

Computer games and sex difference

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Introduction: sexism in the making and use of computer games

On the Brighton to London train, women commuters in one carriage are busy. They are playing BrickBreaker, a spatially orientated dynamic puzzle, on their Blackberry personal digital assistants. Blackberries come equipped with BrickBreaker. Women – and men – can now play the game while they are going through railway tunnels, and at the same time take a phone call there. A German mobile communications operator, T-Mobile, has put WiFi in the train carriage, and has provided a whole lot of other connections besides.

With new handheld devices come new games which women play. It is true that most games have, since the mid-1990s, been about *shooting* or *sport* – pastimes that, on balance, appeal to men more than women. But as the psychologist Aleks Krotoski has ably pointed out, there is now 'a loud but proud subculture of women who beat the boys at their own games'. And there are other developments in videogame content that confirm how computer games are not simply a male pursuit:

- Climax's *Shining in the Darkness* has offered women the chance to save a princess since 1991
- *Creatures*, launched in 1996, and *The Sims*, launched in 1999, have added *nurturing* to the computer games genre
- Women now lead men in the playing of *mobile* games.¹

Yet despite the euphoria that often surrounds the simple fact that women do play computer games, people feel uncomfortable about the issue.

First, it is argued that *there are not enough women working in certain roles in the videogame industry*: that *occupational segregation*, or a *gender gap*, exists in the process of making games. The BBC laments how the University of Derby's new degree in games programming has failed to attract a single woman among 106 applicants.² Moreover, women make up only 16-17 per cent of the UK games sector's 8000-strong workforce, and only two, three, five, eight and nine per cent, respectively, of posts in programming, audio, design, production and art.³

Second, it is alleged that, *in use, today's games products lack appeal to female gamers*. As Doug Lowenstein, president of the US Entertainment Software Association (ESA), said in May 2005, at the start of the world's largest video games show, the E3 expo in Los Angeles:

'We need a cultural shift so that young girls and women feel that playing games is not a testosterone monopolised [sic] hobby reserved for their boyfriends and husbands'.⁴

These two worries play on each other. Games products, indicted as broadly 'boys' toys', are held to reinforce games industry processes that are skewed toward male, rather than female jobs. There appears to be a chicken and egg problem: men write games that men like playing – games with an emphasis on *guns and cars*. In turn, such products seem to attract men to the industry and its processes more than women. Where women work in UK games, they tend to be in administration, marketing, story development, production, and in the conceptualising or animating of models through artwork.⁵ They are not in programming.

The suspicion exists that there are *not enough computer games being programmed by women for women*. Yet women do play computer games. In America, for example, teenage girls play with computer games for about five hours a week, even if, with teenage boys, the figure is more like 13 hours.⁶ These facts already

1 Krotoski, A. September 2004, pp6.7. *Chicks and joysticks: an exploration of women and gaming*. London: Entertainment and Leisure Software Publishers Association, and on www.elspa.com/about/pr/

2 'Women wanted as games programmers', *BBC News*, and on <http://news.bbc.co.uk/1/hi/education/4530583.stm>

3 Haines, L. September 2004. pp5, 6. *Why are there so few women in games?*, Media Training North West and on www.igda.org/women/MTNW_Women-in-Games_Sep04.pdf

4 Quoted in Hermida, A. 19 May 2005. 'Call for radical rethink of games', *BBC News*, and on <http://news.bbc.co.uk/1/hi/technology/4561771.stm>

5 John Sear, acting programme leader, University of Derby computer games course. 9 May 2005. Quoted in 'Women wanted as games programmers', *BBC News*, and on <http://news.bbc.co.uk/1/hi/education/4530583.stm>

6 'Breeding evil', *The Economist*, 6 August 2005, p9.

expose as crude the idea that, somehow, boys simply design games that generate jobs only for boys. Nevertheless, the issue of sexism in the making and use of computer games will not go away.

Since the massacre of innocent children at Columbine High School, near Denver, on 20 April 1999, computer games such as *Doom* have come to be seen as disposing teenage males to *violence*, the most extreme form of *aggression*.⁷ Today's discourse about women and games, then, needs to be seen against a background of a wider culture war against what are seen to be *male values*. While mobile phones are widely indicted for inspiring adult infidelity, teenage illiteracy, street theft and much else besides, computer games tend to prompt fear about the irredeemably sexist nature of society. Cars still suffer from the stigma of a strong association with men, speed, ego and all that. Feminists have also continued to attack pornography as both a symptom and a cause of women's subordination to men. Nevertheless, the love *young boys* have for computer games underlines the special role that games are now felt to play in helping sex society.

Attempts are now being made, in Britain and America, to integrate games into education. In the US, where such efforts are particularly advanced, there are fears that the size of Lara Croft's breasts will not just put girls off computer games, but off IT as a discipline. Henry Jenkins, director of comparative media studies at the Massachusetts Institute of Technology, argues that, being the first introduction girls have to computers, sexist computer games are partially responsible for the gender gap in the whole of US computer science.⁸

In the UK under New Labour, cultural industries such as computer games software have gained in prominence. At the same time, Conservative leader David Cameron has joined the Equal Opportunities Commission in highlighting the lack of progress Britain has made in properly rewarding women at work.⁹ Put these two developments together, and the male/female dimensions of computer games processes and products look likely to remain under the spotlight. Her Majesty's Government already blames games for encouraging obesity.¹⁰ But computer games will also continue to inspire unusual passions as a potent symbol of, and force for, differences between the sexes – or what some experts term *sex difference*.

We live in a misanthropic culture.¹¹ Thus games processes and products appear not just as very deeply sexed, but also as a striking, mass-market monument to the unchangeable character of sexual difference,, and in particular the unchangeable defects of men.. To many, games embody much that is shameful about society. Lara Croft, Germaine Greer has said,

'is a sergeant-major with balloons stuffed up his shirt... a distorted, sexually ambiguous, male fantasy. Whatever these characters are, they're not real women.'¹²

It is good to learn that Lara Croft is not a real person. But so long as critiques of computer games remain at such a banal level, women will make no progress. This paper looks at some of the intellectual history that surrounds the politics of difference between men and women and asks four questions:

Q1: Are the differences between men and women around the making and use of computer games to do with *culture*, or – as Doug Lowenstein's reference to testosterone suggests – to do with *biology*?

Q2: Are occupational segregation and the paucity of female games programming jobs part of a wider problem of *discrimination* in engineering, computer science and IT industry?

Q3: Will *games only fully appeal to women if women programme them*?

Q4: Is the playing of game products by women unequivocally a *Good Thing*?

7 One of the two Columbine murderers, Eric Harris, often created levels for *Doom*; these were widely distributed, and can still occasionally be found on the Internet as the Harris levels. See 'Columbine High School massacre', on

http://en.wikipedia.org/wiki/Columbine_High_School_massacre#Aftershock_and_the_search_for_reasons. For a counter-cultural but relatively rare defence of computer games against the charge of inciting male aggression, see 'Breeding evil', *The Economist*, 6 August 2005, p9.

8 Quoted in Pickoff-White, L. 15 February 2005. 'Video games: sexist tendencies'. United Press International, and on www.washtimes.com/upi-breaking/20050208-110050-1820r.htm

9 'Calls for new sex equality laws', *BBC News*, 29 December 2005 and on http://news.bbc.co.uk/1/hi/uk_politics/4566088.stm

10 Culture Secretary Tessa Jowell has listed computer games as one of the factors behind obesity in Britain. Speech by Tessa Jowell, Secretary of State for Culture, Media & Sport to the Tackling Obesity In Young People conference, 25 February 2004, and on www.culture.gov.uk/global/press_notices/archive_2004/dcms_obesityspeech.htm?month=February&properties=archive%5F2004%2C%2Fglobal%2Fpress%5Fnotices%2Farchive%5F2004%2F%2C

11 Furedi, F. 2005. *Politics of fear: beyond left and right*. London: Continuum.

12 Quoted in 'Lara Croft: fantasy games mistress', *BBC News*, 6 July 2001, and on <http://news.bbc.co.uk/1/hi/uk/1425762.stm>

1 From the critique of housework to the critique of consumption

From a historical point of view, it is odd that controversies about women and games should have emerged at all. In Simone de Beauvoir's pioneering (1949) epic on women, *The second sex*, we find impressions of girls at play with their dolls, but a much more serious account of women in the realm of employment after the French Revolution, together with an eloquent denunciation of housework.¹³ Historically, paid and unpaid labour have occupied the attention of women writers and activists much more than play.

In America in the 1960s, women raised the issue of domestic toil. They did so in a way that the liberal feminism of the pre-1914 period had never done.¹⁴ However, the glib postures of the Democratic Party informed most of the important treatments of housework in the 1960s. They ensured that what might have been a critique of domestic production turned, instead, into a moan about consumption.

In *The hidden persuaders* (1956), Vance Packard attacked what he called the 'psychoseduction of children' by television advertising. In *The wastemakers* (1960), Packard went on to excoriate US consumer goods manufacturers for using planned obsolescence in their products to over-stimulate mass consumption.¹⁵ In *The feminine mystique* (1963), the late Betty Friedan pursued a similar path.

Devoting a chapter to what she called 'The happy housewife heroine', Friedan denounced the mystique with which society had surrounded femininity. It was, she said, a mystique that made domestic toil and the bearing of children 'into a religion, a pattern by which all women must now live or deny their femininity'. For Friedan one of the problems surrounding housework was that magazines created an image of it that required 'increasing mindlessness, increasing emphasis on things: two cars, two tvs, two fireplaces'.¹⁶

With Friedan we have an important theme, which we have already met in the 'boys' toys' argument. *Consumer goods and consumer ideology are held out as key agents in the sexing of women.*

In the UK in 1970, Eva Figes came to conclusions similar to Friedan. For her consumer goods manufacturers plotted to make women stay at home, get leisured, get bored, and therefore purchase consumer goods.¹⁷ For a youthful Germaine Greer, too, domestic work represented the tyranny of the consumer goods manufacturers. 'Women must', she argued in 1970, 'reject their role as principal consumers in the capitalist state'. The sharing of one washing machine between every three families, the sharing of toys, the swapping of baby carriages, the use of second-hand goods and the rejection of packaging would be a 'serious blow to the industries involved'. Women should resist being the 'chief fall-guys for advertising'.¹⁸

As late as 1980, a million of America's 87 million households had no running water, and a further two million had no complete bathrooms.¹⁹ But for Friedan, Figes and Greer, toil was not the central issue. The oppression of women was 'not caused by lack of material advantages', Friedan said; rather, it was 'made up of mistaken ideas'. These ideas were put about by consumer goods manufacturers, educators, parents, magazine editors and – let it not be forgotten – men.²⁰ Not domestic work, but *consumer society's socialisation of girls and of women into feminine sex roles* was the target of feminist disgust.

Distaste for the sexist patterns and ideologies of consumption, therefore, long predates today's worries that not enough computer games are designed by women, or for women. Yet the logic behind such distaste suffered from two major faults.

13 De Beauvoir, S. (1949) 1972. pp131-138, 436-441. *The second sex*, London: Jonathan Cape.

14 Vogel, L. 1983. p4. *Marxism and the oppression of women: toward a unitary theory*. London: Pluto Press.

15 Packard, V. (1956) 1957. *The hidden persuaders*. London: Longman, Green & Co; Packard, V. (1960) 1963. *The wastemakers*. New York: Pocket Books.

16 Friedan, B. (1963) 1983. pp.39, 58, 212-3, 223. *The feminine mystique*. London: Pelican Books.

17 Figes, E. (1970) 1978. pp88-89. *Patriarchal attitudes: women in society*. London: Virago.

18 Greer, G. (1970) 2003. pp363-364. *The female eunuch*. London: Flamingo.

19 Cowan, R. S. 1984. p195. *More work for mother: the ironies of household technology from the hearth to the microwave oven*. New York: Basic Books.

20 Friedan, B. (1963) 1983. pp26 et seq, 266, 318, 318. *The feminine mystique*. London: Pelican Books.

First, feminists could be faulted on their *psychology*, by focusing as much as they did upon the effect of consumer products on 'consumers'. Feminists thought little about what active human beings *do* with such products. Instead, they saw consumer goods as controlling the mentality and behaviour of passive people. This easy condescension on their part was an early forerunner of today's misanthropic critiques of consumer society, in which the masses are condemned for their myopic materialism and their wasteful lifestyles.

Were 1960s and 1970s consumers really dupes? Are those who buy computer games today also unwittingly assisted by those games into different sex roles? Take a particular kind of consumer product – *media*. Marshall McLuhan ushered in the 1960s by proclaiming the all-determining power of media, or what he called 'electric technology'. Yet subsequent research on sex-role stereotyping by television suggested, if anything, that the sexist aspects of television had more of an impact on critics than on viewers. In a 1986 monograph for the Independent Broadcasting Authority, Barrie Gunter, then a research officer with the IBA, coolly summed up the evidence like this:

'The description of sex-role portrayals on television as highly stereotyped is not consistently reinforced by the perceptions of viewers. Furthermore, the characteristics identified as typical of female or male portrayals on television by content analyses are not necessarily the ones which turn out to be the most salient to the audience.

'... viewers do not seem passively to absorb everything they see on television. Perceptions of characters and behaviours appear to be mediated by pre-existing dispositions....

'On the question of whether viewers perceive sex-role portrayals as sexist or not, as content analysis research has indicated they are, again the findings reveal a level of sophistication among members of the audience that is so often underestimated.'²¹

Nearly 20 years after Gunter wrote this about television, his words remain relevant to today's alarm about the masculine nature of computer games.²²

The second fault with 1960s feminist critics of consumption was their *political economy*. Behind sexist ideology, they saw male manufacturers and male media barons out to fool women into paying for a femininity they did not need. Back in the 1890s, the Norwegian-American Thorstein Veblen had ridiculed the rich of the Gilded Age for their 'conspicuous consumption' and 'pecuniary emulation'. His critique had been novel and witty.²³ But the 1960s feminists lacked even Veblen's limited insights. For them, the inferior position of women was the work of a conspiracy of male suppliers of consumer goods and services – a conspiracy able to enhance profits by fooling sheep-like women shoppers into questionable needs and sex roles. This was a patronising and dubious political economy at best.

Despite its manifest defects, the critique of consumer goods as agents of sexism has, as we have already argued, more than an echo today. Nobody ever accuses Electronic Arts of enforcing nurturing roles on women through sales of *The Sims*; but it's cool to sneer at *Tomb Raider*, *Mortal Kombat* or *Final Fantasy* as the work of greedy, male-dominated, sexist computer games firms. Such firms, the word goes, focus single-mindedly but very successfully on exploiting doltish male gamers, from Tokyo to London to Los Angeles.

Altogether, the answer that the most popular feminists of the 1960s would have made to Q1 – whether differences around games are today to do with culture or biology – would have come down on the side of just one aspect of culture. Soon, however, more left-wing feminists made a wider critique of what they saw as *the determining role of culture as a whole*. In a New Left and Labour Party framework that lasted from the 1960s to the 1980s, hatred for sexist advertising and consumerism took its place within a larger siege conducted against male attitudes and institutions. Today's concern about women's absence from software development in computer games and IT recalls much of that encounter.

21 Gunter, B. 1986. pp42-3. *Television and sex role stereotyping*. London: John Libbey and Company.

22 In 1995 Gunter, by then professor of journalism at the University of Sheffield, was just as perceptive. He wrote: 'Experimental studies on gender-role stereotyping or counter-stereotyping have so far demonstrated only short-term, simplistic changes in attitudes and beliefs concerning appropriate roles for each sex. They provide no conclusive proof that such effects occur in natural, everyday viewing environments and that such learning produces long-term change in the beliefs of individuals. What little experimental evidence there is of a possible long-term influence of television gender-role portrayals on viewers' gender-role beliefs in the realm of counter-stereotyping has indicated that televised examples alone may not be sufficient to influence viewers' perceptions.' Gunter, B. 1995. p141. *Television and gender representation*. London: John Libbey and Company.

23 Veblen, T. (1898) 1953. *The theory of the leisure class: an economic study of institutions*. New York: Mentor.

2 From the critique of consumption to the social construction of gender

In a founding text for left-wing feminists, published in *New left review* in 1966, Juliet Mitchell followed Friedan in singling out ideology as responsible for women's oppressed position. For Mitchell that position could not be deduced from the economy, but rather from the ideology of women's natural vocation for childbirth, childcare and housework. Reproduction, sexuality and *sex role socialisation* were the central issues, as well as the content of education for girls over 15 – 'at present', Mitchell argued, 'the main single filter selecting women for inferior work-roles'.²⁴

We see here a renewed and still very contemporary emphasis on sex role socialisation through education; today's worries about not enough young British women taking courses in computer games programming are very much of a piece with this. Interestingly, too, for the modern discussion on computer games, the *psyche* began to preoccupy British feminists: for Mitchell and her successors, the origins of domestic work were best sought through Freudian and, later, Lacanian psychoanalysis.²⁵ However, the recent republication of some of the writings of Ann Oakley should remind us of the enduring allure of ideas focused less on psychoanalysis than on sociology.²⁶ Oakley had been a collaborator of Mitchell's, but her impact turned out to be greater.

It was Oakley's first, *New Society* book, *Sex, gender and society* (1972), which best agitated for the distinction between sex as a biological fact, and *gender* as a social construction. Her book also introduced thousands of people to the idea of sex role socialisation. Here, as with Mitchell, the problem with the position of women was adduced not to the ideas of consumer society, but rather to the ideas of society as such. Oakley felt that outdated ideas about sex roles lagged behind the development of more modern institutions:

'Today's liberationists point out that both men and women are caught in the web of conventional sex role-definition... This is a new idea, perhaps due to the perception that conventional ideas about the roles of the sexes persist despite the removal of institutional restrictions on the freedom of women to behave "like "men"...' ²⁷

Ideas also lagged behind technology. Given fertility control and bottle feeding, Oakley wrote,

'Arguments long believed in have an alarming tendency to remain suspended in thin air by the slender string of passionate, often irrational, conviction. They seem not to need their foundations to survive.

'Technology has altered the necessary impact of biology on society, but our conceptions of masculinity and femininity have shown no corresponding tendency to change.'²⁸

Oakley's attack on biological accounts of differences between the sexes was a reply to Shulamith Firestone's *The dialectic of sex*, a feminist paean to biological difference.²⁹ Ever since, she has been at pains to bring out how the different roles performed by men and women in the home and at work arise not for reasons of *biology*, but because of what, in 1972, she called *convention*, or what is nowadays more broadly described as the *social construction of gender*.³⁰ As she wrote, of the 'two extremes' of masculinity and femininity,

'Whatever biological cause there is in reality... the distorted view of its importance becomes increasingly a rationalisation of what is, in fact, only prejudice. In this matter, human beings are

24 Mitchell, J. 1966. 'Women: the longest revolution', *New left review*: 40.

25 See for example Mitchell, J. 1971. *Woman's estate*. Harmondsworth: Penguin Books, and *Psychoanalysis and feminism* (1974), 1975. Harmondsworth: Penguin Books; Kuhn, A. 'Structures of patriarchy and capital in the family', in Kuhn, A. and Wolpe, A. eds, 1978. *Feminism and materialism*. London: Routledge and Kegan Paul; Alexander, S. Spring 1984. 'Women, class and sexual differences in the 1830s and 1840s: some reflections on the writing of a feminist history', *History workshop journal*. 17.

26 Oakley, A. 2005. *The Ann Oakley reader: gender, women and social science*. Bristol: Policy Press.

27 Oakley, A. 1972. p15. *Sex, gender and society*. London: Maurice Temple Smith.

28 Oakley, A. 1972. p16. *Sex, gender and society*. London: Maurice Temple Smith.

29 Firestone, S. 1971. *The dialectic of sex: the case for feminist revolution*. London: Jonathan Cape.

30 Berger, P.L. and Luckman, T. 1967. *The social construction of reality: a treatise on the sociology of knowledge*. Garden City, NY: Doubleday. See also Lorber, J. and Farrell, S. A. eds. 1990. *The social construction of gender*. Newbury Park, CA: Sage Publications.

probably more conditioned by their own gender-differentiated upbringing than they are able, or would care, to admit.’³¹

Oakley was adamant that culture and social convention were responsible not just for *housework*, but also for *occupational segregation*. Summing up a chapter on ‘Sex and social role’, she wrote:

‘... the important factor is culture. In early upbringing, in education and in their adult occupations, males and females are pressed by our society into different moulds.’³²

We can see here the relevance of Oakley’s perspective to computer games. Oakley created the intellectual framework for today’s suggestion that *playing gendered computer games in childhood is one of the factors helping press adult women into different social moulds – into games marketing jobs, for example, rather than games programming ones*.

Oakley, after all, persuaded a small but professional British audience that *the culture of parenting and toys, not biology, was the essential determinant of gender identity*. It is true that, for Oakley, the chief observable difference between boys and girls was one that applied across cultures – namely, the *aggression of boys*.³³ Nevertheless, she was quite certain of the pre-eminence of culture in other domains. She noted that, in *spatial matters*, boys’ showed greater independence of the physical field put before them than girls. However, she ridiculed the Freudian psychoanalyst Erik Homburger Erikson, who had found that 10-12 year-old girls, constructing scenes from toys on a table, preferred to build interiors, while boys of the same age tended to portray the outdoors.³⁴

For Oakley these spatial preferences in play had nothing to do with womb (girls, interiors) and penis (boys, outdoors), as Erikson had made out: the girls and boys in his experiments had been too old for differences between the two to be innate.³⁵ Similarly, if the preferences very young children had in *toys* often ‘neatly’ reflected the awareness they had of ‘sex-appropriate’ behaviour, that was significant. The fact that sex differences in personality extended all the way back to childhood suggested, for Oakley, that if such differences were not moulded in biology, ‘then they must emerge very early in the process of cultural learning’.³⁶

Toys, in fact, were generally rather important in this process of ‘cultural learning’. Oakley added:

‘In guiding their children’s choice of toys, parents may be either explicit in their intention to foster the development of appropriate gender roles, or unaware that they are doing anything at all to encourage it...

‘A child’s ability to select sex-appropriate toys, or rather his established preference for them, is a signal that he has acquired the solid foundations of an appropriate and irreversible gender role. This is not a straightforward procedure, nor is it the same for both sexes. Studies of children indicate that the boy’s development of gender identity is more problematic and causes him more anxiety than that of the girl. Again, this underlines the cultural nature of gender-role definition’.³⁷

Altogether, Oakley’s perspective has gained widespread usage in British society. In his first reaction to the London terrorist bombings of 7 July 2005, for example, Metropolitan Police chief Sir Ian Blair deployed Oakley’s term *gender* to show the indiscriminate nature of the bombings.³⁸ Oakley’s focus on ideas, culture, upbringing and toys as the determinants of gender remain the implicit premise of millions of parents and teachers today.

From Oakley’s perspective of gender, the answer to Q1 today is to blame women’s predicament in computer games squarely on culture. But is that the right answer?

31 Oakley, A. 1972. p210. *Sex, gender and society*. London: Maurice Temple Smith.

32 Oakley, A. 1972. p156. *Sex, gender and society*. London: Maurice Temple Smith.

33 Oakley, A. 1972. pp59-66. *Sex, gender and society*. London: Maurice Temple Smith.

34 Erikson, E. H. (1950) 1963. *Childhood and society*. New York: WW Norton.

35 Oakley, A. 1972. pp82-85, 97. *Sex, gender and society*. London: Maurice Temple Smith.

36 Oakley, A. 1972. p52. *Sex, gender and society*. London: Maurice Temple Smith.

37 Oakley, A. 1972. pp177-178. *Sex, gender and society*. London: Maurice Temple Smith.

38 ‘This was an attack’, Sir Ian Blair said, ‘which was entirely arbitrary, random, irrespective of race, religion, colour, gender or age’.

2.1 The unmediated crudeness of cultural determinism

The key feature of Oakley's work was her explanation of *how* culture sexes people – through, she said, the transmission of outdated prejudice by parents, toys and schools. This was a big error.

Conventional ideas, culture and society itself may play bigger roles than biology in sex difference. But as the cultural critic James Heartfield observes in a satirical refinement of Margaret Thatcher, *there is no such thing as society – at least not immediately*.³⁹ Culture and society do not directly press males and females into different moulds, as Oakley's manufacturing metaphor suggests.

Relations in society cannot be reduced simply to the individual's felt, phenomenological experience of other individuals' subjectivities. Nor can they be reduced to the sum total of such subjectivities in society. What Adam Smith called the 'invisible hand' of market forces *mediates* such relations. In the world of work, culture and society do not directly account for personal careers and trajectories. In the home, too, they don't consciously or mechanically construct male computer games as violent and female ones as caring and sharing – any more than these consumer products, in an outburst of technological determinism, directly construct the genders of those who play with them. No: people encounter social relationships through the *marketplace*, which they are forced to enter, in the first instance, through the world of *work*.

The adult woman's experience of computer games is mediated by the amount of time she has spare from paid work and unpaid domestic work – childcare, cleaning, shopping, and all the rest. The market also mediates the child's access to games. What platforms, and how many games, can its parents afford? From Microsoft's exotic Xbox 360 to the simple handheld Nintendo models of yesteryear, retail prices and employee wages bring their influence to bear on each person's experience of computer games. All today's rhapsodies or complaints about culture cannot take away from this simple point of political economy.

It is true that ideas about women's inferiority persist long after they should have been jettisoned. But the Oakley's focus on the transmission of outdated prejudice by parents, toys and schools evoked the liberal left's love-affair with socialisation and education more than the real origins of discrimination against women. Oakley exaggerated the impact of parents and toys on children. She also exaggerated the impact of child development on the behaviour and ideas of the conscious, autonomous adult. As a result, she inflated the impact of parenting and play on the pattern of female employment. As Frank Furedi and Helene Guhlberg have shown respectively, 'parent determinism' about child development and 'infant determinism' about adult development form a dubious 21st century orthodoxy that stretches from the White House to Whitehall.⁴⁰ Taken together, these two doctrines form a broader *cultural determinism* that has much to answer for.

When a young girl first chooses a pink Barbie doll to play with, this is not a lamentable event, but the choice of a convenient typology with which the child can make sense of the world, and in the first instance her place within it. It is probable, too, that the choice confirms an already-made decision 'I am a girl' rather than asserts that decision for the first time. Equally, the selection of 'male' and 'female' computer games by children today probably has more to do with peer group pressure and the child's growing but inchoate search for individual autonomy than it has to do with parental ideology forcing the child to adopt the accoutrements of gender. After all, many liberal families, and most state schools, try to prevent toy guns being available on their premises; yet that does not prevent boys wanting to brandish such toys. Of course, we could blame television for that – but that kind of one-way causality, as we have already seen, has little going for it.

It is striking, too, that, in today's debates about women and games, it is not the plight of lone women programmers that is discussed so much as the need to *train a new generation* of female games software experts. In this case not parenting, but Tony Blair's 'education, education, education' is upheld as the source of problems and solutions among female game programmers. No doubt one or two chauvinist Dads, today, still try to persuade their daughters not to become games programmers. No doubt, too, ideas and practices in education do indeed still lag behind the potential that exists to employ women in games. Yet there are now

39 Heartfield, J. 1996. pp.11-18. 'Marxism and social construction' in Wolton, S. ed. *Marxism, mysticism and modern theory*. London: Macmillan.

40 Furedi, F. 2001. *Paranoid parenting: abandon your anxieties and be a good parent*. London: Allen Lane; Guhlberg, H. 5 October 2004. 'The myth of "infant determinism"', [spiked](http://www.spiked-online.com/Articles/0000000CA71B.htm), and on www.spiked-online.com/Articles/0000000CA71B.htm

more possibilities for women makers and users of games than cultural determinism suggests.

Culture is more fluid than its advocates seem to realise. After all, parents, schools and toys, cast as agents in the sexing of society, are fairly timeless institutions. As a result the cultural determinists' account of culture can only be a rather frozen, ahistorical one. Oakley wrote that women's employment was 'almost always' traditional feminine work conforming to conventional ideas of gender roles.⁴¹ That is appreciably less true today than it was in 1972:

- Since 2004, the US Army has allowed women to provide infantry, armour and artillery units with equipment, ammunition, maintenance and other supplies in combat zones: about 20 per cent of the combat support and service units in Iraq are comprised of women, even if the US Congress would have to hold a special vote before women entered direct combat roles⁴²
- In the UK in 2004, women comprised only 22 per cent of entrants to A-level physics, but 38, 39 and 50 per cent, respectively, of entrants to design and technology, chemistry and mathematics. Over 1994-2004, women only doubled their representation among chartered engineers to 2.8 per cent – but they improved their minority position among UK engineering graduates from seven to 18 per cent.⁴³

Particularly notable is the growth, from a small base, of British women graduates in engineering. While it obviously has not gone nearly far enough, that growth has taken place precisely during the period in which computer games have enjoyed their fastest ascent. We need not argue that computer games have heightened girls' interest in engineering – that would be crude, unmediated determinism. But nor can we agree the more familiar but no less deterministic proposition: that sexist computer games, and the advertising imagery that surrounds them, have put women off jobs in computer games programming in the UK, off jobs in computer science in the US, and off engineering generally.

What then does explain the apparent reluctance of women to enter such jobs? First of all the absence of girls and women from scientific and technological disciplines *in general* is a much, much bigger economic and political problem for society than the absence of girls and women from courses and professional positions in *games programming*. Murmurings about the absence of women in the direct creation of videogame software are quite disproportionate. They only emerge at all because of New Labour's obsession with cultural industries, and its ignorance of pure and applied science.

Second, people again need a sense of proportion about the 'gender' skew in science and technology. Questions should indeed be asked about if and when more girls will feel proud to choose mathematics, chemistry, engineering or biology. Yet the view of Sir Howard Newby, chief executive of the Higher Education Funding Council for England – that each of these are disciplines now belong to the 19th century, not the 21st – will hardly aid recruitment across either gender.⁴⁴ Before people beat their breasts about Britain's need to train more women science and technology graduates, they need to inspect very closely the quality of the degrees they are talking about.

41 Oakley, A. 1972. p197. *Sex, gender and society*. London: Maurice Temple Smith.

42 'Women in combat: lawmakers draw new line', *MSNBC News Services*, 19 May 2005, and on www.msnbc.msn.com/id/7909442/

43 Taylor, A. 18 January 2006. 'Woman engineer title awarded as industry woos female students', *Financial Times*.

44 Quoted in Green, M. 29 June 2005. 'College science closures expected to rise', *Financial Times*.

2.2 Ann Oakley's impact summed up

From the standpoint of today's discussions on computer games, Oakley was perhaps too quick to judge boys as almost inherently aggressive. If boys' biology may well play a part in *phases* of aggression, behaviour in these phases can usually be controlled. Moreover if boys become aggressive during and after the playing of a computer game, the effect is usually rather transient.

From the standpoint of computer games, however, Oakley did draw attention to a vital issue: the differing spatial abilities of boys and girls. If one is interested in a more equal employment of women in engineering, IT and computer games (Q2), one needs to look at the evidence carefully, and think carefully, about such differing abilities – whether their origins be cultural or biological. After all, a basic ingenuity in matters of interior, exterior and landscape design, geometry, and navigation is essential to the programming and making of computer games. If boys are, on balance, better at spatial manipulations than girls, that *might* make it intrinsically hard for girls to enter games programming jobs.

We will return to this. For the moment, we will just observe that the modest growth in UK graduate engineers who are female does not by itself contradict the possibility that spatial talents differ between men and women. Perhaps engineering is not a true test of such talents; perhaps women graduate in engineering despite being weaker in that discipline than men; perhaps they are, on average, worse engineers than men (even supposing that they always go on to become practising engineers). Alternatively, a genuine sex difference in spatial abilities may still allow a few women with real and essential spatial skills to get an engineering degree. However, that women do graduate as engineers is not by itself an argument against differential spatial abilities.

For all its faults, Oakley's original text stands out as a relatively balanced riposte to biological explanations of femininity. Yet it also helped inspire a generation of psychologists and more left-leaning feminists to stigmatise sexist toys, sexist education and occupational segregation as part of *patriarchy*, a wider ideological conspiracy to exclude women from certain jobs and so benefit men.⁴⁵ Conscious or unconscious, today's concern (Q3) that not enough women are around to design the 'right' computer games for women shows the enduring legacy of that generation.

Leftish feminists came to see toys and children's games as one more site of masculine power in the family. Masculine power was everywhere embedded, and deeply, too. However, if culture's ubiquity and direct influence explained everything about gender, it could just as well explain nothing.

The cultural determinists' approach to gender could always be trumped by a seemingly firmer, biological account of male power. Culture might explain much; but where did culture come from? As a result, *in a new century, differences between men and women in relation to computer games tend to be framed in terms more of biology than of culture.*

The cultural determinist outlook on children and adults of different sexes, and to their playing of games with toys, dominated discussion in the 1970s and 1980s. But by the 1990s, this kind of feminism had lost out to biologically-orientated accounts. Before turning to how that transformation took place, we need to glance at how child psychology came to give feminist accounts of gender difference support that, though far from being robust, certainly had the appearance of robustness.

⁴⁵ Today Oakley is quite explicit that her concept of gender connected nicely with (i) evolving theories of patriarchy... and with (ii) the notion of a "system" of gender oppression'. See Oakley, A. 2005. p2. *The Ann Oakley reader: gender, women and social science*. Bristol: Policy Press.

3 Interlude: child psychologists endorse cultural explanations of difference

In 1953, notoriously, the British child psychologist John Bowlby held up the full-time employment of mothers as one of the eight key factors behind family break-up and child neglect (his other factors included wars, famines and the death or imprisonment of parents).⁴⁶ A few years after this sad start, there was a swell of Western professional interest in infant and child development, and in parenting. From the 1960s, a decade in which a young, musically inclined generation gave an enormously positive valuation of play, the whole subject of games and play among children also became more of an issue.⁴⁷

By the early 1970s, as we have already seen, the childhood business of what Carole Beal much later called 'learning gender'⁴⁸ had become a subject of intense research and debate. It was suggested that fathers did more talking to and playing with their sons than with their daughters.⁴⁹ In 1974, in a 1kg survey of 1400 research studies on the influence of parents on gender formation in children, Eleanor Emmons Maccoby and Carol Nagy Jacklin, major leaders in the field, found, in more than 600 pages, surprisingly little of that influence.⁵⁰ That did not, however, prevent others from later insisting on the primacy of parenting.

From then on, as an excellent recent paper by C Estelle Campenni makes clear, *play came to be seen as a serious factor in the establishment of gender*.⁵¹ Among one-year old children, Jacklin, Maccoby and Dick found that girls chose a doll or stuffed animal, while boys preferred bricks and lorries.⁵² Gender aspects of play among *peers* occupied attention;⁵³ but on the whole *parents and toys in the home* were seen as more critical. In 1975, for example, Harriet Rheingold published a key study into how nearly 100 upper-middle-class families with pairs of children aged between one and six years old organised their private rooms. In her laboratories, girls of 18 months played with lorries as much as boys did; but in her home-based sample, the boys had 375 toy vehicles between them, and the girls just 17 – no boats, buses or motorcycles, either.⁵⁴

By the late 1970s parenting, gender and toys were central to child psychology, and were widely discussed, too, by middle-class families. General housework was still debated, but parenting had a bigger claim on enlightened opinion. In 1975, Dr Hugh Jolly devoted but two pages of his 650-page tract on childcare to how mothers of infants could best cope with the rest of the housework: it could, he said, make a 'relaxing contrast' to motherhood.⁵⁵ Two years later, household tasks unrelated to children failed to make even a cameo appearance in Penelope Leach's best-selling bible on childcare.⁵⁶

Today, the British child psychologists of the 1970s would give a decisive vote in favour of culture, not biology, as the force behind gender difference in computer games (Q1). They did much to politicise the issues of parenting, gender and toys. However, their contribution was greatly magnified by leftist feminists. It was socialist feminists who succeeded in making propaganda, to millions of mothers, teachers and others, about what had previously been a largely academic debate on games and gender.

46 Bowlby, J. (1953) 1965. p86. *Child care and the growth of love*. London: Pelican Books.

47 See for example Piaget, J. (1951) 1962. *Play, dreams and imitation in childhood*. New York: W W Norton; Piaget, J. and Inhelder, B. (1966) 1969. pp59-63. *The psychology of the child*. New York: Basic Books. The republication, in 1967, of the Soviet psychologist Lev Vygotsky's treatment of children's play also helped make children's play an issue, as did the path-breaking work of Brian Sutton-Smith. See Vygotsky, L. 1967. 'Play and its role in the mental development of the child', *Soviet psychology*, 5. pp6-18. Herron, R. and Sutton-Smith, B. eds, 1971. *Child's play*. New York: John Wiley. See also Bruner, J. S., Jolly, A. Sylva, K. 1975. *Play: its role in development and evolution*. New York: Basic Books.

48 Beale, C. 2002. p6. *Boys and girls: the development of gender roles*. New York: McGraw Hill.

49 Reblski, F. and Hanks, C. 1971. 'Fathers' verbal interaction with infants in the first three months of life.' *Child development*. 42: pp63-68, cited in Beale, C. 2002. p48. *Boys and girls: the development of gender roles*. New York: McGraw Hill.

50 Maccoby, E.E. and Jacklin, C. N. 1974. *The psychology of sex differences*. Stanford, CA: Stanford University Press.

51 Campenni, C. E. January 1999. 'Gender stereotyping of children's toys: a comparison of parents and nonparents', *Sex roles: a journal of research*. 40, and on www.findarticles.com/p/articles/mi_m2294/is_1_40/ai_54250823

52 Jacklin, C. N., Maccoby, E. E. and Dick, A.E. 1973. 'Barrier behaviour and toy preference: sex differences (and their absence) in the year-old child. *Child development*. 44: pp196-200, cited in Beale, C. 2002. p72. *Boys and girls: the development of gender roles*. New York: McGraw Hill.

53 Garvey, C. (1977) 1990. *Play*. Cambridge, Mass: Harvard University Press; Jacklin, C. N. and Maccoby, E. E. 1978. 'Social behaviour at 33 months in same-sex and mixed sex dyads'. *Child development*. 49: pp557-569.

54 Rheingold, H. L., and Cook, D. V. 1975. 'The content of boys' and girls' rooms as an index of parents' behavior'. *Child development*. 46: pp.459-463, cited in Garvey, C. (1977) 1990. p54. *Play*. Cambridge, Mass: Harvard University Press.

55 Jolly, H. (1975) 1978. pp165-6. *Book of child care*. London: Sphere Books.

56 Leach, P. 1977. *Baby and child*. London: Michael Joseph.

4 Socialist feminists attack lazy husbands, immutable industry, sexist toys, male aggression

'Socialist feminism' was an odd label: like Juliet Mitchell, it attacked Marxist accounts of womanhood with a venom that Oakley had never quite mustered for her assault on biological ones. In particular, socialist feminists spent a lot of time rubbishing an old Marxist idea – that *the performance of housework for free by women contains economic benefits for capitalist employers*.⁵⁷ Instead, they felt that *men* gained from women performing domestic chores, through *bunking off housework*, and through *organising against women in the workplace*.

Socialist feminists followed Mitchell in a bizarre cult of the French Communist Party theorist Louis Althusser.⁵⁸ They began with a numbingly familiar thesis: not economics, but ideology created different gender roles within the home.⁵⁹ Male ideology explained male absenteeism from housework; male trade unionist ideology explained male privilege in the *workplace*. Finally, socialist feminists won a wide audience for the idea that *sexist toys* were the essential drivers of child sex role development and thus adult occupational segregation.

Socialist feminists argued that sexist culture, in the family and at work, was irrevocably fastened in and continuously regenerated by men, and even in artefacts that men organised to benefit men. In the family, they found that *fathers were guilty of sex-role stereotyping their children*, not least with *toys*; and they found husbands guilty of violence. In the world of employment, they found British male trade unionists guilty of discriminatory exclusion of women from certain occupations, skills and technologies – both historically, and in the 1970s, the halcyon era of both socialist feminism and militant British trade unionism.

4.1 Male power in the home

In the same year as Oakley's *Sex, gender and society*, Sheila Rowbotham set the tone. Endorsing Mitchell, she ridiculed Marxism for its neglect of women, and consigned the political economy of domestic work to a footnote.⁶⁰ To understand the roots of domestic work, Rowbotham went on to argue in 1973, it was vital to look at ideology, misguided trade unionists, and the limitless powers of the state.⁶¹

An immense amount of confusion then ensued, as socialist feminists rushed to deny any link between housework and capitalism. For them, it was ideology that caused the sexual division of labour in the home: ideology that originated from the family. Thus Rowbotham felt that, far from being connected with the capitalist mode of production, the 'family mode of production' allowed husbands to *own* wives as means of production.⁶² Others in Britain, too, discovered 'the housework mode of production'.⁶³ In France, Christine Delphy argued that domestic work was a mode of production resting upon patriarchal exploitation – a theft of unpaid labour comparable to that performed by capitalists upon proletarians.⁶⁴ Against all the evidence, other socialist feminists contended that domestic work was ruled by the same market dynamics as those that obtain in capitalist industry – by the law of value.⁶⁵ Even Ann Oakley entered the 1980s by declaring, in a chapter on domestic work, that it was productive in the Marxist sense – that the housewife produced value, surplus value and therefore profit.⁶⁶

Even in 1970s Britain, husbands did not buy and sell women: their wives were not property. And if market forces really governed the dynamics of housework, why did it remain outside mainstream production and

57 See for example Barrett, M. 1980. *Women's oppression today*. London: Verso Editions.

58 Althusser was a Catholic Stalinist who became mentally ill and eventually murdered his wife. For the grisly story of how the political meshed with the personal in Althusser, see Heartfield, J. 2002. *The 'death of the subject' explained*. Sheffield: Sheffield Hallam University Press.

59 In 1971 Althusser had declared, in his usual obscure manner, that the 'theory of the formation of familial ideology' depended on Marx's economic theory only 'in the last instance'. Althusser, L. 1971. 'Freud and Lacan', in *Lenin and philosophy and other essays*. London: New Left Books.

60 Rowbotham, S. *Women, resistance and revolution*, pp.76-7, 264-5. Harmondsworth: Penguin Books.

61 Rowbotham, S. (1972) 1974. pp58-59. *Hidden from history: 300 years of women's oppression and the fight against it*. London: Pluto Press.

62 Rowbotham, S. 1973. p69. *Woman's consciousness, man's world*, Harmondsworth: Penguin Books.

63 Harrison, J. and Gough, I. February 1975. 'Unproductive labour and housework again', *Bulletin of the Conference of Socialist Economists*.

64 Delphy, C. 1977. *The main enemy: a materialist analysis of women's oppression*. London: Women's Research and Resources Centre.

65 Anonymous. January-March 1977. 'Une approche globale du travail des femmes mariées à des prolétaires', *Critiques de l'économie politique*. 26.

Folbre, N. 1982. 'Exploitation comes home: a critique of the Marxian theory of family labour', *Cambridge journal of economics*. 6(4).

66 Oakley, A. 1981. Chapter 8 and p166. *Subject women*. London: Martin Robertson.

technologically backward? Why did inefficient households not go out of business, like so much of British industry in the 1970s, as a result of competition? It is true that unpaid labour in and around the home is, like the leisure time we have mentioned, mediated in scope and rhythm by the world of paid labour. But for socialist feminists, market forces held direct sway in the home – even if it was also obvious that male workers, not capitalist employers, were responsible for their confinement there.⁶⁷

Husbands had to give up their privileges in the home. In 1976, the American leftist Heidi Hartman insisted, in the twisted language of the era, that 'if non-ruling class men are to be free they will have to recognize their co-optation by patriarchal capitalism and relinquish their patriarchal benefits'.⁶⁸ In 1977, Shirley Conran's bestselling *Superwoman* also recommended that lazy husbands be persuaded to up their share of domestic work.⁶⁹ Five years later, however, the Labour and Communist Party feminists, Anna Coote and Bea Campbell, were not optimistic about such a transfer of responsibilities from female to male ever taking place. They noted that it was rare even among families of a feminist disposition.⁷⁰

Today we know that a modest transfer of domestic responsibilities from female to male *has* begun to take place. But we can see, too, that this ancient discussion of male responsibilities in the home originated much of today's official censoriousness about work-life balance, paternity leave, and the importance of fathering. Before 2005, when Tony Blair moved her to the Ministry of Health, Department of Trade and Industry minister Patricia Hewitt, an Australian feminist with a lengthy history in the UK, was very active in this cause. But socialist feminism did not just insist that men do the housework. It also wanted male workers to give up what it saw as their power in industry – the power surrounding occupational segregation. And it also wanted what child psychologists had discovered about fathers, toys and gender to be taken very seriously.

4.2 Male power in engineering and design

Among many feminists hostile to occupational segregation, it was Cynthia Cockburn who is most relevant to today's debates on women and games. In her *Machinery of dominance: women, men and technical know-how* (1985), Cockburn lambasted the Equal Opportunities Commission and the Engineering Council for declaring the year 1984 'Women into science and engineering year'. It was, she said,

'not legitimate simply to urge women forward without considering what waits for them... Helping women to gain technological competence requires a more radical perspective on change than either the Equal Opportunities Commission or the Engineering Council have yet dreamed of....

'The technical competence that men as a sex possess and women as a sex lack is an extension of the physical domination of women by men. It also has...extensive effects in differential earnings and social authority.'⁷¹

After research into sectors such as clothing, warehousing, radiography and engineering, Cockburn concluded:

'The transferable technical skills used in design, manufacture, marketing, installing, servicing and managing technology remain almost universally men's skills... Just as new technology does not fundamentally reshape, but is just one more phase in, the class relations linking capital and worker, so it confirms the relations of sexual domination. What we are experiencing is, in Jan Zimmerman's phrase, "the encoding of old values in new technologies". These values, as we've seen, have a history that stretches back through feudalism to the earliest slave civilisations....

'Worse, however, technology does not stand still: women's situation could well deteriorate further.'⁷²

67 Here the villains were the rise of trade union interest in protective legislation and the rise of the 'family wage', both of which emerged in the industrial revolution. See Alexander, S. 1976. 'Women's work in 19th century London: a study of the years 1820-1850', in Mitchell, J. and Oakley, A. eds, *The rights and wrongs of women*. Harmondsworth: Penguin Books; Hartmann, H. 1979. 'The unhappy marriage of Marxism and feminism: towards a more progressive union', *Capital and Class*. 8: pp14-17; Land, H. 1980. 'The family wage', *Feminist Review*. 6; Humphries, J. 1981. 'Protective legislation, the capitalist state and working class men: 1842 Mines Regulation Act', *Feminist Review*. 7; Land, H. November-December 1981. 'The family wage', *New Socialist*.

68 Hartmann, H. (1976) 2002. p106. 'Capitalism, patriarchy and job segregation by sex' in Jackson, S. and Scott, S. *Gender: a sociological reader*. London: Routledge.

69 Conran, S. 1977. pp18, 20-23. *Superwoman*. Harmondsworth: Penguin Books.

70 Coote, A. and Campbell, B. 1982. p100. *Sweet freedom: the struggle for women's liberation*, London: Pan/Picador.

71 Cockburn, C. 1985. pp1-3. *Machinery of dominance: women, men and technical know-how*, London: Pluto Press.

72 Cockburn, C. 1985. p226. *Machinery of dominance: women, men and technical know-how*, London: Pluto Press.

By 1994 Cockburn's certainty on this point had only increased. In Finnish central vacuum cleaning systems, French food processors and the like, studies by her European collaborators revealed an almost total absence of women from design engineering. She and her co-editor concurred: *technology was social and thus gendered in its very constitution*. In the workplace, it was the embodiment of male hegemony.⁷³

Today, Cockburn's narrative about workplace technology preserving male domination stands revealed as wrong. Yet if technology, in the socialist feminist account, could consolidate the power of men in the workplace, it could clearly do the same at home. Indeed in 1976 two comprehensive schoolteachers, Carol Adams and Rae Laurikietis, had already formed the opinion that sexist toys codified male power.

4.3 Male power in toys and games

In an illustrated manual, *The gender trap: a closer look at sex roles, Book 1: Education and work*, Adams and Laurikietis turned child psychology's somewhat tentative propositions about fathers, toys and schools into a dogma.⁷⁴ They began, in a manner that has proved prophetic about today's discussion of women games programmers, by reproducing the American folksinger Peggy Seeger's sardonic feminist anthem of 1970, *I'm gonna be an engineer*.⁷⁵ To their credit, Adams and Laurikietis then forcefully dismissed as 'Myth number one' the idea that women are passive and unaggressive, caring, supportive, easily upset and emotional.⁷⁶ But from then on the two authors' mistakes multiplied.

Taking a leaf from the child psychologists, the second chapter of *Gender trap* was headed 'Parents, or discrimination starts in the pram'. And after children had left the pram, Adams and Laurikietis contended, it was the same story. Gender differences persisted because of the way children were treated by parents and adults.⁷⁷

Inevitably, the authors' next chapter was on toys and games. Here is what they wrote:

'Look at the toys labeled "suitable for girls": on the whole, they represent in miniature what the girl can expect later on in life – sewing sets, cookers, tea sets, dolls and prams. These tend to teach skills that are quiet and domestic. They also prepare girls for their expected roles of wives and mothers'.⁷⁸

In the socialist feminist account, then, parents and toys fairly compelled girls into doing housework in later life. And not just housework, either: along with schools, teachers, children's books, career literature and job advertisements, parents and toys were implicated in a developmental chain of forces that ensured occupational segregation, and in particular career paths for girls in which they became nurses, secretaries or teachers.⁷⁹ The power of parenting, and of smallish objects given to amuse children, knew no bounds.

73 Cockburn, C. and Fürst-Dilic, R. 1994. *Bringing technology home: gender and technology in a changing Europe*. Buckingham: Open University Press.

74 Adams, C. and Laurikietis, R. 1976. *The gender trap: a closer look at sex roles, Book 1: Education and work*. London: Virago/Quartet.

75 Seeger was long associated with the Communist Party of the USA. Her lyrics are on www.peteseeger.net/imgonnabe.htm

76 Adams, C. and Laurikietis, R. 1976. p19. *The gender trap: a closer look at sex roles, Book 1: Education and work*. London: Virago/Quartet.

77 Adams, C. and Laurikietis, R. 1976. pp21-22. *The gender trap: a closer look at sex roles, Book 1: Education and work*. London: Virago/Quartet.

78 Adams, C. and Laurikietis, R. 1976. p24. *The gender trap: a closer look at sex roles, Book 1: Education and work*. London: Virago/Quartet.

79 Adams, C. and Laurikietis, R. 1976. pp29-26, 80-87. *The gender trap: a closer look at sex roles, Book 1: Education and work*. London: Virago/Quartet.

4.4 The legacy of socialist feminism today

What did socialist feminists achieve? Socialist feminists raised questions of housework and occupational segregation, only to drop them. By 1979, Maxine Molyneux declared that they were 'beyond' debates about housework;⁸⁰ by 1980 three founders of the movement heralded a wider move to drop the tag 'socialist' and instead disappear into the Labour Party of Michael Foot and Neil Kinnock.⁸¹ Forsaking the more plebian moments of their past, socialist feminists moved to see capturing the state as vital to controlling male power in the family and in the workplace.⁸² Thus it was not too long before they were prepared to repudiate critics of the Child Support Agency, which the Tories set up in 1991.⁸³

If, today, one uses Google to search for 'non-sexist toys', one finds fewer than 100 references (in 'sexist toys' there are more than 2000, many of them about adult sex; in 'sexist books', there are more than 500). Yet if the phrase 'non-sexist' has largely gone, socialist feminists have made indelible the mental and practical association between boys, toys and games, and violence.

In a 1982 requiem for socialist feminism, Coote and Campbell noted that Women's Aid, along with the 200 refuges for women battered by men that it had inspired, had in many ways been the 'most productive' of all the campaigns of the women's liberation movement.⁸⁴ At the same time the idea that male aggression and violence were deeply entwined with play, and the instruments of play, became commonplace. During the 1980s, the women protesting against cruise missiles at Greenham Common proclaimed: '*Take the Toys from the Boys*'.

One did not need to support those women to feel the resonance of the injunction. The 20th century's great expert on play, Johan Huizinga, had discussed the relationship between games and war in the 1930s.⁸⁵ But in the 1980s, Greenham women linked war and games not just to America, but also to *men*. Certain kinds of objects were held to be sites for masculine power and violence.

Socialist feminists made triumphant the idea that it was masculine artifacts, not capitalism, that oppressed women. And this doctrine was applied not just to nuclear-tipped rockets, but also to sexist advertisements and imagery, the non-tactile artefacts of language, and the baubles of the child. Last, as we have seen, the technologies and skills used to perform paid work were also seen as imbued with male domination.

Today we know that, while 'male' trade unionism in the UK has been in decline for many years, barriers to the promotion of women – widely described as the 'glass ceiling' – have persisted. So, too, have occupational segregation and unequal pay. Yet for socialist feminists, the male worker was almost destined by Fate to be culpable.

That was a misanthropic assessment. But it was also one which ensured that, *after the 1970s and 1980s, socialist feminist accounts of sex difference proved little match for the naturalistic explanations of women's lot that grew up in the 1990s*. Before passing to those explanations, let's just grasp this point.

Like Cockburn and others, Rowbotham felt that the oppression of women *predated* capitalism.⁸⁶ What explained female domestic work was the patriarchal – male-run – nature of the family. Since the patriarchal family predated capitalism, socialist feminists were reinforced in their view that domestic work had no direct link with it. Yet this approach was always vulnerable to criticism by those who favoured biology over culture. As Kent University sociologist Dr Ellie Lee has noted,

80 Molyneux, M. 1979. 'Beyond the domestic labour debate', *New left review*. 116.

81 Rowbotham, S., Segal, L. and Wainwright, H. 1979. *Beyond the fragments*. London: Islington Community Press.

82 Wilson, E. (1974) 1977. *Women and the welfare state*. London: Tavistock Press; McIntosh, M. 1981. 'Feminism and social policy', *Critical social policy*. 1(1): pp32-42.

83 Mitchell, J and Goody, J. 1997. p221. 'Feminism, fatherhood and the family in Britain', in Oakley, A. and Mitchell, J. eds. *Who's afraid of feminism? Seeing through the backlash*. London: Hamish Hamilton.

84 Coote, A. and Campbell, B. 1982. p101. *Sweet freedom: the struggle for women's liberation*. London: Picador/Pan.

85 See Huizinga, J. (1938) 1955. Chapter IV, 'Play and war', in *Homo ludens: a study of the play element in culture*. Boston: Beacon Press. For the differences, rather than the similarities, between games and war, see Cailliois, R. (1958) 2001. pp15, 54-55, 62. *Man, play and games*. Urbana and Chicago: University of Illinois Press;

86 Rowbotham, S. 1973. pp69, 117. *Woman's consciousness, man's world*. Harmondsworth: Penguin Books.

'Socialist feminists refused to abandon the central idea of the theory of "patriarchy", that women's inequality has been fundamental to all previous and existing societies.... Their project then entailed finding another explanation for oppression outside biology or "maleness". In attempting this, socialist feminism ran into difficulties. *It proved very difficult to explain the eternal oppression of women by men in a non-biological way.*'⁸⁷

Lee adds that socialist feminists tried to use Marxism to provide such an explanation. But because Marxism rejects the idea of eternal phenomena in favour of the concept of historical specificity, socialist feminists had little luck when they tried to apply it to the allegedly unalterable phenomenon of patriarchy.

Today the sway of the old socialist feminists in government is very firm. We can see this when Tessa Jowell calls for government to repudiate what she calls *macho politics* and instead become 'more conversational'.⁸⁸ The view that men are intrinsically violent continues to overwhelm public life. Nevertheless, the reasoning behind that view has changed.

In the past, sexist toys were seen as one of the tools of male power. Today, official opinion highlights computer games as a vital arena of female disadvantage. However, these are the shallow reveries of an elite still replaying the debates of 30 years ago. For the person in the street, biological accounts of male/female differences are much more convincing.

⁸⁷ Lee, E. 1996. pp96-97, my emphasis. 'Marxism and feminist theory', in Wolton, S. ed. *Marxism, mysticism and modern theory*. London: Macmillan.
⁸⁸ Quoted in Riddell, M. 4 April 2005. p34. 'Macho politics has had its day: it's time for a new type of politician'. *New Statesman*.

5 The rise of naturalistic accounts

On 15 July 2005, the *Financial Times* was breathless:

'You are walking through a forest – you can feel the leaves brush against your arms, smell the flowers, taste the berries you pluck as you pass. But none of it is actually happening. This is a game, and the smells, tastes and feelings as well as the sounds and sights are all generated by a computer, and transposed into your brain using sound waves.

'It sounds incredible, but Sony has been working for several years on a technique that would use ultrasound waves to achieve exactly this effect. The company envisages a device that would fire ultrasound pulses into the brain to stimulate certain areas associated with the senses.'⁸⁹

The past 25 years have seen some important steps forward in *neurology*, or the study of how the brain works. Sometimes, computer games themselves aid progress in the field.⁹⁰ Yet today's naturalistic explanations of sexual difference do not just reflect the energy that now surrounds the biological sciences, or the increasing use of IT in those sciences. They also reflect wider changes in politics.

Despite feminism's formative hostility to biological explanations of the world, some feminists always did regard nature with affection, as the genre now known as 'eco-feminism' attests.⁹¹ Oakley herself, for example, now writes about 'The Rape of Mother Earth', and cries that 'We live in a toxic world'.⁹² Yet since the demise of socialist feminism, biological accounts of male/female differences have gained new exponents. It's true that social constructionism, gender and the structures of male dominance, today retains loyal adherents in elite, academic and New Labour circles.⁹³ But as society's concerns have focused more on nature, so naturalistic accounts of gender differences have come to dominate the popular imagination.

'By the late 1980s', Oakley remarks, 'gender had become a substitute for sex in much public and scientific debate'.⁹⁴ Yet if socially constructed gender was victorious in debate, events in real life came to supercede the category. In the 1980s, mass unemployment confronted jobless fathers with some of the realities of childcare for the first time in British history. Then, in 1987, panic about child abuse in Cleveland suggested that men's defects were greater, more universal and more deeply seated than cultural explanations had ever allowed. By 1991, too, a joint commission of the American Medical Association felt justified in urging doctors in the US to step in to solve what was widely described as an 'epidemic' of *violence* in the family.⁹⁵

In each case of deviancy, both sexes received indictments; but it was the defects of husbands and fathers that took centre stage. Maleness was now a world apart from femininity, for men were proved inhuman in a way that women were not. Men were, perhaps, *naturally* distinct from women. Indeed, computer games themselves may have helped make the distinctions more vivid. In the early 1990s cute, almost bisexual games such as *Super-Mario* gave way to computer games based on contact sports and sorties against Saddam Hussein. Games, one might think, confirmed that boys would always be boys.

In 1992 the US pop psychologist John Gray proclaimed that men and women were from different planets.⁹⁶ Let's now contextualise and outline the new naturalistic ideas about women, before we turn to critique them.

89 Harvey, F. 15 July 1995. p13. 'Lots of noise around sound new processes', *Financial Times*. Ultrasound is sound with pitches above 20kHz, roughly the upper limit of human hearing. It has many applications beyond computer games.

90 Enthusiasm about how scientists in Virginia have used PlayStations to help induce relaxation through biofeedback, the *Sunday Times* noted as early as 2002 that, in the development new human-computer interfaces in general, 'games manufacturers working with budgets of millions for each game are the most likely pioneers'. Crerar, S. 17 February 2002. p9. 'The games minds play', *The Sunday Times Business News*.

91 After Shulamith Firestone, a classic synthesis is Daly, M. (1978) 1979. *Gyn/ecology: the metaethics of radical feminism*. London: The Women's Press.

92 Oakley, A. 2002. p127. *Gender on planet earth*. Cambridge: Polity Press.

93 See for example University of Liverpool. 1 July 2005. 'Health professionals believe gender bias limits women's progression in NHS', press release, on www.liv.ac.uk/newsroom/press_releases/2005/07/nhs_genderbias1.htm

94 Oakley, A. 2002. p.51. 'A brief history of gender', in Oakley, A. and Mitchell, J. eds. *Who's afraid of feminism? Seeing through the backlash*. London: Hamish Hamilton.

95 Randall, T. 1991. 'AMA joint commission to urge physicians to become part of solution to family violence epidemic', *Journal of the American Medical Association*. 266: 2524, cited in Mitchell, J. and Goody, J. 1997. p247. 'Feminism, fatherhood and the family in Britain', in Oakley, A. and Mitchell, J. eds. *Who's afraid of feminism? Seeing through the backlash*. London: Hamish Hamilton.

96 Gray, J. *Men are from Mars, women are from Venus: a practical guide for improving communication and getting what you want in your relationships*. London: HarperCollins, 1992. See Gray's website on www.marsvenus.com

5.1 The climate for naturalism in the 1990s

Remnants of the old socialist feminists had premonitions that 'difference' feminism, as distinguished from 'equality feminism', had gone too far in its view of men.⁹⁷ But with the collapse of the Eastern Bloc, 1989-1991, discourse about alternatives to capitalism and male behaviour under capitalism collapsed too.

The defects of men now looked more inherent, and less culturally determined, than ever before. Only now could the task of 'explaining socialist gender divisions' in the deceased Eastern Bloc, as Swansea sociologist Nancy Charles put it, be undertaken: and then it was discovered, all too predictably and rather late in the day, that 'gender divisions of labour in capitalist and socialist societies share many similarities'.⁹⁸ In years that Francis Fukuyama notoriously mistook for the end of history, men's characteristics were eternalised even more than they had been during three decades of feminism.

With the end of the Cold War the old political categories of left and right disappeared. Not surprisingly, feminist social ambitions contracted. Shirley Conran praised laziness. As she now put it in *Down with superwoman*, her doorstopper of 1990 and a major revision of her old *Superwoman*:

'A real achiever isn't a woman who can do anything, but a woman who avoids doing too much. She knows her own limitations and sticks happily within them'.⁹⁹

By the end of the 1990s, 'parenting' rather than politics was an issue for millions. Moreover, parenting was a biological affair, too. In 1998, the US pediatrician Meredith Small published a popular study of how different nations and ethnic groups around the world brought up their children. She concluded:

'Parenting is, in fact, supposed to be a lot of work and a major drain on the adult organism because that's the way the human animal is designed.'¹⁰⁰

Parenting, something that had for centuries been taken for granted, was now seen as a job nature had designed to deplete the body's biological resources.

By the end of the 1990s, too, neurology was also booming.

In the 1960s, the Nobel laureate Roger Sperry and others had discovered, from studies of epileptics, that each hemisphere in the brain handles different functions: the left has most of the control of language and speech, while the right has the lead in vision and motor skills. In 1979, the Californian art teacher Betty Edwards began to make a pretty indelible impression on teachers of illustration and design – as well as, we may surmise, not a few computer game designers and animators – with her *Drawing on the right side of the brain*. That book sold 2.5m copies and was translated into 13 languages.¹⁰¹ Only since the 1990s, however, have certain scientists mobilised to suggest that women's brains make their behaviour fundamentally dissimilar to that of men.

In 1990 America's Society for Neuroscience convinced the US Congress to cast the 1990s as the Decade of the Brain. In 1991, in Britain, Anne Moir and David Jessel published *Brainsex: the real difference between men and women*. The book came out 14 years before *Brainsex*, the first in three hour-long BBC1 documentaries shown in July 2005 and titled *The secrets of the sexes*.¹⁰² In almost every respect, however, the 'new' *Brainsex* duplicated Anne and Bill Moir's popular Channel 4 series, *Why men don't iron*, which was broadcast in 1998.¹⁰³

97 See for example Segal, L. 1987. *Is the future female? Troubled thoughts on contemporary feminism*. London: Virago.

98 Charles, N. 1993. p155. *Gender division and social change*. Hemel Hempstead: Harvester Wheatsheaf.

99 Conran, S. 1990. p4. *Down with superwoman*. London: Sidgwick and Jackson.

100 Small, M. F. 1998. p228. *Our babies, ourselves: how biology and culture shape the way we parent*. New York: Anchor Books.

101 Edwards, B. 1979. *Drawing on the right side of the brain: a course in enhancing creativity and artistic confidence*. New York: J. P. Tarcher.

102 Moir, A. and Jessel, D. 1991. *Brainsex: the real difference between men and women*. London: Mandarin Press.

103 Moir, A. and Moir, B. 1998. *Why men don't iron: the fascinating and unalterable differences between men and women*. London: HarperCollins.

5.2 Testosterone on TV: the *Why men don't iron* approach to neurology

With an authoritatively scientific-sounding commentary done by the actor Tim Pigott-Smith, *Why men don't iron* did nod to the social side of human development. But otherwise it was emphatic: men were fond of *taking risks* because of their brain wiring and brain chemistry. Similarly, brains were the reason why women were, on average, weaker than men in the solution of problems in *spatial perception and object manipulation*. Women's brains used both useful visual processes and redundant verbal ones to solve such problems. Men used just visual processes, and were thus just better equipped by nature to deal with visual problems. Meanwhile biology played a role in explaining why, on average, men found *language*, along with *social skills* – and what *Why men don't iron* called 'mothering' – hard to learn.¹⁰⁴ Yet while parental dressing, holding and talking to newly born children differed by the sex of the parent, that itself had little moment. Even when they were fresh out of the womb, girl babies were keener than boys on faces (boys preferred objects), and were more sensitive to pain. In this sense, nature *predated* social influences.

Why men don't iron scrutinised the home of Lionel and Amanda Smith, a middle class family in which toy guns and swords were forbidden, but in which dolls for girls, and similarly stereotyped toys for boys, won out all the same. It did a play-at-school experiment with young boys that showed they had short attention-spans, were physically active, competitive and prone to issue commands to each other – and that little girls preferred paints, books and cooperation. University of East London psychology professor Ernie Govier argued that differences between the sexes in *aggression* and its close cousin, *competition*, were 'heavily biologically influenced'.¹⁰⁵

In a special test of rivalry in adult game-playing, done with basketball teams, *Why men don't iron* arranged for Alan Booth at Pennsylvania State University to measure *hormones* in human saliva 24 hrs before, just before and just after games. Booth found that men experienced a 25 per cent increase just before the game, but that there was no anticipatory rise in women teams. Male winners' *testosterone* continued to go up; male losers dropped by 30 per cent. By contrast, women losers could actually have higher levels of testosterone after a game than before it, and the mood of women losers could also be good... if they had played well.

Don't iron was made six years before *Million dollar baby*, Clint Eastwood's Oscar-winning account of boxing and the female sex. Yet if scientists, the programme suggested, didn't know what testosterone does in the brain, they did know that it improves concentration, coordination, elation and aggression – and more in men than in women. After all, while men's testosterone came mainly from testes, women's came mainly from adrenal glands, which also produced the stress hormone, cortisol. For women, therefore, any drive to compete would naturally also be linked to anxiety. Result: all but one of the world's top 100 players of chess, who also reported surges of testosterone around matches, were men. Bad news, this, for women gamers!

The Moirs made much of work done by University of California at Los Angeles neuroendocrinologist and professor Roger Gorski. His landmark studies in the 1970s among baby rats had shown that exposure to testosterone and similar hormones gave rise to male behaviour – fucking, genital licking, male learning strategies and, of course, aggression. Conversely, the absence of testosterone gave rise to female kinds of behaviour. In rats, *females subjected to male hormones had a 'male' brain*. Hormones were mainly responsible for brain structure and behaviour in rats; and whatever the differences between rats and human beings, both, Gorski told the Moirs' television viewers, were *mammals*, so 'we assume it [the theory that sex difference originates in hormones] applies to the human being'.

Rats neither draw on the right side of the brain, nor do they talk or write. Yet, warming to its hormonal thesis, *Why men don't iron* went on to chronicle the story of Melissa Cull, one of quite a number of female sufferers of congenital adrenal hyperplasia (CAH). As a female foetus, Cull had been exposed to male-typical levels of hormones. As a child, she had preferred Hasbro's Action Man toy to dolls. She had extraordinary spatial skills. At school, she revelled in design. In adulthood, her hobby was model railways; her job, that of... a quality engineer.

¹⁰⁴ Using a functional magnetic resonance scanner at Yale University, Bennett Shaywitz and Sally Shaywitz, MDs, showed that, for language, men activated the left side of the brain, but women activated both. See Shaywitz, B. et al. 16 February 1995. 'Sex differences in the functional organization of the brain for language'. *Nature*. 373: pp607-609.

¹⁰⁵ For a list of Govier's latest publications, go to [www.uel.ac.uk/psychology/research/index.htm#Ernie Govier](http://www.uel.ac.uk/psychology/research/index.htm#Ernie_Govier).

Pre-natal levels of testosterone (PNT), then, could make girls gain a boyish competence in spatial matters. And that, *Why men don't iron* suggested, was the identifiable exception to a general rule. In occupational segregation, men worked with machines, and women worked in nursing and childcare because of differences, between the sexes, in the way the brain works.

It was only PNT that had turned a woman named Carolina Bartram into a competent adult construction engineer, and Simon Green, a rugby player, into a male nurse. Only PNT could account for why Simon, who had left school with fewer qualifications than Carolina, could generate 34 synonyms from six words in three minutes – double her score.

Govier confirmed it. The *sex of your brain* is what matters when you come to choose the type of job you do. Brain organisation played an important part in female job selection. The continuing absence of women from UK engineering was, *Why men don't iron* said, the fault of the structure, hormones, and neurological rewards surrounding the brain.

So: *Why men don't iron* in 1998 and *The secrets of the sexes* in 2005 have had strong implications for the answer to Q2. Occupational segregation in computer games, as in the rest of IT, would, in the perspective of these two programmes, have nothing to do with discrimination, and everything to do with biology (Q1). In other words:

- if you are a normal woman or also a male nurse, but not if you are that odd fish, a female architect, you're on average likely to do well in programming those few computer games involving *language* – such as *Wheel of Fortune*, *Writer's Block* and *BookWorm Deluxe*
- since, on average, women are neurologically disadvantaged from men in visual problems, their brains won't, on average, be adept at programming those many computer games that involve *spatial perception and manipulation* – games such as *Half-life*, *Halo* and *Unreal*
- women in the games industry may *fail to get promoted above the 'glass ceiling'* because, biologically, they *don't have enough of the spirit of aggression and competition* to get ahead.

From 2000 onward, there has been a veritable publishing bonanza around neurology.¹⁰⁶ However, some of the hearing that the *Why men don't iron* approach gained reflected the earlier rise of another field: *evolutionary psychology*.

EP is separate from, yet often invoked alongside – and popularly confused with – neurology. But there is a difference. In EP, experts try to apply the insights of evolutionary *biology* to guide research not on the *chemistry and electrical functioning of the brain*, but on the practical behaviour of the *mind* – the mind of men, and the mind of women. Moreover while neurology invokes the brain mechanisms of the present to explain behaviour, EP tries to explain behaviour through the evolution of the distant past.

¹⁰⁶ The George Washington University neuropsychiatrist Richard Restak has been especially prolific. His *Secret life of the brain* was the subject of a PBS television series in the US: Restak, R. 2001. *The secret life of the brain*. Washington, DC: National Academies Press. See also Restak, R. 2001. *Mozart's brain and the fighter pilot: unleashing your brain's potential*. New York: Harmony Books; Restak, R. 2003. *The new brain: how the modern age is rewiring your mind*. New York: Rodale Books; Restak, R. 2004. *Poe's heart and the mountain climber: explorations into our anxious brains and culture*. New York: Harmony Books. The new brain is an alarmist account of the effects of computer games, among other stimuli.

5.3 The ascent of evolutionary psychology (EP)

Australian training consultants Allan and Barbara Pease had a worldwide hit in 1999 with *Why men don't listen and women can't read maps: how we're different and what to do about it*. There they explained:

'HOW WE GOT THIS WAY

'Once upon a time, a long, long time ago men and women lived happily together and worked in harmony.... Things were simple [sic]: he was the **lunch-chaser**, she was the **nest-defender**.'¹⁰⁷

This tabloid kind of EP has the upper hand today. How did such a situation come about?

In 1972, in one of three papers that have him a pioneering role in the nascent field of evolutionary biology, a Harvard graduate student, Robert Trivers, suggested that, in mammals, the sex that devotes the larger amount of resources to offspring – 'parental investment' in all aspects of reproduction and care – will evolve to be more discriminating, in choice of partner ('sexual selection'), than the sex that devotes fewer resources to offspring. The latter sex, by contrast, will evolve to be less choosy, and thus, among its own members, more prone to acts of 'intrasexual' *competition* for access to members of the opposite sex.¹⁰⁸

Two decades on from Trivers, in 1992, Jerome H Barkow, professor of psychology and anthropology at Dalhousie university, Halifax, Canada, along with Leda Cosmides and John Tooby of the University of California, Santa Barbara, published a 650-page collection of 18 papers which, often drawing on Trivers' 1972 paper, convinced many that EP had arrived.¹⁰⁹ *The adapted mind* did not just feature applications of Trivers' theory to mate selection (David Buss), sexual attraction, the treatment of wives as property, or the treatment of children who are poorly. It turned also to matters such as the differential spatial abilities between the sexes the enthusiasm boys have for rough and tumble play.

For our purposes, the main claim registered by *The adapted mind* was that the different psychological dispositions of the human sexes today, such as they are, can be explained by evolution that occurred millennia ago, among *hunter-gatherer societies*. In the days of those societies, differential parental investment in offspring, and the different roles this conferred on men and women – man the hunter of food, woman its gatherer – made the mind of women evolve pretty differently from that of man. Differences today can be explained by the evolutionary adaptations of the past.

The adapted mind was a critical success; but it was a book by one of its contributors, Stephen Pinker, an expert in language acquisition in children, mental representation and computational theory, that five years later won a mass audience for EP. In *How the mind works*, Pinker wrote:

'In all foraging societies, presumably including our ancestors', hunting is overwhelmingly a male activity. Women are encumbered with children, which makes hunting inconvenient, and men are bigger and more adept at killing because of their evolutionary history of killing each other.'¹¹⁰

'Until recently', Pinker wrote, 'men hunted and women gathered', and 'these conditions persisted through ninety-nine per cent of our evolutionary history'.¹¹¹

In the perspective of EP, then, sex differences around computer games reflect with the differing parental investments that attended hunter-gatherer societies. The answer to Q1 is articulated not in terms of biology of neural networks, but in terms of the biology of evolution. In this perspective, then, Japanese girls would have had their craze for Bandai's nurturing game *Tamagotchi*, launched in 1996, because their female ancestors were too busy reproducing and raising children to bother about killing animals. Similarly, boys

107 Pease, A. and Pease, B. 1999. pp12-13. *Why men don't listen and women can't read maps: how we're different and what to do about it*. Mona Vale, NSW: Pease Training International. See also Pease, A. and Pease, B. 2003. *Why men can only do one thing at a time and women never stop talking*. London: Orion Publishing Group; Pease, A. and Pease, B. 2004. *The little book of men and women*. London: Orion Publishing Group.

108 Trivers, R. L. 'Parental investment and sexual selection', in B. Campbell (Ed.), *Sexual selection and the descent of man: 1871-1971*. Chicago: Aldine.

109 Barkow, J. H., Cosmides, L. and Tooby, J. (eds) 1992. *The adapted mind: evolutionary psychology and the generation of culture*. Oxford: Oxford University Press.

110 Pinker, S. (1997) 1999. p197. *How the mind works*. Harmondsworth: Penguin Books.

111 Pinker, S. (1997) 1999. pp461, 468. *How the mind works*. Harmondsworth: Penguin Books.

would like *Grand Theft Auto* (launched as a 2D game in 1998) because their forebears' weak investment in reproduction and care meant that, as men, they *could* bother to hunt, kill and compete with each other.

Opening a chapter on 'hotheads', Pinker described the fate of the Scottish town of Dunblane on 13 March 1996, when Thomas Hamilton killed 16 schoolchildren before turning a gun on himself. Pinker explained:

'Mental life often feels like a parliament within. Thoughts and feelings vie for control as if each were an agent with strategies for taking over the whole person, you. Might our mental agents use paradoxical tactics with one another – handcuffs, doomsday machines, unbreakable contracts with third parties?... The agents are bound by an entente that benefits the whole person over a lifetime, but over the short term the agents may outwit one another with devious tactics. 'Self-control is unmistakably a tactical battle between parts of the mind'.¹¹²

In this framework, the Columbine massacre would not be the result of computer games, but rather of a particular, faulty instance, in practice, of what Pinker calls *the computational theory of mind*. 'The brain', Pinker argued, 'processes information, and thinking is a kind of computation'. On top of that, Pinker, along with many other advocates of EP, felt that the mind was also marked by *modularity*. The mind is organised

'into modules or mental organs, each with a specialized design that makes it an expert in one arena of interaction with the world. The modules' basic logic is specified by our genetic program. Their operation was shaped by natural selection to solve the problems of the hunting and gathering life.'¹¹³

Now, one can be an expert in EP without knowing any neurology, and without believing in either the computational theory of mind or in modularity – though the three tend to go together. Still, Pinker was clear: males were always more likely to commit Dunblane-style massacres, not females. 'Maleness', Pinker observed in the manner of Ann Oakley 25 years before, 'is by far the biggest risk factor for violence'.¹¹⁴ Because 'a woman's reproductive success is rarely limited by the number of available males', females never evolved an appetite for violence – 'to band together and raid neighbouring villages for husbands'. Indeed, 'for most of our evolutionary history', Pinker wrote, 'war is a game [sic] that benefits men'.¹¹⁵

In sum, *Pinker's would answer Q1 on the side of biology*, not culture.¹¹⁶ If only a relative few girls and women play Sony's hugely popular action- and violence-based *Spider-Man* games, the reason would be *evolution*.

A couple of years after Pinker's bestseller, David Buss, professor of psychology at the University of Texas, brought out what is now a standard textbook on EP.¹¹⁷ As an expert on mating, Buss upheld the contemporary significance of ancient polygyny – having more than one female mate at the same time. One way or another, polygyny led to *male aggression and violence*:

'Modern humans have inherited the psychological mechanisms that led to our ancestors' success. This does *not* imply that men have a conscious or an unconscious desire to increase their reproductive success. Nor does it imply that men have an "aggression instinct" in the sense of some pent-up energy that must be released. Rather, men have inherited from their ancestors psychological mechanisms sensitive to contexts which aggression probabilistically leads to the successful solution of a particular adaptive problem.... Males are more often the perpetrators of violence because they are the products of a long history of mild but sustained effective polygyny characterized by risky strategies of intrasexual competition for access to the high-investing sex.'¹¹⁸

In these careful nuances, EP's broad *general theses* are applied to sexual difference.

112 Pinker, S. (1997) 1999. p419. *How the mind works*. Harmondsworth: Penguin Books.

113 Pinker, S. (1997) 1999. p21. *How the mind works*. Harmondsworth: Penguin Books.

114 Pinker, S. (1997) 1999. p497. *How the mind works*. Harmondsworth: Penguin Books.

115 Pinker, S. (1997) 1999. p515. *How the mind works*. Harmondsworth: Penguin Books.

116 See also Pinker, S. 2002. *The blank slate: the modern denial of human nature*. London: Allen Lane.

117 Buss, D. 1999. *Evolutionary psychology: the new science of the mind*. London: Allyn and Bacon.

118 Buss, D. 1999. pp286-7 *Evolutionary psychology: the new science of the mind*. London: Allyn and Bacon.

5.4 Biology and sex differences in cognitive skills

We now turn to a part of EP that's more *specific*, and more relevant to our subject: differences in how women and men respond to *cognitive tasks*. In 1999 a world expert in those differences, Canada's Doreen Kimura, published a fascinating overview of the twentieth-century experimental evidence for them, much of which she had accumulated herself. In fact, *Sex and cognition* drew mainly on EP, but also on neurology – and even on anatomy.¹¹⁹ The tables below summarise some of her main points:

Table 1 Sex differences in motor and spatial skills: their possible origins

Cognitive skill	Ability to...	Sex difference in the performance of tests	Explanation suggested or cited by Kimura
<i>MOTOR</i>			
Targeting	Accurately hit a target or intercept a projectile	From the age of 3-4, male ability is more than one standard deviation (SD) ahead of female ability	Men are coordinated for large amplitude movements, or those directed at external space. Early hominid men were selected for accurate targeting
Distal (remote) musculature	Coordinate or precisely control fingers + thumbs ('fine motor skills'); copy hand postures	Women superior (but no advantage in repeated finger-thumb movements)	Women are coordinated for small amplitude movements, or those directed at personal space
<i>SPATIAL</i>			
Spatial orientation	Capacity to recognise a scene from different angles or viewpoints, which is necessary for mental – 'imaginal' – rotation of an object	Male ability is more than one SD ahead of female ability, and rises with the difficulty of the task. From age three to 80+, male spatial rotation is superior across varied cultures	Early hominid male hunters were selected for accurate long-distance navigation; late hominid male toolmakers needed imaginal rotation to achieve symmetry in metal or stone tools (errors in female-made baskets could more easily be undone)
Spatial location memory	Imagine what happen when parts of an object are folded or put together	Women sometimes excel	Early hominid women gatherers were selected for perceptual discrimination, eg the marks of intruders, predators and vermin in the home
Traversing a route	Perform imaginal rotation (among other things)	Men prefer use of distance or cardinal directions (North, South...). With the exception of Eskimo women, women prefer landmarks	Ancestral females would find outdoor objects only over short distances, in which fixed landmarks would have been more precise than general cognitive maps. Bleak featureless tundra made Eskimo women develop alternative spatial skills
Disembedding	Find a simple figure hidden in a more complex one	Modest, in favour of men – except in the case of Eskimos	Featureless tundra made Eskimo women gain alternative spatial skills
Field independence (aka spatial perception)	Determine the real-world vertical, often in the face of distractions (eg tilted frames, or jars of water)	Modest, in favour of men, but superiority in tilted frame test may not persist into old age	

¹¹⁹ Kimura, D. *Sex and cognition* (1999) 2000. Massachusetts: The Massachusetts University Press. Kimura is now visiting professor of psychology at Simon Fraser University, Burnaby, British Columbia.

Table 2 Sex differences in mathematical and perceptual skills: their possible origins

Cognitive skill	Ability to...	Sex difference in the performance of tests	Explanation suggested or cited by Kimura
<i>MATHEMATICAL</i>			
Mathematical aptitude	Scholastic Aptitude Test	Males run half a standard deviation ahead of females	
Mathematical aptitude	School grades	If anything females run ahead. Females are as good in advanced maths	
Mathematical reasoning		Males better	
Computation		Females are better	
Translation of verbally stated algebraic problems into a numerical framework		Males are better	
<i>PERCEPTUAL</i>			
Pure tone threshold	Hear the full range of sounds humans can hear, but especially above 4000 Hz	Women are better than men	
Pitch discrimination	Distinguish between two tones of differing frequencies	None	
Touch	Report presence of thin filaments on the skin	Females are slightly more sensitive than males	
Visual field	See a long way out to the periphery while gazing at a central point	Females have slightly larger fields than males	
Acuity	See small objects within a field	Males are slightly more sensitive than males	
Critical flicker fusion threshold	Distinguish between on and off phases of a light's illumination	Males are slightly can detect faster alternation rates	
Susceptibility to the Müller-Lyer illusion	Be deceived that the lengths of open arrows >---< are longer than those of closed ones ←→	Males record a decline in their susceptibility over several trials	
Perception of depth	Fuse the differing image from each eye to provide information about an object's position in space	Women give slightly more accurate or faster reports of the images presented	Better use of binocular disparity evolved alongside fine motor control
Perceptual speed	Make comparisons fast among a number of designs (letters, numbers, pictures)	Women are usually superior	
Social perception	Be sensitive to cues such as body movement, facial expression, tone of voice	Females are strikingly better on body movement and facial expression	Gave women ability to avoid conflict and injury, and to read signs of children in distress

Table 3 Sex differences in verbal abilities: their possible origins

Cognitive skill	Ability to...	Sex difference in the performance of tests	Explanation suggested or cited by Kimura
Articulation	Speak at an earlier age	Girls ahead of boys	
Vocabulary	Have a large working one	Girls ahead of boys	
Grammatical speech		Girls ahead of boys and stay that way in adolescence and adulthood	
Spelling		Girls ahead of boys and stay that way in adolescence and adulthood	
Reading		Girls ahead of boys	
Fluency	In the psychologist's sense: generate words with particular limitations – containing particular letters, or, in the case of 'ideational' fluency, belonging to a particular class of objects In the colloquial sense: produce coherent sentences	Girls ahead of boys and probably stay that way in adolescence and adulthood. Women ahead on ideational fluency in colours No evidence that women excel in this skill	
Access colour categories	Name a series of colour patches or circles	Girls faster than boys throughout elementary and early high school	
Verbal half of the Wechsler Adult Intelligence Scale	Verbalise responses to social conundrums; do arithmetic; repeat back lots of digits correctly; saying how to named things are alike; defining words	Men have a small advantage	
Verbal memory	Recall of unrelated words or digits, or of the content of a paragraph	Women consistently better until well into their eighties: 'one of the strongest sex differences favouring women' ¹²⁰	Women's greater use than men of landmarks for navigating put heavier demands on their verbal memory than did males' geometric strategies. Alternatively, being able to verbalise a complex sequence of tasks in cooking, sewing or basket-making might have been adaptive

¹²⁰ Kimura, D. *Sex and cognition* p101 (1999) 2000. Massachusetts: The Massachusetts University Press.

Table 4 Hormonal mechanisms

Hormonal situation, by sex	Improvement of ability relative to other members of the same sex; by type of ability	Explanation suggested or cited by Kimura
Girls with congenital adrenal hyperplasia (CAH)	To perform spatial tests	
Adult women with high levels of testosterone	To perform spatial tests	
Adult men with low levels of testosterone	To perform spatial tests	
Testosterone given to men in their sixties and seventies	To build a set of blocks to a design pictured on a card (involves both spatial and motor skills)	Hormone therapy raised testosterone levels into the optimal, low-normal male range
Preovulatory peak of oestrogen levels among women	To perform fine motor and verbal fluency tests (though improvements are reversed in spatial tests, which are done better in the low-estrogen or menstrual phase); to perform different hand postures in quick succession	
In Spring and Autumn, low and high levels of testosterone, respectively, among males in the northern hemisphere	Spring: to perform spatial tests Autumn: to generate births in the summer	Spring: more successful hunting when prey was scarce, or finding better campsites when it was time to move Autumn: shelter was less critical and food more plentiful

Table 5 Brain mechanisms in normal brains

Feature of the brain	Sex difference in brain structure	Difference in ability suggested or cited by Kimura
Size, weight	Men's are larger and heavier by 10-15 per cent	Findings do not support the idea that brain size relates to superior spatial skills ¹²¹
Hypothalamus	The third of the four interstitial nuclei of the anterior hypothalamus (INAH), along with the size of parts of INAH, are larger among men than among women, and larger among heterosexual men than among homosexual men	
Hippocampal complex	None	None. Region serves general, not spatial memory
Interhemispheric connections – commissural systems	Posterior of the corpus callosum, the main commissural system, is probably slightly larger in women. Cross-section of a smaller commissural system, the anterior commissure, is larger among women and homosexual men than among heterosexual men	Among women, cognitive functions are less strictly dependent on just the left hemisphere (critical for speaking and most other language skills), or on just the right hemisphere (plays a larger role in certain perceptual and spatial abilities). Alternatively, hemispheric 'lateralisation' is enhanced, because stronger connections make it easier for one hemisphere to inhibit the activity of the other
Hemispheric asymmetry – structural; or in the size, or number of branches, of parts of the neurons; or in the distribution of neurotransmitters; or in fiber connections between neurocognitive systems	Among right-handed people, surface area of the planum parietale – part of the parietal lobe at the posterior end of the Sylvian fissure – is larger on the right, especially among men. Among left-handers, surface area of the planum parietale on the right is still larger in women, while in men the planum parietale is larger on the left	Size or rightward asymmetry of planum parietale improves spatial abilities for right-handed men over right-handed women, but for left-handed women over left-handed men

¹²¹ Richard Lynn has controversially estimated that, in IQ, men have an advantage over women of four points. Kimura, D. *Sex and cognition*, p129 (1999) 2000. Massachusetts: The Massachusetts University Press.

Table 6 Brain mechanisms in damaged brains

Cognitive deficit	Sex difference in the performance of tests	Brain mechanism suggested or cited by Kimura
Aphasia, a severe speech disorder – the inability to do things like count, say the days of the week, name objects or follow simple instructions	Afflicts women less than men after damage to the left hemisphere	Women have a more bilateral organisation of speech than men
In verbal fluency – in the psychologist's sense, and as based on the anterior part of the hemisphere	Once their left hemisphere is damaged, women do not suffer the extreme decline in ability that men do	Women have a more bilateral organisation of speech than men
In verbal memory, and in imaginal rotation	Whichever hemisphere is damaged, women do better than men in verbal memory and worse in imaginal rotation. Both sexes suffer an equal amount extra from damage to one hemisphere: damage to the left hemisphere makes for a big drop in verbal memory, while damage to the right, a big deficit in imaginal rotation	Verbal memory is left-lateralised, and imaginal rotation right-lateralised, to the same degree in both sexes

Table 7 Brain hemispheres, ears, and eyes

Feature of the brain	Sex difference in brains	Brain mechanism suggested or cited by Kimura
Right ear has better connections with left hemisphere, which handles speech, than the left ear. Left ear is better connected with the right hemisphere, which handles melodic patterns, than the right ear	Perceptual asymmetries are larger in men than in women	Hemispheric function may not be as sharply differentiated in women as in men. Alternatively, better interhemispheric connections among women, even if their hemispheres are as asymmetric as men's, allow verbal information to be more easily transmitted between hemispheres among women than among men
Left visual field sends images to the right half of each retina, which relays information to the right hemisphere, which is best for the accurate location of a dot in space (left hemisphere best for words and letters)	Perceptual asymmetries are larger in men than in women	Hemispheric function may not be as sharply differentiated in women as in men. Alternatively, better interhemispheric connections among women, even if their hemispheres are as asymmetric as men's, allow visual information to be more easily transmitted between hemispheres among women than among men

We have summed up Kimura's own monumental summary at some length for two reasons. First, from targeting (men are much better than women at darts, apparently) through to verbal memory (women excel), Kimura's reports of sex differences in the performing of tests of cognitive skill *may* have lessons for how to make computer games, as a product, more attractive to women. After all, if the answer to Q1 is biology, the forces of EP, hormones and neurology, as adduced by Kimura, provide for deep-seated and permanent differences in the way that women and men approach computer games.

We say that the experimental evidence marshaled by Kimura *may* have lessons for games because, as she rightly points out in her discussion of the relevance of performance in tests, *the more 'mixed' an activity, the less likely it is that any one psychometric test will predict performance on it*. By 'mixed', Kimura means this:

'An everyday motor activity, such as driving a car, combines both precise intrapersonal activities (changing gears, using the steering wheel) with extrapersonal activities (judging the distance and speed of other vehicles). The more 'mixed' an activity, the less likely it is that any one psychometric test will predict performance on it. Even occupations that are quite demanding of spatial ability such as some branches of engineering or architecture, also require other general skills, such as organizing one's sequence of behaviours, setting priorities, collating information... The likelihood of success in an occupation or profession is determined by performance on relatively pure psychometric tests. So we should not interpret even large and consistent sex differences on any one test as indicating that only men can be rocket scientists, or only women can be homemakers.'¹²²

These remarks, we might note in passing, have much to teach us about the answers to Q2, on occupational segregation. But returning to Q1, the main point is that *games today demand that users mix different skills – motor, spatial, mathematical, perceptual, verbal – simultaneously*. So *women's superiority in the skill measured by one test shouldn't give an automatic green light for games that are partly based on that skill*. Women's successes in tests of social perception, say, don't necessarily imply that women will revel more than men in games that incorporate face-to-face videoconferencing. Things are not so simple.

Anyway, most of the tests covered by *Sex and cognition* are time limited. That is, they contain

'too many items for most people to complete in the time allowed. Unquestionably, if unlimited time were given, men's and women's scores on some tasks would approach or equal each other.'¹²³

While tests are all to neurology on TV, Kimura at least has the fairness to point out their defects.

The second reason for the extensive nature of our tables is to show the extent of *the gaps in the evidence and explanations* among them. This underlines what Kimura has to admit – that, *in case after case, scientific explanation of sexual differences in tested cognitive abilities just isn't yet available, or has barely begun*.

Since Kimura's book, new techniques of neurological enquiry have filled in more gaps in human knowledge about the brain. But with the new techniques, explanations are thinner on the ground than descriptions. In fact, that's the main thing that emerges from our tables – how *descriptions of cognitive, hormonal and neurological differences between men and women by far outweigh explanations of those differences*. To put it another way: the *correlation* of different kinds of sexual differences is by no means the same as a *causal account* of those differences. Kimura herself admirably distinguishes between correlation and causation. As she hints out, the correlation of abilities in one test to those in another is all very well; but then again, 'most tests of cognitive ability show some degree of relation to all the other tests'.¹²⁴

What about the persuasive power of the explanations that Kimura does come up with or cite? Before judging the claims of neurology and EP, let's just conclude our outline of naturalistic accounts by looking at three contemporary portraits of women: as *aggressors, job choosers, and empathisers*.

¹²² Kimura, D. *Sex and cognition*, p182 (1999) 2000. Massachusetts: The Massachusetts University Press.

¹²³ Kimura, D. *Sex and cognition*, p183 (1999) 2000. Massachusetts: The Massachusetts University Press.

¹²⁴ Kimura, D. *Sex and cognition*, p199 (1999) 2000. Massachusetts: The Massachusetts University Press. After an extensive discussion of left and right brain, Kimura also concludes 'There seems to be no simple or systematic relation between whether a particular function is more unilaterally or bilaterally organised, and whether it is better in men or women'. Op cit, p160.

5.5 Women as canny aggressors, usefully inhibited by fear based on serotonin

Since the beginning of a new century, evolutionary psychology has begun to acquire the status of common sense. True, a bit of market research by human resources consultants among more than 100 UK captains of industry – including six women! – recently revealed, in constructionist style, that no fewer than 70 per cent were prefects when they were at school.¹²⁵ However, the more typical headline nowadays is ‘Girls can’t read maps, but we know where to invest’.¹²⁶ In 2002, two heavyweight EP tomes came out that were entirely devoted to sex difference. From the University of Durham, Anne Campbell, a reader in psychology and author of a number of major studies of violence among girls, brought out *A mind of her own: the evolutionary psychology of women*.¹²⁷ Meanwhile, from Wayne State University, Detroit, law professor Kingsley Browne used EP to explain women’s encounter with the glass ceiling, occupational segregation and unequal pay. His book was titled *Biology at work: rethinking sexual equality*.¹²⁸

Both books begin with confident, scathing attacks on cultural determinists. Both accuse opponents of holding to the Standard Social Science Model (SSSM), a charge that Cosmides and Tooby had made at some length a full 10 years before. Both single out one feminist professor, Anne Fausto-Sterling of Brown University, Providence, Rhode Island, for repeated attack, despite the fact that this biologist’s repudiation of the role of biology in sex difference had also been published a full 10 years before. Both, also, direct much of their fire to their opponents’ weakest arguments. They target the more absurd hypotheses of social constructionism – for instance, that male and female do not exist as biological categories at all – with relentless regularity.

Drawing on years of empirical research with young British girls, Campbell’s main point is that women are prone to *competition and aggression*, after all, but that here, as everywhere else, EP provides an elegant explanation of why. Women ‘have been parodied as the gentle sex’, she argues.¹²⁹ Way back when, women had just as much to gain from competition as men; but *the crucial dependency of an infant on its mother meant that female competition had to take low-key and indirect forms*.¹³⁰ While ancient men competed because they were, reproductively speaking, *less* important than females – ‘the majority of men are, biologically speaking, dispensable but when the number of women drops too far, our future looks bleak’ – things stood differently with ancient women.¹³¹ Men were risk-takers, because in terms of evolution and the statistics of reproduction, they were justified in having a cavalier attitude to their own lives. Women were also competitive, but natural selection had worked on them to raise their inhibitions about risking their own life:¹³²

‘A female should not risk death for a copulation as a male might but she should be especially competitive about the survival of any infant once born because she is competing in a game where the survival of just one extra infant can make an enormous difference...

‘There is nothing in evolutionary theory that decrees that females should be caring and cooperative to one another. Female nature depends upon the winning strategy in times long past.’¹³³

Using the observations of Zairean chimpanzees made by the primatologist Jane Goodall, Campbell argues that a mother might kill another mother’s children:

‘If lethal aggression increased female reproductive success, it would be retained. And it had a pretty good chance of being selected.’¹³⁴

However, aggression like that was moderated by ‘the evolutionary requirement for the parent that rears the child to avoid dying early’.¹³⁵

125 MORI. January 2005. *The leading edge: leadership potential from the classroom to the boardroom*. London: Development Dimensions International, and on www.ddiworld.com/pdf/ddi_uk_L_Edge_Research_Jan.pdf

126 Webb, M. S. 3 July 2005. p7. ‘Girls can’t read maps, but we know where to invest’, *The Sunday Times Money*.

127 Campbell, A. 2002. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

128 Browne, K.R. 2002. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

129 Campbell, A. 2002. p310 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

130 Campbell, A. 2002. pp64 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

131 Campbell, A. 2002. pp62, 64 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

132 Campbell, A. 2002. pp 63, 71, 100 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

133 Campbell, A. 2002. p73 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

134 Campbell, A. 2002. p73 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

135 Campbell, A. 2002. p73 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

The principal remaining element in Campbell's account lies in how she explains women's tendency to refrain from aggression. Her argument runs in two phases. First, she maintains that *fear* inhibits women:

'sex differences in risk taking might result from differences in fear. All that is required is for females' fear parameter to rise faster than males' so that it overtakes the approach tendency [the desire to seek sensation] at an objectively less risky point.... Men's sensation seeking may be a result of the fact that fear rises more slowly in relation to the pleasurable arousal associated with risk.'¹³⁶

After this, Campbell contends that *serotonin* is more or less the mechanism that inhibits aggression on behalf of fear. While men's *weak* levels of serotonin make them relatively relaxed about aggression, women's significantly *higher* pre-synaptic serotonin activity than men – especially in the frontal cortex – may make women better than men at

- resisting temptation
- delaying gratification
- tests of motor control where one must resist complying with adult orders (as in the game 'Simon says')
- concealing emotions
- controlling emotional arousal in the case of electric shocks, or arguments that verge on anger
- not crossing the line between verbal and physical aggression.¹³⁷

No matter how one assesses them, Campbell's extensive researches contain vital implications for computer games and sex difference. The evolutionary psychology and neurology she adduces suggest that *women gamers can naturally be quite aggressive in their conduct, but that they can also play a canny kind of game, too*. More than boys, girls tend to comply with an adult's request not to touch an attractive toy when the adult leaves the room. Girls wait longer for a better reward. They control motor reactions and emotions better, and can deceive people better. They can, for example, express delight when they lose a competitive game. When provoked, they tend to avoid meting out violence.

In relation to Q1 and the use of computer games, therefore, Campbell's perspective suggests that *games based on sophisticated instructions, rewards and deceptions, as well as – perhaps – games that are 'non-violent' but based on a high level of verbal invective, should all do well among women*. And they would do well for reasons of evolution and brain chemistry.

¹³⁶ Campbell, A. 2002. p78 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

¹³⁷ Campbell, A. 2002. pp 85, 91-2 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

5.6 Women as evolved choosers of different kinds of work

Kingsley Browne eloquently rehearses many of the arguments we have already met – those of *Why men don't iron* on CAH and testosterone, those of Trivers, Buss and Kimura respectively on parental investment, mating habits and cognitive differences. His chief and unique addition to the naturalist account of sex difference is to treat in detail the world of female employment in the US, explaining nearly every feature of it in terms of EP and of brain chemistry. In the process, Browne, in the manner of a professor of law, tries to reconcile the fatalism implicit in the naturalist account of women's troubles at work with American capitalism's doctrine of individual choice.

On the one hand, Browne believes that biology explains much about how the modern workforce is laid out, and that shifts in society explain little. One of his foci is the *interest* men and women have in different kinds of occupations. Interest can take a variety of forms. One can be interested in jobs as follows:

Table 8 The kinds of interest people have in jobs, as summarised by Browne

Six General Occupational Themes: people who enjoy...

1. building, working outdoors, and working with things – Realistic
2. analysing abstract problems and understanding the physical world – Investigative
3. self-expression – Artistic
4. sociability, helping, instructing – Social
5. persuasion and leadership not sustained, precise work – Enterprising
6. highly ordered activities such as accounting, organising, processing – Conventional

Four Personal Styles: people who prefer one or other of...

1. working alone vs working with others – Work Style
2. practical vs academic surroundings – Learning Environment
3. Doing things oneself vs directing others – Leadership Style
4. Take risks and have adventures vs caution and safety – Risk Taking /Adventure.¹³⁸

Browne writes, of these kinds of orientation to work:

‘Given the dramatic changes in the position of women in the workplace in the last several decades, one might have expected that sex differences in occupational interests would have exhibited correspondingly dramatic decreases, but they have not.’¹³⁹

With Browne, this fixity of sex difference in occupational *interests* parallels occupational *practice*, or the trajectory of men and women's careers. Females of all ages, he says, are more orientated to people than are males, who typically orientate to objects.¹⁴⁰ As a result,

‘The fields and subfields avoided by women are those that tend to have the lowest social dimension – mechanical engineering, particle physics, mathematics, entomology, physiological psychology, statistics, and economics – while those attracting relatively large numbers of women – such as anthropology, biology, developmental and child psychology, nutritional sciences, environmental health, and bioengineering – have a higher social dimension. Moreover, the fields avoided by women tend also to be the most mathematically demanding. Given the relative positions of males and females in the “people-things” dimension and the disproportion of men at the highest levels of mathematical ability, it would be astonishing to see the sexes sort themselves uniformly through these fields.’¹⁴¹

138 Browne, K.R. 2002. p53 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

139 Browne, K.R. 2002. pp54-5 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

140 Browne, K.R. 2002. p22 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

141 Browne, K.R. 2002. p56 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

Yet though, for Browne, biology explains the status quo, it does not justify it. Rather, women do what they do because they *choose* to.

While Browne devotes scholarly resources to developments in blue-collar trades, rich American managers and manageresses detain him more. The withdrawal of large numbers of American women from the 'executive track', he says, cannot be attributed to inadequate day care. Since highly educated women, who could do most to shatter the glass ceiling, have 'sufficient resources to afford good day care', the fact that they leave the workforce when they have babies shows that it is 'because they want to', not because they have to. Similarly, much of the 'gender gap in compensation' – unequal pay – is an effect of marriage and families.¹⁴²

There are constraints facing women, but their actions 'are clearly not forced in the legal sense of duress' Women in fact *choose* low pay, 'just as employees who move from full-time status to part-time status to be with their children choose to be paid less, even if they would prefer to suffer no wage penalty for decreasing their hours'.¹⁴³ Why? Because

'Mammalian mothers have evolved not to be indifferent to separation from their infants. Men, especially ambitious ones, are significantly less likely to feel that constant tug between children and career, not because they love their children less but because they can compartmentalize in a way that women, on average, cannot, and they are prone to showing their love in a different way.'¹⁴⁴

As with Anne Campbell, Kingsley Browne's ideas have critical implications for women and computer games. First, if women are not employed in software programming jobs in the games industry, that's because of *biology* – and because *women elect to avoid certain kinds of jobs*. Second, whether it is organised through the public sector or the private sector, the *provision of childcare* is of little moment to women interested in jobs in computer games. If they exit those jobs for long periods, that's because they are nurturing by nature, and because they want to.

Politically, the latter implication of Browne's perspective is rather topical in Britain. There, the government aims to build 3500 children's centres by 2010, and plans to fund – through the National Lottery – 300,000 childcare places for school-age children. State funding for childcare, which stood at £1.1bn in 1996-97, will rise to £5.5bn in 2007-08.¹⁴⁵

From Browne's standpoint, then, these measures, far from being too little and too late, are simply not relevant to women and their employment prospects. So, in relation to Q2: *women's careers in computer games will always be fundamentally disrupted by motherhood, and that's that*.

¹⁴² Browne, K.R. 2002. pp35, 43, 68 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

¹⁴³ Browne, K.R. 2002. pp137, 138 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

¹⁴⁴ Browne, K.R. 2002. p138 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

¹⁴⁵ Boone, J. 3 February 2006. p4 'Childcare clash may hit private nurseries, says CBI', [Financial Times](http://news.ft.com/cms/s/2158a268-945b-11da-82ea-0000779e2340.html), and on <http://news.ft.com/cms/s/2158a268-945b-11da-82ea-0000779e2340.html>

5.7 Women as empathisers

Back in 1976, the psychiatrist and psychoanalyst Jean Baker Miller pioneered an internationally influential analysis of women's psychology that put the accent on the special empathy she observed between girls and their mothers.¹⁴⁶ Because of their experiences in childhood, adult women were more sensitive to people's needs than men, she argued, and were more willing to respond to those needs than men. A couple of years later, in 1978, the sociologist Nancy Chodorow also suggested, to considerable acclaim, that girls and mothers formed bonds that also helped women have a special talent for empathic relationships in later life.¹⁴⁷ By 1982, the Harvard psychologist Carol Gilligan published a widely read eulogy to an 'ethic of care' that, she argued, was possessed by girls but not by boys. For Gilligan the point was clear:

'women not only define themselves in a context of human relationship but also judge themselves in terms of their ability to care.'¹⁴⁸

With these three American feminists, an explicit link was drawn between women, empathy and nurturing.

Twenty years on, in the US, both Campbell and Browne invoked Gilligan in their cause.¹⁴⁹ Meanwhile, in his 2002 book *The essential difference*, Britain's Dr Simon Baron-Cohen, professor of developmental psychopathology at Cambridge university and an authority on autism, popularised broadly similar conclusions – even if he came to them by way of experiments with testosterone.

For Baron-Cohen, empathy 'arises out of a natural desire to *care* about others', and 'on average, females spontaneously empathise to a greater degree than males'. This is so, even though 'some women have the male brain, and some women have the female brain'. By contrast, aggression can only occur because of reduced empathy: during it, 'you are focused on how *you* feel, more than on how *the other person* feels'.¹⁵⁰

For Baron-Cohen, women's expertise in empathy is reflected in sex differences in pretend play. Those differences are also found in communication, a subset of *language*, 'across a large number of settings and age ranges'. When Mum soothes a doll, girls are, more than boys, prone to imbue the doll with feelings in the mother's mind. They also prefer cooperative role-taking (I'll be the mummy, you be the child) to the solitary sort favoured by boys (I'll be Batman). 'Girls', Baron-Cohen writes, 'often extend dialogue by expressing agreement'. By contrast 'the male style' tends to lead to statements such as 'I'm sorry, but you're wrong'.¹⁵¹

Baron-Cohen makes much of PNT.¹⁵² He also makes two arguments familiar from our inspection of the *Why don't men...* school, and a third not:

- baby girls' preference for faces over objects on their first day of life, like two-year-old girls' preference for dolls and two-year-old boys' superiority in throwing accuracy, *predate*, respectively, the influence of parents, gender stereotypes and practice
- boys are more interested in *mechanical and constructional play* than girls. It follows that *adult occupations* such as metalworking, weapon-making, crafting musical instruments, mathematics, physics and engineering are almost entirely male
- being better at *analysing systems*, men are, in Baron-Cohen's implicit view, at least, on average likely to be better *traders* than women. 'Exchange', he insists, 'is not a recent invention of the stock market in New York, but is as old as *Homo sapiens*'.¹⁵³

Let's now interrogate the naturalist theses on women, from *Why men don't iron* through to Baron-Cohen.

146 Miller, J. B. (1976) 1986 *Toward a new psychology of women*. Boston: Beacon Press.

147 Chodorow, N. 1978 *The reproduction of mothering: psychoanalysis and the sociology of gender*. Berkeley: University of California Press.

148 Gilligan, C. 1982. p17 *In a different voice: psychological theory and women's development*. Cambridge, MA: Harvard University Press.

149 Campbell, A. 2002. pp157-9 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press; Browne, K.R. 2002. p22 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

150 Baron-Cohen, S. 2003. pp2, 8, 37. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

151 Baron-Cohen, S. 2003. pp48-50. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

152 Baron-Cohen, S., 2003. pp99-111. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

153 Baron-Cohen, S. 2003. pp71-75, 57-58, 92-93, 120. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

5.8 Critique of the general claims of neurology

In a short passage on sexual difference, British biology professor Steven Rose gives a summary of the issues that have been raised in relation to the brain. On average, he says, males tend to have slightly heavier brains than females. On the other hand,

‘female babies tend to be “more advanced” in terms of behaviour and functional capacity at birth than do males. During post-natal development other tiny differences in brain structure appear. Although the two cerebral hemispheres appear identical in size and shape, there are small asymmetries, and male brains tend to be more asymmetrical than female. There are also claimed to be differences in structure and size in regions of the hypothalamus and corpus callosum. This is, not surprisingly, a fiercely disputed area...’¹⁵⁴

Too right! But the important thing to remember is that, judged on whether it is capable of giving practical insights into the mind, *neurology is still in nappies*. Like the media, scientists in disciplines such as evolutionary biology or child development do like to grab neurological correlations, dress them up as causality and then advance them as argument in favour of their biological worldview. But many neurologists themselves would be the first to admit that their discipline is still at a primitive stage of development.

As the American science writer John Horgan notes, it was in 1983 that Joseph Levine, a philosopher at North Carolina State University, coined the phrase ‘explanatory gap’ to highlight the inability of physiological theories to explain psychological phenomena – the ‘schism’, as Horgan describes it, between neuroscience, which has made fundamental discoveries, and mainstream psychology, which has failed to integrate such discoveries and is continuously beset by fads.¹⁵⁵

Recently, a team led by Rodrigo Quiroga at the University of Leicester, found that the recognition of individual human faces or famous buildings may depend on single neurons.¹⁵⁶ If anything, this only confirms that neurology is still an infant child. Kimura’s explanations of sex difference in ability are weak in the case of hormones (Table 4 above). As she concedes, size of brain does not explain spatial skills (Table 5), and accounts of left brain vs right brain, and of interhemispheric connections, tend to produce conflicting explanations of their relationship to differences in ability (Tables 6 and 7). It is the same with Kingsley Browne. He believes that the evidence about the relationship between CAH and sex difference is ‘highly suggestive’ – but then admits that such evidence ‘must be viewed with some caution, because the population is an abnormal one’. He enthuses that, put together, the separate accounts of sex difference supplied by CAH and several other hormones suggest ‘a consistent relationship between hormones and behavior’ that is, he believes, ‘not easy to dismiss by invoking different ad hoc criticisms of the individual findings’. Yet as he is also forced to concede, the separate accounts are ‘perhaps not compelling standing alone’, and the evidence that behaviour and situations affect hormone levels ‘is actually greater at this time’ than the evidence for the effects of hormones on behavior’.¹⁵⁷

Does neurology really tell us that men are more prone to take *risks*, in computer games as elsewhere? Perhaps. For Browne, risk-taking is something that men do from early childhood ‘women are less likely than men to *want* to lead’ and a taste for risk remains ‘one of the hallmarks of the successful executive’.¹⁵⁸ However, this perspective cannot explain why Western societies as a whole have, in the 20 years since the nuclear disaster at Chernobyl (1986), become more averse to taking risks, and why in particular it is timidity that now characterises the male-run corporation.¹⁵⁹ Nor could Browne’s framework easily explain why risking one’s money in pursuit of gambling is a pastime that has, in recent years, gained millions of female adherents.

¹⁵⁴ Rose, S. 2005. pp81-82. *The 21st century brain: explaining, mending and manipulating the mind*. London: Allen Lane.

¹⁵⁵ Horgan, J. 1999. pp137-38 *The undiscovered mind: how the brain defies explanation*. London: Weidenfeld & Nicolson. The paper he cites is Levine, J. 1983. ‘Materialism and qualia: the explanatory gap’, *Pacific Philosophical Quarterly*: 64, pp354-61.

¹⁵⁶ Quiroga, R. Q. Reddy, L. Kreiman, G. Koch, C. and Fried, I. 23 June 2005. ‘Invariant visual representation by single neurons in the human brain’. *Nature*, 435(7045), p1102.

¹⁵⁷ Browne, K.R. 2002. pp110, 112, 114. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

¹⁵⁸ Browne, K.R. 2002. pp19-20, 39,40. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

¹⁵⁹ Furedi, F. (2002) *Culture of fear: risk-taking and the morality of low expectation*. London: Continuum Books; Hunt, B. 2003. *The timid corporation: why business is terrified of taking risk*. Chichester: John Wiley & Sons.

Are women neurologically weak in *spatial* skills, but superior in *language* and *social* ones – in caring, nurturing and empathy? Again perhaps they may be; but once again the naturalist perspective is compelled to wrestle with *new social trends*. In Britain both child and adult literacy appear, at best, rather fluid phenomena right now. The performance of boys and girls at school, and adult standards of punctuation and grammar, seem subject to major change – demonstrable improvements, dumbing down, grade inflation, the ‘discovery’ of dyslexia, and so on. It is the same story with social skills. Naturalism is able to account for neither the trend toward single-person households in Britain, nor the decline in fertility, nor the impact these might have on sociability and interpersonal skills. Nor can it account, we might add, for the sudden popularity – across both sexes – of the numeracy game *Sudoku*.

That male and female babies differ in their habits at birth attests to the influence of biology, just as the nature and changing chemical composition of the amniotic fluid with which an embryo is surrounded, PNT included, may well be important.¹⁶⁰ Yet if biology is a factor during the embryonic and infantile phases of child development, these phases *may* say a lot about later development, or they *may not*. For example, one study, published in 2002 by City University psychology professor Melissa Hines and others, found that though PNT had a positive, linear relationship to gender role behaviour in female offspring at the age of 3.5 years, no similar effect could be detected in boys of the same age.¹⁶¹ Baron-Cohen in particular seems to have a cavalier attitude to age. In his chapter on ‘The female brain as empathiser: the evidence’, girls’ pretend play with dolls jostles with the expert communications both of ‘females’ and of adult women.

Does every aggressive female enthusiast for shooter games have what the naturalists blithely call a ‘male brain’, courtesy of PNT? It seems unlikely. After all, obsessions with different kinds of games can often be just passing phases. More broadly, embryonic and infantile biology always miss the effects of *reversals and victories* encountered by *adults*.

Reversals and victories are events are, we may hypothesise, more recently and consciously recalled by adults than by children. They are certainly experiences that adults discuss, learn from, investigate with the help of different media, write up and, nowadays, make the subject of broadcasts. Through such events in the playing of computer games, women, like men, are able to ‘go up a level’. They make leaps through processes that Steven Johnson describes – usefully if rather too euphorically – as ‘probing’ and ‘telescoping’.¹⁶²

PNT cannot explain those leaps. By the same token it explain how, perhaps even in computer games, *it is possible for one individual to change another individual's life*. It is easy to ridicule cultural determinists for their obsessive emphasis on children’s education at the hands of parents and teachers. But in the naturalist perspective, one hears little of adults learning from adults, and nothing about the role of hormones in that process.

What the writer and broadcaster Kenan Malik calls the *extended mind* has, for us, an explanatory power superior to that evinced by neurology, and one that calls into question the naturalistic perspective of keeping discussions of *mind* within the boundaries of the *cranium*. For Malik the mind is *extended by current society*. He writes

‘the brain belongs to the individual. The mind, however, does not – well, not quite... what we know is embodied not just in our brains. In particular, the ascription of meaning is a social process, not an individual one. Symbols acquire meaning insofar as they are *social* symbols.

‘... A brain becomes a human mind only in the context of language and society. A human mind is a brain within a society of other brains, linked by language and culture. It is language and culture that turn brain into mind.’¹⁶³

160 Baron-Cohen, S., Lutchmaya, S. and Knickmeyer, R. May 2004. *Prenatal testosterone in mind: amniotic fluid studies*. Cambridge, MA: The MIT Press.

161 Hines, M. et al. November/December 2002. ‘Testosterone during pregnancy and gender role behavior of pre-school children: a longitudinal study’. *Child development*. 73(6): pp1678-1687. See

http://www.fsdinfo.org/pdf/Testosterone_during_Pregnancy_and_Gender_Role_Behavior_of_Preschool_Children_A_Longitudinal_Population_Study.pdf

162 Johnson, S. 2005. pp43, 54. *Everything bad is good for you: how today's popular culture is actually making us smarter*. London: Allen Lane.

163 Malik, K. (2000) 2002. p228. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

Pinker himself reports that when he needs to find articles on a topic in an unfamiliar field, he doesn't use the library computer, but rather 'sends email to a pal in the field'.¹⁶⁴ And that's the point. *Computer games are not just played by individual brains and hands. They depend on shared rules, levels, cheats and so on. They do not 'construct' masculinity, but they do appear on the market as a social phenomenon. Whether through direct play, or in conversation and magazines, games mediate between gamers.*

Take the example of computer game *brands*. Are they a natural or a social phenomenon? Well, functional magnetic resonance imaging (fMRI) may or may not have established which parts of the brain appreciate *brands*.¹⁶⁵ But the meaning of computer game brands, the feelings that emerge when opening their packaging or winning a game: these are social, not merely neurological phenomena.

Some versions of *Grand Theft Auto: San Andreas* contain explicit sexual content that can be unlocked with an Internet download, and Hilary Clinton has asked the Federal Trade Commission to investigate them.¹⁶⁶ Now, in June 2005, scientists at the University of Groningen, the Netherlands, announced the results of positron emission tomography scans of 24 male and female brains during manual stimulation to orgasm, and claimed that, during female orgasms, activity is reduced across all the brain regions – conscious and subconscious – that handle emotion, including the amygdala, medial prefrontal cortex and orbitofrontal cortex.¹⁶⁷ So: we can be sure that the orgasms prompted by pornographic versions of *GTA* are physiological events. But we can also be just as sure that they differ from the feelings that emerge in love-making between real human partners. There, people encounter a social meeting of minds, not just a chemical stimulation of brains.

164 See Pinker, S. (1997) 1999. p142. *How the mind works*. Harmondsworth: Penguin Books.

165 See Woudhuysen, J. 25 August 2004. 'Brands: don't buy the hype'. *Spiked*, and on www.spiked-online.com/Articles/0000000CA6A0.htm.

166 See Harris, R. 20 July 2005. 'Rating board changes "GTA: San Andreas" to Adults Only'. Associated Press, and on <http://sfgate.com/cgi-bin/article.cgi?f=/n/a/2005/07/20/state/n135226D99.DTL>.

167 Henderson, M. 21 June 2005. p3. 'For women, pleasure is (nearly) all in the mind'. *The Times*.

5.9 Critique of neurology's specific claims about competition, violence and war

PNT seems to be an elixir not just of sexual difference, but also of life itself. In experiments, Baron-Cohen found that toddlers of 12 and 24 months who had low foetal testosterone also had high levels of eye contact with people, as well as large vocabularies. When the revelation came, he reports,

'... I had one of those strange feelings, like a shiver down the spine. A few drops of more of this little chemical could affect your sociability or your language ability. I found it extraordinary.'¹⁶⁸

Extraordinary or not, the obsession that naturalists have with testosterone in fully-grown adults might also well prove a subject worthy of Freudian analysis. First, while Gorski's testosterone research among rats is of interest, it probably says little about testosterone in human beings. Second, the association made between testosterone and *male competition* is just that: an association. Reflecting the undeveloped state of neurology, few conclusions have yet been drawn about the *mechanisms* that turn testosterone into rivalry.

Anyway, *by what biochemical mechanism does competition turn into aggression, or aggression into violence* – the violence of, say, the Columbine or Dunblane massacres? Even violence itself cannot be assumed to be a unitary entity. As Malik writes of the all-too-easy comparison that is made between chimpanzees' physical belligerence and human violence, for the argument to hold, it is necessary not simply for chimpanzee raiding and human conflicts to have a common root, but also for humans to lump together everything from nuclear war down to playground bullying as violence, an object that remains the same in all circumstances.

In fact, however, violence is

'an expression of a relationship – a relationship of power, or lack of it. Different types of violence are products of different types of power relationship.'¹⁶⁹

Today, military writers like to cite maleness as an explanation of war.¹⁷⁰ Similarly, Baron-Cohen suggests that it is men's systemising brains that explain why in 121 out of 122 societies across the world, *weapon-making*, a systemising skill quite distinct from the female one of empathy, is an exclusively male preserve.¹⁷¹ Yet as we have already noted of the US Army, war-making is not quite like that any more. Take JC Herz, an American contributor to *Wired* magazine famous for her bestseller on games, *Joystick nation*.¹⁷² Herz is engaged in a little weapon-making of her own: she is project leader of CASCADE, a US Department of Defense initiative to identify emerging technologies and, as she appears to write, 'shepherd them through the Defense Department's Kafkaesque bureaucracy so that they can be used by operators in the field'. Herz's clients include the US Special Forces Command and the Undersecretary of Defense (Intelligence).¹⁷³

Now, we need not buy the panic, in the UK, about the involvement of women, along with men, in 'happy slapping', or making a photographic or video record of your assault on another person. But in a much important case – the torture of Iraqis at Abu Ghraib prison in Baghdad – we know something else. It was not just women Americans in military occupations who were busy there. All the torturers knew something that seems to have escaped Baron-Cohen: in aggression you are focused not just on how *you* feel, but also, and perhaps more, on how the *other* person feels. Torture involves a perverse kind of empathy, but anticipating and reading the reactions of the tortured is empathy all the same.

In the War on Terror, militarists often put themselves in the shoes of Al Qaeda, the better to foresee its next move. On the rugby field, too, men think about their opponent's likely moves, just as much as they empathise with their team-mates. It is the same with computer games. Yes, even men can show empathy there!

168 Baron-Cohen, S. 2003. p123. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

169 Malik, K. (2000) 2002. p228. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

170 See for example Goldstein, JS. 2001. *War and gender: how gender shapes the war system and vice versa*. Cambridge: Cambridge University Press. See also Hedges, C. 2002. p163. *War is a force that gives us meaning*. Oxford: PublicAffairs Ltd.

171 Baron-Cohen, S. 2003. p94. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

172 Herz, J C (1997) *Joystick nation: how videogames gobbled our money, won our hearts, and rewired our minds*. London: Abacus.

173 See Herz's biography for her speech at the O'Reilly conference on Emerging Technology, San Diego, 14-17 March 2005, and on http://conferences.oreillynet.com/cs/et2005/view/e_sprk/1004

5.10 Critique of the claims of EP

Exponents of EP can be cautious. Thus while Browne believes that various aspects of hunting and gathering explain sex differences in throwing ability, he is forced to admit otherwise with mathematics:

'An evolutionary explanation for sex differences in mathematical ability is less obvious than the explanation for spatial ability. While our ancestors have had to solve navigational problems for eons, for most of human history we have been blessed with total ignorance of differential equations.'¹⁷⁴

Similarly, Browne can't explain women's verbal skills, given that such skills are vital also to male power.¹⁷⁵

Despite such weaknesses, EP still insists that millennia of evolution explain much of sexual difference. Thus David Buss believes that ancient short-term mating strategies, in which casual sex won men plenty of offspring, today explain why, when closing time approaches in singles bars, men become less discriminating about women.¹⁷⁶ Of course, like nearly all experts in EP, Buss recognises that 'context' makes a difference. Of evolution-based tendencies toward aggression among today's men, he writes:

'Contexts triggering men's aggression against other men include being unemployed and unmarried – contexts that suggest that men are on a path to being excluded from mating, which may trigger a risky aggressive strategy.'¹⁷⁷

Buss shows that, in practice, *EP makes a very large leap indeed when it tries to move from ancient mating habits to a modern American singles bar. It assumes that evolution in particular contexts determines equally particular behaviours, and downplays how rational public discussions of behaviour, over years, can also have an influence.*

Kimura may enjoy speculating about women around prehistoric homes, performing small-amplitude movements, locating intruders, remembering landmarks, watching their children's faces (Tables 1-3 above). But as Marek Kohn has said of EP's approach to hominid foraging strategies, lumping two million years of such strategies together 'does not show a great deal of respect for historical detail'.¹⁷⁸

About 150,000 years ago, Malik writes, anatomically modern hunters rose from the plains of east Africa, Malik then goes on:

'For evolutionary psychologists the clues to modern behaviour lie in the Stone Age. The past explains the present.... [but] to which past does this refer?... The past of 40,000 years ago when the "Human revolution" made us into truly cultural beings? The past of 10,000 years ago when agriculture revolutionised humanity's way of life? The past of 200 years ago when the Scientific and Industrial Revolutions transformed human life probably to a greater degree than any previous change? Each of these... has left an impression on our minds, our behaviour, our culture, our institutions, our selves.'¹⁷⁹

Malik's point about different *phases* of human history is mirrored in his forensic analysis of *changing human goals*. For Malik, basic goals such as finding food, shelter or a mate, may be driven by basic instincts. But, *uniquely, humans can go beyond instincts and subordinate them to other human-created goals.*¹⁸⁰

174 Browne, K.R. 2002. p127. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

175 He is left saying that there might be a tradeoff between spatial and verbal abilities. Browne, K.R. 2002. p128. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

176 Buss, D. 1999. pp162, 171. *Evolutionary psychology: the new science of the mind*. London: Allyn and Bacon.

177 Buss, D. 1999. p309 *Evolutionary psychology: the new science of the mind*. London: Allyn and Bacon.

178 Kohn, M. 1999. p260. *As we know it: coming to terms with an evolved mind*. London: Granta. Quoted in Malik, K. (2000) 2002. p249. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

179 Malik, K. (2000) 2002. p249. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

180 Malik, K. (2000) 2002. p282. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

In EP, Campbell holds that the flexibility of human behaviour is one of means, not ends.¹⁸¹ In neurology, too, Baron-Cohen holds that testosterone-powered traders at the London Stock Exchange display the habits of early *Homo Sapiens*. But traders today – including those computer gamers who trade, online, in games currencies and more – have goals that differ from those of the moneylenders castigated by Jesus Christ.

In computer games it is the same story. *In computer games, as in life generally, both men and women continually set themselves new goals*. Indeed, that is something men and women have in common: it is an essential feature of humanity, and one to which EP is entirely indifferent.

5.11 Critique of the brain as computers and modules

Pinker often denies using the metaphor of the mind as a computer.¹⁸² Nevertheless he nearly as often resorts to it: 'what is special', he says, is information *processing*; psychology is the analysis of 'mental software', the space inside the brain is 'the hardware to hold the information'.¹⁸³

The metaphor is highly suspect, not least because human society has for millennia taken up a succession of dubious metaphors to explain the world. As the classicist and computer scientist John David Bolter has brilliantly pointed out, for the ancient Greeks, the crafts of spinning, carpentry and of throwing pots suggested a universe of order (the *cosmos*), finitude, final causes and ideal perfection. Similarly, in the generations after 1335, when a public clock in Milan became the first in the world to strike the hour, mechanism came to be seen as vital to 17th century theorists of the body (Descartes) and of the mind (Leibniz). Later, James Watt's steam engine patent (1769) and, in the 19th century, Sadi Carnot's heat engine became metaphors for the pursuit of synthesised power, emancipation from nature and the brutalising conditions to which the Industrial Revolution subjected the working class in Europe and North America. Today, too, electronic tools suggest new ways of thinking: man as 'information processor', the mind as (obviously electronic) computer.¹⁸⁴ After all, the futurologist Alvin Toffler concluded that the world itself had turned into a computer.¹⁸⁵

It can't be long before someone discovers that the brain is a computer game, complete with different levels.

Apart from the computer metaphor, the Pinker doctrine of the mind as an assembly of organs plays nicely to neurology of the *Why men don't iron* approach. Again, Pinker might deny this: for him mental modules or organs exist 'whether or not we establish exact boundaries for the components of mind'.¹⁸⁶

Today, what Horgan calls the Humpty Dumpty dilemma, or the 'binding problem' of how the brain finally assembles information coming from different quarters, is still there

'for all fields that divide the mind into a collection of relatively discrete "modules", "intelligences", "instincts" or "computational devices". Like a precocious eight-year-old tinkering with a radio, mind-scientists excel at taking the brain apart, but they have no idea how to put it back together.'¹⁸⁷

As Horgan cleverly points out, the problem is *not* with what the deployment of *reductionism* as a scientific method, even if reductionism is the charge often raised by critics of biological accounts of the brain.¹⁸⁸

Reductionism is necessary but not sufficient for understanding the human mind. Used with discretion, it has its place in science; as Horgan says of his perplexed encounter with a top neuroscientist at Yale, 'I could understand reductionism when it came to particle physics, but when it came to the human mind, I felt I was missing something.'¹⁸⁹

181 Campbell, A. 2002. pp279-80 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

182 See Pinker, S. (1997) 1999. pp23, 26, 68, 114. *How the mind works*. Harmondsworth: Penguin Books.

183 See Pinker, S. (1997) 1999. pp26, 137. *How the mind works*. Harmondsworth: Penguin Books.

184 Bolter, J. D. 1984. pp22-23, 74, 24, 26, 28; 30-32; 40-42. *Turing's man: Western culture in the computer age*. London: Duckworth & Co.

185 Toffler, A. and Toffler, H. 1993. *War and anti-war: survival at the dawn of the 21st century*. New York: Little, Brown.

186 See Pinker, S. (1997) 1999. p31. *How the mind works*. Harmondsworth: Penguin Books.

187 Horgan, J. 1999. p23. *The undiscovered mind: how the brain defies explanation*. London: Weidenfeld & Nicolson.

188 See Rose, S. Lewontin, RC and Kamin, L. 1984. *Not in our genes: biology, ideology and human nature*. Harmondsworth: Penguin Books, and the critique by Malik, K. (2000) 2002. pp169-174. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

189 Horgan, J. 1999. p27. *The undiscovered mind: how the brain defies explanation*. London: Weidenfeld & Nicolson.

5.12 Naturalism as fatalism

Sex difference, by common agreement, is a discussion about how the *means* of the behaviour of the female distribution of the population differ from the means of the behaviour of the male distribution. Advocates of the naturalistic perspective are anxious to stress that they are talking averages, not the behaviour of individuals. On 16 January 2005 Harvard president Larry Summers had the nerve to mention one hypothesis about the paucity of women in the mathematical sciences in top US universities. It might be, he said – although he hoped it wasn't – to do with a small statistical difference in innate ability, which becomes a pretty large disparity when one looks at the 'high end' of the respective distribution curves. That statement nearly led to Summers having to resign. It set off a firestorm of controversy; but the real disgrace, as Harvard mathematician Norman Levitt pointed out at the time, was that Summers' assailants felt no obligation to refute the hypothesis.¹⁹⁰

Much of the venom that the naturalist perspective directs at feminists and cultural determinists stems from a proper desire to uphold freedom of speech. Indeed, while feminists and cultural determinists rarely admit any influence of biology on behaviour, and want discussion on that subject closed down, those who cite neurology and EP as their explanation are more generous in their approach. Thus for Campbell social constructionist and environmentalist theories do explain the transmission of the status quo, even if they fail to ask where it came from. Similarly, she notes that no serious evolutionary psychologist believes that genes can operate independently of the environment.¹⁹¹ Browne too avers that the question 'is not whether there are social influences on sex roles; instead, it is whether those influences act on a sexually monomorphic mind or on a sexually dimorphic one'¹⁹²

Campbell is accurate in her accusation that, by contrast, cultural determinists are guilty of 'biophobia'. Though we might not agree with her view of human nature, she's right to uphold, against cultural determinists, the existence of human universals.¹⁹³ Again, Campbell's treatment of female aggression can be contested – apart from its restraint by fear and serotonin, she believes that much of it originates in competition for mates, something that is particularly intense in teenage girls.¹⁹⁴ Yet her willingness to admit to the fact of female aggression forms a welcome relief from the unbendingly misanthropic characterisation of males as uniquely aggressive.

Sometimes, EP seems to uphold the autonomy of the human subject that. Kimura feels it likely that

'more spatially gifted individuals will, on average, take part in more spatially demanding activities than less gifted individuals.... The abilities may in fact have determined the activities.'¹⁹⁵

Browne is even more relevant on the same point:

'Correlations between activities such as playing video games and spatial ability to not necessarily show that usage of video games enhances spatial ability; it is equally plausible that those with high spatial ability are drawn to video games, which reward that ability'.¹⁹⁶

Browne goes further. Denying that women's choices in work are more constrained than men's, he writes:

'One could as easily argue that it is men who are disadvantaged. Men are expected to work, whether or not their wives "choose" to.... This is not to suggest that the mantle of victimhood should be lifted from men and conferred on men. What needs to be questioned is the notion that either sex is a victim.'¹⁹⁷

190 Levitt, N. 27 January 2005. 'Hypothesis as thought-crime', *spiked*, on www.spiked-online.com/Articles/0000000CA8A7.htm

191 Campbell, A. 2002. pp8, 17. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

192 Browne, K.R. 2002. p94. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

193 Campbell, A. 2002. p17. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

194 Campbell, A. 2002. pp190, 191. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

195 Kimura, D. *Sex and cognition* (1999) 2000. p61 Massachusetts: The Massachusetts University Press.

196 Browne, K.R. 2002. p105. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

197 Browne, K.R. 2002. p139. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

However, despite their occasional defence of the human subject, *advocates of EP protest too much when they resist the charge that EP is used to naturalise and legitimise the status quo. EP does exactly that.*

Sensitive to the charge of fatalism, Campbell anticipates New Labour's current drive to take action on fat people, and is emphatic that she is not endorsing the status quo:

'Because the current environment differs from the one in which we evolved, it is quite possible that an adaptation is not currently adaptive. Our preference for fat and sugar was useful at a time when meat and berries were nutritious and rare. They are currently responsible for obesity and heart disease in an environment where sources are too plentiful....

'Natural selection operates as a sieve, allowing some variants in particular environments to pass through and others to die. This sieve knows nothing of good or bad, kind or cruel, desirable or unacceptable.... It is vital to make a distinction between what we as humans hold to be morally desirable and what natural selection has retained as an adaptation. Malaria, tuberculosis and death in childbirth are natural but we hardly regard them as good.'¹⁹⁸

Browne also seeks to separate what *is* from what *ought*.¹⁹⁹ Yet Campbell insists that today's fathers 'desert' their female partners and children because, *among humans and other mammals*, female gestation

'gives the male ample time to desert, leaving the female holding the baby. Because deserting first offers advantages for further copulations with new an unencumbered partners, it would have been selected for... desertion will be less likely among females than males because their future prospect are always lower than males – that time is especially truncated in human females by the advent of the menopause and because a human infant demands such a very long period maternal care.'²⁰⁰

In the same way, for Campbell, men are willing to aggress even where the odds again achieving dominance are high. By contrast,

'a female is conservative because the risks to her and to her young and yet-to-be-born infants are too great. A male is risky not because the potential pay-offs are so great but because he has less to lose.'²⁰¹

The relentlessly one-dimensional character of these views can only make them eternalise the present, no matter what voluntaristic intentions the advocates of EP may have. Browne is certain that people have shown interest in and enjoyed, with great fixity over 50 years, the Six General Occupational Themes and Four Personal Styles of work he outlines. But Kimura strikes a more sober and welcome note on historical change when she suggests that more substantial information is still needed as to whether sex difference in cognitive skills is or is not declining over time.²⁰²

For EP, there can and will be no new female gamers, using their mobile phones as platforms.

198 Campbell, A. 2002. pp11, 19-20. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

199 Browne, K.R. 2002. p8. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

200 Campbell, A. 2002. p39. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

201 Campbell, A. 2002. p74. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

202 Kimura, D. *Sex and cognition* (1999) 2000. pp62, 69. Massachusetts: The Massachusetts University Press.

5.13 Man as beast

Campbell rightly observes that the brain is the most expensive organ in the human body in terms of calorie consumption, that feminists accept that hominid brain size was a result of natural selection, and that successful reproduction is the reason for our existence today.²⁰³ Less persuasively, she reports that 'intriguing findings in the neuroscience of sexual behaviour' – chiefly among *rats* – suggest an answer to the question of why males have lower levels of serotonin and consequently a weaker ability to inhibit their behaviour'.²⁰⁴ Kingsley Browne likewise notes that all non-human mammals exhibit sex differences.²⁰⁵ But while sex differences among humans can, no doubt, have biological origins, *it would indeed be a mistake to underestimate the human brain by constant reference to the brains of mammals. Over centuries, humans develop. Animals do not.*

Campbell undoes much of her logic about risk-taking and violence when she is forced to point to characteristics that are distinctively human. She recognises that 'fighting is not apparently an activity that people engage in to satisfy a need for risk, although mountain climbing, scuba diving and volunteering for hazardous army duty may be'. Campbell also captures some of the truth when she notes that 'what makes humans special is their ability to run thought experiments'.²⁰⁶ Nevertheless, she and Browne owe too much of a debt to primatologists.²⁰⁷ Partisans of EP repeatedly lump humans in with animals. Again, Malik's remarks are telling:

'Evolutionary psychology infers adaptations in human behaviour from the presence of behavioural adaptations in our close evolutionary relatives. But... the argument is circular. For an animal to act as a model of human behaviour, we must have already accepted what the unit of behaviour is, that it is the same in humans and non-human animals and that in humans it can be understood in purely evolutionary terms. In other words we must accept beforehand what we ostensibly set out to show. This is not to say that the human brain is not the product of natural selection, or that we don't possess an evolved psychology. Rather, it is to say that evolutionary psychology does not, at the moment, possess the techniques capable of drawing such inferences.'²⁰⁸

For Malik, violence or promiscuity are not simply hangovers from our ape past to which cultural traits have been added, and human nature cannot simply be a natural phenomenon, and the scientific tools with which we investigate animal behaviour are inadequate for understanding human behaviour.'²⁰⁹

No animal, of either sex, will ever do very well at a computer game.

203 Campbell, A. 2002. pp13-14 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

204 Campbell, A. 2002. p86 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

205 Browne, K.R. 2002. p9 *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

206 Campbell, A. 2002. p7. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

207 The primatologist Sarah Hrdy receives acclaim from both Campbell and Browne. See Hrdy, S. B. 1999 *Mother nature: natural selection and the female of the species*. London: Chatto & Windus.

208 Malik, K. (2000) 2002. p230. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

209 Malik, K. (2000) 2002. p231. *Man, beast and zombie: what science can and cannot tell us about human nature*. New Brunswick, NJ: Rutgers University Press.

5.14 The origins of ugly stereotypes, and the defects of elegant theories

Stereotypes, Campbell writes,

‘are reasonably accurate assessments of the typical differences between men and women... rather than stereotypes causing sex differences, the reverse is the case.’

If this is true, she continues, we at least have a means of explaining the typical division of labour between the sexes. The explanation is simple: women *elect* to spend more time than men do in parenting activities.²¹⁰

We have already seen that, in his portrait of women workers, Browne concurs with this rosy view of women’s choice. Similarly, Baron-Cohen would no doubt protest that his picture of women – as empathic for reasons of neurology – is not just a stereotype. Yet if stereotypes of women are not just got up by men, but rather accord with people’s experience of life, that might also be for reasons that have little to do with biology.

The issue is not, as Campbell suggests, the fact ‘cultural icons, especially teenage ones, can subtly and not so subtly alter our prevailing image of femininity’.²¹¹ Instead, the issue is that, just as much as evolved adaptations, *continually changing patterns of work, which are unique to humans, might have mediated people’s experience so as to establish and, more recently, undermine the real social stereotype of women being nurturing and empathic.*

People do not meet many women programmers of computer games. Therefore they can form the impression that women will never programme such games. Of course, biology *might* be the sole factor ensuring that this ugly stereotype informs how the situation turns out in practice. However, it seems probable that the encounter people have with work will have at least as large a role in shaping real and perceived female prospects in the computer games industry.

Too often, campaigners for EP appear to notice something about behaviour today, such as women’s alleged skills at social or empathic work roles, and then go on to imagine something about hunter-gatherer societies to explain that something. As a result, their theories appear to them to have merits that are almost aesthetic. Campbell writes:

‘The truly remarkable thing about evolution is that, although the theory itself is simple, it leads to highly varied and often counter-intuitive hypotheses.... [it is] a simple theory that is able to explain apparently unrelated and unexpected findings in the real world. There was a time when simplicity used to be called elegance and constituted one of the criteria for quality – if the data equally support two theories then the simpler was the better one.’²¹²

This is an attractive line of argument. But it is also a deeply flawed one. The search for beauty in science, as the London science writers John Gillott and Manjit Kumar have argued, is misguided. It reflects a retreat from the material world, just as much as, elsewhere, the fashion to represent theories of chaos and complexity as universal reflects a loss of certainty in scientific advance and social progress.²¹³ Even if the data equally support two scientific theories, one should be as suspicious of elegance as one is of complexity.

It would be simple to adopt the trope: men like violent games, women like empathic, nurturing and social games. It would be simple, but it might well not do justice to the full facts.

210 Campbell, A. 2002. p39 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

211 Campbell, A. 2002. p8 *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

212 Campbell, A. 2002. p16. *A mind of her own: the evolutionary psychology of women*. Oxford: Oxford University Press.

213 Gillott, J. and Kumar, M. 1995. p211. *Science and the retreat from reason*. London: Merlin Press

6 Conclusions

In the toy industry, manufacturers maintain that, once sexual difference kicks in after three years old, they are only responding to what the child market wants – they are not creating a gendered demand, it is simply out there. All the many efforts that the toy industry has made to sell cross-gender toys and so find new markets have failed. Most do not even get to market. Cars as people who speak have held no appeal to girls, even if dolls – in the sense of action figures – have always appealed to boys. Electronic toys have little appeal to girls. Girls prefer pink and purple, boys prefer black orange, red and silver.

We might wish otherwise, but these are the facts. Yet in recent years, the rise of 'feminine values' has, still more than the rise in female employment, brought about a modest convergence between male and female roles in UK society. Aleks Krotoski is not alone in recognising that the same computer games can now appeal to both sexes – even if Sheri Rainer Grey's capture of the term 'gender inclusive' for the computer games industry leaves a little to be desired (if gender inclusive, then why not our old friend, Unisex?).²¹⁴

Nevertheless, the differences between games for women and games for men appear enduring ones.

Computer games figure hardly, if at all, in the work of prominent feminists such as the late Andrea Dworkin, or Catherine MacKinnon. Yet in putting forward the view that pornography is the same thing as male violence, these authors have probably had a subtle influence on feminist thinking about computer games. No matter how great the take-up of games among girls and women, the continuing tastelessness of many 'masculine' games is seen misanthropically – as an enduring sign that men's horrid, aggressive lust for power, and indeed men's lust, will always be with us.

People see human nature as the one exception to today's endlessly alleged world of accelerating change. Yet today human nature is more protean than it ever has been. Some sex differences will always endure, being biologically founded; but many will not, having social roots. Much that might endure turns out not to.

Computer games don't transform teenagers into monsters. Yet they do involve, and will involve, a modest augmentation of our faculties. With his usual hyperbole, *Sunday Times* philosopher Brian Appleyard says that games 'are ontological prosthetics, artificial extensions into alternate conditions of being, independent of our rotting carcasses'.²¹⁵ Still, games are indeed a small part of the extended human mind today. They do contribute to transformations in what it means to be human.

Neither nurture in the sense of the parenting and schooling of children, nor nature as explained by the new disciplines of neurology and evolutionary psychology, can fully account for those transformations. In this sense, the answer to Q1 – are the differences between men and women around the making and use of computer games to do with culture or biology? – is simple enough. The differences that exist are not set in stone. References to culture and biology as direct and proximate causes of these differences fail to grasp this. They have more in common with description than explanation.

We say 'direct and proximate' because neither male ideology, nor testosterone, nor prehistoric hunters can account in any more than a vulgar manner for the success of particular computer games. It is anyway striking how much naturalists have in common with their feminist opponents. Pinker cuddles up to feminism. The sex differences documented in his book lie, he says, 'in the psychology of reproduction, not in economic or political worth'. They are 'invidious with regard to men, not women' – indeed, they 'should heighten awareness of incest, exploitation, harassment, stalking, battering, rape (including date rape and marital rape), and legal codes that discriminate against women'.²¹⁶ Baron-Cohen also disdains his sex. While he would 'like to believe that, deep down, men and women's minds do not differ in essence', he notes that 'today many feminists have become rather proud that there are things that most women can do that most

214 Graner Ray, S. 2003. *Gender inclusive game design: expanding the market*. Hingham, MA: Charles River Media.

215 Appleyard, B. 17 October 2005. pp6-7. 'Gangsters, guns, girls – computer games are just as popular as Hollywood blockbusters', *The Sunday Times*.

216 See Pinker, S. (1997) 1999. p492. *How the mind works*. Harmondsworth: Penguin Books.

men cannot do as well'. In decisive style, he concludes: 'Hosting a large party tactfully, making everyone feel included, is just one example of something that many men may shy away from'.²¹⁷

This paper has reviewed the consumerist, constructionist, psychological and socialist feminist approaches to women. We find such approaches wanting. Computer games are no more the site of masculine power than are sexist toys. Lara Croft may be more of a cyber-bimbo than a feminist icon, to adopt the terms of Helen Kennedy, a University of the West of England specialist in play.²¹⁸ The baddies Lara fights are certainly mostly men. But to hold figures like her as responsible for the paucity of women in UK games programming, or US computer science generally, amounts to an unlikely stretch.

Naturalist accounts are as one-sided as cultural determinist ones. In a debate held in May 2005, Pinker insisted on an evolutionary answer to the question raised by Larry Summers, then president of Harvard: whether there are 'issues of intrinsic aptitude' that explain the preponderance of men rather than women in the mathematical sciences. But Pinker's Harvard psychology colleague Elizabeth Spelke marshalled some convincing evidence to show that boys and girls do *not* differ in orientation to objects, spatial and numerical abilities, or variability in cognitive abilities leading to male predominance at the upper reaches of mathematical talent. Spelke notes, too, that 57 per cent of US current accountants are women. These are things that the naturalist account is hard put to explain.²¹⁹

Cultural determinists and naturalists each having their weaknesses, we are not persuaded that *interactions* between culture and biology have been specified satisfactorily enough to explain the year-to-year evolution of women's reactions to computer games, or the relatively recent prominence, say, of women pharmacists, or indeed of women comics. An *unspecified combination of culture and biology* sounds like a traditional English compromise. Yet as the zoologist and science writer Matt Ridley has excellently quoted a Texan politician, 'There ain't nothing in the middle of the road but a yellow line and a dead armadillo'.²²⁰

217 Kennedy, H. 2002. 'Lara Croft: feminist icon or cyberbimbo? On the limits of textual analysis', *Game Studies Journal*, 2(2), on www.gamestudies.org/0202/kennedy

218 Baron-Cohen, S. 2003. pp11-12. *The essential difference: male and female brains and the truth about autism*. London: Allen Lane.

219 Pinker, S. and Spelke, 16 May 2005 "The science of gender and science", *Edge* on www.edge.org/3rd_culture/debate05/debate05_index.html; Spelke, E.S. December 2005. 'Sex differences in intrinsic aptitude for mathematics and science? A critical review', *American Psychologist* 60: pp950-958.

220 Ridley, M. 2003. p3. *Nature via nurture: genes, experience and what makes us human*. London: Harper Perennial.

6.1 *Femina fabra*

In his book *Nature via nurture*, Ridley specifies his own combination. Drawing on EP and Baron-Cohen, he contends that the design of most of the human mind's many instinctive modules enables them to be modified by experience. 'For all the determinism in the initial wiring of the brain', he writes, 'experience is essential for refining that wiring'. Genes serve nurture as much as nature: they respond to the environment, and are mechanisms, not just causes. They come with DNA switches that are turned on and off through life by events both inside and outside the body. Genes act as devices for extracting information from the environment.²²¹

It is an intriguing hypothesis. For his methodology of nurture and nature, Ridley frames it by means of an equally intriguing list of 12 'hairy men' who, he believes, put together the chief theories of human nature that came to dominate the 20th century. The hairy men are Darwin; Francis Galton; the American philosopher William James; Hugo De Vries, the Dutch discoverer of the laws of heredity; Ivan Pavlov; the behaviourist John Broadus Watson; the German psychiatrist Emil Kraepelin; Freud; the French founder of sociology Emil Durkheim; the German-American anthropologist Franz Boas; the Swiss child psychologist Jean Piaget and the Austrian zoologist and psychologist Konrad Lorenz.²²²

But lo! In *How the mind works*, Steven Pinker has a list of six factors that, he rightly says, have each 'been inappropriately invoked as the source of our faults and a claim that we are not masters of our fates'. The factors are genes, the anatomy of the brain, the biochemical state of the brain, family upbringing, treatment at the hands of society, and exposure to external stimuli – Pinker mentions an example around pornography, but court defendants have also claimed to have been led astray by television, and much besides.²²³

This paper has not discussed Freud, and has only touched on the sexist imagery of computer games.²²⁴ Yet the lists presented by Ridley and Pinker contain a much more significant omission. Missing from them is any conception or theorist of *adult, conscious human agency in a society mediated by work*.

Clearly both upbringing and biology have an effect on both sexual and gender difference. But work, is still – despite computer games – a dominating activity in adult life. Work is the big mediator of nature and nurture, perhaps even more than language. While language distinguishes human beings from animals, it is through work and the creation of wealth that language has been assisted to the heights its has reached. In work adults plan ahead and learn, in a way that is qualitatively superior to the techniques of animals. Yet while Ridley quotes Durkheim on the role of the division of labour in creating human rights and duties, he much prefers to argue that humans share consciousness and agency with chimpanzees and baboons.²²⁵

A coherent conception of *femina fabra* has likewise been missing from feminism for many years. With the exception of its complaints about occupational segregation, UK feminism's emphasis is on parenting, children as victims, child abuse, children's socialisation, male violence and constructed identities. Thus in June 2000, when then Minister for Women Tessa Jowell held a meeting at No 10, it was a 'body image summit', at which she ticked off fashion companies and magazines for encouraging anorexia among young women. The focus, in short, is on what is done to women as more-or-less childlike receptacles of mistreatment – not on grown-up women who are active in their own right.

Let's now look more closely at women and games in the context of both paid work, and unpaid housework.

221 Ridley, M. 2003. pp66, 145, 149, 208, 235, 247-8. *Nature via nurture: genes, experience and what makes us human*. London: Harper Perennial.

222 Ridley, M. 2003. pp4-5. *Nature via nurture: genes, experience and what makes us human*. London: Harper Perennial.

223 Pinker, S. (1997) 1999. p53. *How the mind works*. Harmondsworth: Penguin Books.

224 For a review of Konami's *RumbleRoses* female wrestler game, one that is notorious for its sexual imagery, see Valentino, N. 17 November 2004. 'Rumble Roses', *GameZone*, and on <http://ps2.gamezone.com/gzreviews/r24128.htm>

225 Ridley, M. 2003. pp.259, 10, 15. *Nature via nurture: genes, experience and what makes us human*. London: Harper Perennial.

6.2 The decline of work and the rise of play

Consumer culture and biological make-up are important to women and computer games, but the realities of work are probably more important. Summers had every right to ask why women are under-represented in such a key area as the mathematical sciences, and every right, too, to put forward a biological explanation. Why? Because in questions of sex difference, *all* factors need careful consideration from a rounded point of view

We need open debate on the reasons for the different approaches men and women have to computer games. In that case, however, not just sociology or biology, but also politics, economics and technology need to be taken into account. And within this broader context, *work* stands out as the key impetus to computerised play.

Formally, of course, play is the antithesis of work. But *in the world of paid work, playful activities are growing – something that is entirely new in the history of capitalism.*²²⁶ Indeed role-play and competitive games are so much part of work today that the television series *The Office* has made them the object of popular satire. Despite that satire, however,

- At the Woodlands Resort, Houston, visiting executives go team-building on The Challenge Course, in which teams compete in the use of balloons and tape to build the most creative and tallest free-standing structure that best represents their company's values²²⁷
- At Bank of America, practice at the theme parks of the Walt Disney Company has inspired how the bank's staff interact with customers, while Starbucks is licensed to run shop-in-shop branches. At Washington Mutual, at least one retail branch has a play area for children, complete with Nintendo and PlayStation games²²⁸
- In the human resources parts of corporate websites, the concept of 'recruitment' is growing: in 2005, for example, 176 teams of undergraduates and MBAs from 31 countries competed in the 13th year of L'Oréal's Brandstorm, 'a game which touches upon the core of marketing', in which contestants simulate developing new product lines for existing company brands²²⁹
- There are now more than 20,000 professional life, management and personal 'coaches' in the US and more than 4000 in the UK²³⁰
- At the airport bookstall, one can buy books with titles such as *Joy at work: a CEO's revolutionary approach to fun on the job*²³¹
- the *Sunday Times* continually publishes articles dedicated to the idea that techniques from rugby, cricket, swimming, rowing and football are relevant to mainstream business.²³²

Today, therefore, adult women enter a world of work in which play has official support. Indeed innovation in the workplace is often taken to mean creativity, which in turn is taken to mean play. The atmosphere surrounding play is positive and sociable in many workplaces. On top of that, the use of computers and mobile phones in work settings to conduct personal administration and communications is often accompanied

226 See Woudhuysen, J. 2003. 'Play as the Main Event in international and UK culture', *Cultural Trends*. 43 & 44: pp95-145. London: Policy Studies Institute and on <http://www.psi.org.uk/docs/2003/news-CT-Woudhuysen-play.pdf>

227 McNulty, S. 15/16 May 2005. p5. 'Reserving a seat at Woodlands Resort conference circus', *Financial Times Money and Business*.

228 Croft, J. 5 April 2005. p23. 'Time to wake up and smell the coffee', *Financial Times*.

229 L'Oréal, 21 June 2005. 'L'Oréal rewards marketing minds of the world', press release on www.loreal.com/en/ww/press-room/full_article.aspx?NewsID=aa736820-6349-416c-b4c9-89b93b6c270a&r=2&sr=1&

230 Sanghera, S. 5 July 2005. p8. 'I went in for coaching, but couldn't stay the course', *Financial Times*.

231 Bakke, D. 2005. *Joy at work: a CEO's revolutionary approach to fun on the job*. Seattle: PVG

232 Bolchover, D. 19 June 2005. pp1, 8. 'Sport shows business how to win'. *The Sunday Times Business News*; Bolchover, D. 26 June 2005, 'Cricket lessons for big business'. *The Sunday Times Business News*; Bolchover, D. 3 July 2005. "'Chocolate cake" management guide'. *The Sunday Times Business News*; Bolchover, D. 10 July 2005. 'Rowing coach shows how to pull together'. *The Sunday Times Business News*; Bolchover, D. 17 July 2005. 'Turn your teams into champions'. *The Sunday Times Business News*.

by the use of IT to play computer games. It is probable that *adult women gain much of their contemporary exposure to computer games at work*.

The ascendancy of play within the world of work confirms that work is fundamentally not what it used to be. As the radical British writer Jennie Bristow has pointed out, work once represented a genuine opportunity for women to play an independent, public role in society. Now, however, work is popularly viewed as that bit less exciting – while social solidarities at work, from trade unions to informal bonds between long-term colleagues, have become ‘transformed into tenuous, temporary relationships between disparate individuals, mediated through the boss or a workplace counsellor’. In today’s context of vacuity at work, Bristow suggests, women need to recall that ‘the promise of women’s equality was never reducible to an equal participation in a mundane world’.²³³

At the same time as paid work is being dumbed down, partly through play, women still do most of society’s unpaid housework, and especially childcare. As a result, we might expect that *adult women also gain much of their contemporary exposure to computer games through exposure to their children’s games at home*. At the same time, *many mothers will not have the time to engage in computer games at all*. Of course, the middle class mother in Britain may be able to afford private childcare. But that situation will probably be paid for through longer hours at work, and not characterised by increased playing of computer games.

Childcare, therefore, remains a major barrier to women taking up computer games more widely. But must childcare always perform a role like this – is it intrinsically labour intensive? Meredith Small, the American pediatrician we have already met, follows through on the logic of her naturalism. For her, the massive toil of parenting is biologically given and inviolable:

‘If we, as parents, accept this fundamental truth – that having a baby and bringing it into adulthood is a major constraint on life, on resources, on our physical and emotional selves, and a big job not for the squeamish – we are then essentially in line with accepting our evolutionary heritage.’²³⁴

Here the defects of the biological world-view are stark enough. It’s fatalistic to pose parenting – in the first place, mothering – as intrinsically and irredeemably burdensome for evolutionary reasons. *The freedom for British women to have the amount of leisure time they want, including time spent playing computer games, is constrained by backward state policy on childcare and backward UK productivity in general, not by evolution*.

Women’s preferences in computer games, therefore, may be distinguished from men’s by childhood experiences, or by different brains. But *it is the differential adult use of time between women and men that probably most shapes these preferences*. At present, many women don’t have the time men do for games – even if that is gradually changing. Moreover, the roles played by women in paid work are also changing, and, with that, the feminine sensibility, choice of heroines, and so on. Women’s alleged lack of competitiveness has been qualified by the past 20 years of expansion of posts for women, even if most of this expansion has related to part-time work. These facts, more than any others, profoundly affect the relationship between women and computer games.

233 Bristow, J. 21 May 2004. ‘Women: are we equal now?’. [spiked](http://spiked.com), and on www.spiked-online.com/Articles/0000000CA535.htm

234 Small, M. F. 1998. p228. *Our babies, ourselves: how biology and culture shape the way we parent*. New York: Anchor Books.

6.3 Little discrimination, not a whole lot of choice

As part of Q2, we asked: are occupational segregation and the paucity of female games programming jobs part of a wider problem of *discrimination* in the IT industry?

In an interesting attack on what they call biological determinism and social determinism, Tracy Hammond, of MIT's Artificial Intelligence Laboratory, and Jan Hammond of the Department of Educational Administration, State University of New York argue that what really affects female entry into US computer science and related careers is the ability to exercise choice in the matter. They write that human behaviour is

'purposive, resulting from the autonomous decisions that people make to satisfy their unique goals. Any externally imposed condition that is perceived to alter the goal or restrict the means to satisfy it has been found to cause frustration, resulting in apathy.'²³⁵

The Hammonds overestimate how much women encounter what they call a 'high choice situation', in which 'the choice maker perceives total autonomy and has further exercised this autonomy by selecting a course or career according to her innate preferences'. Similarly, Kingsley Browne underestimates the *limits to female autonomy*. 'The question of agency', he says at the end of *Biology at work*, is 'at the core' of his book:

'Are women, like men, active agents in their own lives, making rational decisions based upon their own preferences? Or are they pawns of both men and society – making suboptimal "choices" that are forced on them by others? All indications are that the former is closer to the mark. Women, though somewhat constrained by life circumstances, as are men, make rational and responsible choices that more compatible with their temperaments, abilities and desires.'²³⁶

Women are active agents more than pawns. Yet though women make history, they do not do so in circumstances of their own choosing. This is a fact somewhat overlooked in the *preference theory* laid out by the distinguished labour market sociologist Catherine Hakim.

In 2004 Hakim, a senior research fellow at the London School of Economics, published a fascinating second edition of her 1996 classic *Key issues in women's work*.²³⁷ Hakim rejects the American feminist Heidi Hartmann, whom we have already met. For Hakim, Hartmann and others like her were 'right to see male-dominated trade unions as the clearest illustration of patriarchy in the labour market', but were more right about the 19th than the 20th century, and not at all relevant to the 21st – 'by the 1990s', Hakim more persuasively argues, 'the British system of industrial relations itself was in decline'.²³⁸

However, Hakim also rejects evolutionary theory, as a guide to occupational segregation, dismissing it rather effectively with the remark that the new pattern of about 20 per cent of women remaining voluntarily childless disproves the notion of there being a biological imperative for women to have children and raise them.²³⁹ Instead of the old feminism and the newer naturalism, Hakim contends that women take the jobs they do as a matter of *preference*, to do with their *values* and *lifestyles*. In other words, she shares with the Hammonds and Browne a rather too breezy estimate of the *choices* in front of women.

For Hakim, we have a historically new scenario in which women 'have genuine choices and female heterogeneity is revealed to its full extent'. Up to two-thirds of women will be adaptive – will prefer to combine job and family without giving a fixed priority to either, and will want to enjoy the best of both worlds. Only 20 per cent minorities of work- and home-centred women will focus on one or the other. A new zone of choice

235 Hammond, T. and Hammond, J. 6-9 November 2002. 'Gender-based under-representation in computer science and related disciplines'. American Society for Engineering Education/Institute of Electrical and Electronics Engineers Frontiers in Education Conference Session F3C F3C-5 Boston, MA, and on <http://fie.engrng.pitt.edu/fie2002/papers/1114.pdf>.

236 Browne, K.R. 2002. p217. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

237 Hakim, C. 2004. Second edition. *Key issues in women's work: female diversity and the polarisation of women's employment*. London: Glasshouse Press.

238 Hakim, C. 2004. Second edition. p81. *Key issues in women's work: female diversity and the polarisation of women's employment*. London: Glasshouse Press.

239 Hakim, C. 2004. Second edition. p51. *Key issues in women's work: female diversity and the polarisation of women's employment*. London: Glasshouse Press.

has been opened up by contraceptives, 'the equal opportunities revolution', the growth of white-collar jobs, the creation of jobs for secondary earners ('people who do not want to give priority to paid work at the expense of other life interests'), and 'the increasing importance of attitudes, values and personal preferences in the lifestyle choices of prosperous, liberal modern societies'.²⁴⁰

Hakim captures some important changes, but downplays the constraints on choice. Like Browne, she adopts an insouciant attitude to the exigencies of childcare, on the grounds that it occupies a small proportion of the woman's life cycle, even if it is 'overwhelmingly full-time' for 'a few years'. She makes a better point in noting that care for the elderly in the home has replaced some of the decline in childcare work, and that this looking after for older people is a unisex affair that can be tougher and less rewarding than looking after for kids.²⁴¹

In fact, Hakim elsewhere gives striking evidence of the limits to choice: not just in Britain but also in most European countries, she notes, the alleged 'feminisation' of the workforce mostly consists of growth in rather poor half-time or marginal jobs.²⁴²

Childcare, care for the elderly, and Gordon Brown's drive to get women into a job, any job – these hard facts do stop women from making and using computer games. In *always* stressing a lofty free will against the cold social circumstances that surround us, the Hammonds, Browne and Hakim lack balance on choice. Nevertheless, they are right to raise the issue. The unwillingness of females to enter games *programming* is probably just that: unwillingness. It is not that women are frozen out of games development, but that they don't appear to want to get into it very much. They often prefer, and in modern Britain can often get, more general jobs in human resources or public relations. In games, they most often take managerial or marketing roles.²⁴³ Jennie Bristow has shown that today's women – and especially younger women – suffer relatively little discrimination in the general labour market.²⁴⁴ In the games industry itself, Lizzie Haines' research with 20 UK computer games firms tends to confirm that proposition. In 2004, Haines found that no fewer than 23 per cent of all those in senior positions were women.²⁴⁵

In games as elsewhere in IT, marketing people rather than development people frequently have the upper hand in dictating the design of the final product put on sale. Thankfully, then, the sense that that games will only fully appeal to women if women *programme* them remains only subterranean at present. Nevertheless, such a logic fully brings out the absurd implications of the feminist and naturalist accounts. In the real world, men will continue to programme games that mostly women play. Meanwhile, more and more women will find themselves programming games for both sexes.

Hand-wringing about the absence of women games programmers, then, is an impatient indulgence, not a blow for the liberation of women. Games programming jobs, after all, can be boring. For that reason alone, discrimination against aspirant women programmers is likely to be limited. Browne is right not to believe that women *never* face discrimination at work; but he is also right to remark that discrimination cannot be simply assumed from disparities in labour market representation. As he observes,

'Existing patterns do not necessarily suggest that the work men tend disproportionately to do will continue to be done by men in the same proportions. Even if women's job preferences were not to change, jobs do....

'Does the fact that males and females differ, on average, in occupational interests and abilities mean that vocational counselors should use this information to steer females into certain occupation and males into others? Should employers routinely assume that all male and female applicants share the average characteristics of their sex? Certainly not in either case.'²⁴⁶

240 Hakim, C. 2004. Second edition. pp14, 15 *Key issues in women's work: female diversity and the polarisation of women's employment*. London: Glasshouse Press.

241 Hakim, C. 2004. Second edition. pp51, 52.. *Key issues in women's work: female diversity and the polarisation of women's employment*. London: Glasshouse Press.

242 Hakim, C. 2004. Second edition. p79. *Key issues in women's work: female diversity and the polarisation of women's employment*. London: Glasshouse Press.

243 Haines, L. September 2004. p6. *Why are there so few women in games?*, Media Training North West and on www.igda.org/women/MTNW_Women-in-Games_Sep04.pdf

244 Bristow, J. 21 May 2004. 'Women: are we equal now?', *spiked*, and on www.spiked-online.com/Articles/0000000CA535.htm

245 Haines, L. September 2004. p6. *Why are there so few women in games?*, Media Training North West and on www.igda.org/women/MTNW_Women-in-Games_Sep04.pdf

246 Browne, K.R. 2002. pp44, 50, 66, 67. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

It is likely that both female programmers and female programs will arrive after an interval. Computer games and computer arts courses are, after all, in their first generation. Likewise, career opportunities in these areas are also relatively new. As gaming becomes part of family entertainment alongside viewing TV, movies and mobile phones, so girls', parents' and teachers' awareness of the range of career prospects in games will grow.

6.4 The way forward

In 2002-3, the leading UK games recruitment agency Aardvark Swift found that it placed a total of 105 people in games programming jobs.²⁴⁷ So in the UK, at least, there can only be perhaps 500 games programming jobs up for grabs – by women and men – in the first place. This tells us something. *The growing worry about occupational segregation in what is always likely to be a very limited number of games industry posts gamesters revolves more around state social engineering than practical software engineering.*

Of course, there is a big market opening up for games that appeal strongly to women. The fondness women have for mobile phones, together with the spread of games to mobile platforms, also promises more female-orientated 'product'; and already Indian games software houses, complete with at least some women in programming rather than roles in administration or art direction, are very active in the mobile domain.²⁴⁸ But it is of greater interest whether Indian women, who really are oppressed, get millions of jobs in IT over the next few years, than whether 1000 British women, over the same period, get to design animations that are testosterone-free. *To highlight computer games programming as a major problem for women in Britain represents a complete indulgence, and can only act so as to accelerate state intervention and regulation around the issue.*

Must girls be given special training courses in games software, in the implicit hope that they should, sooner or later, make up half the workforce in UK computer games production? Perhaps. Yet nobody runs a campaign to ensure that men gain equal representation to women in a field such as nursing. All in all, girls would only deserve special training in game programming if we were to share New Labour's unannounced dream of making one in every two British plumbers a woman.

Browne is right to ridicule both the measures that stem from this kind of approach, and the thinking behind it. In America, he points out,

'Many of the suggestions to increase female interest in the sciences are quite patronizing to women. Some believe that such things as providing pizza parties for physics students, creating public service announcements "that use the words 'engineering' and 'fun' in the same sentence", or naming the engineering school after a woman, as the Rochester Institute of Technology has done, are at least part of the answer. The idea that women are going make fundamental life decisions on the basis of such trivialities does not say much about their advocates' respect for women's autonomy or judgment, and it is unlikely that such initiatives will have a long-term impact on the number of women in science'²⁴⁹

As with US science, so with computer games in the UK. A cosmetic re-branding of computer games education and employment as somehow sexy for women to engage in is not the way forward.

In Q3, we asked: will games only fully appeal to women if women programme them? Even the naturalistic Browne has doubts that, in science, a 'woman's way of knowing' will yield a safer bridge or a new fundamental particle.²⁵⁰ But Browne also brings out the conservative implications, for women on the labour market, of the 'women should design games for women' hypothesis:

247 Krotoski, A. September 2004. p19. *Chicks and joysticks: an exploration of women and gaming*. London: Entertainment and Leisure Software Publishers Association, and on www.elspa.com/about/pr/

248 Puliyeenthuruthel, J. 6 June 2005. p.26. 'Biff! Zap! Game coding comes to India'. *Business Week*.

249 Browne, K.R. 2002. p149. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

250 Browne, K.R. 2002. p150. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

'An inherent self-contradiction in the argument for "diversity" is often overlooked. Many take the disparities in representation of men and women as proof that the deck is stacked against women, on the rationale that we should expect women to sort themselves into jobs in the same proportion as men. Yet, we are simultaneously told that women bring a different perspective and different values to the workplace. If men and women truly do have different perspectives and values however, then why on earth would one expect them to have the same occupational preferences?'²⁵¹

Once you uphold the politics of difference, you are in no position to argue that occupational segregation is a problem.

Perhaps women will always have difficulty in programming 'shooters' and other spatially-, action- or violence-based games for men. Perhaps men will always be poor at writing programmes for language- or communication-based games for women, and poor, too, at working on today's networked, ludic and online virtual worlds – games such as *World of Warcraft*, *City of Heroes* or *Second Life*.²⁵² Yet it is worth asking where such hypotheses come from and lead to.

The search for games that appeal to women because women programme them is an attempt to meet two goals. A *business* goal – expanding the appeal of computer games to women – is presented as one quite congruent with a *moral* one. Corporate social responsibility (CSR) in computer games, it appears, means feminising them... with extra profits in mind. This convergence between CSR and the demands of the market is something that typifies environmentalist thinking today.²⁵³ It is also a convergence that characterises thought and action about computer games and women.

Now, games will play a vital part in tomorrow's socialisation, communication and personal identity – for women as for men. Games based on mobile phones, or played at WiFi hotspots, will confirm this. So too will massively multiplayer online games (MMOG) and massively multiplayer online role-playing games (MMORPG).²⁵⁴ These trends need not disturb. What should be treated as disturbing, though, is the willingness of Britain's political elite to reinforce youth in the opinion that, in games as elsewhere, *masculine values are all bad news, but the market can be relied upon – with a bit of help from enlightened government – to put things right in everyone's interest.*

In fact, so long as what women want of computer games is held to be worthier than what men want, that will demean both women and men. So long as business is held to have a commercial interest in behaving morally and responsibly by putting more 'feminine' titles on sale, the market will continue to be the subject of idolatrous worship. And so long as liberals urge government to compensate for market failure by promoting positive discrimination in favour of women games programmers, the more they will buttress the power of the state.

Although the feminist theories of the 1970s had colossal faults, some at least highlighted the ludicrous nature of generalisations about the sexes. Adams and Laurikietis' 1976 lampoon of such generalisations is worth repeating. Here is their list of the qualities that were then generally accepted as male and female:

251 Browne, K.R. 2002. p151. *Biology at work: rethinking sexual equality*. London: Rutgers University Press.

252 For a discussion on virtual worlds, see Book, B. October 2004. 'Moving beyond the game: social virtual worlds' and on www.virtualworldsreview.com/papers/BBook_SoP2.pdf

253 See for example Porritt, J. 2005. *Capitalism: as if the world matters*. London: Earthscan Publications.

254 On MMOG, see GameSpy staff. 14 November 2003. 'Massively multiplayer online games: the past, the present, and the future'. [GameSpy](http://archive.gamespy.com/amdmog/), and on <http://archive.gamespy.com/amdmog/>

Table 9 The sexes, as satirised by Adams and Laurikietis

<i>Male</i>	<i>Female</i>
hard	soft
tough	gentle
brutal	kind
cold	affectionate
brave	timid
assertive	quiet
strong	weak
unemotional	emotional

As Adams and Laurikietis rightly pointed out, ‘This is a list of opposite qualities – the male and female stereotypes’.²⁵⁵ Today, commentators of a naturalist persuasion blithely, joyfully and idiotically retail such stereotypes as good science. How funny that the cultural determinist zeal of the feminists, complete with their silly ‘explanation’ that stereotypes grow out of parenting, toys, schools and the media, proved no match for the rise of biological accounts of sexual difference in the 1990s!

For women and men to programme games with credible heroines – and heroes – who can be captivating to both sexes, a first step will be to reject both the cult of feminine values and the biological stereotypes such values are reputed to grow out of. But there is another step that is worth taking too.

At their height, opponents of capitalism condemned the way in which it acted against women in the realms of unpaid and paid *work*. Today’s treatments of women and computer games, by contrast, tend uncritically to applaud women’s growing indulgence in *play*. That is why, in the introduction to this paper, we asked Q4: is the playing of games by women *unequivocally a Good Thing*?

Our answer is – no, not quite. For both women and men in the West, games and play are becoming more of a way of life, at just the moment that normal life seems more bereft of meaning than ever before. The rise of essentially trivial pastimes should not call forth a moral panic. But the hipper-than-thou attitudes espoused by many in the games milieu are self-conscious, and not politically conscious. Games may serve as a badge of identity, of course; but identity politics will never change the world enough to allow a true flowering of creativity in computer games.

Grown-up computer games for women will require a struggle for a much more worthwhile goal. What gamers need, and what everyone else needs, is an adult politics of autonomy that rejects the special pleadings of feminist and naturalist interpretations of the world. Women gamers and women games programmers are neither oppressed, nor freaks of nature. Nor, in future, will their strength of character be derived simply from the realm of play.

Women are different from men, but it is time to say farewell to the politics of difference.

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²⁵⁵ Adams, C. and Laurikietis, R. 1976. p20. *The gender trap: a closer look at sex roles, Book 1: Education and work*. London: Virago/Quartet.