

Multistability in Cyberspace

Don Ihde

During the early days of radio broadcasting, Georg von Bekesy, later to win a Nobel Prize for his work on sensory inhibition, made an interesting discovery of an auditory *multistability*. Radio listeners, listening to music from crystal radios with headphones, sometimes found the music appearing to come from behind their head, sometimes from before their heads, and sometimes in the middle of their heads. I shall not here follow the complex physical-physiological analysis undertaken by Bekesy, which involves a 180 degree forward/backward projection as well as a centered one, but only note that he was able to teach the listeners to “fix” the music into any one of the preferred positions.

I use the term, multistability, to refer to perceptual variations which exceed the usually noted bivariational ambiguities, such as Wittgensteinian “duck-rabbits” “face-vase” alternations and the like. In the following I shall largely deal with tristable illustrations which parallel my earlier example worked out in *Experimental Phenomenology* (1977).

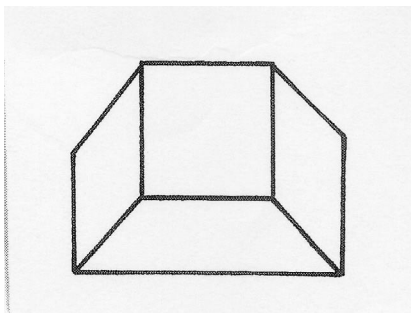


Illustration 1

This illustration is usually taken as a bi-stable one in which one possible variation is to see it as a stage. In this case the central platform is the floor upon which the actors take their places and the three backdrops are the usually painted backdrops for the stage itself. In this variation the top backdrop is to the rear and thus the whole configuration is a three-dimensional one and the observer sees it as if seated in a balcony looking into and onto the stage. A second reversed variation is possible, in this case we might have a Mayan pyramid and we might be flying over it in a helicopter. Now what was previously the stage floor becomes the top platform of the pyramid and the other three sides are sloping downwards from this elevated platform – a reversal of the three-dimensional effect of the first variation.

But a third variation is also possible: in this case we see a “headless robot” coming towards

us, the upper square is his body; the bottom line the ground upon which he is walking; and the side lines are crutches for his arms and legs which are the remaining lines out from his central body. He then becomes a two-dimensional variation upon the drawing, thus *tristability*.

It is usually claimed that William Gibson coined the term “cyberspace” in his fictional book, *The Necromancer*, and certainly it is from this source that so much hype and conversation has occurred concerning cyberphenomena and to which one can add the term, coined by Jaron Lanier, *virtual reality*. What I propose to do here is to apply a limited *phenomenology* to these phenomena which I shall call *cyberspace multistabilities*. I begin by applying tristability to a video display screen.

I begin with *screen space*: First, screen space presents the possibility of at least a limited range of perceptual, spatial variations. The first may be called, on-the-screen space. Here the example most clearly associates with the *textual* as in word processing, reading internet matter, or email text. The written words appear on-the-screen and usually there is lacking either “depth” or distance projection. If one is careful, of course, one notes that this form of “flat” screen space is actually quite different from its analogues on paper or in books. The former is back lighted via either the usual video display device or an LED screen. But for less than critical perception, the on-the-screen spatiality is basically “flat” and without depth. (For reference purposes here, it corresponds to the “headless robot” or two-dimensional variation of my multistable illustration).

A second variation might be called through-the-screen space, and locates in a virtual spatiality “beyond” the surface of the screen. Here the associations are best with such phenomena as computer or video game presentations. Those with the best graphics, while the surface of the screen remains as a sort of “echo” presence, and remain framed by the video display, locate themselves better in the cyberspace of near-distance. In this variation, the projection is enhanced by being audio-visual and the dancing dragons, warriors, or auto thieves play out their roles in the space through-the-screen. Never mind that were these virtual actors in “real” bodily space, they would all be miniature in size and located in a near-space. More of this shortly.

I contend that the “opening” from on-the-screen to its framed, miniaturized projection in near cyber-space through-the-screen, opens what I call a *technological trajectory*. Put most simply, if better “realism” can be attained through the framed and miniaturized near cyberspace, why not approximate even more to a bodily lifeworld by enhancing it even more? It is here that the trajectory to today’s largely hyped and not yet delivered *virtual reality* projections are made. These would be close to being in-the-screen.

Ideally, to attain this trajectory several things would have to happen. First, one would have to move from the reduced sensory dimensions of the visual only, text on-the-screen, through the audio-visual video games through-the-screen, to a much more multidimensional, whole body in-the-screen. One would have to have full sensory dimensions and have the cyberworld “surround” one. The imaginations of such a state range from the movie, *Truman*, in which a human finds himself in a fully virtual world, to the still crude attempts to approximate whole body experience in the body cages which move and the humans who are encapsulated in computerized gloves and goggles, but which cocoons remain “echo” effects which continue to distract from free whole body experience. Or, current technologies take the shape of larger, unframed displays such as IMAX, in which the display reaches to the same parameters as the angles of my visual field. But anything like a fully in-the-screen experience remains at present limited and rather primitive.

To this point I have been emphasizing what could be called the “world” or an environmental focus. What is experienced “out there” in the range from text to an audio-video-kinesthetic “world?” Let us for the moment move to its bodily correlate, our bodily self-experience. Here, too, there are multistable variations. This time I begin with what is now almost a standard trivariant upon bodily position such as may be found in various simulator and video games.

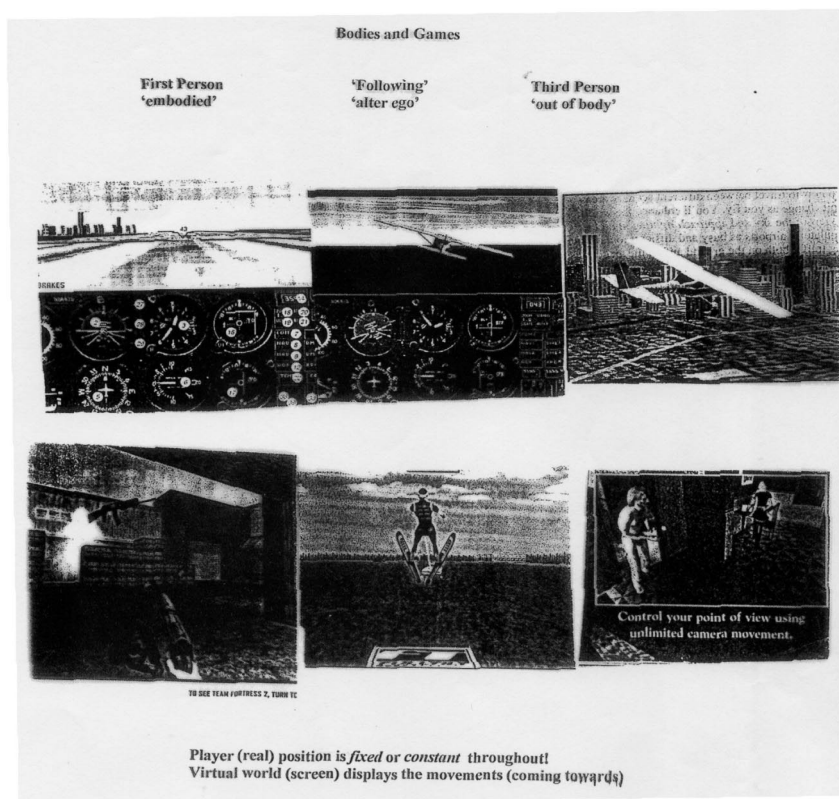


Illustration 2

I have here taken three variations upon bodily position as displayed in two video games, once again on a video display unit. The first might be called an in-my-body position. As per the two pictures here, if I am a pilot, the in-my-body position is such that I see the instrument panel before me as I would were I in an airplane, and through the windshield the airport or landscape outside. Similarly, in the hunt game, I see my weapon extended in front of me as I hunt the enemies. A different variant could be called an out-of-body body position. In this variation, I imaginatively project myself to be in the airplane as I fly it, or see my “other” self as the hunter about to find the enemy, in both cases the projected out-of-body me is “over there” being manipulated like a puppet. The third variant which I call the “piggy back” or alter-ego position is one where my out-of-body body is right in front of me, closer, as it were, to my actual body position, but not identical with it. Note, phenomenologically, however, that my *actual* body position remains that of the actor-animator of the game through the controls. Note, too, that this actual position, for the most part invariant throughout all but the body cage technologies, remains largely stationary and whatever perceived or better apperceived motion is that which “comes toward me” from the screen. In the IMAX version, the entire world tilts as my hang glider takes a turn, whereas I remain upright in my seat with the audio-visual world swirling past my seated position in the theatre. And, finally note, that whatever vertigo I experience, whatever sensory motility and locatability I experience remains in the here-body position which I occupy. Part of any clue to the limits of virtuality relate reflexively to the relative lack of bodily action to be engaged in. Nor do I experience the vertigo “out there” in the projected other body or the alter ego or piggyback body which variations two and three may take upon or through the screen. Here is something of horizon which remains the invariant indicator of a “lived body”.

The second movement of my analysis takes a look at the structured *non-neutrality* of cyber and virtual technologies: In this case, rather than the focus upon full sensory experience and motility, I will focus upon expressivity and the way in which affects get shaped. Here my primary phenomenon will be email and the internet with the associated communications which these mediate.

I remember well when intra-university email was introduced at Stony Brook. At first this was a medium which took on the appearance of replacing the flow of paper memoranda with electronic ones. One would have thought email to be an analogue to written communications – but it did not long remain this way (although as a vestigial function memoranda and news still gets distributed). Instead, email quickly took the shape of what I called the “party line” telephone. I have in mind the old farm telephone systems in which an entire neighborhood was

on the same line. From dean's memoranda to a version of phone tag about when to meet for lunch was the quick pattern change in the early days.

Here we meet again what I have called an "instrumental inclination" which occurs in the adoption and adaptation of new technologies. Many possibilities are open and none are determinative, but not all get followed and over time a sort of "center of gravity" in uses emerges. At first, the extant uses in previous media simply get transferred to the new medium – official memoranda or textual phone calls. (I want to note that minor cultural differences are sometimes retained, in my experience Americans tend to think of email as more "telephonic" and yield both very quick replies and an informal tone, whereas many of my European friends have indicated they think of it as more like letter correspondence and, with exceptions, tend to be slower in response and somewhat more "formal" in tone).

Clearly both the temporal and spatial presentation of electronic communication is different from either writing or telephone. It is "nearer" and faster than writing; but not quite so immediate and demanding of a "real time" presence as the telephone. I find this median space-time to be the primary advantage of email. Assuming a community of users who are regular users, one can expect a relatively fast reply and yet not have to experience the frustrations of "phone tag" as it is commonly called. Email, of course, retains the unreal near distance of most mediated communications, in which there is no geographical "near" or "far", but all electronic spaces are roughly equivalent. And, insofar as email remains a written "text" it also remains a sensorily reduced medium.

Yet, sensory reduction does not preclude, indeed I suspect it allows a weird kind of amplification of the expressive and the affective. Here is one example of this phenomenon: the "list serve war". In my department there are periodic "list serve wars" made possible by a combined faculty and graduate student email list serve. Topics are highly variable – an analytic philosopher named Leiter issues an internet ranking of philosophy departments. Ranks are measured by his own informed, but idiosyncratic reputational rankings such that if well known Prof A moves from Department X to Department Y, the ranking of the losing Department may well fall. Clearly this is a piece of information which stimulates lots of controversy. That controversy has periodically erupted in my Department which is dominantly "continental" and thus does not rise to prominence in the Leiter Report. But, of late, particularly since the Leiter Report does not regard Harvard as at the top level, now across the country there is a growing (analytic) resistance to this report and counter-lists, rankings, and condemnations are appearing on the net.

List serve wars, however, need not be about overtly controversial items – they can be over seeming trivialities. We had one about "cows". It was claimed that most animal names are

gendered – cock/hen; buck/doe; stud/bitch; etc., but that in the case of cows, while there was bull/heifer, the term “cow” was generic. (“Cattle” is the actual generic term). I cannot tell you how long this list serve war went on, with humour, but often more serious and offended responses. And, there have been other topics as well, but I began to notice that the patterns of the list serve wars were the same, regardless of topic.

Here, roughly, is what happens: at first a limited number of participants enter the wars, messages might be fairly detailed and sometimes fairly passionate, but as the war continues the messages get shorter, more colloquial, and often more angry. Also, there seems to be a kind of self-selectivity which sets in, the “nit pickers” gradually take over, and then, eventually the topic simply fades away.

Returning to the notion of an “instrumental inclination” which is not a determination, my suspicion is that the relatively easy and quick form of communication, in this case to a wider set of participants than even a “party line”, inclines towards a high lack of reflectivity. Email allows the dash-off of what first comes to mind. One rarely edits and the send button is too easily available.

A second aspect of this instrumental inclination is an equal sense of presumed intimacy. Email comes from many, many sources and, at least in my experience, it often is quickly “intimate”, sometimes simply in the use of first names, equally in the use of highly informal and even abbreviated language, and sometimes it rises to the presumptive. It is very rare for me these days to get an email addressed: Herr Professor Doctor Ihde! Extreme cases of email intimacy have been publicized with respect to email romances, many of which have highly comic results, such as the fat man in bright pink pants who showed up for an entire weekend on an island at the invitation of his female inviter, and some have tragic results such as first date rapes and in a few cases, murders.

One must be careful here. For example, it is quite likely that distance matches, for example among the 19th century mail order brides, could always carry this danger. But with electronic communication there has emerged the notion of an “avatar”. Reduced sensory presentation carries the possibility of magnified non-presence. Electronic communications, for instance with teleconferencing, allows for audio-visual, real time over distance communication. We use it for our doctoral dissertation exams in the German-American *Collegium Transatlanticum Philosophae*. The American faculty in the US teleconference with their German counterparts over telephone-computer video and the candidate, located at one university, responds to questioners from both.

Yet, one technology which is technically possible, has never caught on – I refer to the audio-visual video-telephone. Philip Brey has pointed out how the Philips Corporation has researched

this situation and it appears that one reason for its rejection to date is that the users do not want to be telephoned-visualized in awkward situations, on the toilet, with hair undone, etc. In short, the masking which the ordinary telephone allows is valued. So Philips has explored the possibility of building in “avatars” into the audio-visual telephone, that is images of your own choice, me with my hair done and sitting at my desk, instead of a real time, possibly embarrassing impromptu appearance. The disjunctive possibilities are endless. But this phenomenon also points up the fact that masking may equal presencing for communicative media.

The third dimension of space-time transformation I wish to investigate here related to the phenomena of *virtual/actual alternation*:

I begin quite concretely with this very conference. I learned of it through email, virtuality, from a person I had never met but had communicated with over the net. Similarly, Professor Hård, whom I had not met, made certain arrangements, and I reserved my hotel and got my tickets over the net. All this virtuality, however, led to the actual occasion here today, where in face-of-face meetings I now begin to know all of you. This alternation is not unusual, but is in fact today’s norm for almost all the “jet-profs” I know. (I even wonder if the very few hold-outs from email do not gradually get shunted aside?). The spatial-temporal transformations here are alternations, multistabilities. The near space-time of cyberspace alternates with the temporally shrunken, larger geographical space-time of contemporary travel. But the incommensurability is not a foreground feature of our contemporary life.

Beyond the relative sameness of intercontinental academic life, lay the more extreme transformations of what I call “pluriculture”. Pluriculture is the mediation of multiple cultures via the virtual space-time of contemporary communications. The evening news is one such mediation: within the time of a few minutes, the cultural presence of Israelis, Afganistanis, Pakistanis, Chinese, Russians, varieties of Europeans, all parade before us on the screen. We become aware of more cultures in a single newsbroadcast than most Medieval kings knew of in a long reign. But, more. What is displayed virtually over the news, is also alternatively actually displayed in the cosmopolitan centers of today. Frankfurt, maybe Darmstadt, has a multiplicity of ethnic restaurants, with cuisines reaching far beyond Europe and into the Middle and Far East and probably to Africa. Similarly, in fashion the culture fragments which can be chosen for dress bricolage are also actually available in the markets and stores of cosmopolitan centers.

Two extremes may be found within this virtual/actual pluriculture: on the one hand there is a growing, multicultural cosmopolitanism. The gradual increase of world travellers often brings a kind of sophistication and adaptability which promotes and ease with multiple or multistable

practices. The switch from forks and knives in European restaurants to chopsticks in Asian ones is made without effort. But at the other extreme there lies the movements to ethnic purification and hegemony which marks almost all the major controversies of today's interconnected virtual/actual world. The embrace of the cosmopolitan is countered by the reaction to the multicultural. Yet both trajectories are mediated by the cyber technologies of today. But, not equally. Clearly interconnection is unevenly distributed with the so-called "first world" highly interconnected. And there are surprises – for example, although illegal and discouraged, in my visit to Iran two years ago, it was obvious that at least urban people are interconnected. The rooftops have gardens of satellite dishes and my invitation there had developed in exactly the same virtual/actual alternations as Darmstadt. The same cannot be claimed for Afganistan, yet its neighbor, Pakistan, sends inquiries for graduate school to my now outdated director's address with such profusion that I sometimes wonder if everyone wants to come to an American graduate school. I do not have the data, but it would be interesting to see how a plotting of internet connections and distributions maps upon or not upon the regions of highest ethnic diversity versus ethnic withdrawal. All this, however, is anecdotal and impressionistic.

Prognostic Conclusion

I have undertaken a very short, mostly phenomenological look at some aspects of multistability in cyberspace and in virtual/actual alternations. This work has been descriptive, not normative, and not yet prognostic in character. I should like to conclude with a few passing speculations based upon patterns which have emerged from many technological trajectories. Doing this is always risky business, particularly if one keeps even recent prognoses in mind: Edward Tenner lists some of these in his *Why Things Bite Back*, such as Toffler's prediction that the coming of the electronic era would produce the "paperless society", or the prediction by an early computer executive that all foreseeable data could be handled by a single, large computer with a few gigabites of capacity.

First some fears: As the internet grows and grows, even if loose-linked, the capacity of overload also increases. I find myself fighting mightily to keep out "spam" and the growth of intrusive advertising and commercialization. I suspect this is a losing battle and the American television model of ads taking up virtually as much time as the movie may well prevail. Secondly, again because of networking and loose-linking, I doubt that either "democratization" or "centralization" models will apply to an interlinked world. Rather, a noise model will likely apply in which cacophony is the dominant feature as all the voices are raised. This simply places us in the position we already know partially with information overload which, in turn, calls for ever more critical hermeneutic processes to weed through that information. Third,

continued deformation of the private/public distinction seems likely to occur. Electronic information seems both quasi-eternal (think of all the emails retrieved in criminal cases or with respect even to Presidents) and yet evanescent (obsolescence of technologies removes more information from recovery than ever imagined, or larger crashes and systems deletions or magnetic deterioration move in directions opposite stability).

But these are not very interesting prognoses. More interesting are those which point to changes in the very style and substance of communication. Here it is our younger users who probably show the direction. Remotes, controlling ever larger numbers of channels, seem simply to lead to smaller and smaller fragments of meaning. The nanosecond switches are reminiscent of the dominant style of MTV with rapid image-switch, or, alternatively, of the multiscreen presences and switches as in newsroom control panels, or, the latest from my son's world, instant messaging which seems to have a three word maximum phrase for a sentence. Who can read more than a few pages by scrolling? Who can "listen" if the message exchanges are too long?

Yet, while this may be the center of gravity or inclination of direction in most electronic media, they do not stand alone, nor are they the only alternatives. The papered society is still healthy with more books being published than ever before, and what was on the scroll can be printed out. Just as the virtual/actual alternation occurs contemporarily, so does the instant/durational alternation of multiple instantiations of information. Yet, overall, more speed and more quantity does seem presently triumphant. Cyberspace – and cybertime displays both a multistability and yet also a "closer-quicker" space-time.