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Abstract: By distinguishing avant-garde critique as primarily based on wit, an ethics of scattering and recombination, from reason, Paul Carter infers that "material thinking" is a type of avant-garde critique of institutional norms. Seen through experimental design I dispute Carter's distinction between wit and reason via art theorist Thierry de Duve's refusal to separate intuition and reflection in aesthetic judgment. I transpose De Duve's thesis to the design context to examine two examples of experimental design that connect wit and reason and question the givens of certain functionalist debates in design. While *H_edge* by the Advanced Geometry Unit refigures the functionalist design opposition between structure and ornament by making ornament instrumental, *Technological Dreams Series #1 (Robots)* by Anthony Dunne and Fiona Raby juxtaposes mechanical and moral strands of functionalist design thinking and exhibit a hyper-functionalist reflection on design history and practice. (140 words)

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Counter-forces in experimental design: *H edge* and the *Technological Dreams Series #1 (Robots)*

Despite the growing research in design history and contemporary practice, design criticism lacks density. Much design criticism is generally limited to reductive pragmatic and simplistic understandings of functionalism that emphasise market popularity and technical innovation to the neglect of the wider ramifications of design decisions. Consequently, design commentary informed by art history sometimes treats design's preoccupations as over-determined and misguided. Symptomatic of this perspective is art theorist Paul Carter's inference in *Material Thinking* that design, like film and dance, is "tongue-tied" and subsequently "dumbed down" (Carter, 2004, p xi). In contrast to his characterization of design, Carter attempts to rescue "creative knowledge", specifically fine art, by arguing that it is indistinct from the materials with which it is produced (2004, p 1). Defining "material thinking" as the "mutually informing relations" between concept and materialization (2004, p 4), he argues that creative research is stunted by an overemphasis on reason that to his view has "no taste for complex interactions" (2004, p 13). He also argues that official prescriptions for creative research neglect wit, defined as the ability to perceive similarity between disparate things (2004, p 7). This paper examines assumptions underpinning Carter's opposition of wit and reason by testing the feasibility of his claims in a discussion of two examples of experimental design, and how they draw out certain features in mechanical, organic, and moral functionalism in design history.

Arguing that western artistic tradition “does not know how to read” creative texts or understand creative practice as research (2004, p 6), Carter scaffolds his thesis across a careful selection of representatives of artistic avant-gardes, for example Surrealist poet Paul Eluard, and Minimalist sculptor Robert Morris. Carter contrasts creative research with what he describes as the “prejudice” in the assertion by critic Morse Peckham that design, performance, or sculpture, among others, reveals nothing that cannot be found elsewhere, and “more reliably” (2004, p 6). Claiming that since the Enlightenment “the guardians of knowledge and their political masters have stigmatized poetic wisdom as a rebel against reason”, Carter argues that wit is seen as perverse (2004, p 9). By defining wit as the ability to perceive connections or as Carter describes it “like with like”, however diverse their contexts, he subscribes to certain assumptions about the artistic avant-garde derived from 18th century philosopher Giambattista Vico. Vico’s “grouping” of “memory, imagination, and invention”, according to Carter, demonstrates the poesis of making (2004, p 7). Citing Vico, Carter conflates wit with myth, by defining myth as:

materializ[ing] abstract ideas with their vivid figures of speech. The artist, through a capacity to ‘perceive analogies existing between matters far apart and, apparently, most dissimilar’, mythopoetically creates ‘poetic wisdom.’ (2004, p 7)

For Carter the combination of wit and myth is an integration rather than a synthesis. He defends poetic wisdom from accusations that it “cancel[s] out” heterogeneity by claiming that wit “is an elastic dispersal whose creative principle of ‘like to like’ presupposes heterogeneity” (2004, p 190). In arguing for the significance of “material thinking” Carter does not paint an image of reconcilable differences. Instead he emphasizes that “[w]ithout incommensurable differences, the conditions of poesis would not exist” (2004, p 15). Carter’s argument is that by excluding the poetic and mythological, practice based only on reason is misguided. Although he acknowledges that Vico understood reasoning as poetic (2004, p 7), his evaluation of reason is generally negative. Instead, he positively reflects on how myth is opportunistically molded by the “artist’s fantasy” (2004, p 186) in which he perceives a similarity with “myth-making” (2004, p7).

Carter’s observations regarding wit contradict certain tendencies in debates about the history of the avant-gardes in fine art, as described by art theorist Thierry de Duve. In contrast to Carter’s valorization of imagination and myth, de Duve illuminates how the twin judgments of intuition and reflection, that in some ways parallel wit and reason, are inseparable. Like Carter’s integration of material and concept, de Duve argues that the avant-gardes’ attitude to audience is opposed to instrumental reason. De Duve shares with Carter a foregrounding of the social effects of practice and argues that in contrast to “academic” artistic production that treats the medium as “a means [...] in the service of an end which is to reach the public, with whom the pact is sealed in advance,” the avant-garde practitioner is “more sensitive to the fragility of aesthetic pacts, [...] he is more alert, more alarmed, perhaps more panicked by the indeterminacy of his addressee” (de Duve, 1996, p 65). For de Duve the result of the uncertainty of whom works address results in practitioners addressing the medium:

as though it embodied the addressee. For him, the other is not at the end of a chain of communication, and the medium is not a channel or a means. [...] The medium is the other. It embodies and materializes the otherness of the addressee. (1996, p 65-66).

The claim that “the medium is the other” indicates how for de Duve, practitioners synthesize medium and audience rather than Carter’s proposition that they integrate medium and idea. By including the audience De Duve’s conception of materiality is more politically charged than

Carter's and certainly less engaged in romanticizing the inseparability of concept and material in creative production.

De Duve argues that the avant-gardes challenge homogeneity in a "sentiment of dissent." For him, this sentiment is one "for which all the figures of negativity can be appropriate—the feeling of emptiness or insignificance, the feeling of destruction, the feeling of conflict, of being ripped apart or separated" (de Duve p 67). From this perspective the sentiment of dissent responds to an ethical respect for social difference, that he claims appeals to an audience who share with the artist an understanding of the limits of convention and their broken social pacts. Negating Carter's claim that reason leads only to negative consequences, de Duve argues that while practitioners are unclear about their assumptions of who their audience may be, they are acutely aware of where inequity may be lurking, and sometimes use the "solar light" of reason, of which Carter is so critical (Carter, 2004, p 173), to expose it.

At first glance, Carter's claim that "[a] right attitude to materials is itself a concomitant of a right attitude towards collaboration" (2004, p 184) echoes de Duve by recognizing practitioners in collaboration as the first audience of a work. However, in contrast to Carter's assertions that reason only crushes (2004, p 185-186) de Duve argues that instead of distinguishing the conceptual from the aesthetic, it is necessary to acknowledge the twin judgements of an intuitive response to a work, and a reflection on that judgement as the point at which a work is understood. For de Duve:

All the 'conceptual' work of interpretation—and I put the word between quotation marks, so convinced am I that almost nothing in art is a matter of concepts or theory in the strict sense of the words—is left hanging between two judgements: a first judgement, aesthetic and perfectly intuitive, from which the desire to understand the work is born, and the same judgement, but in a form nourished by reflection. (1996, p 25)

De Duve's scepticism about opposing intuition and judgement in fine art contradicts Carter's emphasis of wit or imagination over and against reason.

Refuting the mechanics of engineering with a complexity of structure and ornament in design (and the red herrings of mythology).

Within Carter's characterisation of how poetic imagination informs contemporary practices in fine art, and de Duve's analysis of the artistic avant-gardes' regard for their audiences, *H_edge*, an experimental design by engineers and architects Arup's Advanced Geometry Unit (AGU), can be interpreted as a rebuttal of a thread in the functionalist definition of design as fitness-to-purpose. Deputy chairman of the engineering firm Arup Cecil Balmond and master planner Charles Walker established the AGU in 2000. The AGU focuses Balmond's concept of engineering as an aesthetic and creative activity, and Walker's remodeling of engineering in an atelier model. Their collaborators on *H_edge* include Daniel Bosia and Francis Archer. Architectural projects in which Balmond has collaborated include the *Coimbra Footbridge* in Portugal with Antonio Adao da Fonseca in 2005, and the headquarters for China Central Television Beijing with Rem Koolhaas. Balmond's commitment to engineering as an aesthetic practice also involves collaborations with artists, such as Anish Kapoor's *Marsyas* at Tate Modern Art Gallery in 2003.

H_edge is a maze of interlaced metal that floats without any structural support. An immediate reaction to *H_edge* is amazement that such a structure is actually self-supporting. It is a tensegrity structure that relies on tension rather than compression to withstand gravity. Installed at Artists Space, New York, in 2006 with 5200 aluminum plates and stainless steel

chain, *H_edge* is organized according to the Menger Sponge, an algorithm that measures space between two and three dimensions. It reworks a proposal by architect R. Buckminster Fuller that a tensegrity, described by Buckminster Fuller as a “tensional integrity”, combines “discontinuous-compression” and “continuous-tensioning” (Buckminster Fuller, 1961 np). In contrast to solid structures that rely on compression, such as brick walls where bricks are stacked on top of each other, tensegrity structures are stabilized by tension. As de Duve argues with intuition and reason, Buckminster Fuller recognizes compression and tension as “inseparable” in that they “coordinate functions of structural systems” (Buckminster Fuller, 1961 np).

H_edge is most often discussed in terms of its technical and functional elegance. Described by essayist David Ruy as “structural magic”, *H_edge* is characterised as “enigmatic modules aligned in an inscrutable suspension” (2006, p 19). While Ruy describes the complex mathematics involved in *H_edge*, more notable from the perspective of this paper is how the work connects two variants of functionalism based on mechanical and organic models. *H_edge* refuses the separation of ornament and structure so valued in one trajectory in functionalist design debate since the Enlightenment. Following the definition of beauty according to utility, Modernist models of mechanical functionalism led to the assertion by architect Corbusier that standardisation is at the core of functionalist design because it provided democratic access. To achieve standardisation Corbusier argued that design is governed by reason and “a logic controlled by analysis and experiment” (Corbusier, 1923, p 106-107), developed by “organizing rational elements” (1923, p 108).

In *H_edge* AGU examine how the mechanical functionalist ethos of design, by which Corbusier among others defined engineering, was challenged by the tensegrity structures of Buckminster Fuller. However, by instrumentalising these twinkling ornaments to create a structure, AGU collapse the distinction between ornament and structure and follow architect Louis Sullivan’s recommendations for organic functionalism. In contrast to mechanical functionalism, organic functionalism places a high priority on adaptation to function, according to laws derived from nature. Organic functionalism was described by Sullivan in poetically charged terms. For Sullivan “Whether it be the sweeping eagle in his flight or the open apple-blossom, the toiling workhorse, the blithe swan, [...] form ever follows function, and this is the law” (Sullivan, 1896/1975, p 13). Sullivan’s often misappropriated phrase reveals that organic functionalism in fact reverses the understanding of mechanical functionalism as a sparse minimalism directed by purposefulness, in that it holds ornament in high esteem. Unlike the prosthetizers of early machine manufacture who dismissed ornament as extraneous, Sullivan proposed that ornament is integral to structure: “the mass composition and the decorative system of a structure [...] should be separable from each other only in theory and for purposes of analytical study” (Sullivan, 1892, p 3). By producing a tensegrity maze composed of a jewel-like decorative pattern *H_edge* demonstrates Sullivan’s assertion that “the ornament should appear, not as something receiving the spirit of the structure, but as a thing expressing that spirit by virtue of differential growth” (1892, p 3). In fact, *H_edge* displays how the counter-intuitive deploys a critical reasoning capacity. By this I mean that a poetic sensibility can be an extension of reason.

As well as challenging the romantic theory of creativity as wit, *H_edge* also implicitly examines aspects of Carter’s thesis regarding mythology. That *H_edge* scrutinises mythology is discussed by members of AGU, Daniel Bosia, Charles Walker, and Francis Archer, in the DVD documenting the construction of the project (Arup AGU, 2006). They assert that *H_edge* was based on the legend of the Indian Rope Trick. Researching the background of the Indian Rope Trick reveals that the ‘myth’ was invented by *Chicago Tribune* journalist John Elbert Wilkie in 1890 (Lamont, 2004, p 6). The Indian Rope Trick recounts a legend of a fakir, or

holy man, who throws a rope into the sky that mysteriously forms a rigid structure. According to the myth, the fakir sends a young boy up the rope, and enraged when the boy will not return, proceeds to follow him. After what appear to be arms, legs and other body parts falling from the sky, the fakir descends and gathers the disassembled body into a basket. Miraculously, the boy emerges from the basket intact. Contra to Carter's celebration of myth, *H_edge* disputes mythology's power, where illusions are accepted as fact—in this case, the mythic fiction of a rigid rope—and the claim that engineering is free of aesthetic judgement. It symbolically alerts designers to not adhere unthinkingly to myths of mechanical functionalist discourse that separates purpose free ornament from purposeful structure. In particular, *H_edge* aims to correct Corbusier's misconception of the mechanistic role of the engineer and the purity of engineering solutions. By exemplifying how myths gain credibility the more often they are repeated, *H_edge* raises important questions about the exoticisation of the East by Western journalists who constructed 'eye witness' accounts of magic. *H_edge* thus refutes the mythologizing or romanticization of creative production exemplified in Carter, particularly the myth that design is "dumbed down" by functionalism as a purely purposive aesthetic discourse with which to evaluate form.

Juxtaposing mechanical and moral functionalism and the materiality of design in *Technological Dreams Series #1 (Robots)*

Like AGU, industrial designer Anthony Dunne and architect Fiona Raby challenge modern design's classicism and universality based on mechanical functionalism. Partners in the design practice Dunne and Raby, they have worked in Tokyo and London and include Sony UK, Panasonic, France Telecom and the Science Museum, among their client commissions. They were also founding members of the Critical Design Unit at the Royal College of Art from 1994-2005, and their projects are in the permanent collections of Museum of Modern Art, New York, and the Victoria & Albert Museum, London. Dunne and Raby's *Technological Dreams Series #1 (Robots)*, 2007, comprises a DVD demonstration of robots that is projected behind four prototypes of the robots. Commissioned by the gallery Z33 in Belgium, the work continues the provocations of their work *Placebo Project*, 2001, but goes a step further. The sociological method in *Placebo Project* where people adopted objects to measure their affect in their day-to-day lives is now replaced with a figure resembling an equipment promoter demonstrating how to use a set of personal robots. Taking seriously the prospect that robots will only increase their range in performing mundane tasks around the house, *Technological Dreams Series #1* can be interpreted as a contemplation of whether robots will become neurotic, in one way or another, when acting as receptacles for their users fears and anxieties, or whether the robots' neurotic predispositions lends them to practical exploitation.

The DVD of the robots reveals that one robot, a black cone with five sensors protruding from the wider end, screeches and rolls in its own paranoid turmoil if approached. Dunne and Raby recommend that this robot might function as a home security system, as it is alert to its environment and adverse to contact. (Dunne and Raby, 2007, p 21). Another robot, comprising a white plastic flat screen precariously balanced on a small wooden plank with wheels, and attached to a leash, behaves like a dependant child, or as they describe it, a "needy robot" (2007, p 21). With remnants of speech recognition and reproduction software it babbles sweetly. The user's job with this robot is to listen closely and interpret its needs. More pragmatically, a third robot is presented as a new data protection unit. Proportioned as a 4x2 wooden plank with one end turned at 45 degrees in which a camera lens is fixed, it fiercely protects you by searching your eyes for recognition. As a hypothetical robot it scans your iris before letting you access the personal information it contains, for instance banking details or gene codes.

The fourth robot, a red ring measuring one meter in diameter is the most recognizable from their past work. People can stand in this robot and it searches for the space in a room least affected by electromagnetic radiation. Dunne and Raby recommend it would be an excellent apparatus for relaxing in a space protected from electromagnetic fields. This robot refers to a previous work, *Faraday Chair*, 1995-98, where they sought “to create a space devoid of radio waves, resulting in a hybrid between a day bed and an industry standard faraday cage.” (Gordon Nesbitt, 2000 np). Like the *Faraday Chair* this robot operates much like Maxwell Smart’s cone-of-silence in the 1960s television series *Get Smart*. Similarly emblematic of Cold War machinations, *Technological Dreams Series #1* can be interpreted as representing a new generation’s fear of surveillance. Like the *Faraday Chair*, with *Technological Dreams Series #1* users can only imagine interacting with designs that are equally alienated by surveillance. The prototypes of *Technological Dreams Series #1* are only operable in stop frame animation. In actuality the robots are inert props.

In design commentary Dunne and Raby’s work is portrayed in much the same terms in which they have described their designs. It is characterised as a hybrid between fine art and design (Betsky, 2004, p 41) that references “conceptual art” (Lind, 2000 np) in that it typically displays “user-unfriendliness” (Gordon-Nesbitt, 2000 np). Renny Ramakers, a co-founder of Dutch design agency Droog, describes Dunne and Raby’s work in terms that make it sound more like art than design. For instance she claims that their work strives “to arrive at new aesthetic and conceptual potentials” (2002, p 41). Like Ramakers, design commentator Rick Poyner speaks of Dunne and Raby’s work as blurring the boundary between design and fine art within the field of industrial design (1999, p 31). Similarly, design commentator Jamer Hunt contextualises their work in standard postmodern terms and claims that Dunne and Raby explore “a messier emotional landscape of fear, pain, erotic attachment, and loneliness” (2004, p 68). For Hunt, Dunne and Raby’s designs are outside functionalist frameworks because they develop a thesis that “[t]he inability of design to tap into this reservoir of emotional attachments impoverishes us.” (2004, p 67-68).

From the perspective of this paper, like *H_edge*, *Technological Dreams Series #1* might be further understood within an expanded history of functionalism in design, and as a counter to the modeling of design research on fine art, with which Carter’s thesis corroborates. In contrast to modelling functionalism on machines and the integral value of ornament in organic functionalism that were explored by AGU, Dunne and Raby examine a third trajectory in functionalist design debate. Moral frameworks in functionalism proposed that a central concern in design is propriety, or in the words of architecture and design critic Augustus Pugin “there should be no features about a building which are not necessary for convenience, construction, or propriety” (Pugin, 1853. p1 Cited in de Zurko, 1957, p 127). Following Pugin, art historian John Ruskin claimed that all architecture and design should illustrate moral principles. In particular, Ruskin emphasised that imperfection was morally preferable to mechanical perfection because it represented the working conditions of labourers, and that “to banish imperfection is to destroy expression, to check exertion, to paralyze vitality.” (Ruskin, 1853/2003, p 18).

Contrary to Ruskin, at the *Education through Design* conference in 1965 philosopher Theodor Adorno reconsidered functionalism in terms of “the concepts of useful and useless.” (Adorno, 1965/1979, p 40). While he celebrated the “emphasis on concrete competence” at the predecessor to the Bauhaus, the Werkbund, unlike Carter Adorno notes that “[t]he principle of ‘fittingness to the material’ rests on the foundation of the division of labour” (1965/1979, p 31). Here Adorno criticises specialisation and emphasises that the division of art from design is according to social stratification. Adorno attests that criticisms of ornament from the mechanical functionalist perspective were based on a negative evaluation of the

aestheticization of labour in handicraft. On this basis, aesthetics is not embedded in wit and “[t]he ethics of scattering and recombination” (Carter, 2004, p 183) for Adorno but the disclosure of contradictions. Adorno demands that:

A work must cut through contradictions and overcome them, not by covering them up, but by pursuing them. [...] Aesthetic thought today must surpass art by thinking art. It would thereby surpass the current opposition of purposeful and purpose-free, under which the producer must suffer as much as the observer. (Adorno, 1965/1979, p 41)

Adorno’s recommendation that the purpose of fine art, and design given the context of his paper, is to pursue contradictions, is a view shared implicitly by systems theorists in design, Horst Rittel and Melvin Webber. They introduced the term “wicked problems” in a discussion of second-generation systems theory to differentiate wicked problems from “tame problems”. They defined tame problems as addressing only a singular objective within a framework of well defined rules that are measurable according to quantifiable efficiencies, for example the number of moves in a game of chess (Rittel & Webber, 1973, p 160). Like de Duve’s account of the avant-garde, and Adorno’s focus on contradiction in aesthetic debate, Rittel’s and Webber’s concept of “wicked problems” acknowledged the consequences of decisions, or the waves of repercussion that design’s institutional conventions sometimes exclude. From the perspective of this paper modelling design as a “wicked problem” is the most recent contribution to the moral functionalist debates developed by Pugin, Ruskin, and Adorno.

Rittel’s substantial contribution to the Design Methods Movement involved pointing out that opposing intuition and reason in design was “untenable” (Churchman et al, 2007, p 89). Taking account of criticisms that treating design as a science was doomed in the context of rapid social change during the 1960s, Rittel argued that design is political. On this basis he invented the Issues Based Information System (IBIS) to track arguments that took place in the design process with the aim to disclose the political factors in design decisions and to challenge the modelling of design on rationalist models of science (Rith & Dubberly, 2007, p 72-74). Based on his understanding of design as a political process, with Webber, Rittel defined wicked problems as those developing from “a renewed preoccupation with consequences for equity” (Rittel and Webber, 1973, p 155-156), and from this perspective they recommended that planning and design foreground the political implications embedded in judgement (1973, p 160). Although their claim that “Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions ...” seems self-evident today, their assertion that it is a “matter of judgement which of these solutions should be pursued and implemented” (1973, p 164) is still a contentious issue in contemporary design, and is one that is overlooked in Carter’s accounts of his various collaborations.

If considered within Ruskin’s protests against treating people as machines and the observations of wicked problems by Rittel and Webber, *Technological Dreams Series #1* discloses the effects of mechanical functionalism when it prizes automation, but upholds the values of moral functionalism. That is, although formally elegant, the robots are cracked in their surface finish, in that they reveal their vital imperfection in the peeling edges of a cheap veneer material. In this way their approach inverts the tendency in mechanical functionalism to prioritize efficiency over pleasure, and subsume design to human control. According to Dunne and Raby “One day in the future robots will do everything for us. It’s a dream that refuses to go away.” Asking “how will we interact with them?”, they consider whether users would like robots with behaviours such as “subservient, intimate, dependent, [or] equal” (Dunne and Raby, 2007, p 21). Their recommendations, exemplified in the robots, suggest how design might engage with the world in ways distinct from the principle of self-interest, that is the product of instrumental reason. From this perspective, Rittel’s and Webber’s

description of ‘wicked problems’ is strongly articulated in *Technological Dreams Series #1* in that they position design as a productive trigger, demonstrating design’s capacity for critical reflection.

Rather than transgressively combining disparate things, as Carter implies is necessary for creative production, I interpret Dunne’s and Raby’s reflections on design as a product of thinking that is better described as hyper-functionalism. The push of the functional to the extreme of dysfunction, or the rational to the irrational, in their work exemplifies the sentiment of dissent observed by de Duve, and from one perspective, can be interpreted as a re-modeling of the moral functionalism proposed by Ruskin, even a commonsense solution to the neurosis produced by means-end rationality. Dunne and Raby’s reflections on design may be described as hyper-functionalism because they reveal that excessive functionalism creates high levels of paranoia, equal to the fear that bloodless logic produces. However, their work copies the functionalism they critique. By transposing emotions to robots, *Technological Dreams Series #1* prompts an uncomfortable consideration of ourselves as identical to machines. Their suggestions are discomfiting because they reposition design users as therapists for robots that are shattered by mechanical functionalism. Now users must respond to the robots demands.

Conclusion

Distinct from Carter’s thesis, appropriated in this paper as an example of the misunderstandings about the relationships possible between wit and reason, the notion of “wicked problems” in functionalist design discourse can be interpreted as parallel to de Duve’s focus on attending to material as if it were the audience. From the perspective of de Duve’s thesis, *H_edge* prompts wonder with the simple industrial materials of laser-cut plates and stainless steel chain and points literally to the productive tension of wit and reason in a tensegrity that collapses the separation of decoration and structure,. Similarly, Dunne and Raby’s bathetic objects that shiver are reminders of the inadvertent behaviours that design modeled on machines can produce. In these ways both works engage with the history of functionalism, and counter a widespread misunderstanding of design—of which Carter’s argument is merely one example—that design is primarily concerned with reason, while fine art emphasizes imagination.

In contrast to Carter’s valorisation of wit and myth in fine art, if *H_edge* is considered a recent example of organic functionalism, and *Technological Dream Series #1* as an example of hyper-functionalism design criticism based in the history of moral functionalist debate, where design methods are turned reflexively on design itself, these designs question the determinism that design inherits from the Enlightenment separation of wit and reason, but do not reject reason in total. AGU present the tension of structure and ornament, and point to the contradictions of functionalist design traditions, while Dunne and Raby satirically exaggerate the effects of instrumental approaches to design that value control over the experiences of the design user. Rather than Carter’s romanticisation of the “mutually informing relations” of form and content, by prompting twin judgments that oscillate between aesthetic intuition and reason, as de Duve describes, these works ask what kind of future does design produce?

Albeit distinctive in their concerns and approaches, what these works can be said to share is not simply a transgressive attitude, but a critical perspective on design’s self-understanding. I have drawn from the emphasis in Carter’s account of the acuity of wit in connecting disparate things in the fine arts, and deployed, like Carter, a strategic or perhaps perverse slippage between different definitions of ‘reason’ to point to de Duve’s observations of artistic avant-gardes. With respect to Carter, my aim is to counter undue romanticization of artistic

vanguardism in terms of wit and mythology in design, and to refocus design debate in its historical engagement with functionalism. Foregrounding the critical emphasis in experimental design, informed by Adorno's acknowledgement of the inseparability of purposeful design and purpose-free fine art, illuminates the ways in which design's model of creative research is sometimes distinct from that of fine art. Additionally, I have tried to demonstrate that where Carter sees material thinking as the "mutually informing relations" between concept and materialization, designers perceive a tension between assumptions in the histories of fine art and design.

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