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Sex/Gender, Language and the New Biologism

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In recent years there has been a striking shift in both academic and popular discourse on the subject of male–female differences. It is increasingly common for biological explanations to be proposed for differences that had previously been treated by most investigators as effects of socio-cultural factors. This article critically examines the arguments as they apply to the specific case of male–female differences in linguistic behaviour. It concludes that the relevant linguistic research evidence does not on balance support the new biologism; that evidence is more adequately accounted for using the socio-cultural approaches which most linguistic researchers favour.

INTRODUCTION

This article considers some ideas about language and sex/gender,[1] which are currently influential in both expert and popular discourse. Advocates of what I am calling 'the new biologism' (the term is discussed further below) contest the belief that male–female behavioural differences are effects of social and cultural processes. They argue instead that many such differences are biologically based, produced by evolutionary processes which have led the two sexes to differ not only in the obvious physical ways, but also in their cognitive abilities, their psychological dispositions, and consequently their habitual ways of behaving. This is not just an argument about language, but language features prominently among the phenomena to which it is applied. Here I will consider the new biologism's claims by way of a critical examination of the arguments and the evidence.

The recent resurgence of biologism in debates on sex/gender is one manifestation of a larger 'Darwinian turn' in the study of human behaviour, thought, and culture. The study of language and gender has not been directly affected by this development: though theoretical overviews of the field (e.g. Bing and Bergvall 1996; Bergvall 1999; McElhinny 2003) often do discuss the issue of biological sex, the point is usually to distinguish sex from gender, and to reaffirm the primacy of the latter. This research community, in short, remains committed to socio-cultural approaches.[2] But in the larger academic/scientific community, the new biologism is gaining ground. High-profile commentators like Steven Pinker (2002) cite new discoveries in rapidly advancing fields such as genetics and neuroscience to argue that biologism is now the 'cutting edge' approach to sex/gender, while socio-cultural approaches are outmoded and discredited, maintained more for reasons of 'political correctness' than because the evidence supports them.

Applied linguists do not dispute the general principle that scientists must be willing to follow the evidence. But in the spirit of science we should also be willing to ask what the evidence actually is, and whether it really leads where it is said to lead. In the case of language and sex/gender, how well do the new biologism's substantive claims fit with the findings of linguistic research? How compelling is the argument that those findings are more convincingly explained in biological than socio-cultural terms?

For applied linguists with their focus on language in the 'real world' there are reasons to broach these questions that go beyond the purely academic. The new biologism's influence is not felt only in the academy: its arguments about sex/gender now dominate popular folklinguistic discourse, and are increasingly being taken up in the spheres of policy and professional practice. In the US, for instance, claims about innate differences between boys and girls are currently fuelling a campaign for single-sex classrooms, the idea being not just to teach girls and boys separately, but to educate them differently, with curriculum content and teaching methods tailored to suit what are alleged to be their distinctive intellectual capacities and learning styles (Gurian *et al.* 2001; Rivers and Barnett 2007). Supporters of this move make much of the idea that girls are innately endowed with superior verbal abilities. Boys, they say, are disadvantaged by the emphasis modern schooling places on language and literacy; they need both different language pedagogy and a less language-centred curriculum. Elsewhere, though these ideas may not be driving educational policy, they are influencing attitudes in ways that have the potential to affect outcomes. One recent Australian study (Carr and Pauwels 2006) found both teachers and pupils invoking biological sex-differences and the notion of 'brain sex' to explain why girls were good at language subjects and boys were not.

If we accept that educational attainment can be affected by societal expectations, and particularly by the expectations of teachers, then we might well have concerns about the current popularity of what amounts to a biologically based deficit model of boys' verbal abilities. That model is no less in need of critical interrogation than the other verbal deficit claims (for instance, about working-class non-standard dialects, Black Englishes and 'semilingualism') to which linguists have turned their attention in the past.

By now, readers may well be asking precisely what—or who—I mean by 'the new biologism'. I should acknowledge that this is not a label which some particular group of scholars uses to identify itself. Rather it is an umbrella-term which I have chosen to apply to an interdisciplinary and somewhat heterogeneous collection of current scholarly enterprises, on the basis that they share certain fundamental assumptions and preoccupations, and conduct their arguments within certain parameters. It is those assumptions, preoccupations and parameters which I take to define 'the new biologism' as what some theorists might call a 'discursive field'. Within that field, an important shared assumption is that the most powerful explanations of the way humans think, feel, and act are those which appeal to the principles of evolutionary theory. Probably the most important source for explanatory stories of this kind—and as such, an important reference-point for the new biologism—is evolutionary psychology (hereafter 'EP'). While few of the scholars whose work I discuss below would describe themselves as evolutionary psychologists, all of them make use of EP's Darwinian narrative. At this point, then, I will turn to EP, setting out some of its principles and going on to consider how these are applied to the subject of language and male–female differences.

EVOLUTIONARY PSYCHOLOGY

Evolutionary psychology has been described as a new 'science of human nature'. Its central claim is that the human mind, like the human body, is a product of Darwinian evolution. On that basis it contests what its adherents represent as the hegemonic position among social scientists and laypeople, that the mind at birth is a 'blank slate', waiting to be inscribed by experience and socialization. Rather what humans have is an 'adapted mind' (Barkow *et al.* 1992), predisposed to develop in particular ways that proved advantageous for survival among our early human ancestors.

The word 'predisposed' is used advisedly here: popular writers may use terms like '(hard) wired' and '(genetically) programmed', but most reputable scholars disclaim the strong determinism that language implies (e.g. Dunbar *et al.* 2007: 6–7). While such disclaimers are not unproblematic (Rose 2005), EP should not be crudely characterized as an approach that attributes everything to 'nature' (in the form of genes) while giving no weight to 'nurture' (environmental/cultural influences). On the contrary, it seeks to move beyond that dichotomy by arguing that the adaptations which produced human nature resulted from the demands made on humans by their physical and social environment interacting with biological mechanisms.

The biological mechanism which is central to this story is natural selection, the process whereby genetic traits which confer a survival advantage ('survival' in modern evolutionary theory meaning the survival of an organism's genes when they are passed on to offspring) gradually spread through the population. But what traits are advantageous depends on the conditions in which the organism must survive. For EP, the conditions which are relevant for our understanding of human nature are not the ones most humans live in now, but the ones in which our species evolved many millennia ago. We modern humans inherit our genes from ancestral peoples who roamed the plains of Africa in small bands of hunter-gatherers: our nature is therefore shaped by the requirements of that way of life.

This general reasoning underpins the argument that cognitive and psychological differences between men and women (including the specifically linguistic ones which I will consider in more detail below) are not cultural epiphenomena, but part of our genetic inheritance. It is assumed that among early humans male and female roles were sharply differentiated: women gathered and men hunted, women nurtured infants and men fought other men. This made it adaptive for the two sexes to have different skills and traits (e.g. for women to be more empathetic and men more aggressive). In addition, the sexes are and always will be differentiated by their reproductive biology. For men, whose essential contribution to the reproductive process is fertilizing the ovum, the number of offspring who carry their genes is closely related to the frequency with which they mate. They are therefore advantaged by traits which enable them to maximize their mating opportunities by either persuading women to choose them over other men (e.g. because they are 'better providers') or more directly overcoming their rivals. Women, on the other hand, can only produce a limited number of offspring: for them what matters most is ensuring those they do produce survive. They are therefore advantaged by traits like empathy and nurturance which enable them to select mates judiciously and care effectively for dependent children.

EP's evocation of the lives of early humans is necessarily extrapolated from very limited direct evidence. On some questions (e.g. about our ancestors' physiques and their diet, their tools and their visual art), conclusions may be drawn from the evidence of fossil remains and preserved artifacts. There are other questions, however, on which that evidence sheds no light, because they concern forms of behaviour which do not leave material traces. Questions about our pre-literate ancestors' ways of using language are clearly in this category, as are questions about sexual behaviour and parenting practices. The stories EP constructs about these matters must therefore be based on more indirect evidence.

The approach for which EP is best known involves identifying some trait or behaviour-pattern which is widely attested in modern human populations: on the assumption that its current prevalence (especially if it is prevalent in otherwise unrelated cultures) is most parsimoniously explained by assuming it is inherited from ancestral humans, the investigator then sets out to construct an explanation of what made it adaptive for our ancestors. It is this way of proceeding which has led critics to charge EP with telling 'Just So Stories'. However, relevant evidence may also come from genetics, from the study of the brain and of human developmental processes, from research on non-human primates and from anthropological work with modern hunter-gatherer peoples, who are held to provide the closest directly observable parallel to ancestral human groups.

In practice, discussions of language and sex/gender difference tend to rely on two main sources of evidence. One is the laboratory-based work of neuro- and psycholinguists investigating male–female differences in verbal ability and/or the functional organization of language in the brain. The other is research—often conducted originally by socio- or applied linguists and linguistic anthropologists—on naturally occurring verbal behaviour among men and women in modern speech communities. Together, these bodies of work are taken to yield two large-scale generalizations:

(a) That one sex (in most versions of the argument females, but in some versions males) is innately endowed with superior verbal abilities and a greater predisposition towards verbal communication.
(b) That the two sexes differ in their typical modes of verbal interaction: men favour more competitive speech styles and genres, while women are more co-operative, empathetic, and nurturant.

These modern generalizations are adduced as supporting evidence for the larger theory that the most reproductively successful females among our ancestors had highly developed social (including communication) skills, an innate disposition to nurture and the ability to co-operate with others, while the most successful males were effective competitors who relied more on practical and non-verbal skills. At the same time, that theory is said to offer the deepest and most powerful explanation for the modern findings.

In the following discussion, I will suggest that both the generalizations themselves and the conclusions drawn from them are questionable: they are based on a very selective reading of the evidence, and in some instances also on linguistically naïve or tendentious interpretations of it. I will begin, though, by considering two accounts of language and sex/gender differences which have been proposed by evolutionary scholars, and placing these in the larger context of ongoing debates about the evolution of language itself.

SEX/GENDER AND THE EVOLUTION OF LANGUAGE

There is a long history of scholarly speculation on the origins of language, and questions of sex/gender have often featured in these discussions. For instance, a once-popular story about what made the possession of a language faculty sufficiently valuable to humans to offset the cost of the large brain needed to accommodate it suggested that it enabled men to co-ordinate joint activities such as hunting and warfare more efficiently. But although there are still some theorists (e.g. Crow 1998, 2005; Miller 2000) who believe (for other reasons) that language originated in men, others now prefer accounts which suggest that it developed first in women (Knight 1990; Dunbar 1996; Joseph 2000). This preference often goes along with the view that the main adaptive value of language related to the important function (given that humans are social animals) of creating and maintaining group cohesion.

Robin Dunbar (1996) argues that linguistic exchange (more specifically, the exchange of social information about community members' activities, relationships, status, and moral worth) served the same purposes grooming serves for non-human primates. As changing environmental conditions made it desirable for the size of early human groups to increase, one-to-one physical grooming became unsustainably time-consuming. Language permitted social information to be exchanged, and relationships negotiated, in larger groups and while engaged in other tasks. In Dunbar's view, this account favours the hypothesis that women rather than men were the prime movers. Among non-human primates, social networks are generally centred on females. Dunbar also believes, as do other theorists who place similar emphasis on social networking/group cohesion, that his account gains support from the superior verbal skills and greater disposition to communicate which have frequently been attributed to modern human females (Halpern 1992; Kimura 1999).

Scholars who take this view of language evolution have offered various proposals about how female verbal superiority evolved. One focuses on the sexual division of labour that is assumed to have prevailed among our ancestors. Joseph (2000) suggests that the habitual engagement of early human females in child-rearing, gathering, and the fashioning of domestic objects contributed to the functional evolution of the language areas of the brain, whereas men's engagement in hunting blocked that development (gatherers and mothers can, as Joseph puts it, 'chatter' while they work or care for infants, but hunters must remain silent if they are not to scare off their prey). A related suggestion is that hunting developed men's visual–spatial skills, one side-effect of which was to leave them with less neural capacity to devote to linguistic functions.

But there are problems with this line of argument. Apart from the fact that modern anthropological research with hunter-gatherer peoples (Dahlberg 1981; Lee and Daly 1999) suggests that 'men hunt, women gather' is a considerable oversimplification, the argument relies heavily on the notion that modern women are more talkative than men; and despite being common folk-wisdom, this idea is not supported by any reputable evidence. Systematic studies using a variety of methods and measures overwhelmingly contradict it, showing that in informal peer-interaction there is typically no sex/gender difference, while in formal and status-marked situations it is most commonly men who talk more (James and Drakich 1993; Mehl *et al*. 2007).

A similar problem arises with the claim that women favour co-operative and emotionally nurturant styles of speech whereas men are competitive and status-oriented. Unlike the female loquacity thesis, this generalization has had some support from linguistic scholarship: it was championed by the 'difference' current of language and gender research which was influential (though never uncontested) during the 1980s (Maltz and Borker 1982; Sheldon 1990; Tannen 1990). Difference researchers proposed that adult linguistic gender-norms reflect habits acquired in childhood, when girls and boys socialize mainly with peers of their own sex. Boys form large, hierarchical groups with leaders and followers; girls' groups are smaller, with a looser and more egalitarian structure. Boys play competitive games with complex rules; girls play simpler games where everyone gets a turn. These differing group structures and activities teach group members to use language in different ways. Boys acquire a competitive, status-oriented communication style: they learn to argue, boast, criticize, give, and receive orders. Meanwhile, girls acquire a more co-operative and supportive style: they learn to agree, praise, empathize, make suggestions and resolve disputes. These observations are not incompatible with an explanation in terms of innate characteristics, though that inference was not made by the original researchers. The problem, however, is that more recent research has cast doubt on the empirical validity of the difference generalizations, particularly about girls.

Marjorie Harness Goodwin (2006) spent three years regularly videotaping interactions among a group of pre-adolescent girls in Los Angeles and observed that they did all the things girls had been said by difference researchers not to do. Their group had an internal hierarchy (with the lowest-status participant, a peripheral individual dubbed the 'tag-along girl', subjected to regular bullying by the others). When they played hopscotch or jump-rope, their goal was to win or to outshine their peers, and they frequently argued about the rules. They also engaged in regular boasting—about their skills, their possessions and the relative wealth of their families—and in issuing orders, to one another and to boys. Though Goodwin's study stands out for the quantity and quality of the data it is based on, it is not the only case in which researchers have observed pre-adolescent and adolescent girls behaving in these ways (Eckert 1996; Baxter 2006).

So far I have concentrated on the view that language evolved primarily to facilitate the (co-operative and putatively female-centred) activity of social networking. There is, however, an alternative account which emphasizes the advantages of language as a tool for courtship—a more competitive activity in which it is assumed that males took the lead. A key difference between the two accounts is that while the first centres on the mechanism of natural selection (where selected traits are those which make their possessors better adapted to survive in the prevailing environmental conditions) the second allots a central role to *sexual* selection, the concept which explains why traits may be selected despite conferring no obvious survival advantage. Anomalies such as the peacock's tail (which appears to militate against survival by making the bird more conspicuous to predators) can be explained by positing that they made individuals who possessed them either more attractive to the other sex, or more successful in competing with their own sex for access to the other. This enabled them to mate more often, and so produce more offspring with the same characteristic. Sexually selected characteristics (e.g. large horns or elaborate plumage) are often found in males, and this reflects the fact that in many species it is males who do the courting while the role of females is to choose among potential mates. Peacocks, for instance, engage in 'lekking'—ritually displaying themselves in areas frequented by peahens.

Some scholars think that language fulfils analogous functions among humans. Geoffrey Miller (1999, 2000), for instance, argues that human languages are much more elaborate than they need to be to serve purely communicative purposes. This can be explained by hypothesizing that speaking served the purpose of displaying the (male) speaker's reproductive fitness. Dunbar (1996), who believes that language evolved primarily to facilitate social networking, agrees that it may also have developed a secondary function as a means for men to advertise themselves to women.

There is an obvious tension between this account and the orthodox wisdom which holds that women are the more talkative and verbally skilful sex. If the courtship story is correct, then men would logically have had more to gain than women from traits like loquacity, articulacy and fluency. Furthermore, on the principle that modern humans inherit the genes of the most successful reproducers among their ancestors, this male verbal advantage should still be observable. Supporters of the sexual selection account must therefore deal with the objection that the evidence points in the other direction.

That objection is addressed in an article by John Locke and Barry Bogin (2006), who raise doubts about the strength of the modern psycholinguistic evidence for female verbal superiority, pointing out that meta-analytic studies have found the overall effect of sex/gender to be slight (Hyde and Linn 1988; Hyde 2005). More radically, though, these scholars question whether modern psycholinguistic findings are relevant. What bearing, they ask, can studies measuring performance on structured tests (usually requiring subjects to respond to a written stimulus under classroom-like conditions) have on debates about the innate abilities of our unschooled and pre-literate ancestors? More pertinent, they suggest, are the findings of ethnographic research in non-literate and vernacular cultures, especially regarding oral public performance (a human analogue of lekking). These findings lead to quite different conclusions about which sex has more advanced linguistic abilities: 'anthropological research . . . reveals that performative applications of language in the form of speech and voice *consistently favor males*' (Locke and Bogin 2006: 270, emphasis in original).

This internal debate among evolutionary scientists is revealing in two ways. Most obviously, it suggests a lack of consensus on some fairly fundamental issues. Yet it is also striking how *much* agreement there is on some of the underlying assumptions which frame the debate—assumptions which, from a linguist's perspective, are far from self-evident.

EXPLAINING SEX/GENDER VARIATION: THE LIMITATIONS OF BIOLOGISM

A basic assumption made by all parties to the debate is that the phenomena they discuss—instances of sex/gender-related variation in linguistic behaviour—can in principle be explained in terms of inherited biological traits. Yet as Derek Bickerton (2006) points out in a response to Locke and Bogin, this entails conflating what are arguably two different things: language itself and the uses to which it may be put. Few linguists dispute that there is a biological basis for the mental faculty which enables all developmentally normal humans to produce grammatical speech, but many would join Bickerton in questioning whether such applications of that faculty as gossiping or telling stories are themselves part of our genetic endowment. If they are not, though, then it is surely a category mistake to propose an evolutionary explanation for them.

Why do scholars apparently assume that findings about sex/gender differences in the use of language are in principle susceptible to this kind of explanation? Are they suggesting there may be a gene for storytelling or a part of the brain dedicated to gossip? In most cases, no; but there is, perhaps, a clue to their reasoning in the argument about which sex is endowed with superior verbal skills. The significance accorded to this issue by both camps, even though their positions are opposed, suggests they share the assumption that observed differences in men's and women's linguistic *behaviour* must be expressions of underlying differences in the two groups' verbal *abilities*. This might enable them to answer Bickerton by saying that what their account directly explains is not the behavioural differences themselves, but the innate cognitive difference which is assumed to give rise to them.

But there are pressing objections to the idea that surface variation in the use of language must arise from 'deeper' differences in verbal ability. Students of linguistic variation do not deny that some individual language-users may be more skilful than others, but they do not link larger-scale sociolinguistic patterns to the relative verbal abilities of different groups within the population: distributional analysis suggests that the important links are to social factors such as speakers' relative power and status, their differential access to resources like education and jobs, and their varying involvement in local networks and communities of practice (Eckert and McConnell-Ginet 1992; Holmes and Meyerhoff 1999). Evolutionary discussions of sex/gender-linked sociolinguistic patterns persistently gloss over these factors, preferring to explain variation in terms of innate cognitive differences; but their arguments are often flawed by their dependence on linguistically dubious premises.

A case in point is the way much of the literature on language evolution and cognitive sex-differences treats the classical variationist generalization (now superseded, but I will leave that aside until later) that women's speech is typically closer to the standard or prestige norm than men's. This finding is repeatedly interpreted as evidence of women's more advanced verbal skills. For instance, in a paragraph listing various measures on which women have been found to perform better than men in tests, Simon Baron-Cohen (2003: 60) includes the information that '[women's] utterances show standard grammatical structure and correct pronunciation more often'. Doreen Kimura (1999: 91) notes that 'girls speak more grammatically (than boys of the same age)': later she adds that this difference is also observed in adults, which confirms that 'speak(ing) more grammatically' must be a reference to prescriptively defined 'correctness' rather than, say, the frequency of developmental errors. Evidently these scholars take the production of standard or 'correct' rather than non-standard or 'incorrect' variants as an indicator of verbal ability. For linguists, however, that is an obvious *non sequitur*, since judgements of correctness are based on social rather than linguistic criteria. There is no reason to suppose that the speaker who says 'isn't' or 'haven't' is showing a higher level of verbal ability than the one who says 'aint'.

The problem is compounded by writers' apparent unawareness that the sociolinguistic pattern they are discussing is not exclusively linked to sex/gender: it also appears when researchers compare speakers from different socioeconomic classes and (in some contexts) ethnic groups. If this variation arose from innate differences in verbal ability, then presumably it would be logical to conclude that such differences exist not only between men and women, but also between middle-class and working-class speakers or white and non-white ones. It is not only linguists who would find that conclusion unpalatable. Most new biologists emphasize that they do not share the pre-occupations with race and class which brought some of their predecessors into disrepute. Such obsessions, they say, were scientifically as well as politically dubious: they rested on a failure to appreciate that differences which are socially highly salient, like those between racial/ethnic groups, may nevertheless be, in Steven Pinker's phrase, 'biologically minor and haphazard' (2002: 144). Male–female differences by contrast are 'major and systematic', making sex/gender a special case where biological explanations are legitimate. But even Pinker might find it implausible to suggest that the same linguistic pattern has a biological explanation when correlated with sex, but a cultural explanation when correlated with other demographic variables.

Above I noted that the 'women's speech is more standard' generalization no longer accurately represents the consensus view among variationist linguists. After reviewing the accumulated evidence, Labov (1990) formulated a set of principles drawing attention to what he has dubbed the 'gender paradox': in many speech communities the behaviour of women shows two opposing tendencies. On some variables women do adhere more closely than men to linguistic norms, but on others they adhere to those norms *less* closely. This has led variationists to reject accounts which explain women's more 'correct' use of language as a consequence of their innately superior verbal abilities, since such accounts leave half the data unexplained.

An alternative account which addresses this issue has been proposed by Jack Chambers (1995). He suggests that women's superior verbal abilities are manifested not in more 'correct' speech, but in greater overall stylistic flexibility (i.e. women use a larger subset of the styles, genres and varieties which make up their community's verbal repertoire). But while this might account for the patterns most commonly observed in modern western societies, it does not fit so well with the findings of cross-cultural and historical research. Linguistic anthropologists report that in many traditional non-western cultures it is men who command a wider range of styles, and who dominate or monopolize the most culturally prestigious ones (Sherzer 1987). Historical sociolinguists have made similar observations about pre-modern western communities (Nevalainen and Raumolin-Brunberg 2003).

These observations might lead us to question not merely the arguments for female verbal superiority, but whether *any* account centred on innate cognitive traits can explain what needs to be explained about sex/gender-linked sociolinguistic patterns, given the empirical evidence that those patterns vary both across cultures and within them, and that they can change significantly over time. Accounts in which the behaviour of men and women arises from traits which have allegedly been part of their make-up since prehistory do not explain why the same array of male and female traits should produce such different behaviour-patterns in different times and places. Below I will expand on this argument, that the accounts proposed by the new biologism do not offer the best explanation for the empirical evidence concerning sex/gender variation, by comparing them with alternative accounts proposed by researchers who adopt a socio-cultural approach. I will begin by outlining some of the general principles which inform that approach among contemporary language and gender scholars.

SOCIO-CULTURAL APPROACHES TO SEX/GENDER VARIATION

There is not just one undifferentiated 'socio-cultural approach' to the study of language and gender, but here I am less interested in the theoretical differences that exist within the socio-cultural camp (Note 2) than in the principles which are generally accepted by contemporary language and gender scholars. These go beyond the simple preference for socio-cultural over biological explanations of male–female differences. Most researchers also agree in rejecting the 'essentialist' assumption that there are characteristics (whether biologically based or socially produced) which all men or all women axiomatically share. While some take anti-essentialism to more extreme lengths than others, there has been a general retreat from the goal of making global generalizations about the linguistic behaviour of men and women. That was often the goal of early feminist research on language (though those researchers also favoured socio-cultural rather than biological approaches), but today even scholars with no strong theoretical objection to it must recognize that it is in tension with the now copious empirical evidence showing that sex/gender-linked sociolinguistic patterns are variable in time and space.

Accordingly, most researchers now eschew the old quest for universalizing statements, and follow instead Eckert and McConnell-Ginet's (1992) injunction to 'look locally'—to examine the relationship between gender and language-use in specific communities and contexts. The assumption is that similarities and differences between men and women can be related to the particularities of local social arrangements (for instance, people's occupations, social networks, power relations, levels of literacy, rates of exogamy, beliefs about identity, etc.), but the argument is not that those arrangements *determine* speakers' linguistic behaviour: rather they present men and women with particular constraints and opportunities which are part of the context for their linguistic behaviour.

To illustrate how this approach works in practice, let us return to the issue of why women are found to be the more advanced users of prestigious language forms in some cases, but not in others. This variation, as already noted, presents difficulties for the argument that the use of prestige forms is connected to verbal ability. It can, however, be more convincingly related to the access women do or do not have, depending on social conditions, to the educational and professional institutions in which prestige forms are generally acquired. For example, the historical sociolinguists Terttu Nevalainen and Helena Raumolin-Brunberg (2003) found in a study of early English personal correspondence that men were more advanced than women in the adoption of high-status grammatical variants—the opposite of what would be expected now. As they point out, though, women in Tudor and Stuart England did not have the same opportunities as their present-day counterparts to acquire prestigious forms of language: even those of high social rank had very limited access to education, and none at all to the learned professions. Though in the west these restrictions have now disappeared, there are other societies where they continue to apply, and where consequently it remains the case that superordinate languages and varieties are preferentially associated with men (see e.g. Sadiqi 2003 on the case of Morocco).

Even in societies where access to linguistic resources is not restricted by sex/gender, other factors may still produce differences in men's and women's uptake of those resources. This point is relevant to the concern that currently exists in many western countries about the 'gender gap' in educational achievement—a tendency for boys' attainment levels to lag behind those of girls, which is particularly marked in relation to language and literacy skills. Though this is often attributed to sex-differences in verbal ability, linguistic research suggests that other factors may be more significant. Some of these have to do with the salience of gender as a dimension of personal identity among children and adolescents: for many boys there is a conflict between the kind of behaviour that promotes success in school and the kind that is judged by peers to be appropriately masculine (Carr and Pauwels 2006). In addition, though, sociolinguistic patterns can often be related to the work people do, or in the case of school pupils, the work they expect to do in future; and in many cases, gender-segregated labour markets produce differing opportunities and aspirations for the two sexes. For instance, many of the 'pink collar' jobs available to non-elite women (e.g. in the customer service, clerical and secretarial sectors) require more standard language competence and higher levels of literacy than the 'blue collar' jobs open to men from the same social stratum: the latter may be able to earn as much or more in sectors like construction, which do not place a premium on language skills. Where these conditions apply, boys may invest less than girls in developing their language and literacy skills because they calculate that their prospects are less dependent on that investment. Conversely, in communities and social strata where the same conditions do not apply, the behaviour of boys and girls will reflect that. In societies like the UK, the male underachievement pattern is far less marked among socially elite pupils—presumably because these pupils aspire to enter professions where advanced qualifications and high levels of literacy are indispensable for both sexes.

These socially based accounts of sex/gender variation are, I would argue, preferable to the competing biological explanations on two main grounds. First, they are better able to deal with the empirical evidence showing that the relevant sociolinguistic patterns are not uniform cross-culturally and historically. An account which relates women's more advanced use of prestige language forms to their innate verbal abilities has nothing to say about cases like Morocco where prestige forms are associated with men. By contrast, an account which relates prestige usage to speakers' access to/uptake of educational and professional opportunities, and then links the sex/gender patterns observed in particular societies to the way sex/gender affects access and uptake in those societies, offers a single explanation for all the relevant empirical observations. Second, the socio-cultural approach offers a less reductive kind of explanation. The biological account by implication treats all kinds of linguistic behaviour as the natural expression of cognitive traits embodied (or 'embrained') in individuals; the socio-cultural one treats behaviour as the outcome of calculations and choices which, though ultimately made by individual language-users, arise within and are affected by a larger social context.

The new biologists might object here that in fact their accounts give a central role to individual agency and choice—most notably mate-choice, which is treated by Darwinians as a key influence on women's behaviour. The biological imperative to maximize reproductive success leads women to make various strategic choices with the goal of securing mates who will be 'good providers'. In modern social conditions, one way for women to achieve that goal is through hypergamy, marriage to a man of higher social status. Robin Dunbar has argued that women's desire to 'marry up' and thus advance the interests of their future children may be the underlying motivation for the sociolinguistic pattern whereby women tend to use more standard pronunciation: as he puts it, 'It pays girls to develop an all-purpose accent that allows them to move easily up the social scale when the opportunity arises' (1996: 185).

This particular proposal is vitiated by its dependence on a gross misrepresentation of the relevant sociolinguistic pattern. Where it exists, the 'more standard' pronunciation of women is a matter of small differences in the frequency of particular variants (e.g. how often a /t/ sound is realized as a glottal stop); it is not the case that lower-class women speak with a non-localized accent which makes them perceptually indistinguishable from their social superordinates. However, even if Dunbar has chosen a poor illustration, the general point that women's marital ambitions may influence their linguistic choices is one with which many linguists would concur. The question is whether the choices women make are best explained in terms of global biological imperatives.

In her classic study of language shift in an Austrian village, Susan Gal (1978) found that one key factor in the shift from Hungarian to German was the behaviour of young bilingual women whose preference for German reflected an aspiration to marry German-speaking workers rather than peasant men from their own community. However, the women's calculations did not seem to be primarily about which men would be better providers for their future offspring. Arguably, the peasant men had advantages in this regard, since they (and later their sons) would inherit land. The women, however, were more concerned about their own quality of life: they saw marrying outside the community as a way of escaping the peasant wife's traditional double burden of domestic and agricultural labour. Similarly self-interested motives are suggested by Ingrid Piller and Kimie Takahashi's study (2006) of a group of Japanese women who had invested significant resources in acquiring English because of their desire to contract relationships with Anglophone men. Once again, it is not obvious that these women's preferences reflected the 'good provider' principle (Japan has both higher levels of job-security for men and lower rates of divorce than Anglo-Saxon cultures). Rather they were based on a perception of Anglophone men as more glamorous than Japanese, and less traditional in their attitudes to women.

In all the cases mentioned so far, it is evident that the constraints negotiated by women (e.g. restricted educational access, gender-segregated labour markets, economic dependence on marriage) are connected not merely to gender difference but also to gender hierarchy (albeit different societies exhibit this in varying degrees and forms). Socio-cultural approaches treat power relations between men and women in a given community as potentially an important influence on their linguistic behaviour. The new biologism, on the other hand, tends either to overlook the effects of male dominance or else to reinterpret them as manifestations of innate difference. Once again, it may be argued that the resulting explanations of behaviour are reductive and inadequate.

A phenomenon which many researchers have related to power differences is the sex/gender-linked patterning of linguistic politeness behaviour. Evolutionary scholars, however, often refer to these researchers' findings while discarding their explanations. Thus Dunbar's (1996) discussion of Penelope Brown's (1980) study of politeness behaviour in a Mayan community treats her finding that women are 'more polite' (i.e. use higher frequencies of certain politeness features) as yet another piece of evidence for their superior verbal abilities. In Brown's own analysis, by contrast, the issue is not ability, it is motivation; and the motivation arises from inequality. In this community women's subordination is extreme, and non-compliance with men's demands carries a high risk of physical punishment. Brown suggests that this explains why women's greater politeness is not just a global, undifferentiated phenomenon: their preference for using deferential forms of politeness to men, and more solidary forms to other women, becomes understandable if we view politeness as a strategy they employ to deal with problems that arise from their social position. With men it is rational to try to disarm potential threats by displaying a submissive or non-provocative attitude; with other women it is rational to try to form protective alliances by displaying solidarity and mutual regard. Men are 'less polite' not because they cannot use these strategies, but because in most situations they feel no need to. The same pattern would not be expected in societies where male–female relationships are organized differently: indeed, there are societies where the most elaborately polite linguistic styles are dominated or monopolized by men while verbal aggression or impoliteness is associated with women (Keenan 1974; Kulick 1993).

Above I argued that the new biologism's accounts of sex/gender differences in linguistic behaviour are flawed by their reliance on generalizations which the evidence does not support (such as the belief that women talk more than men), and/or assumptions which are linguistically ill-founded (such as the equation of 'correctness' with verbal skill). Here I have drawn attention to other problems, such as inattentiveness to cross-cultural and historical evidence, and failure to consider (or in some cases even to acknowledge) competing interpretations of data. The most pertinent objection to these accounts is not that they offend feminist and other 'politically correct' sensibilities; it is that they do not meet the scientific criterion of being able to account fully and convincingly for the evidence.

But as I noted in the introduction, there is another body of evidence to which the new biologism appeals, drawn from the study of language, cognition and the brain. Findings about what popularizers have dubbed 'brain sex' are often invoked, in both scholarly and non-scholarly sources, as if they constituted irrefutable evidence for the reality and significance of biologically based sex-differences. How far, though, is that interpretation justified?

SEX, LANGUAGE AND THE BRAIN

Many discussions of sex, language and the brain focus on the phenomenon of lateralization, the specialization of functions to one or other of the brain's two hemispheres. Language is (in right-handed individuals) predominantly a left-hemisphere function. But there has long been interest in the possibility that the functional organization of the brain, including its organization for language, may be different for males and females, with males (on average, and other things—like hand-preference—being equal) showing a greater degree of lateralization. Evidence bearing on this question comes from neuroimaging studies, experiments using the Wada technique, and clinical observations of brain-injured patients.

A related area of investigation concerns the effect of hormones. It has been suggested that high levels of testosterone (a hormone which is found in both sexes, but normally at significantly higher concentrations in males) produce earlier and more rapid growth on the right side, including the right hemisphere of the brain, and that this has implications for our understanding of both normal male–female differences and the aetiology of certain developmental abnormalities (e.g. Geschwind and Galaburda 1985). Scholars who favour this argument relate it to an observation whose centrality to some evolutionary accounts has already been discussed: that in comparison to most females, most males have less well-developed verbal abilities, but better-developed visual–spatial skills. If the testosterone theory is correct it may explain this, since linguistic functions are typically concentrated in the left hemisphere and visual-spatial functions in the right one. However, its correctness remains a matter of dispute (e.g. Crow 1998), as indeed does the assertion that females have more advanced verbal skills (see above).

On lateralization too, many questions remain unresolved. Recent advances in the study of the brain (especially the advent of new imaging techniques) have produced a wealth of new data, but it has not necessarily become easier to draw clear conclusions from it: studies have proliferated, but their findings are very mixed. Supporters of the testosterone theory can appeal to studies in which hemispheric dominance for language was found to be stronger in males; but sceptics can equally point to studies using the same tasks which found no sex-differences (Frost *et al*. 1999; Knecht *et al*. 2000). Even Doreen Kimura, an influential supporter of the general thesis that there are innate cognitive differences between the sexes, has urged caution when interpreting this body of evidence (1999: 181):

> the widely held assumption that there are major differences in the degree of brain lateralization of function between men and women is debatable. Even where sex differences in lateralization clearly exist, no convincing case has yet been made that they influence cognitive function.

In this area of research it is possible that future advances will yield firmer conclusions (whereas we would need to solve the problem of time-travel to get much further with the study of early human linguistic behaviour). But there will still be questions about how far neuroscientific findings license the broader claims they are often invoked to support. How, that is, do we get from specific statements about the performance of men and women on measures X, Y, and Z (as demonstrated in laboratory tasks designed so that investigators can isolate a particular skill, observe it systematically and measure it reliably), to much more general assertions about women's superior communication skills when interacting with others in everyday life?

Kimura is typical of many commentators on this subject in treating the connection as obvious. 'The impression many people have', she remarks (1999: 91), 'that women generally possess better skill with words than men do, probably arises from differences apparent between very young girls and boys'. She then lists some differences for which there is experimental evidence: girls have larger working vocabularies, are better spellers, superior readers, and do better on 'tests requiring them to generate words with particular limitations on them (such as words containing particular letters)', though they are 'not necessarily more fluent in narrative output' (1999: 91). But on reflection it is hard to see how most of these variables could be directly involved in the everyday impressionistic judgements which Kimura suggests they may explain. Spelling and reading skills are not displayed in conversation, and most conversations do not require participants to display more than a small part of their working vocabulary, let alone 'generate words with particular limitations on them'. The only variable mentioned which does seem plausible as a basis for real-world judgements of skill is narrative fluency, which is also the only variable on which Kimura says there is no clear evidence of female superiority. Does she take the variables which have shown sex/gender differences in the lab to be legitimate proxies for other skills that might be observable outside it, and if so what skills would those be? Just placing one set of observations (many people have the impression that...) adjacent to another set (laboratory tests have shown that...) does not magically make one into the explanation of the other.

CONCLUSION

The new biologism is part of a larger 'Darwinian turn', in the light of which linguists (among others) are now frequently urged to re-examine their assumptions about the nature and behaviour of human beings. I do not dispute the importance of paying attention to developments in other fields which may have implications for our own. But I do think there is a need for caution about the rhetorical claims which are often made by and for the new biologism.

In this discussion I have focused specifically on its claims about sex/gender differences in linguistic behaviour, and I have argued that its approach to this topic is not preferable on scientific criteria to the socio-cultural approaches favoured by most current language and gender researchers. I have tried to show that the latter explain more of the relevant empirical evidence with less resort to assumptions and speculations for which there is no evidential basis. I have also drawn attention to the selective and misleading way in which linguistic research evidence is often used by supporters of the new biologism. When these scholars accuse others of being unwilling to follow the evidence where it leads (i.e. to the conclusion that male–female differences are biologically based), they are open to the charge of throwing stones from a glass house. Scientific accountability is not a one-way street: if linguists must take account of new knowledge about genes, brains and evolution, then Darwinians must equally be held accountable to the knowledge our research has produced about language-use and linguistic variation. It is right that we should learn from other scientists' work; but that need not and should not mean devaluing our own.

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NOTES

1 The slightly cumbersome formula 'sex/gender' is used here and (where appropriate) below in an effort to avoid misrepresenting the competing positions in this debate, or pre-empting the argument between them. The term 'gender' (meaning 'the social condition of being a man/woman') is generally preferred to 'sex' in social scientific and/or feminist research, but the new biologism argues that many or most so-called 'gender differences' are really effects of biological sex. While it will be clear that I disagree with the new biologism, I have tried to avoid using terminology which inherently favours one position.

2 Some readers may wonder why I refer throughout this article to 'socio-cultural approaches' rather than 'social constructionism'. In my own usage, in fact, these expressions would be more or less interchangeable. Until quite recently, the description of feminist theory or scholarship as 'social constructionist' implied only that the theorist or scholar accepted Simone de Beauvoir's foundational insight (first aired in 1949) that 'one is not born a woman, one becomes one'—in other words that men, women and the differences between them are the products of society and culture, not biology. Since the 1990s, however, the term 'social constructionism' has undergone narrowing: some feminist scholars now use it to refer specifically and exclusively to one particular *variant* of social constructionism, which is influenced by postmodernist theories of identity and subjectivity, or alternatively by ethnomethodological theories of the construction of social reality.

The distinctive feature of this approach is that it denies gender any ontological reality (here I paraphrase the postmodernist philosopher Judith Butler)—in other words, proposes that 'men' and 'women' are effects of our discourses and practices rather than entities which exist independently of those discourses and practices. For the most radical 'gender relativists', an account which invokes external social structures, hierarchies or norms to explain gendered behaviour is not 'social constructionist', because it requires the analyst to posit that gender or some aspect thereof does have a pre- or extra-discursive reality (this position is labelled 'gender realism').

I am a 'gender realist', and I do not accept that this position is not also 'social constructionist' in the classical Beauvoirian sense. However, since the meaning of 'social constructionism' is now contested, and for some people the term does exclude non-relativist or non-postmodern approaches, I have tried to pre-empt any misunderstanding by using the term 'socio-cultural approach'. I intend this to function simply as a generic label for the non-biologically based approaches to sex/gender which this article contrasts with the new biologism.

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