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THE VIRTUAL REALITIES OF TECHNOLOGY AND FICTION: READING WILLIAM GIBSON'S CYBERSPACE

Cyberspace and Science Fiction

The word 'cyberspace' is rapidly becoming an academic and journalistic ubiquity. The information spaces of the Internet and the World Wide Web command increasing attention from the media as we enter an era of 'cyberculture' (Dery, 1992). Users of personal computers find it hard to imagine where their documents 'are' in the seemingly non-existent space accessed through their workstations (Turkle, 1984). In offices and Internet cafés, urban and electronic spaces come together (Graham, 1996). And yet these dataspaces bear only the slightest resemblance to cyberspace, the science fictional geography created by William Gibson in the short story 'Burning Chrome' (1982/8)[1]) and developed throughout the Sprawl Trilogy of novels: Neuromancer (1984/93); Count Zero (1986/7); and Mona Lisa Overdrive (1988/9). I think this background is important - not because I wish to reclaim the original site for the word 'cyberspace', but to stress that the production and consumption of ideas of cyberspace takes place in many very different contexts. This paper aims to explore some of the meanings given to cyberspace in one particular context: the writing and reading of Gibson's 'cyberpunk' science fiction.

Cyberpunk, a subgenre of science fiction, acquired critical and popular notoriety between the mid 1980s and early 1990s. It usually depicts a dystopian near-future world dominated by corporate capital and drastically reconfigured by new technologies: body alterations, new forms of media, and above all, cyberspace. Cyberpunk has been hailed as postmodern science fiction (Bukatman, 1993b; McCaffery, 1991; Csicsery-Ronay, Jr., 1991b); as a cultural form with a privileged insight into contemporary culture (Jameson, 1991); but also as 'the vanguard white male art of the age' (Csicsery-Ronay, Jr., 1991a:183; see also Ross, 1991, and Gregory, 1993)[2]. There are many other science fictional representations of informational spaces that could be studied beyond Gibson's cyberspace, and it is often argued that these offer more interesting and progressive constructions; however, Gibson is certainly the most important cyberpunk author in terms of influence and popularity.

In fact, Allucquere Rosanne Stone places Gibson's Neuromancer at a crucial point in her 'virtual systems origin myth'; it "provided… the imaginal public sphere and refigured discursive community that established the grounding for the possibility of a new kind of social interaction" (1991:95). While Gibson's cyberspace may seem to be a long way from the real-world virtual spaces mentioned earlier, Stone writes that "Neuromancer in the time of Reagan and DARPA is a massive intertextual presence not only in other literary productions of the 1980s, but in technical publications, conference topics, hardware design, and scientific and technological discourses in the large" (95).

In this chapter I discuss the writing of cyberspace, its textual form, and the interpretations of several science fiction readers interviewed in in-depth groups in 1992 and 1993[3]. I argue that Gibson writes cyberspace as a "thin" space, in which speed and movement are the key metaphors for spatialised experience. The readers I interviewed felt that Gibson's depiction seemed vague, which I explain as a common response both to thin spaces and to science fiction. They were not

disoriented for long, though; one of the ways in which they made sense of this ambiguous space was to rationalise away its more unusual aspects, describing them through technological metaphors. In particular, several of the discussants developed an understanding of cyberspace through their own experiences of information technology.

In a sense, as the SF writer Marc Laidlaw points out, representations of cyberspace are themselves technologies, tools used by authors and readers to make sense of this space:

> I have no particular interest in, or understanding of, technology as such... All you should really ask a writer about is writing and its technologies: narrative styles and strategies. Happily, it is here, in a discussion of literary technique, that the virtual realities of technology and fiction can intersect.
>
> (Laidlaw, 1993:648, emphasis in original)

Like Laidlaw, I am more interested in the intersection of these writing technologies and virtual technologies than in the nature of virtual reality itself. As far as Gibson's cyberspace is concerned, I would like to argue that Gibson's use of writing technologies allows the reader to make sense of his virtual ones, and that readers have their own uses for these technologies.

Before I can expand on these ideas, I need to explain how Gibson produces cyberspace.

Cyberspace: Conceiving the inconceivable

> Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding...
>
> (Neuromancer, §3:67)

> He was thoroughly lost, now; spatial disorientation held a peculiar horror for cowboys [cyberspace operators].
>
> (Neuromancer, §17:249)

Cyberspace, also known as the matrix, is Gibson's virtual dataspace, in which the combined knowledge of his information society is represented as virtual objects in an infinite space, organised as a regular grid.[4] Users interface with cyberspace through their computers to perform operations upon this data. These operations, like all activities in cyberspace, are spatialised, as users move through the matrix, shift from one location to another, and enter and leave databases. These spatial metaphors represent ways for Gibson, his readers and others to make sense of the 'nonspace' of information, allowing them to create imagined geographies of the Internet and other dataspaces.

In fact, Scott Bukatman argues that in the following quote Gibson 'makes his own project explicit' (1993b:152):

> ...all the data in the world stacked up like one big neon city, so you could cruise around and have a kind of grip on it, visually anyway, because if you didn't, it was too complicated, trying to find your way to a particular piece of data you needed.
>
> (Mona Lisa Overdrive, §2:22)

As Bukatman points out, 'Cyberspace is a method of conceiving the inconceivable' (1993b:152).

Building a theoretical foundation for the study of Gibson's cyberspace requires a synthesis of literary theory, audience studies, and geography, and it is to this that I now wish to turn.

Reading Worlds: reading, geography and science fiction

Examining Gibson's cyberspace necessitates an analysis of the relationship which joins authors, texts and readers them and in which literary meanings are created and transformed (Radway, 1984). Meaning is created between authors and readers, between the words written onto the page and the practices readers use to make sense of them; the creation of meaning can therefore be said to take place as part of a dialogue between them (Bakhtin, 1984; Holquist, 1990; Voloshinov, 1973).

One of the clearest ways in which this dialogue is expressed in print is in the form of conventions, ranging from styles of address to formal and narratological structures. Conventions therefore represent agreed meanings between authors and readers and are visible within the text as part of the texture, structure or style of the narrative. Authors deploy them to suggest to the reader that the novel should be read in a particular way. Obviously, the reader must be familiar with these conventions and these strategies are open to contestation, but the fact that they are recognisable within so many texts suggests that they are often widely accepted.

Examining Gibson's cyberspace necessitates consideration of two sets of these writing technologies: those which concern the genre of science fiction, and those which concern space.

Every genre is based upon a different set of conventions, which further constrain the operations which can be brought to bear upon texts. I would like to argue that the science fiction genre is characterised by a tension between two opposed discourses, fantasy and scientific realism, and that conventions from both can be found within it. The crucial difference between the two is that the fantastic attempts to speak of the impossible, while scientific realism attempts to unproblematically render experience through appeals to rationality and scientific knowledge.

Studies of the fantastic note that it operates between the real and the un-real, using the latter to defamiliarise the taken-for-granted (Jackson, 1981). Tzvetan Todorov (1973) argued that this in-betweenness could be seen within the text, in the form of conventions of hesitation. The reader hesitates to make sense of the text and cannot resolve the tension between the real and the un-real because the author presents both as equally plausible. Characters in the text are also unsure as to what is going on: they experience this hesitation themselves

(33). The conventions which enact this hesitancy in the text encourage the reader to become unsure of commonsense reality.

Science fiction depends upon the fantastic because it is set in an unknowable future (or past) and often in an as-yet undiscovered place. Yet its descriptions are generally plausible rather than impossible, and consistent with scientific principles:

> Regardless of its setting in time and space, SF depends upon transgressions of what its readers think of as reality. To justify those transgressions, it establishes images of reality on grounds essentially theoretical.
>
> (Samuelson, 1993:198)

Scientific realism depends upon the fantastic, but goes on to resolve the hesitation between real and un-real. Where the fantastic asks questions, scientific realism gives answers. This operation is also visible in the text, as conventions offer readers the chance to make sense of the estranging worlds of the fantastic (Malmgren, 1991; 1993).

However, this process of translation is not guaranteed. While SF is generally successful in resolving the fantastic, authors and readers are able to use these conventions in unexpected ways. The conventions of scientific realism are subverted when the reader refuses to believe in the scientific explanation, preferring the strangeness of the fantastic. This subversive potential remains latent within SF texts so that moments of impossibility can be created in the practices of writing or reading it. One example that will be explored later is the coexistence of Haitian vodou and North American rationality within Gibson's cyberspace.

The second set of conventions which must be examined are those which produce representations of place. Although Daniels and Rycroft suggest that 'the novel is inherently geographical' (1993:460), it should be recognised that the spaces of the novel must be actively created by authors and readers, and are textualised as conventions. This allows us to see that there are many different ways of producing space in fiction, including the extended set-piece descriptions of many nineteenth century realist authors (see Tuan 1978), the modernist strategies of Dos Passos (Brosseau, 1995), and the estranging nonspaces of fantastic fiction (Jackson, 1981).

Gibson's representation of cyberspace uses two different strategies: realistic, or what Lennard Davis (1987) calls 'thick', spaces, which present extended descriptions; and attempts to convey space through the textual embodiment of the experience of a place. Marc Brosseau has usefully distinguished between these types as the geography in the text and the geography of the text respectively (Brosseau, 1995:95).

The former strategy is familiar to us from studies of Hardy and other realist novels, who produce literary landscapes through meticulous description. The geography of the text is a more complex concept, and reflects the decline of these 'thick' spaces in modernist fiction. In Dos Passos' Manhattan Transfer the spatial experience of moving through New York is represented through the use of conventions which give the urban experience textual form. A walk through the

city can be represented as collages which reproduce the 'spatial and temporal succession of the elements of the urban landscape' (100). Brosseau's term for these strategies which depend upon movement is 'kinetic description' where 'the daily paths of an individual can be described in rhetorical figures' within the text (101).

I would suggest that in the terms I introduced above, Gibson rarely 'thickens' cyberspace, concentrating instead upon the 'geography of the text'. In other words, his use of kinetic descriptive styles textually represents the spatial experience of cyberspace, rather than providing static set-piece descriptions. There are many possible reasons for this, including Gibson's well-known ignorance of computers (Bukatman, 1993a), but I would suggest that the reason is generic. While it can be ordered, cyberspace is too fantastic a space to be comprehensively detailed and thickened in the style associated with realist fiction. So how can it be depicted?

Writing Cyberspace: kinesis and fantasy

Cyberspace is experienced through movement, particularly in terms of speed:

> Headlong motion through walls of emerald green, milky jade, the sensation of speed beyond anything he'd ever known before in cyberspace...
> 'Christ', Case said, awestruck, as Kuang twisted and banked above the horizonless fields of the Tessier-Ashpool cores, an endless neon cityscape, complexity that cut the eye, jewel bright, sharp as razors.
> (Neuromancer, §23:302)

> Bodiless, we swerve into Chrome's castle of ice. And we're fast, fast. It feels like we're surfing the crest of the invading program, hanging ten above the seething glitch systems as they mutate.
> ('Burning Chrome', 200)

Gibson creates an impression of speed and movement through the rhythm and pace of these descriptions. In Neuromancer, Case cuts back and forth between cyberspace, the real world, and Molly's experiences as they are transmitted to him through simstim technology (1984/93, §4:77-87). This represents a new and disorienting extension of Dos Passos' fragmented city, adding cyberspace to the collage of spaces presented in the text (Bukatman, 1993b:148).

Gibson also makes this experience ambiguous through synaesthesia (sensory confusion). Cyberspace is experienced as strange, impossible: smell, touch and taste are simulated and conflated. Two examples make this clear: 'Case's sensory input warped with their velocity. His mouth filled with an aching taste of blue', (Neuromancer, §23:303); 'Cold steel odor and ice caressed his spine' (Neuromancer, §9:140).

So it is possible to see that Gibson's depiction of cyberspace produces a fantastic textual space. However, this must be situated within the dialogue with realism which characterises science fiction. While I would argue that the kinetic style and devices like collage and synaesthesia can produce fantastic descriptions

of cyberspace, it must be recognised that the matrix is also an ordered space. Unlike Dos Passos' New York, cyberspace is constructed on a linear grid system, a set of mathematical and geometrical points organised in such a way as to make it accessible and functional to its users. Seen this way, the kinetic style merely represents a speeded-up version of the more sedate movement from point to point.[5]

As a strictly structured grid or matrix, cyberspace is only fantastic because its scale is infinite and the amount of data in it so intricately organised. Scientific realism, in the form of mathematically and geometrically structured space, provides a metaphor for, and a way of controlling, disorienting elements of the fantastic in cyberspace. In fact, in attempting to find a way of making sense of information space, Gibson has undermined its fantastic potential.[6]

However, cyberspace is profoundly ambiguous precisely because the dialogue between realism and the fantastic cannot be finally resolved. The balance between the two discourses varies depending on the conventions and their reading, so that moments of subversion (of realism) and rational ordering (of the fantastic) coexist within the text. In Neuromancer, for example, we are confronted by a jumble of ordering and disordering metaphors:

> And in the bloodlit dark behind his eyes, silver phosphenes boiling in from the edge of space, hypnagogic images jerking past like film compiled from random frames. Symbols, figures, faces, a blurred, fragmented mandala of visual information.
> Please, he prayed, now -
> A gray disk, the color of Chiba sky.
> Now -
> Disk beginning to rotate, faster, becoming a sphere of paler gray.
> Expanding -
> And flowed, flowered for him, fluid neon origami trick, the unfolding of his distanceless home, his country, transparent 3D chessboard extending to infinity.
>
> (Neuromancer, §3:68, emphasis in original)

Disorientation is textualised by kinetic description, in the literal meaning of the words (boiling, jerking), their alliterative texture (flowed, flowered, fluid), and by fragmentation ('film compiled from random frames'). However, the quote also makes use of a number of geometrical metaphors (mandala, disk, sphere) before describing the 'transparent 3D chessboard' which represents the ordered grid of the matrix. Furthermore, in moving from a state of fragmented experience to one of order, the passage narrates Case's control over the disorder of cyberspace (Bukatman, 1993b:205). This imposition of structure parallels the generic victory of scientific realism over the fantastic.

But the opposite scenario also occurs, though, when moments of fantastic uncertainty enter, however briefly, into the text. The key vehicle for this in Gibson's work is the presence of vodou in cyberspace. At the end of Neuromancer a number of artificial intelligences (AIs) unite and become fully conscious. They immediately fragment into many smaller intelligences and disperse throughout the matrix. For reasons which cannot easily be explained here, they subsequently

take the form of the loa (spirits) of Haitian vodou in Count Zero and Mona Lisa Overdrive. I would like to develop Bukatman's argument that this destabilises the order of cyberspace:

> The interface of voodoo superstition with cybernetic certainty has a literally subversive effect upon the rational, geometric perfection of cyberspace. The modernist 'mythology' of rationality, the mechanisms of instrumental reason, are undermined by a new set of postmodern tactical incursions.
>
> (1993b:214)

In this way the fantastic subverts the rationality of the text and of the represented space. Perhaps the most dramatic example of this comes at the end of Count Zero, when one of the loa enters a private area of cyberspace which simulates Park Güell in Barcelona. We experience a hesitation in the text, one which is also experienced by other characters, as at first the loa cannot be described: 'something plucking at his [Bobby's] sleeve. Not his sleeve, exactly, but part of his mind, something...' (Count Zero, §32:318). The loa then manifests itself in Virek's park as a wooden cross with all its ritual accoutrements, even though the reader 'knows' that it is an AI operating in a rationally designed computerised dataspace. The tension between the two interpretations - loa or AI - is not maintained for long but it is still capable of being powerfully estranging.

A less startling moment of fantasy is experienced by Bobby Newmark at the beginning of Count Zero, which acts to introduce (but not to explain) the nature of these fantastic denizens of cyberspace: 'And something leaned in, vastness unutterable, from beyond the most distant edge of anything he'd ever known or imagined, and touched him', (Count Zero, §3:32, emphasis in original)

Gibson therefore provides a complex and ambiguous fictional space for readers to explore, one which is rationally ordered but also open to fantastic uncertainty. To examine the success of these attempts to convey the experience of cyberspace, we need to turn to the readers.

Reading Cyberspace: 'It's real vague'

The discussants' conversations about cyberspace can be read as the identification of a problem with Gibson's depiction and various responses which can be made[7]. In the first case, they grappled with what they saw as the 'vagueness' of Gibson's descriptions of cyberspace, which I interpret as an anxiety over the lack of detailed 'thick' descriptions of space. Their solutions to this perceived lack are fascinating, as they mobilised different explanations to account for it, and one aspect of this involves reading cyberspace in a dialogue with their own experiences of information technology.

To develop these ideas I wish to talk about the more fantastic or ambiguous aspects of Gibson's representation, and then go on to discuss the various ways in which the readers resolve the textual hesitation which characterises the fantastic.

Cyberspace is an ambiguous place, as the following exchange shows:

MikeR: [...] - I think it's somewhat vague how one approaches these things and then there's a sense in which you steal data -

John: Yes. Oh, it's real vague. [...]

Jael: It's deliberately vague! [laughs]

(B2)

MikeR's description of cyberspace also emphasises Gibson's lack of explicit description:

> […] - there are solid entities which represent the data and they're virtual objects [agreement from John and Amanda], so you're still - and the impression - I'm not sure it's stated explicitly - is that you fly around in this space [agreement from John] but then you interact in some ill-defined way with the data.
>
> (B2)

The general reaction to this vagueness was frustration or uncertainty:

> [...] it's so sort of undefined in that he tells you bits of it, but he doesn't actually say, 'here's what happens, here's what happens', you know. It's weird - you know, if you can go into a place where you have no body that you can see, you look down, nothing.
>
> (Ragnar, C2)

What motivates this response? I suggest that it is rooted in the nature of the genre. When these readers are confronted with a new and estranging space like the matrix, they look for a way to order it. This is the origin both of Gibson's attempt to describe cyberspace and of the desire of many readers for maps and descriptions of this impossible space. The attempt to conceive of the inconceivable is therefore a joint project.

Support for this argument can be found in these readers' discussions of Gibson's writing of spaces. Amanda says that she did not read him for place:

> [...] the first time I read any of them, I didn't really think about landscape really, because I was so excited by what was happening, I couldn't take the time to construct it, so I just kind of had an impression in my mind which was enough background really to um, to read the novel perhaps, if you know what I mean. And it's only actually re-reading them [laughs] since we started this discussion group, that I've noticed erm... you know, like, finding out points about the landscape and actually where the action is happening, even - you know, like is it in the Sprawl, or is it wherever [agreement from MikeG]. 'Cos you know - which part of the Sprawl? 'Cos you don't really take it - it's so fast-paced, that you don't take the time to

> construct it, it's too complex to construct quickly, and you get bored with doing that, 'cos you just want to find out what happens next.
>
> (B4)

This inattention to landscape is due to the fact that Amanda was reading the fictions for the first time. Drawing upon Barthes' S/Z (1975), Henry Jenkins suggests that the desire to resolve the narrative is strongest on first reading. On subsequent readings, "Interest shifts elsewhere, onto character relations, onto thematic meanings, onto the social knowledge assumed by the author" (1992:67). Or, perhaps, onto the fictional landscape. The strategies used to thicken spaces may not be taken up by some readers, or at least not until a second or later encounter with the text. MikeR took up Amanda's point that the pace of the narrative makes thickening space difficult:

> It's like - not having reread them, I - erm to look at how he does it, but I got very much that sense of speed [agreement from Amanda] and somehow he implied enormous detail, even though I'm not sure it's really there - [...] You cut and paste something in your mind which is an amalgam of things that you're familiar with. (B4)

In this passage Amanda recognises the thinness of Gibson's represented space[8]. Shortly afterwards, she suggested that thickening space is a style of reading which may be used if the reader wishes:

> I think what he's done really is the most any writer can be expected to do, he's described the landscapes up to a point and then it's left to the reader really to fill in the gaps, and to make the landscape whole if they can be so bothered. If they don't, well, then they can just enjoy the scenery as they go past, kind of thing.
>
> (B4, emphasis added)

What is so interesting about the readers' discussions of cyberspace is that the vagueness of Gibson's depiction seems to make it hard for them to "enjoy the scenery". In fact, they are keen to fill in the gaps and thicken this space. This parallels their discussion of other science fictional texts, where ambiguous or unsettling representations are developed and explained through scientific and rational frameworks. Discussing Brian Aldiss' Helliconia series (1982, 1983, 1985), MikeG suggested that he was able to understand the planet's unusual nature because he has a degree in astronomy and physics, and was able to place Helliconia in a plausible scientific framework. Similarly, members of Group A explained their understandings of C. J. Cherryh's Downbelow Station (1983) and Frank Herbert's Dune (1965/84) in terms of ecological possibilities. So how did these readers respond to Gibson's ordered but uncertain representation?

Rationalising Cyberspace

Significantly, cyberspace proves quite manageable for many of the readers. I have already discussed the presence of the fantastic in cyberspace in the form of

vodou. We might expect the readers to be hesitant about explaining this subversion of rational space. This is not the case, as this (admittedly fragmentary) discussion makes plain[9]:

> Alvin: [...] - in fact, he [Gibson] makes it seem as if people misconceive technology, like the way all those er - I can't remember the [.?.] - how they saw the AIs as being vodou -
>
> Ragnar: Oh, yeah, gods.
>
> Alvin: Yeah, you know, it's all misunderstanding, and misusing it.
>
> (C2)

Alvin suggested that Gibson's characters have been 'left behind' by technological developments and that the loa seem strange only because the AIs are sophisticated enough to fool the ignorant. This is an excellent example of a reading which explains away fantastic elements through the use of a framework of scientific rationalism.

Other examples of this strategy are more creative, as the discussants worked harder to rationalise cyberspace. The first two examples of this display different uses of scientific realism, beginning with Alvin's contribution:

> You never get a clear idea of how - I mean, for example, how Case is manipulating cyberspace in a way, [agreement from Ragnar] [...] You're never sure, so I mean cyberspace is very vague. [...] I mean, in that way he sort of leaves it up to you, to view it in the way you want [agreement from Ragnar], he sort of leaves it very open-ended, 'cos that's why it's supposed to be an extremely user-friendly computing environment. You can sort of like perceive it the way you want, maybe someone else would actually perceive cyberspace in a completely different way, although functionally it would be the same [agreement from Ragnar]. [...]
>
> (C2, emphasis added)

Textual vagueness becomes a kind of 'user-friendly' software when Alvin reads Gibson's writing style through a technological metaphor. Mark added that he saw a parallel to this user-friendly vagueness in his own experience of multi-user games (C2).

A second realist explanation for vagueness also depends upon technological factors. Mark suggests:

> I see them [representations of cyberspace] all minimalist sort of style, because the processor count, the speed the information sort of travel, and obviously the basic [system's?] not gonna have the detail [agreement from Ragnar] - [...] - it looks a bit more abstract.
>
> (C4)

Mark explains the 'basic' nature of Gibson's cyberspace in terms of the ease of running this kind of system. Similarly, Ragnar suggests that the determining factor would be 'commercial viability', leading to the standardisation of information (C2), and Simon said 'you can never get a real picture of what it's like... because it works at the speed of the computer' (C4). Through these ideas, the readers colonise the blank spaces of Gibson's descriptions of cyberspace, providing realist explanations for vagueness which are consistent with the technology Gibson is describing. These are fundamentally science fictional strategies.

There are other, more general strategies which can be used. Ragnar, frustrated in his attempts to visualise cyberspace, turns to film:

> Like, you know, Tron, even before I'd heard of the idea of cyberspace, that you know, [.?.] a good movie, but a very good representation of cyberspace, and the basic idea as well, inside a computer, and um... you know, for the time it was really excellent, [...]
>
> (C2)

Tron arguably 'set' a powerful representation of cyberspace for many readers before they read Gibson. This use of a visual medium allows the reader to produce the thick space which is lacking from Gibson's descriptions; visual spaces like these are already thicker than literary ones, as filmic images automatically capture the mise en scene in a way which has no parallel in written texts.

Cyberspace, the Internet and Virtual Reality

The second main way in which readers make sense of cyberspace is through their personal experience of the spaces of information technology. This process is clearly dialogical: reading Gibson makes sense of these technologies but using them shapes reading Gibson, as we can see in these two examples. Rob, who likes to 'wander around America' on the Internet (A2), described the links he had made between reading Neuromancer and his job working with computer networks:

> [...] - when I read Neuromancer and then started at this place [his work], I could hack out to the Internet, stuff like that, it's almost like - obviously you don't plug it into your head [laughter from James], but I'm wandering around, you know er, computer networks all around the world, so I could be sort of er, sort of talking directly to a computer in Houston, Texas, and at the same time I could be getting stuff back from one in Washington, and it's all instant, it's all happening right there on my screen, but I can do the two things at the same time, or more. So it is almost like, you know, you're actually physically there, somewhere in Houston there'd be a hard disk that's turning because it's getting information and it's like porting it through the network back to me -
>
> (A1, emphasis added)

For Rob it is 'almost like' being simultaneously in Houston, in Washington, and in London looking at his screen, able to cause physical motion in Houston. This captures something of the placelessness of Gibson's cyberspace.

John's description of his experience of computing focuses on the sense of speed associated with cyberspace:

> - the interesting thing about the perceived feeling of working with cyberspace, is the absorption, the tremendous perceived speed of doing everything is that working with computers with a screen and a keyboard or mouse can be like that now, if you're sufficiently well-practised in what you're doing, and the equipment is reasonably fast. I have - I basically spend my entire working day either writing programmes, writing about programmes or doing desktop publishing, and it is frequently the case that I disappear entirely, I'm just about consciously perceiving the screen but I'm not really looking at it, if you want to attract my attention you have to touch me [sounds of agreement]. It's somewhat of the same absorption as getting stuck into a very good piece of reading, or really being carried away with an idea - he took the same experience and he gets it over very well.
>
> (B2, emphases added)

The sense of transcendence, of being elsewhere (or nowhere) when reading or thinking is quite a common one (de Certeau, 1984), and here it is extended to the interface between cyberspace and the human: John is absorbed into his work[10].

Beyond these comments - which find parallels between Gibson's imagined space and experiences of information technology - the readers also developed an understanding of cyberspace which compares it to other ideas of virtual reality. Their discussions are significant for two reasons: firstly they draw upon their familiarity with computers to establish the nature of Gibson's dataspace, and secondly in doing so the very rationality of cyberspace itself becomes fantastic.

John described the forms of VR and cyberspace in terms of their functions:

> [...] you're trying to provide a way of talking to something, a way of perceiving something that's efficient for the job you're trying to do [agreement from Jael], and that suits the ways you're trying to think.
>
> (B2)

Thinking about cyberspace, John suggested, involved a new interface and therefore a new way of working with computers which he described as "unwinding the desktop paradigm" (B2) - in other words, finding a different metaphor for computing as work. This could be related back to Alvin's reading of Gibson's textual vagueness as the equivalent of a "user-friendly" technology which makes it easy for the reader to understand..

In defining and discussing cyberspace many of the discussants were careful to differentiate it from the virtual reality technologies described in cyberpunk or experienced in real life:

> [...] there is a difference between the virtual reality that Gibson offers and virtual reality that they're predicting, which is a complete - you know, the idea is that the graphics are so good that it will be indistinguishable from reality, erm, whereas Gibson's world is very much made up of computer lines - [...] - and grids - [...] - it's obviously a computer world [agreement from Jason], you know, he doesn't try to make it like reality. [...]
>
> (James, A2)

This recognises that the ordered, geometrical nature of cyberspace is in many ways the antithesis of reality. MikeR develops this in a very interesting way:

> [...] we have gone to the computer, we've not made the computer manifest itself in a form which we are familiar with, we have gone into another world, which is one which is more familiar, which - in some ways you imagine it as a natural state of the computer.
>
> (B2, emphasis added)

Cyberspace does not simulate the real world for our benefit; it simulates the 'natural state of the computer'. This is a fundamental change in our constructions of information technology; a 'user-unfriendly' environment. The readers seem to suggest that this most rationally ordered of worlds possesses an estranging quality because it is so unnatural.

These comments add a further twist to ideas of cyberspace, suggesting that in its geometrical perfection it is potentially alien and disorienting - we have come through scientifically realist explanations and out into the fantastic again. However, these ideas must be treated with caution and a concern for the narratives in which they are found. Depending upon their presentation by the author, these VR technologies can be more fantastic or more structured than cyberspace. This is further complicated at the moment of reading: 'the world of the computer' is read both as a user-friendly interface and as a new and inhuman place in the readers' discussions reproduced above.

Conclusions

In each of the readings presented here - Gibson's writing of cyberspace and the interpretations of readers, critics, and my own suggestions - there exists an element of ambiguity. Cyberspace is a highly polysemic representation; it invites, but does not demand, readers to work at 'conceiving the inconceivable'. However, it would have been impossible to develop this insight without recognition of the reader's role in using the conventions of science fiction to think about this space. While generic rules may 'fix' the practices of interpretation which are used to make sense of these technologies, these rules are flexible enough that readers may be able to resist, tactically, and to make their own kinds of sense based upon personal experiences of information technology, or of related texts. However, while readers are immensely creative (de Certeau, 1984), we should not confuse this activity with resistance.

Indeed, returning to the immensely complex issue of the textual mediation of ideology, it would seem that the readers I interviewed have merely reproduced the image of cyberspace as 'the heady cartographic fantasy of the powerful' (Ross, 1991:148), with all the trappings of a 'masculinist' space (Rose, 1993)[11]. As I have already said, this critical argument rests largely upon the form of cyberspace: its geometry and order. The form of cyberspace thus becomes like gazing upon New York from the heights of the World Trade Center: 'It transforms the bewitching world by which one was "possessed" into a text that lies before one's eyes. It allows one to read it, to be a solar Eye, looking down like a god' (de Certeau, 1984:92).

To some extent, the problems of naming and knowing 'new' spaces - the gap between knowledge and language - have been faced before, by explorers and colonists of Europe's others (Davis, 1987; Carter, 1987). It might be possible to see in the ambiguity of these readings of Gibson's cyberspace some echoes of these earlier struggles to impose order upon the unknown: to force places to make sense, and to make them work for the reader.

But such a critical account also represents a flattening of the complexity of these interpretations, a generalising tendency which has its own logics of abstraction and control. It is important to remember that this is a representation embedded within the genre of science fiction. The form of cyberspace is not simply a consequence of patriarchy, colonialism, or global capital. Rather, the politics of these readings exists only at the moment of performance. Readers create; they do not simply consume and reproduce. The ambiguity of cyberspace, between scientific rationality and the fantastic, also invites us to keep our interpretations open.

For example, since cyberspace seems to be a rather ambiguously ordered space, how can it be simply and unproblematically gendered? I am wary of the suggestion that constructions of cyberspace simply reflect the subject position of the 'typical' masculine science fiction reader, a figure who has been extensively mythologised by popular discourse and media (Jenkins, 1992). This argument requires us to see the text as effectively 'transparent', and to agree with the idea of the 'autonomous and self-celebrating reader who transforms the text into a mere pre-text' (Brosseau, 1995:91). Indeed, the fact that the two women readers also interpreted cyberspace as 'ordered' suggests that we should begin to turn our attention to the role of reading practices, and to examine the extent to which they are themselves already gendered (Flynn and Schweickart, 1986).

This is not to say that there are no political ramifications of their readings. I would have preferred the discussants to challenge the orderly world of Gibson's cyberspace, and see a certain conservatism in their failure to do so. However, unlike the critics discussed above, I am not prepared to apportion blame to Gibson or the readers. Instead I am more interested in the way that the use of these conventions embodies a particular politics. In this way the conventions can be seen as the technologies of power which are expressed in writing and reading practice, the technologies which transform subversive fantastic elements into conservative realist understandings.

Notes

[1] SF books go through many reprints. To aid readers, I have given two dates for novels cited in the text; the first refers to the original date of publication, and the second to the edition I have used myself. In addition, the chapter where the quoted passage appears is shown after the symbol §, so that (§4:45) refers to page 45, Chapter 4 of the edition cited.

[2] Significantly, these interpretations of cyberpunk are often based upon different readings of cyberspace.

[3] In-depth group interviews differ from focus groups by their longevity and loose structure. Within geography their use was pioneered by Burgess and Harrison at University College London in research conducted during the mid 1980s. This work rejected the market research tradition, adopting the principles and practices of group-analytic psychotherapy to explore the environmental discourses of lay people (Burgess et al 1988a, 1988b; Burgess et al, 1990). Key features of this method include the development of a group identity which situates dialogue and argument within group relationships, and a freer discussion than is found in the directed interviews of focus groups.

[4] Key metaphors for the appearance of data in this space are stars in the night sky and city lights; both appear in the excerpt reproduced above.

[5] 'Case punched again, once; they jumped forward by a single grid point' (Neuromancer, §9:140).

[6] In this sense it is also significant that the 'cyber-' prefix is derived from cybernetics, the study of control systems.

[7] In-depth group interviews with three sets of readers of Gibson's SF were carried out in October 1992 and April/May 1993. Transcriptions are identified by the group (A, B, C) and session number (1-4), so that (B4) refers to the transcript of Group B's fourth session. The members of the groups are as follows: **Group A:** James, Rob, Jason, Chris, Piers, and Maria. All were in their early twenties, and all except Maria had degrees or higher qualifications in a science subject. At the time of interview, Rob was a computer network systems designer, Jason, Chris and Piers were students, and James and Maria were looking for jobs. **Group B:** Jael, MikeG, Amanda, MikeR, and John. All were in their early thirties except Jael, who was twenty-one. John, Amanda, and MikeG worked with computers or technical support, MikeR was a research chemist, and Jael was a student. **Group C:** Alvin, Simon, Ragnar, Steve, and Mark. All students in their late teens apart from Steve, who was a staff nurse in his early twenties.

[8] Amanda and the other members of Group B also explicitly contrasted Gibson's textual spaces with the thicker, more detailed descriptions of Brian Aldiss, John Crowley, and others.

[9] The sound quality of the recording of this session was very poor.

[10] MikeR suggested that John's experience was very much like Gibson's description of kids playing arcade games where "you could see that they wanted to be in the game" (B2, emphasis added).

[11] In general, critical interpretations of cyberspace take one of two positions. Either cyberspace is read as a masculinist conception and that the geometrically ordered and modernist form of cyberspace serves to constrain the transformations of gender and identity that might be possible in a new space; "Cyberspace is a vehicle for allowing the fluidity of social and sexual relations to be confined within the rationalist configurations of information technology" (Wolmark, 1994:118, see also Springer, 1991). The second position argues that cyberspace is originally feminine (Stone, 1991); (male) users masculinise it and impose order on it by force as 'metaphoric rapists' (Nixon, 1992:229). Unfortunately, these readings, along with variations on these themes by Ross (1991) and Bukatman (1993b), ignore both the role of generic conventions and the creativity of the reader. I hope I have made clear just how difficult it is to consider the gendering of texts in the light of their readers' interpretations.

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