The Nip and the Bite

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ABSTRACT

An examination of the contributions that can be made by the field of non-mechanistic cybernetics (as elaborated by Gregory Bateson and Anthony Wilden) to a theory of videogames that views them as complex open systems in dynamic relation to players. Bateson, observing animal play, suggests that the playful nip has a complex relation to the earnest bite. This paper contends that the relation of player, avatar and game constitutes a similar system and that Wilden's development of the theory of play has great potential for the study of videogames.

Keywords

cybernetics, Bateson, Wilden, multifinality, open systems, feedback, complexity

"*Digital to analog. Everything was digital in the past up until today, but maybe this analog aspect should be more recognized, much more. Also as I explained earlier, not the set, not the fake thing anymore, the real world. If we think in that way, I think we could see the next step in games.*"
- Hideo Kojima, interview with *Gamespot*

In his essay *Intelligent Machines,* Alan Turing speculates about the relation between human thought and objects capable of performing computational operations. His remarks involve a careful delimitation of the problem. Firstly, he points out that it would be unfair to expect a machine straight from the factory to have the experience of a human being who has lived in the world for several decades – therefore, the intelligent machine must be considered in its nascent form as the equivalent of a human infant. Which is to say, it must be allowed to learn or be subject to a process of education. Moreover, although technologies of reproduction exist for most of the human senses, a fully articulated robotic body with which the intelligent machine could move around and acquire the aforementioned life experience would pose considerable dangers to the populace at large. Thus Turing proposes two pragmatic limits on his conceptualisation of machine intelligence: firstly that the machine in question possess a truncated repertoire of bodily functions – such as sight, speech and hearing – and secondly, that it be allowed to prove its intelligence within a few particularly suitable contexts – mathematics, the learning and translation of languages, cryptography and *games*.

It is not necessary to look to advanced robotics or artificial intelligence – let alone science fiction – in order to evaluate Turing's predictions. The resemblance of his projected intelligent machine to the contemporary videogame console or computing device is striking. The

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analogy obtains both in the limitation of the sensory field to the audio-visual (itself highly characteristic of contemporary media forms) and in the formulation of an artificial and abstract context in which to gauge or test its operations and behaviour. Furthermore, especially since the advent of online gaming, the videogame apparatus can easily provide positive results for the double-blind test Turing proposes by which a machine can be held to be intelligent if, in playing a certain defined game against opponents in remote locations, an observer cannot tell the difference between machine and human. [2] Insofar as intelligence involves or presupposes a kind of subjectivity, an 'I', both the videogame apparatus and the human player say 'I' in the same way: "I play". And, perhaps most importantly, game devices possess memory and the ability to react to player inputs, status and progress – in short, they can learn.

Thus we see that the figure of the player is a potentially illuminating cultural moment through which to register the relations of human and machine that are at issue in technological society and the phenomena of computer mediation. Has the contemporary culture industry vindicated Turing's speculations? Is the videogame apparatus, taken on its own terms as a machine that can say "I play", an example of an intelligent (or more precisely, an intelligent *enough*) machine?

I feel it would be over-hasty to construe this as an either/or question. Rather, Turing's prognostications provide an interesting background to the problems that are raised by the advancement of technology. The tendency to impute what is commonly construed as a subjective category to objects has echoes in many aspects of contemporary consumer culture. Adjectives such as 'smart', 'intelligent' and 'clever' as well as verbs such as 'think' and even the pronouns or linguistic shifters 'my', 'your' and 'I' are applied liberally in advertising copy or shanghaied into catchy product names. And then there is the obverse or rather subjective side of the issue – the alienation and isolation of subjectivity noted in various regards by commentators as diverse as Rilke, Jarry and Marx. Indeed in this respect, cultural anxieties centred around the idea of alienation seem to reach an apogee in the videogame, with gamers often being portrayed or demonised as introverted in the extreme, isolated from their peers, preferring the company of machines to that of real people and generally unable to tell the difference between reality and fantasy.

A number of methodological concerns are immediately evident if videogames are to be considered a legitimate object of study in the humanities. How do disciplines that specialise in the analysis and elaboration of the statements "I write" and "I read" approach cultural objects in which the operative assertion is "I play"? What is at issue in the shift from Baudelaire's *hypocrite lecteur* to Huizinga's *Homo ludens*? Or from linear text to intelligent machine?

This question has occupied much of the scholarly work on videogames to date. Games, it has been asserted, have a constitutively different structure to the narrative forms of mass cultural production. Unlike a novel, film or play, the sequence of events in a videogame is not determined. Each time a game is played, new possibilities can be explored. Although it is true that texts of all kinds can be read in multiple ways, this objection overlooks the fact that a videogame makes the logic of its own navigation integral to the experience. A player must both interpret and navigate the game. Conversely, a reader turning the pages of a book and a spectator following the action on the screen are engaged in a relatively trivial act of navigation, however complex their interpretive efforts may be. From this we can see that a theory of videogames must

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account for their non-linear, redundant or multifinal nature. Furthermore, it must do so in a manner not limited to the hypertextual situation wherein a reader is presented with a set of choices by which to leisurely dictate the advancement of the narrative. A theory of videogames must also be able to account for the frenetic pace of action games, in which the flow from structure to event is constant and constantly demanding. In short, the theory must be competent to comment on a wide variety of temporal experience.

Such a perspective has been criticised for remaining overly formalist and as such neglecting the material contexts in which these products move – in a way, privileging structure over system. While videogames do seem quite novel in form, they commonly utilise generic aesthetic ideas, circulate as commodities in distributive cycles similar to those of other mass cultural objects and are tied intimately to the ideologies of progress. Therefore the assertion of the novelty of the videogame form must be balanced with recognition of their contextual position in contemporary culture. It is at this level that current techniques of analysis and criticism in the humanities will be of great value, posing and exploring questions of race, gender and genre as found in videogames.

Each of these approaches poses its own set of questions and conducts its own form of analysis. Is it possible, however, to engage a theoretical frame in which the various levels at issue in the videogame can be treated in terms of their dynamic interaction? Is it possible to reconcile the narrowly formal effects and wider cultural affects of the statement "I play" and its exchange between human and machine?

PLAYING WITH PARADOX

This paper holds that there is such a synthetic approach; and one for which the concept of play is of central importance. Furthermore, the origins of this approach lie in the study of the relations between human and machine, with considerable influence from the work of Turing himself. Cybernetics, described by W. Ross Ashby as 'the science of steersmanship' takes as one of its central tenets the idea of 'feedback', wherein a system and its environment are mutually defined by a constant exchange, a succession of states describing a constitutively temporal movement. Cybernetic theory has been elaborated by Gregory Bateson and Anthony Wilden in a particularly pertinent manner for the humanities, and it is their work that will inform the discussion.

Bateson describes a visit to the zoo in which his theory of play and fantasy was incepted after observing young animals play-fighting with each other. Rather than biting, the animal would simply nip its 'adversary'. Bateson reasoned that the relationship between the nip and the bite was of particular significance: the nip resembled the bite only with the added message "this is play":

> It was evident, even to the human observer, that the sequence as a whole was not combat... Now, this phenomenon, play, could only occur if the participant organisms were capable to some degree of meta-communication, *i.e.*, of exchanging signals which would carry the message 'this is play'. [1]

Thus although the nip resembles the bite, it in fact denotes the bite. Bateson summarises the overall message of the nip: "These actions in which we now engage do not denote what those

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actions *for which they stand* would denote."

For Bateson, a metacommunication is a statement or proposition, implicit or explicit, which refers to another communication. Thus in animal play he identifies at least two levels of communication occurring in the one action – indicated by the fact that the word 'denote' is used in two degrees of abstraction in the summary above. "This is play" is thus a message about a message: it frames the content of another communication. Interestingly, Bateson goes on to assert that the relation he has identified in play is intimately connected to other behavioural fields: threat, deception, fantasy and hysteria. "…analysis of childhood behaviour shows that such combinations as histrionic play, bluff, playful threat, teasing play in response to threat, histrionic threat and so on form together a single total complex of phenomena. And such adult phenomena as gambling and playing with risk have their roots in the combination of threat and play. It is evident also that not only threat but the reciprocal of threat – the behaviour of the threatened individual – are a part of this complex. It is probable that not only histrionics but also spectatorship should be included within this field." [1]

Bateson thus stakes out a very audacious field of relevance for this theory. Indeed it is possible to infer from his remarks that something like "I play" is in fact more primitive than "I speak", "I read" or "I write". It is, however, only through anthropomorphisation that we can say that animals make a 'statement' as such. The splitting into levels, 'statements' and commentaries is a methodological one, a product of Bateson's effort to understand the phenomenon. The nip is for the animal a single action and although the relation of metacommunication suffices to distinguish it from the bite, we are not yet at the level of language or more narrowly, signification. As humans and computers both use language proper, it is uncertain whether we have yet fully appreciated the complexity of the assertion "I play" in the human or machine context. It is apparent that humans – as well as, in a different way, machines – are able to recombine messages and elements of messages in complex ways, whereas the nip is an action which metacommunicates about a single relation (fighting). It is impossible for the animal to combine the nip with another signal such as a food call. Conversely, cultural games such as chess involve several pieces or messages related by a complex set of rules and interrelations. How then do the discrete elements and consequent exchanges observed in human play emerge?

The Gordian Not

Anthony Wilden has developed Bateson's theory through a discussion of the analogue and the digital. Briefly, the analogue is the realm of the continuous while the digital is defined by the introduction of distinctions into an analogue continuum, such as when an ovum divides along an axis of symmetry that is undefined until a point of contact is made by the spermatozoon, when continuous speech sounds are sorted into phonemes, or when we decide to count from one to two without traversing the infinite number of decimals between them. The digital delineates 'discrete elements with well-defined boundaries' and takes the form either/or, while the analogue is both/and. A transistor regulates current into either on or off and thus *represents* the digital binary of 0 and 1 that form the basis of modern semiconductor chip computing. Of particular importance is that digitalisation requires a rule about what distinctions constitute an element of the series, and a practical agent to enact such distinctions – in the human context, this practical

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agent is often thought of in terms of subjectivity. Analogue differences subject to positive feedback can become digital oppositions and identities.

This method of describing two modes of communication also reflects upon Bateson's description of play behaviour. Wilden outlines two levels of digitalisation. The first, observed in the nip, involves a situation in which both metacommunication and communication are folded into one action or sign – that is to say, the two meanings coexist simultaneously. The second case involves negation proper as it depends upon the setting of boundaries. "The introduction of the second-level sign into a world of first-level signs and signals detaches communication from existence as such and paves the way for the arbitrary combination of the discrete element in the syntagm." [3]. The second level of the digital presupposes an ability to say 'not', to negate: in order to isolate discrete elements it must be possible to separate 'A' from 'non-A'. As it involves the assembly of elements to form communicative messages, it is possible to describe the digital in terms of syntax. And because this second level of digitalisation involves identity as such, it is at this level that a subject or 'I' can be said to emerge – it is, in fact, whatever may be doing the assembling.

An even larger claim: this level of organisation is constitutive of a particular experience of time. Why is this? The inclusion of multiple levels within the same message involves an analytic paradox. This class of problems in general can be termed paradoxes of self-reference. Such problems arise when, for example, the Cretan poet Epimenides asserts that "All Cretans are liars", when Kierkegaard confesses that he wants to be like Abraham even though he knows this to be perfectly unachievable and in Bertrand Russell's famed meditation on whether the class of all classes that are not members of themselves is a member of itself. All of these problems are to a degree double-bound and must oscillate between either and or, yes and no, affirmative and negative.

The primary source of such paradoxes is their self-referentiality: which is to say, their inclusion of a rule about communication within the message it communicates about. A paradox arises because when he refers to Cretans, Epimenides also refers to himself. An observer analysing the statement cannot decide between the two possibilities, is double-bound by the impossibility of choosing between them. However, it should be remembered that we refer to ourselves constantly in everyday life – some more than others, of course – and people don't tend to collapse into fear and trembling from inability to process the paradox.

By Wilden's reckoning, the difference between the analytical and the everyday situations is precisely temporal. An utterance takes terms from one synchronic order – language – and translates them into another, diachronic order – discourse. Emile Benveniste has noted, mediating between these two orders are a class of words termed 'shifters'. Among this class of words are pronouns and demonstratives. Shifters help us form discourse by 'framing' utterances implicitly or explicitly – and they are practical and temporal in nature (the only definition for 'I', for example, amounts to something like 'the person constructing this utterance at this point in time'). In short, the paradoxes of self-reference that arise from secondary digitalisation are double bound for naïve forms of analytic logic but can be transcended (metacommunicated about) by dialectical or temporal logic.[1] Thus both repetition (often resulting from either/or

[1] This discussion has arisen out of what Wilden himself describes as a 'torturous' discussion of the digital and analogue modes of communication and the place of negation and self-referentiality in various logics. I would

propositions or situations in which a subject oscillates between two equally possible states) and temporal succession (where a both/and operation historicises the situation, overcoming and conserving the contradictions by working in time) can be represented at this level of organisation.

Levels of Play

To summarise: thus far several levels of behaviour have been discussed. Firstly, the predominantly analogue level of communication, in which a sign or act is simply what it is, such as fighting. Second, the nip, which forms a metacommunication about the bite through an isomorphy of action and constitutes a kind of primary digitalisation. At this level play is one of the first instances of communicating about communication. Third, secondary digitalisation in which discrete elements or signs are defined through negation. These discrete elements can be selected and combined in complex ways. At this level the contradictions caused by self-reference and multiple levels of meaning within the message can cause either/or paradoxes. These analytic paradoxes can be overcome dialectically through temporal contextualisation or metacommunication about the problem. Play appears thus as an important mediate step between action and thought. However, to construe play solely as part of a developmental pathway leading from difference to identity would underestimate the complexity of the situation.

In seeking to enliven the rather arid categories employed so far, Wilden has recourse to the text of Freud and its reading by Lacan, even though he complains that both of these writers seem alternately mindful of and oblivious to the kinds of issues raised by the digital and analogue modes of communication. From the point of view of play, there is a particularly interesting moment where Freud observes his grandson alternately throwing away and then pulling back a toy on a string. Each throw was accompanied by an 'o-o-o', while return was 'a'. Freud identified these utterances with the German *Fort*! ('gone') and *da*! ('here'). Wilden is careful to point out here that "the phonemes uttered by Freud's grandson do not even involve a phonemic opposition in the proper phonological sense, for they are in fact 'holophrastic messages', not simple sounds… the holophrastic messages of the 'o' and 'a' can be said to represent an appeal and a refusal – but not as yet anything like a negation." [3]

'Holophrastic messages' are later compared with Malinowski's 'phatic communion' in which a single sign, gesture or utterance comprises an entire message. This seems analogous with the nip, which is a whole message in relation to the bite, and so is another example of primary digitalisation. Through this homology with Bateson's theory, Wilden draws another parallel between the primary and secondary processes in Freud. "… the primary process seeks to establish… an identity of PERCEPTION, and the secondary process, an identity of THOUGHT… 'normal' and 'neurotic' language, both maintain the distinction between the (iconic) thing-presentations of the unconscious and the (digital) word-presentations of language. The same is not true for the language of 'schizophrenia', nor is it true of fetishism. Here there operates a refusal of an (iconic) identity of perception, whereas the denegation which negates an identity of thought (ie. discourse) involves digital processes." [3]

like to offer an apology both to Wilden any logicians for the no doubt indelicate treatment of the subject as, like presenters everywhere, I find myself double-bound between expansiveness and brevity.

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Therefore in Freud's theory it is possible to assert two distinct kinds of situations in which contradictions are entertained within the one system. For iconic, fetishistic or perceptual presentations, there may be *disavowal* of the constitutive paradox. "… Rosalato defines disavowal as 'an implicit denegation'. It is not as if the subject says to himself 'I did not see what I saw', but rather that he simply does not perceive what he sees, except in terms of projection, which is a form of repression." [3]. Thus neither negation nor the subject proper need be spoken of at this level, as both seem to remain implicit. Conversely, for thought-presentations, the syllogisms of analytic logic allow negation proper, as well as repression, subjectivity and the shifters of language.

A simple genetic model, positing a progression from analogue to primary and finally secondary digitalisation is clearly insufficient, as we know from Freud as well as the example of the linguistic shifter in language that complex traversal of levels is necessary to human experience, subjectivity and time. Wilden notes for example that "…the 'psychotic' who says 'No' may be primarily refusing, for digital elements can be used analogically. (We are all familiar with the anecdote about the patient who when asked to say 'No', replied 'No, I can't say it'.)" [3] A similar phenomenon occurs when people designate as 'digital technology' devices which clearly utilize both analogical and digital processes – the metnonymy is technically illegitimate but culturally meaningful. It is from this perspective that the use of 'icons' in videogames and computer-mediation seems particularly significant.

THE VIRTUAL SHIFTER

The trash-can icon on your desktop is obviously not a trash can (and your desktop is, for that matter, not a desktop). You do not interact with it as you do a trash-can. But neither do you interact with it as you do the absence of a trash-can.

It is now possible to see that the 'statement' "I play" is something of a reification of a dynamic relation: in any one instance, several levels of play may be involved, as well as implicit and explicit forms of communication. At one level, the 'drag and drop' relation to the trash-can icon is a holophrastic or iconic message in which the digital fact that the icon is not a trash-can is disavowed. The icon is to the trash-can what the nip is to the bite. Thus a computer interface could be described as a holophrastic dictionary, a repertoire of microgestures.

However, no matter how used to a given computer system a person may be and how automatic or distracted their microgestures, does there not remain a digital divide between human and machine? After all, it would probably be quite difficult to find a writer who thinks that they are their word processor.

A look at the situation of the videogame player can perhaps help here. If we retain for a rhetorical moment the formula "I play" it seems that the shifter is distributed over several levels of analogue and digital communication. The player as such says "I play" with the apparatus, "I play" as a character/cursor/disembodied presence/whatever in the game, "I play" through a set of holophrastic messages, and "I play" in order to achieve this or that goal. And if we recall that following Turing's suggestion, in a double-blind test a contemporary computer can be seen to say something equivalent to "I play" under the terms of the experimental praxis (and this perhaps gives some measure of Turing's remarkable lucidity in advancing "I play" in lieu of "I think"),

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the very mobility of the shifter indicates that the situation is more complex than can be accounted for by a simple dichotomy between human and machine. Computer-mediation, particularly as regards videogames, involves a paradox of self-reference.

The combination of the apparatus itself and the player's representative (sometimes called an 'avatar') seem thus to act as a kind of 'virtual shifter', enabling the various levels operative in a given videogame to constitute one another. A player works in a relation of primary digitalisation to their avatar, while still ascribing secondary boundaries to other objects within the game space. Wilden would describe the player's situation as an open system in which feedback through the various levels of communication forms a message-in-circuit. From this perspective, player and apparatus are poles in a complex, ecosystemic relation.

A number of highly important correlations can be drawn from Wilden's treatment of the open system and the feedback relationship. Because feedback implies the memory of anterior states of the system and environment, a recognition of complex temporal movement is inherent to the model. However, this temporality need not be confined to the digital progression of purposeful action or the inexorable advance of a clock. More analogue flows of temporal experience are also possible in videogames (gamers often speak of losing track of time when playing particularly absorbing games), and the theory is competent to discuss these as well. Just as crucially, since the system is open, it is able to approach a given goal via various paths, adjust to noise or error in its efforts to attain the goal through feedback and even change goals completely or invent new ones. Thus the theory is thus constitutively competent to describe complex, multifinal, redundant and nonlinear objects such as videogames. The forms of oscillation (disavowal and negation) can be applied to the goals of a particular game, and the movement of the player's avatar towards or around that goal analysed in terms of its analogue and digital functions.

It is also possible using a cybernetic approach to describe a game within the wider context of culture. Videogames, even when they insist on greater visual and auditory realism, are for the most part talking about becoming more cinematic (some games actually boast that they include lens flare among their 'special effects'). Analogue or iconic communications drawn from cinematic codes such as genre can thus be reflected in a game as player goals that influence both the aesthetics of the game and the kinds of microgestures the player has at their disposal. The Resident Evil series of games, for example, recapitulate many of the conventions of the horror genre, including undead adversaries, gloomy haunted mansions, science-gone-mad plot devices and copious amounts of gore. But it is arguable that the classically awful control scheme contributes massively to the terror players feel as they have to turn all of the 180 degrees between their current facing and the monster behind their avatar (although a quick-turn button has been added in later games of the series, the controls remain on the whole gloriously anachronistic). A game with more sensitive or reasonable controls would allow a greater feeling of capability and security, but perhaps also not really be Resident Evil.

A cybernetic theory of play such as that constructed by Bateson and Wilden can make a significant contribution to the study of videogames in a number of ways:

- The theory affords conceptual tools for the analysis of analogue microgestures such as those found in action games just as well as it apprehends the discrete 'moves' of a game like chess or turn-based videogames. It is possible to ask at what level these

messages operate, and how they interact with other levels at issue in a given game. The total repertoire of holophrastic messages available to the player describes its 'feel', which for videogames can be a category even more important than visual or auditory components.

- The types of elements that players have to work with and the goals they have to work towards are in no way presumed by the theory. The digital and analogue describe relationships rather than define entities. Therefore various elements and goals can be defined through these methodological tools, depending upon the game in question. Given the already great formal variety of games, this facet of the approach seems particularly promising.
- Various modes of temporality can be elaborated within the terms of the model rather than in an *ad hoc* manner. Both digital temporal progression and more analogue flows are representable within the terms of the theory.
- The theory as outlined is explicitly concerned with redundant, multifinal and complex open systems through the concepts of feedback and environment. Thus it seems well-suited to the study of videogames and the examination of the 'virtual shifter'.
- As the model talks about shifting between levels, it is able to accommodate discussions of both the formal properties of videogames and their cultural contexts. In fact, the difference between these two perspectives can be navigated by considering how analogue use can be made of digital elements or vice-versa. Bateson, after all, outlined a theory of play *and* fantasy. Therefore we are able to speak both of the way players assemble elements in the game, the nature of the elements themselves, and the goals and aesthetics implicit therein.

It may be objected with good reason that the terms employed in this discussion are overly abstract, and apply only at considerable remove to the supposed object of study. It is true that Bateson and Wilden are engaged in discussing very general processes. However, unlike the criticism of cinema, literature, drama or visual art, all of which have over decades formed extremely sophisticated vocabularies for analysing their subjects, videogame studies have yet to yield a comparably subtle and powerful terminology. I feel that such general approaches can be of great help in guiding the formation of ways of speaking about videogames and computer-mediation. Further, it is evident that much more work remains to be undertaken and a number of avenues for future research are apparent to me. Can the categories mentioned be focused further through phenomenological, sociological or anthropological methods? How may the concept of the holophrastic or iconic message be strengthened by comparison to J.L. Austin's performative utterances? In what ways is the form of disavowal found in videogames similar to the erotic fetishism studied by Freud or the commodity-fetishism of Marx? In what ways is it possible to more precisely locate or describe the virtual shifter? Will the Marxist concept of the specialisation of labour be useful to examine the nature of microgestures – how and when and why have feats of manual dexterity intricate and subtle enough to rival the most skilled craftspersons and machine labourers become constitutive of leisure time?

What is certain is that these latter questions take us beyond the limits set by Turing's analysis of the potentials of machine intelligence. While we can rely on those premises to support a more sober evaluation of what we may mean by the term 'intelligence' and the various

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contexts of its deployment, the fact is that the release of these machines into the world of experience is by now a *fait accompli*. That introduction has by tuns been disastrous and enabling and could be called the history of the twentieth century. It is machines that are intelligent enough for certain tasks that are integral to the constitution of masses of people, matter, energy and of course, capital. As Guy Debord has so convincingly argued, however, technology also contributes to the formation of alienated individuals. From this point of view, an analysis of the vagaries of the virtual shifter can form a situated and practical contribution to the critique of mass culture.

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