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What is a simulation of a game?

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The relationship between simulations and games is unclear.

Some, for instance, claim that that games are a particular sort of simulation -- e. g., “the computer game is the art of simulation” (Aarseth, 2004, online). Others claim that simulations are a particular sort of game -- e.g., “I consider simulation models to be a subset of the more encompassing game model” (Klabbers, 2009, p. 49).

In both these instances -- and in many others (see Karhulahti, 2014) -- regardless of whether simulation or game is given priority over the other, simulation and game are assumed compatible with one another and, occasionally, equivalent.

Or, in other words, if a game happens to be a simulation -- if, for instance, we claim that racing games or sports games or war games are simulations -- then this claim alone does not preclude these games from being games. Likewise, should a simulation also happen to be a game -- as, for instance, nominative-based claims might insist about *Microsoft Flight Simulator* (subLOGIC, 1977) and *Euro Truck Simulator* (SCS Software, 2008) -- then this does not preclude these simulations from being simulations.

With the goal of clarifying the relationship between simulations and games, I will argue here that transforming a game into a simulation may well preclude that game from remaining a game.

In order to argue this, I will not use a conventional strategy; I will not attempt to define a simulation, and then to define a game, and then to compare and contrast these definitions in hopes of finding either critical differences or critical similarities between the two. Rather, I will restrict this analysis to an examination of what a *simulation of a game* (SoG) might look like, given three possible (and mutually exclusive) relationships between games and simulations:

1. Games and simulations are essentially distinct -- i. e., games are not simulations.
2. Games and simulations are essentially equivalent -- i. e., games are simulations.
3. Game and simulations are in some relationship other the two above.

The extent to which an SoG within any one of these three is more likely and compelling than within either of the other two is then taken as an indication that the relationship between games and simulations within that particular scenario is more likely and compelling than within the other two.

This strategy of focusing on the *relationship* between simulations and games, rather than on either game or simulation in isolation of the other, offers some advantages and insights in comparison to more conventional analysis. For instance, this strategy initially avoids having to define a game as anything other than a simulation, not a simulation, or something in between. This strategy similarly avoids having to assign a simulation any definitive ontological status beyond a single and important one: its semiotic function as a *reference*. For, as a reference, a simulation is necessarily bound in important ways to its referent.

The semiotic function of a simulation.

In general, a simulation references that which it simulates by, in some way, *resembling* that which it simulates. Of course, other sorts of references do this as well -- Peirce's *icon*, for instance, characteristically references its referent by sharing some quality with it (Peirce, 1883). However the resemblance associated with the simulation, in comparison to that of icon, is more restricted.

The resemblance associated with the simulation must be stronger than the weakest of the resemblances available to the icon, and the resemblance associated with the simulation must be weaker than the strongest of the resemblances available to the icon.

A circle, for instance, cannot reasonably serve as a simulation of the sun, but can serve as an iconic reference to the sun -- by sharing the sun's roundness. In this instance, a single shared property of the sun and a circle are sufficient to classify the circle's referential function as iconic -- but insufficient to classify it as simulative.

Significantly, an icon might conceivably share ALL properties of its referent and still be capable of serving as an iconic reference to it -- i. e. , as a *self* reference. In contrast, a simulation that shares ALL properties of its referent can no longer serve as a simulation insofar as a simulation cannot serve as a *simulative* reference to itself. A simulation that is identical to that which it simulates is no longer a simulation.

While some might not be entirely happy with this particular distinction between an icon and a simulation, most at least might agree on this: some particular (and advanced) level of

resemblance is critical to the reference that is a simulation, and this particular (and advanced) level of resemblance is not so critical to other sorts of references (including icons).

And most might agree on this as well: There are currently uncertainties as to how “strong” resemblance must be in order to distinguish the sort of reference that is a simulation from the sort of reference that is not. More certain is what level of resemblance marks the transition from the thing itself (i. e., a referent) to its simulation (i. e., a reference). A simulation might resemble its referent exceedingly closely, but, as a *simulation*, cannot resemble that referent *exactly*. Exact resemblance is the goal of the *emulation*, perhaps, but not the simulation.

I do not consider this either an unreasonable or an unprecedented claim. If we look closely enough, this is a claim implicit in many of philosophy’s well-known alternate world (e. g., “Twin Earth”) scenarios. Most often and commonly in such scenarios, two entities exceedingly closely -- but not exactly -- reference and resemble each other while remaining notably distinct from one another in some critically important way.

For example, Kripke (1980) argues for necessities -- including *a posteriori* necessities -- determining the identity of an object such as water, e. g., “Water is H₂O.” Rigid designators of this Kripkean sort can then be used to distinguish between water and all other, non-H₂O objects that very closely resemble water.

Putnam (1975) offers a “Twin Earth” version of just such a similar-to-water object: XYZ, which is identical to water in every way except that its chemical composition is XYZ rather than H₂O. Given this circumstance, whenever XYZ is used to reference “water” -- in conversations between Twin Earth and normal Earth inhabitants, perhaps -- XYZ serves as a *simulation* of water. XYZ references and resembles water quite closely, in strong and significant ways, but not so closely that it is *identical* to water.

A similar, alternate-world-sort-of scenario is found in Chalmers (1996). The philosophical zombies within the alternate world of Chalmers (and other philosophers) are clones of humans in all respects but one: these zombies have no conscious experience. Here, then, we might equally say that insofar as these philosophical zombies reference and resemble humans exceedingly closely, they can effectively serve, when called upon, as *simulations* of humans.

Note that, in both these cases, the simulation may be very difficult to distinguish from that which it simulates. Nevertheless, in each case, as drawn, the simulation differs from that which it simulates as regards some essential component: H₂O in one instance, conscious experience in the other. In each case, should the simulation -- XYZ or zombie -- gain this

missing component, that simulation then becomes identical to that which it simulates, and its simulative properties dissolve.

One last alternate-world example: Consider Bostrom's (2003) notion that we are living in a simulation of the "real" world. Surely, this simulated world in which we live can only reasonably be called a simulation if there exists some *other* world which our simulated world both references and resembles. The simulation in which we are living is then required to exhibit some essential and necessary *otherness* with respect to that which it simulates -- and, correspondingly, that which is simulated must exhibit some essential and necessary *otherness* with respect to the simulation.

Now, admittedly, something like *semantic externalism* (cf. Putnam, 1996) may be required for this particular semiotic conceptualization of a simulation to be a useful one. For, if there is no external necessity -- *a posteriori* or otherwise -- then there seems no reasonable means of definitively distinguishing between what is a simulation and what is not. If semantic externalism is indeed required -- I will not take up that argument here -- then, at least for the duration of this essay, so be it.

Based on the above, if we happen to believe that a simulation of water (e. g., XYZ) *is* water, or that simulations of humans (e. g. , zombies) *are* humans, or that a simulation of the real world *is* the real world, then we have been duped and our belief is false. Thus, in this context, a simulation may be capable of *deception* -- with the epistemological value of this deception in its eventual revelation than in any sustained impenetrability.

It is also important to note that, given these particular properties of a simulation, *a simulation of a simulation* is undefined. Much like the set of all sets that are not members of themselves, this simulation of a simulation becomes a self-referencing and *paradoxical* concept: a simulation of a simulation references itself as something *other* than itself.

Emphasizing the otherness of a simulation in this way allows us to examine several possibilities regarding the relationship between simulations and games insofar as that relationship affects an SoG. Further, examining these possibilities can take place without initially requiring any definitive definition of a game. We can conduct this examination solely on the basis of whether a game is a simulation, is not a simulation, or is something in-between.

Here are the consequences of these three possibilities:

- If a game is most essentially NOT a simulation, then an SoG is most essentially something *other* than a game. This is the possibility of NOT GAME.

- If a game is most essentially a simulation, then an SoG is most essentially a simulation of a simulation. An SoG then becomes self-referencing and paradoxical. This is the possibility of PARADOX.
- The third possibility is neither of the first two: Perhaps games are most essentially neither simulations nor something other than simulations. For instance, perhaps games are partial or incomplete or *ur*-simulations.

This third possibility might allow for several varieties of partial simulations, of course, but here is a specific one: Games might resemble simulations without the referential *otherness* of simulations. In this possibility, an SoG might become a simulation of a simulation that does not reference *other*-- e. g., a simulation that references *only itself*. This sort of SoG might accept the form but not the paradox of the second possibility above -- such that, within this third scenario, there might be some other, entirely different outcome.

Let us call this broadest and vaguest third possibility SOMETHING ELSE.

Which of these three scenarios is most likely and compelling?

1. *Simulation of game as NOT GAME.*

The least nuanced adjudication of the relationship between game and simulation is simply to acknowledge that these two are distinct and, as a consequence of their mutual distinctiveness, one cannot be the other. From this interpretative stance, a game is necessarily something *other* than a simulation and, it would then seem most reasonable that an SoG is most fundamentally something *other* than a game: i. e., NOT GAME.

However, it is possible to construct counterexamples to this claim.

For instance, consider *DOOM* (id Software, 1993). The original and “authentic” *DOOM* was an 8-bit, 256 color game. If we were to create a 2-bit, grayscale version of *DOOM*, would this not be a simulation of the original? Based on the examples provided earlier -- the XYZ/H₂O example is immediately pertinent -- this slightly altered version of *DOOM* might indeed function as a simulation: a consequence of its many shared properties with *DOOM* and that single non-shared property (grayscale-ness) that establishes its identity as a simulation.

Both these -- the shared properties that constitute resemblance, and the non-shared properties that constitute the simulation's separate identity -- are critical to classification of grayscale *DOOM* as a simulation. Most often, however, simulation definitions and classification schemes focus on shared properties without assigning non-shared properties an equal level of significance.

Perhaps this is because, very often, determining whether or not a simulation is or is not identical to that which it simulates requires a great deal of knowledge about that which the simulation simulates -- information not readily available. However, in those specific cases in which we *do* have detailed information -- e. g., either (hypothetically) regarding XYZ and H₂O, or (more specifically) regarding grayscale and color versions *DOOM* -- it is much more problematic to classify a simulation on the basis of how nearly it resemble that which it simulates (shared properties), than on the basis of a how nearly it does *not* resemble that which it simulates (non-shared properties).

The former sort of classification finds it difficult to draw a line between resemblance that is too weak and resemblance that is sufficiently strong; in comparison, the latter sort of classification can be less ambiguously determined: *exact* resemblance disqualifies the simulation immediately; less than exact resemblance is always necessary (even if not always sufficient).

Further analysis of an SoG within this first scenario then seems to require identifying those properties associated with the identity of a game *more generally* -- not simply those properties associated with the identity of a *specific* game (e. g., *DOOM*). Unfortunately, the identity of a game *more generally* requires a more definitive description of a game than those three categories of games we have allowed this analysis -- i. e., game as simulation, game as not-a-simulation, and game as something other than either of these first two.

At the moment, insofar as grayscale *DOOM* is a simulative reference to the original *DOOM* -- neither resembling the original *DOOM* too little nor too much -- and insofar as grayscale *DOOM* remains a game itself (it certainly seems to), then it is difficult to support the claim of this first scenario that a simulation of a game is NOT GAME.

However, even if the simulation of a *specific* game -- such as grayscale *DOOM* -- is not prohibited from being a game, the consequence of a simulation of game *more generally* is not yet clear, and a simulation of a game *more generally* might still be precluded from being any game whatsoever.

2. SoG as *PARADOX*.

In the previous scenario, if a game is *anything* other than a simulation, then an SoG is something *other* than a game: NOT GAME. It is only for the singular circumstance in which a game is most fundamentally a simulation that an SoG might result in PARADOX. Because there are many and varied circumstances in which games might be considered something other than simulations, and only one in which they *are* simulations, it seems much more likely that an SoG would be NOT GAME than PARADOX.

However, there is a curious coincidence associated with this second scenario of PARADOX: Games themselves have been considered paradoxical, without regard to their relationship to simulations.

Games in the classic sense... exhibit a basic feature which cannot but puzzle us: a true paradox... In other words, the players must first agree amicably as partners to have a game of chess in order that each may endeavour to defeat the other. (Kolnai, 1966, 103–4)

Previously, I have defended Kolnai's position regarding the essential paradox of games (Myers, 2012) though many game theorists -- the majority, perhaps -- have argued against it. Bernard Suits (1969), for instance, stands in opposition to Kolnai:

Suits's objection is that in order for games to exhibit true paradox, there must be a true paradox involved. Yet while the juxtaposition of competition and collaboration within games is admittedly oppositional, it is not a true paradox in that it is not self-contradictory (or, in Suits's 1969, 316) terms, 'an inescapable contradiction'). Suits claims that the aims of playing a game trump all fleeting discord within a game. Ultimately, the *force majeure* of Suits's lusory attitude sweeps away claims such as Kolnai's as parochial and irrelevant. (Myers, 2012, 3-4)

Nevertheless, the more intriguing case to consider is if Suits' position is incorrect and games are, as Kolnai and others insist, essentially paradoxical. If games *more generally* are essentially paradoxical, then, in the context of this analysis, games are similar to one special sort of, equally paradoxical, simulation: *a simulation of a simulation*.

Extending this intrigue further, the proper way to interpret an SoG might then be to interpret it as a simulation of [a simulation of a simulation] -- which is to say, as a simulation of

a [*paradox*]. And we would then be led to conclude that an SoG is most essentially something *other* than a paradox: NOT PARADOX.

Therefore, this second scenario has these two odd turns:

- If an SoG is PARADOX, then it becomes that much more likely and compelling that games are essentially simulations.
- If an SoG is NOT PARADOX, then it becomes that much more likely and compelling (though certainly not conclusive) that games are most reasonably and essentially simulations AND paradoxes -- i. e., games have a form similar to *a simulation of a simulation*.

3. SoG as **SOMETHING ELSE**.

This third scenario is the most speculative.

The previous two scenarios have clearly defined predicates: either a game is a simulation or it is not. The third possibility is that the relationship between games and simulations is more complex than a binary choice allows.

Surely, games have some semiotic properties that are similar to simulations. For instance, games, like simulations, might function as both references to and resemblances of something else. And, insofar as games and simulations function as *simulative* references, each is required to be something *other* than that which it references.

But a game has important requirements beyond these.

Traditionally and conventionally, a game must necessarily be something other than “merely” a game. During game play, a game player’s *lusory attitude* (Suits, 1978) requires that games are both self-asserting and self-referential.

Why?

“Just because,” says Suits.

...to play a game is to attempt to achieve a specific state of affairs [prelusory goal], using only means permitted by rules [lusory means], where the rules prohibit use of more efficient in favour of less efficient means [constitutive rules], and where the rules are accepted **just because they make possible such activity** [lusory attitude] (Suits, 1978, pp. 54-55) [emphasis added]

In order for a game to be something other than “merely” a game, that game must reference itself as more serious than it actually is, yet also reference itself as less serious than it would be if it were not a game. That is, a game must ultimately reference itself as something *other* than itself (which is precisely the predicament earlier assigned to “a simulation of a simulation”).

For a simulative reference *that is not a game*, self-reference of this sort results in paradox. However, when a *game* references itself as something other than itself, there seems to be a paradox escape clause: the game’s lusory nature. Insofar as this lusory nature resolves any essential paradox of games (as, for instance, Suits implies), we might use it here equally to resolve this third possibility of a simulation of a game as SOMETHING ELSE.

To wit: Insofar as a *lusory* game is a partial or incomplete sort of simulation -- a simulative reference capable of referencing itself as something other than itself without being thrown into paradox for doing so -- then a simulation of a lusory game is something *other* than a lusory game. The SOMETHING ELSE in this third scenario then becomes more definitive: an SoG is NON-LUSORY.

We might call such this simulated, non-lusory game too determinate, i. e., too *exactly* resembling something other than itself. The “game” of *Russian roulette* might be a non-lusory SoG of this overly determinate sort -- incapable of occupying a liminal space separate and apart from its overly serious consequences.

Or, we might call such simulated, non-lusory game too indeterminate, resembling *only* itself. The “game” of *Calvinball* would be a non-lusory SoG of this second sort -- again incapable of occupying a liminal space separate and apart from its overly arbitrary (“non-serious”) consequences.

Summary & conclusion.

This essay offers an analysis of a simulation as a semiotic function: to reference a referent through resembling that referent, while necessarily remaining something *other* than that referent. The essay then asks which of three possible versions of a simulation of a game -- each based on a different sort of relationship between simulation and game -- is more likely and compelling.

Scenario 1. In this scenario, a game is something other than a simulation -- and a simulation of a game is then something other than a game. However, a simulation of a game as

NOT GAME is not particularly compelling as regards the simulation of a *specific* game. In such cases, a simulation of a game seems to reliably function as GAME.

Scenario 2. In this scenario, a game is essentially a simulation, and a simulation of a game is then essentially paradoxical. However, it is not particularly compelling that a simulation of a game is PARADOX. This is clearly not the case, for instance, regarding the simulation of specific games in the first scenario: these simulations of games can be both GAME and NOT PARADOX.

Furthermore, given a scenario in which games *more generally* are essentially paradoxical, it *is* compelling that a simulation of a game is NOT PARADOX.

Scenario 3. In this scenario, a game is neither a simulation nor something other than a simulation -- and a simulation of a game is then something *other* than [neither a simulation nor something other than a simulation.] Or, put more succinctly: this scenario is something other than either of the first two scenarios.

Insofar as we have determined that a simulation of a specific game can be other than NOT GAME (as regards the first scenario) -- and other than PARADOX (as regards the second scenario) -- then this third scenario seems more likely and compelling than the first two. However, this scenario only describes what a simulation of a game is *not*. We are left to our own devices to speculate about the nature of a simulation of games *more generally*.

Within this third scenario, one of the more intriguing possibilities is that a game is a lusory sort of "simulation of a simulation" that, as a consequence of its unique lusory nature, is something *other* than paradoxical (e. g., *liminal*). A simulation of games *more generally* would then be a simulation of this essential *lusory* nature of games -- with NON-LUSORY (and NOT GAME and NOT PARADOX) consequences.

Regardless of any speculation regarding the varied possibilities within this last scenario, this analysis tends to favor rejecting those scenarios in which games are either most essentially equivalent to simulations or most essentially distinct from them.

This third and final scenario becomes even more compelling -- and intriguing -- if the lusory nature of games is critical to the identity of games *more generally*. This positions the semiotic relationship between a simulation and a game as similar to the relationship between a simulation and *a simulation of a simulation*. A game as *a simulation of a simulation* would then have a unique referential function: an iconic form of a simulative reference -- a simulative reference that is simultaneously (and non-paradoxically) self-referencing.

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