

Agency, Beyond Strange Cultural Loops

Laurie Johnson

Citation for this article:

Johnson, Laurie (2002) *Agency, Beyond Strange Cultural Loops*. M/C a Journal of Media and Culture, 5 (4)

This article was first published in M/C Journal (<http://media-culture.org.au/0208/agency.php>)

This paper on cultural loops will begin slightly off-track, drawing on lessons that can be learned from a very basic non-terminating program, written in basic programming language:

```
100 Print "an infinite loop is"  
110 Goto 100
```

Run

```
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is  
an infinite loop is ...
```

The output will continue looping through this cycle *ad infinitum*.

Suppose that somebody has entered this program into a computer and entered a "Run" command as illustrated above. This somebody has then left the room and we enter a moment later. What we appear to be looking at is, strictly speaking, an "infinite loop," a programming sequence that has no condition for termination except for activation of the self same sequence. The screen has been filled with seemingly endless repetitions of the same string: "an infinite loop is" (or is it "is an infinite loop," or "loop is an infinite," or "infinite loop is an"?). In any case, we do not *know* that the loop is endless, nor even that this is a loop. Perhaps we could imagine that after so many repetitions the output will change. Perhaps we imagine that our absent programmer is really hard up for ways to pass the time and has spent countless hours entering repetitions of the same string into just one single line of programming:

```
100 Print "infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite  
loop is an infinite loop is an infinite loop is an infinite loop is an infinite loop is an infinite  
loop is ...
```

After several hours, perhaps the programmer finally tired of the exercise and finished off:

```
... an infinite loop is really a finite loop that thinks it can last forever and ever amen."
```

For this matter, we might also wonder, as we watch the text scrolling up the screen, whether all of the preceding text has followed this exact pattern. Perhaps we just happened to stumble into the room at that moment, reflected in the current output, when our absent programmer decided to interrupt typing up a treatise on infinite loops with a banal illustration of what might constitute a loop of this sort. Wait for just a second or two more and surely the output will be different.

Of course, in the present instance, we will be waiting for a very long time for any kind of change to appear in the output—how long is infinity again, does anybody know? Perhaps there is folly in trying to second guess the next piece of output produced by a program, particularly when the evidence on the screen provides no genuine clues to the structure of the program for which it is the output.

At this point I hear the cries of dissent. How can I possibly say that the output of this program provides no clues to the structure of the program? After all, are we not faced here with output that, at the very least, appears to be endlessly repetitive? Without being drawn into a detailed discussion about the phenomenology of repetition, it is fair to say that, yes, when faced with the output on the screen as we enter the room, a reasonable expectation is that this output is several repetitions of a non-terminating series of repetitions. As each string is preceded and followed by the same string, the evidence suggests that the strings running off both the top and bottom of the screen have been preceded by and will be followed by the same string, according to the pattern.

Yet I maintain that we can never be absolutely certain that the next thing that will appear on the screen will be yet another repetition of the same string. We cannot know the mind of the creator with sufficient certainty to predict this with perfect accuracy. Certainly, anybody who presumes that the string of strings on the screen is part of some non-repeating body of text is less likely to be right than the person who sees the pattern and guesses that the program for which this text is the output is an infinitely looping one. We need only to stop the program and bring it up on the screen to confirm the latter's suspicions to be correct.

With this very strategy, however, we also illustrate the correctness of the claim I have made. In order to know with certainty what the program will be likely to output next, at some point we are required to terminate it and look at the program itself rather than its output. In other words, we need to stop the output if we want to *know* what will be put out next. The irony of this situation is of course that we cannot know from any series of outputs within an infinite loop that the loop is in fact infinite (or even that it is a loop), without first terminating the loop to look beyond its repeating output. An infinite loop is indeed a finite loop that we think can last forever and ever, amen.

Douglas Hofstadter makes a similar point about the relationship between infinity and the finite parameters of strange loops in *Gödel, Escher, Bach: An Eternal Golden Braid* (1979). Strange loop phenomena emerge “whenever, by moving upwards (or downwards) through the levels of some hierarchical system, we unexpectedly find ourselves right back where we started” (10). A sense of paradox is associated with strange loops because they bring our notions of the finite and the infinite into conflict. Some object (A) always seems to contain or be the root cause of some other object (B) in a finite relationship, yet B also seems to contain or be the root cause of A, a paradox of infinite indeterminacy.

Yet the paradox emerges because we are blinded from looking beyond what appears to be a fully self-contained system of determinations, even if we are unable to resolve the paradox of whether A determines B or *vice versa*. As we move upwards or downwards through the hierarchies in the system, we presume that we will move closer to its limit in either direction, yet we find ourselves perpetually drawn to reproduce the same steps within the hierarchy. For this reason, Hofstadter also refers to strange loops as tangled hierarchies (*passim*). The tangle is what draws us to repeat the same system of determinations endlessly, but Hofstadter points out that any system includes a protected or “inviolable level” which always remains “unassailable by the rules on other levels, no matter how tangled their interactions may be among themselves” (688).

In the work of M.C. Escher, in particular, Hofstadter finds the most powerful visual realisations of strange loop phenomena: in *Ascending and Descending*, monks walk up and down staircases that loop around to join each other; in *Waterfall*, water falls into a pool that leads to an aqueduct flowing down to the waterfall that empties into the same pool; and in *Drawing Hands*, there are two hands that appear to be drawing each other. In each of these cases, however, the resolution of the apparent paradox is in realising the hand of Escher at work beyond the hierarchy:

[In *Drawing Hands*,] levels which ordinarily are seen as hierarchical—that which draws and that which is drawn—turn back on each other, creating a Tangled Hierarchy. But the theme ... is borne out, of course, since behind it all lurks the undrawn but drawing hand of M.C. Escher, creator of both LH and RH. (689)

The non-terminating program with which I began this paper provides a variation on this theme, since the output provides evidence of an infinite loop lurking in the structure of the program. A termination of the loop to look beyond the output will confirm this. Yet beyond the program is of course the programmer and, not necessarily the same person, the person who entered the “run” command to execute the program.

In other words, there are several inviolate levels to consider in dealing with computer programs. The program itself contains the inviolate rules determining repetitions in the output. Beyond the program is the programmer. We might also consider the programming language and limitations of the technology mediating between the programmer and the program that is written, but I want to press ahead expeditiously. Beyond the programmer, there is also an executor, somebody who activates the program, making possible the generation of output. Perhaps we could refer to these two inviolate levels as those of the *creator* and the *generator*. In his examination of the strange loop of Escher’s *Drawing Hands*, Hofstadter points out the hand of the creator lurking within the inviolate level beyond the frame of the picture. We might add that as a work of art, the picture is not a free-floating object presented to us in any unmediated way. The image circulates within an array of cultural institutions and contexts, all of which mediate our access to it, and which might be thought of here as the conditions for the generation of the image.

Consider, for example, that we had never seen *Drawing Hands* before reading Hofstadter’s book. We would have to take Hofstadter’s word on the matter, that this drawing had been done by this Dutchman named Escher. Hofstadter—or, to be more precise, the book which carries his name as its authorial signature—has made possible our access to the image. Furthermore, it is within the context of a discussion about strange loops and such matters that we are asked to look at the image. Now, suppose we were to put the book down and think little of it for some time, perhaps because we are not very mathematically minded and we sort of got muddled up a bit by some of the other parts of Hofstadter’s book. Years later, we find ourselves in an art gallery, and there is a special exhibit of Escher’s work. We stumble upon the *original*, stare at it for a moment, then realise that we have seen it before. Suddenly, Hofstadter’s discussion springs to mind and we are reminded of strange loops and we think smugly, *ah, this is no paradox, since the hand of Escher existing at an inviolate level has drawn both the left and right hands which appear to be drawing each other.*

This situation leads to a strange cultural loop, since our reception of an *original* artwork has been already shaped by something we have seen elsewhere, in this instance, a *copy* of that exact same artwork. The point is of course that cultural products circulate within precisely just these sorts of loops all of the time. Indeed, I maintain that such loops constitute culture. Allow me to explain. What makes an object an example of a culture is its capacity to resonate with features that it has

in common with other objects created within the same culture. Words such as *genre*, *movement*, *poetics* or *style* (among others) refer to ways in which original works of art remain tied together within structures of repetition of core features. In a similar vein, archaeologists excavating a dig and finding numerous pots will look for repeated patterns, shapes, and techniques to determine cultural affiliations. The strange loop emerges around the vexed question of origins: is a culture made up of repeated patterns on pots, or does a culture determine repetitions of patterns on pots?

At this point it should be pertinent to bring cultural theory into play. According to the theoretical anthropology developed by Clifford Geertz in *The Interpretation of Cultures* (1975), culture can be defined as “a stratified hierarchy of meaningful structures” (7). The ethnographic method that he calls “thick description” is designed to enable anthropologists to sort out these structures from the concrete complexes of behaviour that are observed in the field. He takes as a reference point a question posed by the philosopher Gilbert Ryle: when is the closing of one eyelid a wink and when is it a twitch? As Stephen Greenblatt summarises the point, the distinction is in the shared *code*, a distinction that “is secured by the element of volition that is not itself visibly manifest in the contraction of the eyelid; a thin description would miss it altogether” (2000, 23). To compare this situation with the situation I described earlier, we can imagine thick description as a method for second guessing cultural output by moving from the perceived pattern to expectations about the mind and method of the creator. The thickness of the description inheres in its intent to take fuller account of the conditions for the generation of this cultural output.

Yet in practice, the method sometimes seems to rigidify. For example, Greenblatt’s own literary criticism—referred to most commonly as New Historicism, although he himself prefers the name Cultural Poetics—is often accused of flattening out culture. The method typically proceeds by considering together a literary text and the text of some contemporary domestic circumstance or event (a legal extract, a travel journal, a royal decree or such like), so as to find patterns pointing to the system of meanings underlining both texts. Being unable to terminate the infinite loop of cultural production, whereupon all texts echo all other texts in something akin to what Michel Foucault called the “fantasia of the library,” the new historicist tries to work backward from the conventions of textual production to the cultural matrix beneath. While Greenblatt frequently argues that a cultural poetics recognises the agency of the individuals who produce these texts, the core issues of methodology have at base been recently defined in terms of the inviolability of the base level of determination—the *archive*:

If every trace of a culture is part of a massive text, how can one identify the boundaries of these units? What is the appropriate scale? There are, we conclude, no abstract, purely theoretical answers to these questions. To a considerable extent the units are given by the archive itself—that is, we almost always receive works whose boundaries have already been defined by the technology and generic assumptions of the original makers. (2000, 14)

Here again the tension emerges between the infinite and the finite in the attempt to come to terms with unidentifiable boundaries of the units of culture. The resolution, curiously enough, is a loop at the core of Greenblatt’s cultural poetics: the structure of the archive determines for us the units of perception within which we view traces of culture, to determine the structure of the archive.

Thus, from the perspective of Greenblatt’s cultural poetics, the stratified hierarchy of meaningful structures constituting culture is a tangled hierarchy. Lurking at the inviolate level is, of course, Greenblatt himself. Greenblatt, Geertz and many others who practice these methods for reading culture as a text recognise this inviolate level openly. In the introduction to his landmark work, *Renaissance Self-Fashioning* (1980), Greenblatt confesses, “the resonance and centrality we find in our small group of texts and their authors is our invention” (6). This confession leads me one

step closer to my final point here. Even as the method of cultural poetics tends at times to flatten culture out to nodes of production arising from a single, static archive, and threatens to forget the agency of cultural producers, the method itself relies entirely on the creative and constitutive role of the observer. Greenblatt's literary and cultural criticism functions in a way that bears striking resemblance to the flights of fancy we undertook in the opening passages of this paper, looking at a pattern of output and trying to imagine what the structure of production would be like behind this output.

Like the archaeologists staring at patterns on pots, cultural theorists could sometimes be forgiven for overlooking the question of agency altogether. One of the reasons for this is that we tend to think of agency in terms of a capacity to effect change, rather than in terms of the repetition of existing patterns and structures. "Structure" and "agency" might seem to be mutually opposed terms in discussions of cultural production. Yet the lesson we might be able to learn from these discussions of strange loops and cultural production is that agency is just as necessary to shaping the cultural matrix as it is to the realisation of this system in the production of culture. When we find patterns, we are exercising the wholly productive force of the imagination. Beyond creators, generators, programs, archives and so on, there is the observer whose capacity for making sense of texts is what ultimately gives to culture its contours, patterns and limits. Furthermore—what remains to be discussed in another forum—this constitutive capacity is something that is present in everyday practice, not simply in the realms of anthropology or cultural studies.

The person sitting in front of the television, for example, is in much the same situation as when we stared at the computer screen waiting to see if the output would change. The decisions we make about whether we recognise patterns, locate meaningful structures and so on are similar to cultural reception or consumption, which I maintain is as productive as creation or generation. It is the decisions we make that insinuate infinity when we observe a loop. As we observed at the outset here, the infinity of the loop is not inherent in the structure of the output but in the way we choose to make sense of the patterns, what we imagined to have preceded the present text and to be likely to come after. To illustrate the comparison between observation of an infinite loop and agency in the field of cultural production, in conclusion, we need only to go back again to where we started here, but I leave that task up to the reader.

References

- Foucault, Michel. (1977) *Language, Counter-Memory, Practice: Selected Essays and Interviews*. Trans. D.F.Bouchard and S.Simon. Ithaca: Cornell University Press.
- Gallagher, Catherine and Stephen Greenblatt. (2000) *Practicing New Historicism*. Chicago: University of Chicago Press.
- Geertz, Clifford. (1975) *The Interpretation of Cultures: Selected Essays*. London: Hutchinson.
- Greenblatt, Stephen. (1980) *Renaissance Self-Fashioning: From More to Shakespeare*. Chicago: University of Chicago Press.
- Greenblatt, Stephen. (1992) *Learning to Curse: Essays in Early Modern Culture*. New York: Routledge.
- Hofstadter, Douglas R. (1979) *Gödel, Escher, Bach: An Eternal Golden Braid*. Sussex: Harvester Press.

