What can't be a toy? What are the formal properties of toys?

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Abstract

This essay examines the formal properties of those objects excluded from becoming toys in order to more clearly delineate, if any such exist, the formal properties of toys. These properties of toys then allow speculation on the limits and boundaries of toys: How might these be determined and manipulated?

Keywords: banned toys, toy definitions, formalism, semiotics

What are the formal properties of toys?

Curiously, formal toy definitions have received less scholarly attention than formal game definitions. While Suits (2005), Caillois (1961), and Huizinga (1955) are commonly cited in an ongoing debate on the nature of games, formal or otherwise, there is no analogous canon of theory and theorists - and comparatively little available literature - on the formal properties of toys. This reveals a critical difference in common conceptualizations of games and toys: While the form of the game intrigues us, the form of the toy is considered less critical and therein, perhaps, less interesting. Indeed, it might be assumed that *any formal object* can be played with as a toy and, as a consequence of that playing, *become a toy*.

But this assumption has complications. Some objects are banned from becoming toys, regardless of their playability: "dangerous" objects, for instance. While current commercial classifications of "toy" are quite broad (and based more on function rather than form)...

> Products designed or intended, whether or not exclusively, for use in play
> by children under 14 years of age. (Council of the Safety of Toys, 2009, p. 11)

...these definitions are inevitably qualified with exceptions, prominently including "essential safety requirements." These requirements clarify important formal properties – both material and conceptual – that exclude some objects from becoming toys.

Another significant – and less culturally determined – complication to the notion that any object can become a toy is found in those objects that, if and when they are played with as toys, are destroyed. These include physically delicate

objects as well as conceptually delicate objects such as *models*, *simulations*, and *games*.

Objects excluded from the toy class

It is first useful to note how existing toys, including prototypical examples of their kind, might fall out of their special toy class. Here, we might be initially swayed by the notion that toys are determined solely by the toy player i.e., as the toy player ages, her toys are put away and lose their favoured status and identity. But this is misleading. We clearly continue to classify toys as toys whether they are in storage or not. There are other, more fundamental characteristics than disuse that more reliably and predictably transforms toys into something else.

Commonly, in story and literature, toys are transformed into something else by granting those toys autonomy: free will. *Toy Story*, *Pinocchio*, and *The Velveteen Rabbit* are equally representative of this sort of transformation. This phenomenon of a toy becoming something other than a toy when given independence of action indicates that toys are defined in great part by their *controllability*. And this subordination of the toy to the player is not precisely to obey the commands of the player but rather to *display* those commands, to serve as a means of *expression* rather than an instance of domination. The toy is then an extension of the toy player's ego and desire (cf. Myers, 2017), and should any toy become controlled by some force or entity other than the player, we commonly consider that toy to have breached its formal class.

Criteria for becoming a toy

Industrial censorship

There are extensive documents guiding the manufacture, distribution, and marketing of toys. These are produced largely by state-sponsored organizations to protect the health and safety of children, and most parallel standards and guidelines coordinated and distributed by the ISO (International Organization for Standardization).

These documents, intended to serve economic and industrial interests, do not provide a clear definition of what a toy is, only what a toy should *not* be. And, in sum, as mentioned previously, based on these documents, a toy should not be "dangerous." Nevertheless, despite containing no explicit definition of a toy, there are, in these documents, several implicit assumptions about the formal properties of toys.

The first and most obvious of these assumptions is that *any* material object might be appropriately classified as a toy insofar as it is intended to be played with

as a toy. Thus, chemistry sets, scissors, and all other objects that are not prototypically considered toys deserve equal consideration and treatment as toys (for regulation purposes) should these be marketed and *intended*, rightly or wrongly, to function as toys. In this first assumption, then, there seems little formal limitation as to what may be defined as a toy.

However, there are two further assumptions in common standards and guideline documents that significantly narrow the scope of potential toys. One is that toy play originates within and largely remains a subset of *child* play. While this is a limitation that appears often in industrial definitions of toys, it seems a limitation also shared widely in human culture and consciousness.

> In my investigations of other adults' memories of their play, it seems they mostly remember play at age seven or eight. (*American Journal of Play*, 2016, p. 146)

Formally, this connotes the toy as an *affordance* for child play and therein places limits on the toy's size, weight, accessibility, and other physical characteristics insofar as these must be correlated with the physical characteristics of human children. If some object is too heavy or too bulky or otherwise unwieldy, then that object falls outside the bounds of what can be reasonably consider a toy for a human child.

Another limiting assumption of note within these regulatory documents is that toy play only significantly involves *material* – rather than immaterial, non-corporeal, or otherwise ideal – objects. This allows all non-corporeal objects to be formally excluded in reference and regulation. This is somewhat of an oddity in that industrial standards and guidelines for toy design and manufacture currently exclude seemingly critical components of many digital devices currently serving as toys (e.g., these toy's *algorithms*) – omitting, for instance, the defining components of wildly successful toys such as the *Tamagotchi* (Bandai, 1996). While there are extensive references to various sorts of materials that might harm children, there is no corresponding reference to algorithmic procedures that might determine toy play and appeal. In the absence of any such references, there seems to be the implicit assumption that "the toy itself cannot harm mental health" (Smirnova, 2016). However, other commonly applied definitions of toys specifically reference those less material and more conceptual components of toys.

Cultural censorship

Toys that are judged physically safe by industrial standards and guidelines and are the proper size and weight for children may still be excluded from the toy class. The prevailing assumptions here are, again, that toy play is a subset of child play and, further, that this play affects the child's education and *conceptual* development – much according to Sutton-Smith's (2001) "Rhetoric of Progress" (cf.

also Klemenovic, 2014).

There are a great number of examples of toys judged to affect the child's development negatively and therein breach proper cultural norms, either before or after their distribution and use as toys. *Barbie* dolls, in particular, have experienced fickle public favour – as have *G.I Joe* dolls and other such toys referencing gendered roles. Toys generally fall out of favour only insofar as their *referents* – i.e., the social roles of housewives, soldiers, etc. – fall out of favour. Yet the representational quality of the toy is itself controversial, and there are two separate threads to tease out of these sorts of cultural concerns.

On one hand, toys have long been considered miniatures of pre-existing objects, and therein representations of and references to those objects. This is, after all, one of the meanings embedded in the English (and most other) version of the word "toy": a diminution. During toy play, the player gains reference to a larger and original and *real* object, and the toy player both symbolically interacts with and *learns about* this real object. This aspect of toy play, we might say, is *toy dominant*: its outcome very much depends on the appearance and structure of the toy insofar as this is in mimicry of some other object.

On the other hand, there is the realization that toy play is quite different – more varied and often more destructive – than any interaction with those original and "real" objects that are superficially similar to the toy. Levinovitz (2017) outlines this ambivalence and occasional conflict between the toy and its referent with emphasis on Baudelaire's (1853) assertion that the toy is (or should be) an occasion for imaginative play rather than a predetermined and patterned learning experience.

> Toys derive their own peculiar significance from their absence of significance. A toy must be something the player is willing and able to destroy. Or, more accurately, to identify something a toy is, in a sense, to acknowledge that is has already been destroyed. (Levinovitz, 2017, p. 278)

Play with toys in this manner is then *player dominant*, with the expectation that the toy serves more properly as catalyst for than determinant of play. And, while Barthes would argue that toys need to be *materially* reshaped in order to break free of embedded values, even those toys explicitly designed to represent more than inspire – e.g., the *Easy-Bake Oven* – seem to become, over time and repeated play, less potent as mechanisms of cultural indoctrination and more likely to evoke nostalgia than regret in recall of their play.

Toys that obtain and retain widest appeal seem to do so as a sort blank slate upon which the child's play might write. The Strong Museum's National Hall of Fame toys (The Strong, 2018) include only a minority of clearly referential icons: the *Lincoln Train*, the *Tonka Truck*, and the aforementioned *Barbie*, *G.I. Joe*, and *Easy-Bake Oven*. More common in this list are conceptually minimalist toys: *Ball*,

Play-Doh, *Slinky*, and the ideologically ambiguous *Cardboard Box*.

Fixed structures seem anathematic to the toy, whether material or referential. *LEGO* pieces, for instance (another member of The Strong National Toy Hall of Fame), remain toys during the construction process of building a house, or a plane, or a bug, but, once that construction process is complete, the newly formed *LEGO* object teeters on the edge of becoming something else: Is this an object to be admired and protected, to be covered in plaque and shelved? Or is it an object to be shattered and destroyed and reconfigured during subsequent play?

Permanence through resilience

Formal aspects of toys requiring some restraint during toy design include the toy's materiality, its child-oriented affordances, and its representational origin. But a potential toy object that is safe, accessible, and conceptually ambiguous can still be excluded from the toy class insofar as it is fragile and impermanent. Just as children might be denied harmful toys, so too can delicate objects be denied toy status.

All material toys may eventually become fragile – and ultimately broken – as a result of repeated play. Indeed, durability has long been one of the more important criteria affecting toy purchases by parents for children (Christensen & Stockdale, 1991). However, there are certain objects that, despite any superficial resemblance to a toy, cannot survive initial play. The durability of china dolls, for instance, suffers in comparison with that of *Barbie* dolls, just as the durability of soap bubbles suffers in comparison with that of rubber balls. While delicate and fragile objects certainly can be played with as toys, their formal properties immediately thwart and potentially terminate that play.

A toy must somehow be capable of expressive play yet simultaneously unaffected by it, so that the toy at the end of play remains much the same as the toy at the beginning of play.   Several of the Toy Hall of Fame examples mentioned earlier – *Play-Doh*, *LEGOs*, *Lincoln Logs*, *Etch A Sketch* – exhibit this property of bending but not breaking to the will of the player. If a toy is so delicate that it is destroyed by play, then that toy is undermined as plaything and forbidden membership in the toy class.

Traditionally, *games* are conceptually delicate objects that fall into this forbidden category. The fixed conceptual structures of games – their rules and algorithms – cannot be breached without destroying the game's identity. A game must be played according to its rules rather than, as a toy, *played with*. Similarly, *narratives* have fixed conceptual structures – e.g., plot and character – that are much like dolls made of china. These structures require a sublimation rather than an assertion of player will and desire.

However, once the rules and structures of any potential toy object become *digitized*, those forms are made more resilient to play. Digital games, for instance, exhibit properties – various levels of difficulty and other sorts of *customizable* algorithms and rules – that seem capable of formalizing, even upon occasion institutionalizing, the otherwise chaotic vagaries of play.

Digital narratives may also offer multiple characters and events in an algorithmic form that not only more easily suffers play but may require some level of player interaction and manipulation – playful or otherwise. And, while the experience of playing with the game as a toy – or with the narrative as a toy – may not be aesthetically equivalent to the experience that games and narratives otherwise evoke, that experience may still be aesthetically appealing.

Electronic simulations, for instance, share with games a critical dependency on their embedded algorithms, with a more conceptual than material core. But, unlike the game, with its fixed goals and winning conditions, the simulation is less directed and therein more directable. Simulated objects can exist in isolation of game rules, and simulated characters can exist in isolation of fixed narratives, apart from any requirement of plot or motivation, without any predetermined position within a beginning, middle, or end. Like the rubber ball that bounces and returns, like the hoop that spins and rolls and then spins and rolls again, the self-contained algorithms of digital simulations can be exposed to the pushing and prodding of toy play without being significantly transformed or broken beyond repair or subsequent reuse.

There is, in fact, a well-established genre of digital games – "simulation-games" – that lies astride the boundary between game and toy. *SimCity* (Maxis, 1989) is a well-known prototype of this genre that, depending on the implementation of any goals, obstacles, or achievements, might be experienced either as a game or as a toy. Simulation-games such as *SimCity* retain fixed, embedded algorithmic structures while simultaneously offering the experience of a freer, less controlled, and more expressive play. "Sandbox games" – such as *Minecraft* (Mohang, 2011) – and "open-ended" games – such as *Skyrim* (Bethesda, 2011) – likewise employ both game rules and toy-like affordances that allow hosting either as game play or as toy play.

The ultimate distinction between the simulation and the game within this newly available genre of "software toy" remains very much dependent on design; those fixed aspects of digital simulations designed as toys must still meet the same criteria as the base material components of non-digital toys: i.e., they must offer the proper affordances for play.

Should the simulation be overly fixed in its reference to some real world object – i.e., too conceptually *inflexible* – then that simulation may fall irretrievably outside the toy class. This was indeed the fate of those early *Tamagotchi* designs

that too closely mimicked the demands of real-world babies (see Higuchi & Troutt, 2004) and therein too closely resembled a "microcosm of the adult world" (Barthes, 1972, p. 53).

Likewise (though not necessarily because of any strict mimicry of real-world objects), game rules and algorithms may be too complex and/or too rigid to properly afford play – similar in their inflexibility to material components of toys that are too heavy or too bulky. In the case of chess, for instance, rather than moving chess pieces according to the rules of the game, the toy player might instead rearrange and stack these pieces according to her own desires, simply ignoring any overly fixed rules.

Digital simulation-games have the potential to incorporate the rules for game play and the affordances for toy play *simultaneously*, and, further, to attach affordances for play directly *to the rules of the game*. These affordances may be those of number (e.g., many or few depending on the attention of the player), size (e.g., large or small depending on the awareness of the player), activity (e.g., slow or fast depending on the reaction of the player), or many others. Each of these represents a design choice that has the potential to make toy play more or less affording: more or less possible, accessible, and enjoyable.

Similarly, the digital rules of games may be designed as many or few, simple or complex, rigid or flexible, in order to adapt to the needs and desires of the player. These design choices make game play more or less possible, more or less accessible, and more or less enjoyable. However, as the fixed rules of games become increasingly *flexible* in reference, these rules become increasingly capable of bending to the will of the player during play until, according to player desire, these rules are no longer fixed at all. At this point, the digital game is transformed into a digital toy.

Indeed, digital games may be designed such that their rules are transformed into the conceptual equivalents of blocks of *LEGOs* or the dough of *Play-Doh*. These game rules can then remain de facto "permanent" (through their resilience and resistance to material destruction), but they can also be breached at will, manipulated, and rearranged during play. These manipulations can then be *institutionalized* through walkthroughs and cheat codes and dialed-down-to-zero difficulty levels - or, these manipulations may be *socialized* through various sorts of individual and social constructivisms (e.g., house rules and the like). In either case, game play is transformed into toy play.

Conclusion: What can't be a toy?

There are clearly commonly applied limits to the toy class. The most obvious of these limitations deal with the toy's material components, i.e.,.

• *Safety* – The toy cannot be materially harmful to the toy player.

Examples of objects denied toy status: Scissors, Radioactive material.

• *Resiliency* – The toy cannot be materially harmed by the toy player
Examples of objects denied toy status: Artwork, Food.

• *Affordability* – The toy cannot be materially inaccessible to the toy player.
Examples of objects denied toy status: Mountains, Clouds.

The non-material limitations on toys and toy play to a great extent parallel the material limitations, with some curious differences. Clearly, the referential and conceptual limitations on the toy class are more normative and not as widely codified as are the material limitations.

• *Imaginative* – The toy cannot be conceptually inflexible to the toy player

Examples of objects denied toy status: Social dictates, Moral laws

• *Resiliency* – The toy cannot be conceptually harmed by the toy player.

Examples of objects denied toy status: Games, Living things.

• *Affordability* – The toy cannot be conceptually inaccessible to the toy player.
Examples of objects denied toy status: Quantifiers of deep nesting, multi-dimensional objects. (cf. Faust, 1984)

The most glaring distinction between these material and conceptual limitations is that the toy must be materially "safe," yet the toy should also be conceptually (i.e., *semiotically*) flexible, imaginative, fanciful, or what might be considered conceptually "dangerous" (or, at least, conceptually *transgressive* (see Møller ,2015).

There is a related and further conflict between the widespread assumption that toys should be educational *and* fanciful. Educational toys are always in some respect referentially fixed – pointing to their educational content, a *lesson* – whereas imaginative and "flexible" toys are always in some respect conceptually and referentially ambiguous – i.e., have an "absence of significance"(Levinovitz, 2017, p. 278).

Significantly, the toy industry does not regulate the conceptual components of toys. In the absence of any regulations as to what the toy should or should not reference, there is apparent support for the superfluity of conceptual components and an implicit preference for toys as ideologically neutral. This stance assumes the toy as *player dominant*, wherein the toy player ultimately determines the referent(s) of the toy and that determination has the ability to mitigate – or ignore – any conceptual values conventionally associated with the toy's representational form.

Newly available digital designs have expanded the boundaries of the toy class to include conceptual objects previously considered too delicate and/or too fragile for toy play. The widespread appeal of toy play may hasten the conversion of other, previously sacrosanct conceptual objects as well, including art and, perhaps, living things. If living things can be digitally simulated (either in reality or in belief) and therein made more resilient to play, then current impositions on playing with others as toys – similar to impositions on playing with games or other conceptually delicate objects as toys – could become less restrictive.

The inhabitants of *Toy Story* and other narratives may no longer require two separate identities, one as a toy subservient to the toy player, and the other as hidden, independent, and free – as something other than a toy. The identity of living objects within our imagination and belief can be singular and therein increasingly designed – and perhaps defined – as affordances for play.

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