “*not intended to transport us into another reality, their depictions are too obviously handmade for that, but they are enchanting nonetheless ... fantastical dioramas [to] set our imagination free*” (Mathias, 2017, para. 7). The strategy of reducing detail often coincides with the employment of relatively coarse materials. Ashkin, for example, uses

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<sup>37</sup> In accordance with points discussed above in this working paper, Kesner summarises the “*artistic strategies used to induce such effects*”: “*the manipulation of scale and size, changing, object affordances, exploring the materiality and its rhetorical effects, appealing to imaginative projection*” (Kesner, 2015, p. 16).

recycled cardboard in [some of his works](#) and thus highlights the faceless and impersonal character of public squares, prisons and entire settlements.

These strategies may be interpreted as another variety of questioning modelhood. Instead of probing formal aspects, such works can be seen as interrogating narrative and emotional aspects of (artisan) miniatures asking: *How do models narrate?*<sup>38</sup> Again, this approach is interesting from model theoretical perspective but ignore why artists employ models as narrative vehicles in the first place. Artist Sara Graham summarises:

*A model presents a set of possible potentialities from which to construct a new model of a reality independent from even the model itself. A model is ... a guide, or map, as a means for further discovery. Artists use models to articulate questions, guide experiments, respond to imagination and to suggest propositions.* (Graham, 2012, para. 2)

As such, the model-as-art implicitly always comments on what determines (the narrativity of) modelhood but, to speculate, the prevailing ambition of their makers is to put up ideas on the referents being modelled for discussion and foster experiences related to these. However, further study would be needed to determine whether there is some shared interest among artists to adopt narrative strategies from the realm of the applied model or the artisan miniature.

#### *Models-as-art or model-like sculptures?*

What most of the models-as-art discussed so far have in common is the renouncement of a referent in the 'real' world. They show fictitious spaces and objects, not actual ones. Indeed, it is sometimes difficult to identify an object being modelled altogether. In the work of those artists with a more formal interest in architecture and architectural maquettes (Schütte, Fecteau, Lapid) one can identify 'built structures' but no specific building or architectural principle that is reproduced. Artists employing the model as a narrative vehicle, materialise personal visions. Whilst it is a standard of the artisan miniature and the applied model alike to refer to some thing or principle in the physical world, models-as-art are, Kesner argues, "*models only in so far that they materialise a mental model of the artist*" (Kesner, 2015, p. 12). They are neither *models of* some (at least theoretically) verifiable object nor *models for* some defined purpose. Consequently, the term *model-like sculptures* (as used by Kipphoff and Fecteau) may be a more appropriate description than *models-as-art*. It reflects the argument that these works are phenomenologically similar to models but, after all, not 'models proper'. To be sure, there are also examples in art where the model does claim to mimic real world phenomena. Ai Weiwei's *S.A.C.R.E.D.* is a case in point. It is most crucial for the work to reproduce the *actual* claustrophobic environment of the prison in which the artist used to be detained and how he

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<sup>38</sup> Such works are as Trummer argues, "*disconcerting, on the one hand, in that they distance themselves from precursors, but also self-evident to the extent that they assimilate them and continue to reflect on them*" (Trummer, 2005, p. 25). [...]

was permanently stared at by two guards. So one might argue that *S.A.C.R.E.D.* is indeed a model-as-art but the majority of works are better as model-like sculptures.

Artworks can question modelhood, but a model-like appearance also questions the identity of artworks. Exploring when an object ceases to be art is not exclusive to Schütte's models, but an implicit quality of model-like sculptures in general. To give one more example: In 2009, Walid Raad reduced some of his full scale works from previous years to 1/100th of their size and assembled them in the work/exhibition [Part I Chapter 1 The Atlas Group \(1989–2004\)](#). Doing so, the artist leaves it to the viewer to contemplate whether s/he faces copies of works or small versions of works, respectively a model (mock-up) of an exhibition or a shrunken, 'actual' exhibition. If *materialising a mental model of the artist* suffices to qualify a model – as – art, if it is more appropriate to refer to model-like sculptures instead, or if both are distinct categories, is a question that must be discussed elsewhere [...]. In the remainder of this working paper, I will maintain the term model-as-art for reasons of simplicity and discuss some intersections of the three main types of model distinguished so far.

### Categorical Hybrids

As noted in the introduction, the three genres – artisan miniature, applied model, and model-as-art – overlap. Most models can nevertheless be assigned to either of them whilst admitting that it also has some features of at least one of the others. An archaeologist's model of an excavation site remains an applied model despite its miniaturist phenomenology (as was noted in the introduction), Schütte's maquettes are firmly rooted in visual art although they have a bearing on architecture, and the hand-made doll's house is an artisan miniature even if it is also instructive of domestic life in times gone by.

In some cases, however, categorisation proves difficult. Examples of models that could be regarded as an artisan miniature or as an applied model are the small-scale replicas of buildings displayed in history parks (see [Wimborne Model Town](#) for an example). On the one hand, they (are meant to) enchant and entertain, on the other, they (are meant to) convey notions of life in some historical period. In other cases, applied models and models-as-art intersect. Some models are conceived by artists as substitutes of costly or otherwise unfeasible *real* structures and then presented as a form of (post-)conceptual art in their own right.<sup>39</sup> Other examples are those models artists make only in order to then reproduce them photographically<sup>40</sup> (or, much more rarely, to paint them)<sup>41</sup>. Considering the

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<sup>39</sup> Thomas Schütte suggested to build a massive, walk-on-able staircase inserted to reminds of the bow of an ocean liner (*Ship*, 1980) for the 1981 exhibition *Westkunst* in Cologne. The piece proved unfeasible for financial reasons but entered the show (along with two other scaled-down works) as a model. Examples of exhibitions conceived from the onset for models of artworks are Isa Genzken's *Models for Outdoor Projects* (Bundeskunsthalle, Bonn, 2016) and Ilya and Emilia Kabakov's *Whimsical Models* (Hirshhorn Museum, Washington DC, 2017).

<sup>40</sup> Since the specific effects and conceptual merits of miniature photography (such as issues concerning the relation between 3D and 2D representation) are not germane to the *Memory Model Project*, this practice is not treated here in more detail. For related discussions, see Christofori (2005a, 2005b) and Wendler (Wendler, 2013, chap. 5)

number of practitioners, miniature photography can be regarded a genre in its own right with famous proponents including Thomas Demand, James Casebere, Oliver Boberg, and many others. In this case, the physical model is the key component of the final work, yet it remains in the artist's studio whilst the photograph is presented as the artwork.

The most intricate hybrid category is that of models-as-art and artisan miniatures. A variety of artists – Charles Matton, [Guy Laramée](#), [Alan Wolfson](#), [Thomas Doyle](#), [Adia Millett](#), or [Marc Gaii-Minet](#) to give just a few examples – rely on a miniaturist phenomenology and offer, if any, just a very moderate *criticality*.<sup>42</sup> Since formal innovation and engaging with the social and political questions of our time are probably *the* most cherished qualities in the world of contemporary art whilst fine craftsmanship and enchantment rank at the other end of the scale, it is not a great surprise that 'miniatures-as-art' are largely absent from the biennials and museums of contemporary art. Consequently, they are not much debated in scholarly art journals either. Such an institutional theory, however, raises the question what a relevant context of contemporary art is. Many artists working in miniature are represented by *some* gallery and are discussed in *some* journals. Would the fact that they are not shown at major biennials and that these journals are not on the reading lists of visual art graduate students suffice to disqualify their works as fine art?

It is remarkable that models-as-art expounding the values of artisan craft keep appearing in exhibitions specifically dedicated to miniaturisation that are held in venues related to (but are not unequivocally part of) the world of contemporary art. A salient example is *Otherworldly*, a 2011 exhibition of 'Optical Delusions and Small Realities' hosted by the *museum of art and design* in New York. Curator David McFadden confirms that each of the artists participating in this show "establishes a meeting place between art and craft" and that their work "displays the focused attention of the perfectionist craftsman, the celebration of virtuosic performances of manual skill" (McFadden, 2011, p. 8). However, as McFadden continues to explain that this "is not the goal"; rather, these artists aim to offer

*provocative commentary on the world around us, evoke personal memories and fantasies, explore the way in which time – past, present, and future – is decoded, and offer the viewer hidden looks into environments and situations that are at once familiar and foreign.*" (ibid.)

In a similar vein, Kesner argues that models in contemporary visual art "should be conceived of above all as props in games of make-believe, which function by activating various forms of imaginative projection" (Kesner, 2015, p. 12). This, however, is likewise true for the works of artisan

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<sup>41</sup> For an example, see the work of [Amy Bennett](#).

<sup>42</sup> Irit Rogoff defines *criticality* as residing "in the operations of recognising the limitations of one's thought for one does not learn something new until one unlearns something old, otherwise one is simply adding information rather than rethinking a structure" (Rogoff, 2003, para. 12).



miniaturists<sup>43</sup> and it will also be appreciated by the maker of a dinosaur-populated diorama in a natural history museum. If models of excavation sites *straddle a divide between play and instruction* (as suggested in the introduction), works conceived as visual art but maintaining most of the characteristics of artisan miniatures are prone to straddling the divide between art and craft.

Whether a work involves enough criticality and experiment, and whether it has to be accepted by specific institutions in order to count as ‘visual art proper’ are issues of philosophy and art criticism. If a work holds its viewers *firmly within its spatial remit and aura* or takes them *through and beyond this threshold*, must be discussed on an individual base. However, there is no necessity to regard the works in question as *either* artisan craft *or* as models-as-art; in fact the hybrid status may best account for a lot of ‘miniatures-as-art’.

## Conclusion

In this working paper, three types of physical models have been distinguished: artisan miniatures, applied models, and models-as-art. Artisan miniatures hold up the value of fine craftsmanship, a wealth of detail and an enchanting effect. Applied models are either employed for solving practical or scientific problems, or to illustrate already available knowledge in educational contexts. Models-as-art can be seen as materialised inquiries into what a model actually is – both in terms of form and content. Many artists, however, appropriate model aesthetics rather to imply personal narratives and thus renounce the common standard of the model being either a *model of* some-thing in the ‘real’ world or a *model for* some defined purpose. All three kinds of models draw their attraction from a ‘miniaturist phenomenology’: They give the viewer the impression of seizing at once – from a ‘giant’s perspective’ – what is otherwise only available in a piecemeal fashion.

This working paper has suggested a new taxonomy of models distinguishing three of the most common genres of these artefacts. Whilst mainly drawing together and contrasting already established but disconnected views on artisan miniatures and applied models, a first step was made towards a comprehensive theory of models-as-art. What is missing regarding all three genres are empirical investigations to confirm or rectify existing theories answering to questions such as: *Why do people feel drawn to miniatures?* and *Why do designers and artists cherish the format of the physical model?*

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<sup>43</sup> For examples see notes 5 and 6

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