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Introduction

Andy Capp by Reg Smythe, *Daily Mirror*, 11 October 1982

'If the women in your street tend to yak over the garden hedge, do what they do in Meikleour, Perthshire – grow big hedges. The Meikleour beech hedge has a trimmed height of 85 ft. Mind you, it was planted in 1746, so you may have to wait a bit for some peace and quiet.' (*The Pint Size Guinness Book of Records*, no. 4 High Society)

'Her voice was ever soft, gentle and low, an excellent thing in woman.' (Shakespeare, *King Lear*, V iii)

'Mr Rex Winsbury wrote in the Financial Times with a bitchiness which made me forget he was a man.' (*Guardian*, 1980)

'Do you not know I am a woman? When I think, I must speak.' (Shakespeare, *As You Like It*, III ii)

'There can be no doubt that women exercise a great and universal

> influence on linguistic development through their instinctive shrinking from coarse and gross expressions and their preference for refined and (in certain spheres) veiled and indirect expressions... Men will certainly with great justice object that there is a danger of the language becoming insipid if we are always to content ourselves with women's expressions.'
>
> (O. Jesperson, *Language: its nature, development and origin (1922)*)

The Study of Language and Gender

Stereotypes of women's and men's speech are plentiful and they seem to have an extremely long history. They reflect popular images of women's and men's language, perpetuated through proverbs, jokes, journalism, literature and even by serious language scholars. One of the striking features of these stereotypes is the way they rarely favour women, who are consistently portrayed as chatterboxes, endless gossips or strident nags patiently endured or kept in check by strong and silent men.

The fact that such persistent and well-developed images exist suggests that this is a sensitive aspect of relationships between men and women which will repay further study. And it is only reasonable to wonder whether there is a grain of truth in the idea that women's speech and use of language are, in systematic ways, different from those of men. If it proves to be the case, then further questions are raised, such as *why* such differences should exist. And does it particularly matter? Can the allegations put forward by some feminists be supported – that language is itself sexist and that popular images serve both to denigrate and control the speech of women? These are some of the issues that we are concerned with in this book. In reviewing the answers that various scholars and writers have given to such questions we will provide not only a survey of the way women and men differ in their language habits but also an exploration of the links between language and the stucture of society, of how the way women and men speak ultimately affects their position in society, their economic and political achievements, and even their personalities and perceived identities.

Language and gender is an unusual and exciting area of research which has enjoyed a phenomenal growth in the last decade or so. One of the standard bibliographies (Thorne et al., 1983) lists the work of over 1,000 authors and the number has grown considerably

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since this list was compiled. Many universities and colleges offer courses in the subject and it is now a regular topic in textbooks and conferences on linguistics, sociology, women's studies and others. Alongside this academic activity, there have been the more practically oriented activities of researchers, journalists, feminists and writers of letters to the media who wish to bring about a change in women's and men's use of language, and in the language itself. And, of course, there has been the corresponding literature from people who resist such attempts at change. Language and gender has, then, both an academic and a popular appeal. It holds out the promise not only of advancing linguistic and social theory, but also of providing a social critique and a programme of political action aimed at reducing sexual inequality.

The popularity of the field, both within the academic community and the wider public, has not been entirely to its advantage. Its sheer diversity has made the development of a common theoretical perspective extremely difficult. And language and gender studies have been regarded with some suspicion by those who detect a bandwagon or who regard the field as just too fashionable; and by others who fear that some researchers' links with the women's movement and with identifiable political commitments prevent their work from being academically respectable. Such controversy routinely surrounds research which attempts to explain how society works, maintains its stability and permits change, but is nonetheless a reminder of the need for careful examination of any research which purports to link language with women's oppression. It is all too easy, in this as in other fields, to allow political sympathies to get in the way of intellectual rigour.

The present book attempts to provide a compact and readable introduction to the field of language and gender, dealing with both local and larger theoretical issues. We have tried to show how some important ideas in linguistics, psychology and feminist thought illuminate the role of language in establishing and regulating gender divisions, and we explore some of the possibilities for individual and social change. The 'voices' of the book's title are hence both literal speaking voices and figurative ones – the collection of opinions and positions held by those in the field.

The Nature of Language

Difficulties in defining the term *language* present the first obstacle to

understanding the various claims made about the role of language in constructing gender divisions. The literature is filled with many lively debates, between writers of differing political persuasions and those with differing disciplinary backgrounds, and it is difficult to decide which conflicts of opinion have substance and which arise from different uses of the word language and from different understandings of what language is. It is not difficult to see why there exists such a problem of definition. Language, like gravity, is one of those things with which everyone is familiar but few can adequately describe and explain. This is a surprising fact considering the intimate part that it plays in our lives, but people have less privileged access to many of their own mental processes than they often imagine. Perhaps this is one reason why there are many popular conceptions and misconceptions about language, how it works, and how it affects people. But if there is a danger in taking language for granted, there is an equal danger of mystification. It is all too easy to talk about language in ways which make it appear a complex, mysterious and paradoxical thing which is beyond the understanding of non-specialists.

Both the authors of this book have a background and training in linguistics and take the view that, although complex, language can be described in a methodical and scientific manner. Our approach has been to adopt a traditional linguistic framework where possible, and to explain how competing ideas depart from this. In linguistics, for example, a clear distinction is usually made between the idea of language as a social phenomenon and the speech of an individual person. There also exists an orthodoxy that language is a specific human faculty, which can be distinguished from both animal communication and other kinds of human behaviour. Both these distinctions make a good starting point for any discussion of language and gender. The remainder of this introduction outlines these, and other preliminary notions, which we assume in later chapters.

Language is Personal

There exists a whole sub-discipline, *psycholinguistics*, that is concerned with discovering the individual mental processes involved in speech production and comprehension. In a cognitive sense, language is very much a private matter; it is said to be the vehicle of

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our internal thoughts and (some would say) desires. But our language is also an important part of our personal and social identity; our linguistic habits reflect our individual biographies and experiences. In all these ways, our language is our individual property.

Language is Social

Simultaneously, a language has an existence outside of ourselves; it pre-exists and continues when we are gone; it is much larger than us, embracing words and grammatical structures of which we are unaware. Language, in this sense, seems to be a public resource, like the water supply, that services a speech community and provides for the communication between individuals needed for social maintenance. The parallel with a public utility goes further. Many people seem to accept that some municipal authority, and not they themselves, has responsibility for the maintenance and upkeep of the language; for determining what is and what is not acceptable or grammatical; what should (or should not) be published and disseminated. Those who use words and structures that are not officially condoned are sometimes accused of 'polluting' this community resource.

The Saussurean Model

This tension between the personal and the social belongs to a long western tradition of language study but the distinction is particularly associated with the name of Ferdinand de Saussure, a Swiss linguist working at the beginning of this century. Following Saussure, the object of linguistic study is often taken to be the social, rather than the personal, facts of language. A 'language' is usually thought of as being an abstract system: a vocabulary and set of grammatical rules which govern how words may be combined to produce sentences. The concept of a system is more technical than it first appears, since it suggests that the elements that make it up are connected together in some specific manner. Saussure argued that the individual elements which made up a language system (the words of a language, say) did not have any meaning in an absolute sense, but could be defined in terms of their *relation* to one another. That is, the meaning of a word like *woman* cannot be defined

without describing its opposition to other words such as *man* or *girl*. Furthermore, the relationship between a particular word and its meaning is essentially an arbitrary one. In order to understand such words, a listener must be party to what Saussure called the 'social contract' which bound all members of a speech community. The terms of this contract have evolved over many years and cannot be changed by any individual speaker, only through collective action.

These two Saussurean ideas – that of viewing language as an abstract system and that of the social contract – are still extremely influential among linguists. Some linguists, including the well-known grammarian Noam Chomsky, have gone so far as to claim that *language use*, being an aspect of individual behaviour, is of no linguistic interest. In this book, however, we are concerned with language in all its variety: in the character of men's and women's voices; in their patterns of interruption in conversation; in differences in accent as well as in certain aspects of vocabulary. At some points in this discussion it will be apparent that the crude equations *language system* = *a social abstraction and language use* = *individual behaviour* cannot easily be sustained. Many aspects of conversational behaviour, for example, are undoubtedly features of language use, but they are nevertheless institutionalized and socially recognizable behaviours. They seem to be part of a social contract rather than the idiosyncratic speech behaviour of an individual.

The Semiotic Approach

The phenomena we've just described are all closely associated with language, even if one is unsure of their precise status, but verbal language is only one of many ways in which people communicate their gender identity and recognize someone else's. We communicate with body gesture, with repertoires and rituals of action, by the clothes we wear, with graphic images and all manner of cultural practices. We can refer to all of these as 'signifying practices'; as well as communicating ideas they communicate much about the identity, ambitions and attitudes of the communicator. Whether it is a matter of a man holding open a door for a woman, or a woman serving a man with an extra egg for breakfast, such signifying practices can all be regarded as 'languages' of a kind, and there is at least one analytical tradition – that of *semiotics* or *semiology* – that provides

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a framework which embraces them all. Such semiotic systems are rough and ready ones compared with verbal language but, according to semiologists, the way in which they work and in which we understand them is very similar to the processes involved in language comprehension. For example, we can regard repertoires of action as a Saussurean system – a set of elements whose meaning is determined by a system of oppositions. Hence, part of the meaning of a 'skirt' is through its contrast with 'trousers', just as the word *woman* is opposed to *man* in the linguistic system. Saussure, and semiologists, regard both words and cultural practices as *signs* whose meanings are essentially arbitrary, a matter of social convention. The semiotic notion of a language is much wider in scope than is normally found in linguistics, but it is one employed by many writers in the language and gender literature. While the chief concern of this book is language in its more conventional (and restricted) sense, we shall draw on semiotics in chapter 2 and chapter 6.

These conceptual distinctions provide essential background for the discussions of research in later chapters, where it will be clear that however broad – or narrow – a view of language one wishes to take, it is essentially the *continuity* between both language as an individual and a social possession, and between verbal and other forms of human communication that allows language to play a major part in the construction and reproduction of culture – including gender divisions.

The Nature of Gender and the Gendered Nature of Society

The word *gender* can also give rise to misunderstanding, particularly when used in connection with language. *Gender* is used as a technical linguistic term relating to the grammatical categories of words in certain languages; we use the term in this specialist sense in chapters 3 and 5. Elsewhere *gender* is used in its more everyday sense to refer to a social distinction between masculine and feminine. In this sense it can be distinguished from the term *sex*, which relates to the biological and by and large binary distinction between male and female.

The opening words of Simone de Beauvoir's historic book *The Second Sex* capture the essential characteristic of gender: 'One is not

born, but rather becomes, a woman.' Gender is a socially rather than a biologically constructed attribute – people are not born with but rather learn the behaviours and attitudes appropriate to their sex. During the last decade of research, it has become clear that gender is a very complex category. Theories are still being developed which try to grapple with this complexity but they share the idea that gender, unlike sex, is a continuous variable. A person can be more or less 'feminine' and more or less 'masculine'. Furthermore, a man can display 'feminine' characteristics just as a woman may demonstrate 'masculine' ones.

When we refer to society as being 'gendered' we mean that gender represents an important division in our society (and probably all human societies). Whether one is male or female is not just a biological fact, it assigns one to membership of one of two social groups. A great many consequences – social, economic and political – flow from this membership. Women and men, girls and boys, are treated in systematically different ways (by both women and men); they have different experiences at school, at work and at home; they do different things and different things are expected of them. In other words, women and men have different life experiences to an extent that cannot be satisfactorily explained by simple biological differences between the sexes. Furthermore, these differences between women and men seem such a natural and obvious part of our existence that we are usually unaware of their full extent. The way we talk is one of these all-pervasive and unobtrusive aspects of gender behaviour.

Gender is much more than a psychological attribute. It involves a person's sexuality, which has both a private and public dimension, and must always be understood in the context of particular, and changing, social relations between men and women.

The Relation Between Language and Gender

The two substantive words in the phrase 'language and gender' are linked by a small, unobtrusive word which gives little clue as to the precise nature of the relationship between the two. But it is this relationship which is most at stake. In exactly what way is language related to gender and vice versa? We have said that we wish to go beyond a catalogue of sex differences in language behaviour to

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There are, broadly speaking, three kinds of relationship which can, and have been, put forward. First, there is the view that language merely *reflects* social divisions and inequalities; second, the position that such divisions and inequalities are actually *created* through sexist linguistic behaviour; and third, a view that argues that both processes apply, and that any full account of language and gender must explore the tension and interplay between the two.

Language Reflects Gender Divisions

> Linguistic differences are merely a reflection of social differences, and as long as society views women and men as different – and unequal – then differences in the language of women and men will persist. (Coates, 1986, p. vi)

The view that linguistic behaviour merely reflects social processes is far from being a straightforward one. In chapter 3, for example, we discuss research on accent and dialect that shows how the language variety one speaks owes much to the patterns of interaction in a community, to the people one routinely talks to and to the status relationship one has with them. All these things are structured by social and economic processes that have little to do with language. In some communities, women have looser and more dispersed contacts with other people than men do (because of a conventional sexual division of labour, demographic patterns, and so on). Sociolinguistic theories have become adept at explaining why language usage is sensitive to patterns of living and patterns of interaction. In these ways one can say that certain sex differences in language behaviour are a side effect of the systematically different social experiences of women and men.

But certain kinds of speech may be regarded as socially appropriate for a particular sex, and may be learned by children just as they learn other kinds of gender appropriate behaviour. Men may swear and speak roughly, whilst women are more polite. We examine such claims in later chapters, but it can be argued that such sex differences in speech reflect different concepts of masculinity and femininity whose origins lie outside of language.

Language Creates Gender Divisions

> Language helps form the limits of our reality. It is our means of ordering, classifying and manipulating the world... Having learnt the language of a patriarchal society we have also learnt to classify and manage the world in accordance with patriarchal order and to preclude many possibilities for alternative ways of making sense of the world. (Spender, 1985, p. 3)

The second position suggests that language does not function simply as a mirror of society. Rather, it is strongly implicated in the construction and maintenance of social divisions and inequalities. In learning important linguistic distinctions, speakers are also learning the distinctions regarded as important in their culture: they are learning to see their social and physical environment in one way rather than another. The way language is used in the media, or people's unreflective habits of speech, may project a biased evaluation of women and men and of female and male characteristics and thus come to define the expected social roles of men and women. Hence the position is a determinist one, suggesting that our individual lives and personalities are shaped by our language and by the discourses we engage in. This view has enjoyed some popularity – particularly, as we shall see in chapters 5 and 6, amongst radical feminists and some anthropological linguists.

There is an Interplay Between Language and Social Structure

> Talk works to create and maintain sex-stereotyping and male dominance. Our speech not only reflects our place in culture and society but also helps to create that place. (Sally McConnell-Ginet, 1983, p. 69)

Our own view is that there is truth in both of the positions outlined above. Such a synthesis is not simply a compromise between the idea that language reflects and the opposing one that it creates gender divisions and inequalities. By suggesting that linguistic and social practices are mutally supportive, it suggests a stronger mechanism, that single causes will be more difficult to identify and change more difficult to effect. This position draws attention to the way language is part of a greater social jig-saw: we sometimes need to step outside linguistic analysis to see how a linguistic feature supports some other non-linguistic mechanism in sustaining gender divisions. For example, it can be argued that language helps

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reproduce traditional concepts of 'femininity' and 'masculinity' but to understand why such traditional concepts are oppressive to women requires social theories that have little to do with language. This is a debate we take up again in chapter 6.

In these various ways language has been implicated in the mechanisms that lead to gender divisions and, more specifically, those that support social inequalities between the sexes. In this book, we explore the specific arguments that have been put forward. The next four chapters examine the role played by various aspects of language and speech. In each case the treament largely reflects the theoretical approaches current in each research area. The last two chapters of the book are rather different. Chapter 6 examines the kind of general social theories that have been provided to explain the role of language in social reproduction, discussing further the ideas we have outlined here. In chapter 7 we look at various practical measures that have been taken, or proposed, for intervening in the social processes described in earlier chapters.

2

The Voice of Authority

'I don't care how many women you make love to in this room,' she lashed, scarcely recognising the high pitched voice as her own.
'Don't expect me to apologise for it.' His resonant voice had gone slightly hard.
'I hate you!' There was an unmistakable tremor in her voice.
'Kate.' His voice was incredibly low and deep, his eyes dark and sensuous. He had never spoken her name before and the speaking of it made her aware of the deep, slightly grating timbre of his voice. It was the kind of voice suited to him, holding the gritty deeps of his nature.
Rachel gave a husky laugh.
'Love you?', he grated. 'Of course I love you.'
'What *is* love?', she sighed.
Lyle, she croaked, and was unaware that her voice came out as a wordless whisper.
He gave his gravelly laugh.
Such a torrent of tenderness and passion was in his voice, she closed her lovely eyes and offered him her mouth.
'I felt the same way,' Gay faltered.
His roaming hands pressed her curves to the hard contours of his length.
'Giles,' she groaned breathlessly. 'Oh God, Giles!'

(Lines from Mills and Boon)

'The voice of the natural is a voice in favour of the status quo.'

(J. Sturrock, *Structuralism and Since*, 1980)

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Introduction

Popular stereotypes portray men ás loud voiced and women as softly spoken; men as deeper pitched, and women as lighter and higher pitched. Like other stereotypes of male and female speech, those that refer to qualities of the voice are both rich and well known. Descriptions of voices in popular fiction, for example, include many aspects of voice quality, as we can see in the lines taken from typical Mills and Boon romances above.

Such stereotypes raise issues which are familiar to researchers in gender behaviour. One is the question of accuracy: how many of these stereotypical voice qualities actually exist? Unfortunately, research in this area is partial. There are many studies which report facts about the pitch of men's and women's voices but there is very little evidence about some of the more interesting and subtle aspects of voice quality which are more difficult to categorize, such as 'breathiness' and 'harshness'.

That male and female voices differ, however, is not in doubt. Most people can easily tell whether a voice belongs to a man or woman. But why should men's and women's voices be so different? This apparently simple question has a rather complicated answer. It may seem self-evident that characteristics such as pitch of voice have a biological basis. Just as men are thought of as being somewhat bigger and more powerful than women, so their voices are heard as being louder and lower in pitch. Indeed, many, if not all, gender differences in voice are commonly imagined to arise from such physical sex differences. But such gender differences can also be seen as just one of many ways in which voices carry systematic information about the identity of a speaker. It is possible to tell from someone's accent, for instance, things about their social, ethnic and geographical background (we return to this in chapter 3) and their voices often indicate also their emotional state and attitude to others.

These systematic properties of the voice have one of two possible causes. Accent is obviously a learned and social characteristic, but a nasal quality of voice due to a cold, or a hoarse voice due to laryngitis has a medical and ultimately physical cause. Voice characteristics which have a physical origin may nevertheless carry social meaning, since certain characteristics of voice may indicate particular life styles: the rough voice of a habitual smoker, or a thick

voice the morning after a late party. In this way, the study of voices brings us round to a very familiar debate in the social sciences about the social construction of behaviour. To what extent are voice characteristics socially learned and to what extent are they biologically determined? And what social meanings become attached to them? These are the questions which we deal with in this chapter.

The Physical Basis of the Voice

One way of explaining why people's voices sound as they do is to describe the mechanics of voice production. Figure 2.1 is an outline diagram of the kind you will find in any medical or phonetics textbook. It shows the interior parts of the mouth and throat down to the voice-box or *larynx*. Collectively, these parts of the anatomy are called the *vocal tract*. When you breathe out, air passes from the lungs to the cavities of the mouth via the wind-pipe, and escapes eventually through the lips or nostrils. In normal breathing, this air-flow is free and unrestricted but when you speak you interfere with this air-stream in various ways. First, the air passes through a muscular constriction at the top of the wind-pipe which is formed by the *vocal folds* (also known as *vocal cords*). These behave rather like a pair of lips. In order to cough, you close them completely, shutting off the air-flow and then releasing it under pressure. When you talk, though, you bring the vocal folds together until the air causes them to vibrate – exactly like blowing a raspberry with your real lips. A coarse, buzzing sound is thus injected into the vocal cavities. These cavities – in the throat, mouth and nose, give rise to resonances (called *formants*) which give a characteristically speech-like quality to the noise that emerges from the mouth. These resonances, however, reflect the shape and size of the cavities, just as the sound you produce by tapping a glass depends on its shape and air volume.

The sense of the pitch of a person's voice comes from two separate aspects of this process of voice production. The most important is probably the basic rate of vibration of the vocal folds (the *fundamental frequency*). This depends on the length and thickness of the vocal folds. If you gently stretch a rubber band between your fingers and twang it, then you will find that a shorter or thinner band will twang at a higher pitch than a longer or thicker one. Just so with the vocal folds. A person with long and thick folds would

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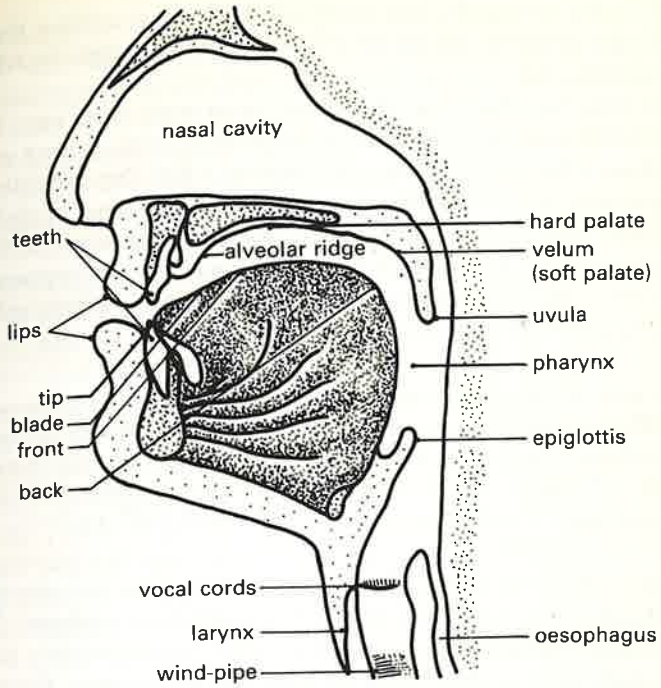

Figure 2.1 The human vocal tract

normally be capable of speaking at a lower pitch than someone with smaller ones. The impression of pitch which comes from this vibration is, however, often fused with the perception of another aspect of voice – the resonant structure (i.e. the formants). Resonances arise because the buzz of the vocal folds is a rich and complex sound, containing many higher frequencies (*harmonics*) in addition to the fundamental frequency. A large and long vocal cavity will emphasize the lower pitched of these extra components and give the impression of a richer and, perhaps, lower pitched voice.

Strictly speaking, the size of the vocal cavities affect a voice's *timbre* rather than its pitch, but the two impressions are frequently difficult for a listener to disentangle. The important point is that both aspects of perceived pitch depend on physical characteristics of the vocal tract: the one reflects the mass and length of the vocal folds

and the other reflects the size and length of the vocal cavities. Hence you would normally expect the pitch of someone's voice to reflect their physical size.

The activity of the vocal folds gives rise to many other aspects of voice quality besides pitch. Breathy voice, for example, occurs when the vocal folds do not make full closure when they vibrate; in whisper there is no vocal fold vibration at all, so the sense of pitch in whispered speech comes entirely from vocal tract resonance effects.

Big people are generally assumed to have a larger vocal apparatus and a lower pitched voice. Accounts given in textbooks designed for linguists and medical students claim this explicitly:

> A tall, well-built man will tend to have a long vocal tract and large vocal folds. His voice quality will reflect the length of his vocal tract by having correspondingly low ranges of formant frequencies, and his voice dynamic features will indicate the dimensions and mass of his vocal folds by a correspondingly low frequency. (Laver and Trudgill, 1979, pp. 7–8)

In fact, very few studies have been conducted to test this idea empirically, and those that have offer conflicting evidence. The relationship between body size and aspects of voice certainly holds for animals but it seems difficult to establish for humans. There is, however, some evidence that voice qualities are inherited characteristics. The voices of Siamese twins are more similar than those of non-identical twins, for instance. In one experiment (Gedda et al., 1960), identical twins were unable to distinguish recordings of their own voices from those of their twins. In a medical study, Luchsinger and Arnold (1965) approached the question from a different point of view, by tracing the types of singing voices of patients' ancestors. They found, for example, that in the case of one famous tenor, all male ancestors had tenor voices while female ancestors were mezzo-soprano. They were able to show that the distribution of voice types through the generations showed the pattern which would be predicted by genetic inheritance.

What people inherit is not just a particular size and shape of vocal apparatus but also a disposition towards certain patterns of hormonal secretion which affect the voice. In fact, the size of the larynx in men depends in large measure on the release of those hormones that give rise to secondary sexual characteristics in adolescence. Various studies (e.g. Vuorenkoski et al., 1978) have

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shown that boys' voices drop in pitch about an octave at about the same time as they develop pubic hair. Pedersen et al. (1984) demonstrated that this change in voice was directly connected with hormonal activity by taking 48 boys from the Copenhagen Boys' Choir and measuring androgen blood content and the size of their testicles. It was found that the pitch of voice of boys of different ages was closely correlated with their testis volume and androgen levels.

Women's voices also are affected by hormonal, or related, activity. Women patients given hormone treatment (such as anabolic steroids) usually find their pitch gets lower (Damste, 1964, 1965), but women also reportedly experience changes in voice quality during menstruation and pregnancy. Flach et al. (1968) found that most of a group of professional singers they studied reported pre- and inter-menstrual voice changes of which the majority were described as 'disadvantageous'; whilst two thirds of singers experienced 'positive voice changes' during pregnancy. Perello (1962) suggested that the reason for 'premenstrual dysphony' was a thickening of the mucus which normally lubricates the vocal folds. Since vocal fold action is essentially a mechanical one, such changes can have a dramatic effect on voice pitch and quality. It may, however, be a reflection of social attitudes to menstruation and pregnancy that the effects of the former were perceived negatively and those of the latter positively.

Such reports seem to provide evidence that a person's voice is created in a complex manner by physical and biological phenomena which are beyond voluntary control. This, however, is not quite as clear-cut as it appears. A person's physiological make up can be affected by certain kinds of deliberate and voluntary behaviour. For example, changes in voice quality are claimed to occur when people become sexually aroused – a change in mucosal lubrication gives rise to a breathiness or huskiness of tone. In fact, there exists a tradition that too much sex will affect your voice. Singers, in particular, are often advised to avoid sexual activity unless their voices are already low.

I always remember being told by one of the world's great male singers that his life involved him in great sacrifices. Making love affected his voice. Smoking didn't, drinking didn't – just the act of copulation enjoyed even three days before a performance. He earned £500 every time he trod the boards. Few people can be faced with such a poignant choice so often, would you say? (Morgan, 1965, 'London Diary', *New Statesman*, 61, 15.1.65. p. 71. Cited in Laver, 1975, p. 308)

Bettina Jonic, who trains singers and actors at the Royal Opera House, claims 'At Covent Garden I can always tell what a tenor has been doing the night before. They always have difficulty with the top notes'. Jonic offers the advice of a famous Italian voice coach: 'tenors and sopranos never during a performance run, baritones once or twice a week, and low voices every night' (*Guardian*, 31.3.84).

Accounts such as these may embody a fair amount of folk-wisdom, which is no more than a polite way of saying that they make certain sexist and stereotypical assumptions. There is, however, an important point to be made, which is that human social activities may have an effect on human physiology. It is a similar argument to one occasionally made to explain differences in size and strength between men and women: are some of the measured differences due to differences in nutrition, training and experience?

The Evidence for Social Learning of the Voice

The evidence that a person's voice is an inherited characteristic which reflects the vocal anatomy of its owner is strong, and it might therefore seem downright cranky to argue that men's and women's voices are socially learned. There is, however, a point of view which argues that sex differences in voice are much more social in origin than is usually supposed. Dale Spender has claimed:

> It has been found that males tend to have lower pitched voices than females. But it has also been found that this difference cannot be explained by anatomy. If males do not speak in high pitched voices, it is not usually because they are unable to do so. The reason is more likely to be because there are penalties. Males with high pitched voices are often the subject of ridicule. And what is considered the right pitch for males varies from country to country. (Spender, 1978, p. 19)

Spender does not fully discuss the argument and, indeed, seriously weakens her case when she writes elsewhere 'despite some evidence, I am not convinced that the voices of women are more highly pitched than men's' (Spender, 1985, p. 40). Spender's cavalier treatment of the issue is unfortunate, since it makes it too easy to dismiss the argument itself as an unserious one. The social argument

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need not attempt deny the physical evidence in this way; it simply suggests that is another side to the story.

Each person can vary the pitch of his or her own voice over a considerable range. Using the analogy we made earlier with rubber bands, you will find that the pitch at which they twang depends not only on their length and thickness, but also on how much they have been stretched. The vocal cords can also be tensed in various ways by the muscles within and around the larynx. This is the main, but not the sole, method of altering the pitch of one's voice. Another is to vary breath pressure – this is why the pitch of someone's voice tends to go up when they shout. When anyone talks, their pitch fluctuates from moment to moment – they might use a rising intonation, for instance, to ask a question. When people talk to young children or animals they often use a higher pitch of voice throughout. What is surprising is that despite the way people's voices vary very rapidly, one still gets a strong impression of the overall average pitch of their voice. In fact, we have shown in experiments (Graddol, 1983) that listeners are extremely sensitive to the *average* pitch of a speaker's voice.

Figure 2.2 shows the average rate of vocal cord vibration (i.e. the fundamental frequency, which is the main determinant of the sense of pitch) in 27 members of staff at the Open University. The unit of frequency used is the *Hertz* (one Hertz is one cycle of vibration per second). In musical terms, for comparison, Middle C is usually 261 Hz. A simple doubling of the frequency raises the perceived pitch by one octave, and halving the frequency lowers perceived pitch by a similar interval. It can be seen from Figure 2.2 that average speaking pitch varies from person to person but that in spite of this variation there is a clear gap between men and women. In other words, women and men can easily be distinguished according to the average pitch of their voice.

This much is hardly surprising – it accords with the everyday experience that it is easy to tell from someone's voice whether they are a man or a woman. Figure 2.2 tells only part of the story, however. When the whole of the pitch range used by individuals (Figure 2.3) is examined two new facts emerge. First, that the pitch ranges of men and women overlap considerably. Second, that people vary considerably in the extent of their pitch range; some speak in a rather monotonous way whilst others are much more lively and more expressive. Put together, these facts suggest that men and

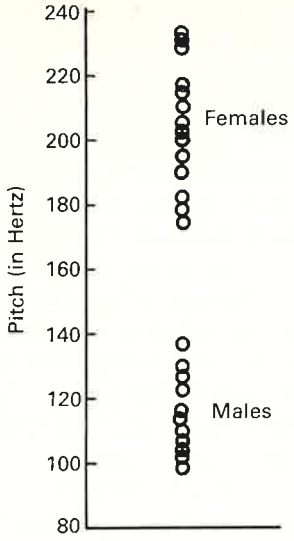
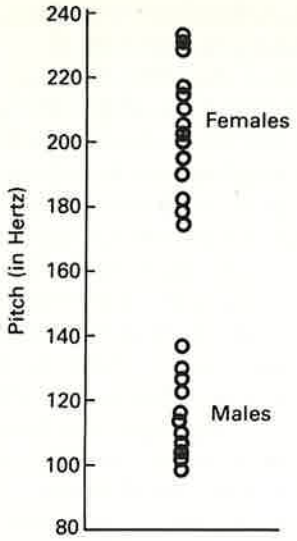


Figure 2.2 The average speaking pitch of a sample of men and women

women could, if they wished, use similar pitch ranges and hence adopt a similar average speaking pitch. To do this, men would have to restrict themselves to the upper part of their ranges, while women would have to avoid their upper ranges.

This argument is based on the observation of the pitch ranges actually used by men and women. There is evidence, however, that people customarily use only a small part of the range that their vocal organs are capable of. Infants demonstrate this vocal potential in a remarkable way. Fairbanks (1942) made gramophone recordings of hunger wails produced by his infant son during the first nine months of life and he found that the boy's pitch ranged from 63 Hz to 2631 Hz – a span which encompasses the singing ranges of both bass and soprano. There have also been several stories of professional singers who, through special training techniques, have achieved prodigious vocal ranges. Luchsinger and Dubois (1956) described the voice of Jennifer Johnson who boasted a range similar to that of Fairbanks' infant (from 65 Hz to 2794 Hz, well over five octaves).

Evidence of this kind undermines the claim that the difference in voice pitch between men and women is a simple and inevitable



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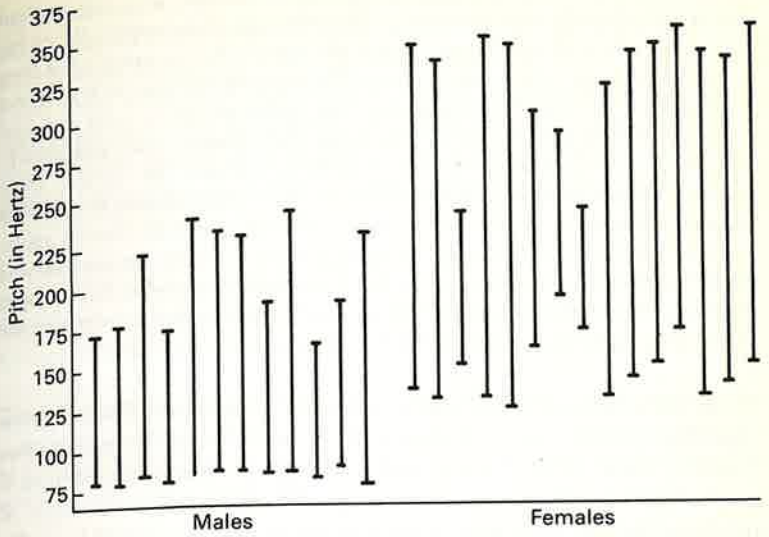

Figure 2.3 The extent to which the pitch ranges of men and women overlap

consequence of their different vocal anatomy but it hardly supports Dale Spender's claim that sex differences are socially constructed. It is one thing to argue that there is no absolute physiological bar which prevents men and women speaking at the same pitch and quite another to argue that they avoid doing so for social reasons. It might simply be that whilst possible it is rather difficult and uncomfortable for a man to speak in a high pitched voice or for women to restrict themselves to their lower ranges.

As it happens it is well known that men can, with a little practice and motivation, converse in a falsetto voice for extended periods and without apparent difficulty. Various drag artists routinely do so. Dustin Hoffman very successfully played the part of a woman in the film *Tootsie*. There are cases, also, of adult men whose voices are unusually high in pitch. Greene, the author of a standard medical text on the human voice describes several men whose voices appear not to have broken. Charles was typical:

Charles, a young man of eighteen years, was in his first year at university and had come under criticism from his tutor for his unintelligible speech,

especially when reading aloud. He had speech therapy as a child for an articulation disorder and stammer... His voice had never broken. When his parents were interviewed by the speech therapist and were asked what they felt about Charles' voice, his mother said it sounded all right to her; it was his stammer she was worried about. The father disagreed with her and positively agreed with the speech therapist that Charles' voice was girlish. An Edinburgh Masking Instrument [which prevents the patient from hearing his own voice] was obtained for use with stammers and it was tried out with Charles. A totally unexpected result was achieved; Charles spoke without stammer and in a deep, masculine voice... When the masker was switched off and he heard his voice he immediately reverted to falsetto and was not to be caught out again by this ruse. It was decided to refer him for psychiatric treatment. (Greene, 1980, p. 244)

What demands attention here is not just the fact that Charles' voice appears to be unbroken (in strictly physiological terms it obviously *has* broken), but that his use of abnormally high pitch was regarded as a psychological rather than a medical problem. Documented cases of this kind demonstrate that psychological motivation would be sufficient to eradicate the difference in pitch between women and men.

It seems that, in practice, the opposite is true: men seem to be under some kind of social or psychological pressure to make their voices sound as different as possible from women (and, perhaps, vice versa). In fact it is not immediately obvious whether one sex plays a greater role than the other. In our own study which we referred to above (Graddol and Swann, 1983), we came to a surprising conclusion. The pitch at which men spoke seemed to reflect their physical size, whilst there was no relationship between women's voices and their size. Whilst this might suggest that men are using their 'natural' voices and women distorting theirs, a moment's thought will demonstrate that this cannot be true. The comparison shows that people can place their voice ranges somewhat flexibly. For some reason, the men and women in our study were adopting different strategies. Men's voices reflected their physical size because they used the lower limits of their pitch range and adopted intonation patterns which were more monotonous than women's; women by contrast, were more variable in their use of voice, both in the sense of using more expressive intonation and in differences between individual women. Such differences seem to indicate that pitch of voice carries social meanings and that men and women try to communicate different social images.

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Our study pointed to an area of interest, but did not provide much in the way of explanation. The evidence that people learn to speak with gender appropriate voices comes from two principal sources. First, there are studies from different parts of the world which show that pitch and voice quality are culturally variable. Second, there is evidence that girls' and boys' voices can be distinguished well before their vocal apparatus becomes differentiated in adolescence.

Cross-cultural Evidence

Sir Duncan Gibb (1869) was one of the first to observe that men spoke with different voice qualities and pitches in different countries:

> The voices of the natives [of India, who appeared to be generally male] are . . . generally soft and plaintive, and very feminine . . . not so very powerful as the shrill, the natives always sing in falsetto . . . the compass of the voice is small, hardly above the octave. (Gibb, 1869)

In contrast 'Negros have the power of uttering bass notes in a low and grave tone.' What is interesting about Gibb's extraordinary and anecdotal observations is his willingness to see the 'character of the voice' as a combination of physiological and learned characteristics. 'Negros' suffered, it seems, from a peculiar deficiency shared by many non-Europeans – a 'pendency of the epiglottis' which, together with the position of the ventricles was 'unfavourable to intensity and gravity of sound'. The Tartars' larynx was judged, from the descriptions of voice given by travellers alone, to be 'well developed', 'prominent in the neck', 'the vocal cords, consequently, are long and powerful, surmounted most probably by capricious ventricles.' Nevertheless – and this is where Gibb's account becomes interesting for us – local culture and habits were also said to affect the voice. The hill tribes in India 'from the habit of always calling to each other from hill to hill, have contracted a habit of loud speaking'. The 'American Negro' had developed a nasal twang 'derived by imitation from his master'.

Gibb also noted that men and women differed in voice less in some cultures than others and he linked these observations with comments on the social position of women. Thus:

> In Tartary, the women lead a very independent life, riding out on horseback at pleasure, and visiting each other from tent to tent . . . The Tartar woman

presents in her bearing and manners a power and force well in accordance with her active life and nomad habits, and her attire augments the effect of her masculine, haughty mien. The voice of the Tartar woman is not inferior to that of men, in power, at any rate, if we may judge from the behaviour of an innkeeper's wife, who for her obstinacy received a formidable box on the ear from her husband, which sent her into a corner, screaming at the pitch of her voice. (Cited in Gibb, 1869, p. 249)

More recent, and rather more scientific, studies have shown that the average pitch of voice does indeed vary from country to country. One of the most impressive was that reported by Majewski et al. (1972) who found the average speaking pitch of 103 Polish men to be 137.6 Hz whereas that of a comparable (though much smaller) group of American men was 118.9 Hz. Difference in physical size was eliminated as a contributing factor, since no relationship between height, weight and speaking pitch was found amongst the Polish males. (Such evidence is interesting in connection with our earlier discussion.) As further evidence in favour of a cross-cultural explanation, the authors point out that the measures for the Polish men are similar to those obtained from American samples in earlier studies in the 1940s. In addition to Majewski's study, there is further tentative evidence from Loveday (1981) who examined the average pitch of voice used by Japanese and (British) English female and male speakers, finding a considerable discrepancy between Japanese men and women (women sometimes reaching heights of 400 Hz, for example) which did not occur between English speakers.

One of the besetting problems of data of this kind is that alternative explanations can often be provided. The difference in average pitch may simply reflect the different intonational patterns used in different languages, for instance. We have shown (Graddol, 1986) that when people read two different kinds of text in the *same* language it can have a dramatic effect on the average pitch of their voices. Another possible explanation is that there are systematic differences in body build between different ethnic groups. Average height is known to vary, for example, not just from one country to another but even between social classes in a developed country such as Britain. Even the data which show the magnitude of the sex difference within cultures does not escape this problem, since physical sex differences may also be variable (this may be a function of the better nutrition given to males in many parts of the world,

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including the developed countries). It should be said that these problems are not altogether insurmountable – it would be helpful to have data taken from bilingual and multilingual speakers, for example.

Pre-adolescent Children

Several researchers have shown that it is possible to tell the sex of a young child from their voice long before puberty. Such differences, it is alleged, must be socially acquired. A classic instance of the social adaptation of pitch of voice was reported by Philip Lieberman who observed that infants who had reached the babbling stage varied the pitch of their babbling according to whether the father or the mother was present. Alone in the cot, a 10 month old boy babbled to himself at 430 Hz, but dropped to 390 Hz when playing with his mother, and further dropped to 340 Hz when with his father. Similarly, a 13 month old girl varied between 390 and 290 Hz depending on whether she was interacting with her mother or father. Crying in both children was at a higher pitch and was not affected by the presence of adults (Lieberman, 1976). It has been argued that this shows children are sensitive to the fact that fathers speak with a lower pitched voice than mothers and that the children, who are able to adjust the pitch of their voices, learn later to adopt permanently the gender appropriate pitch level.

Although this report has achieved some importance in the literature on the acquisition of gender appropriate speech, it must be admitted that the evidence is pretty anecdotal. Only two infants were observed and no-one else seems to have reported similar findings. Furthermore, it is difficult to provide a coherent explanation in the light of findings by other researchers that pre-adolescent boys tend to have *higher* pitched voices than girls (as measured in terms of fundamental frequency of vocal cord vibration) right until their voices break.

One such study was reported by Sachs, Lieberman and Erickson (1973). Although they found that boys tended to have higher fundamental frequencies than girls (this is associated with higher muscular tension and activity) they did find that boys had significantly lower vocal tract resonance (which we earlier described as a contributory factor in perceived pitch). Since the sex difference could not be explained by physical difference in size the researchers

argued that children learned to adjust the effective length of their vocal tract by adopting gender appropriate muscular postures (known as *articulatory settings*).

In conclusion, although there are a large number of research papers which report evidence of the social adaptation of pitch and voice quality, there are very few indeed which are not flawed in some way, are not contradicted by other researchers, or are not amenable to alternative interpretations. The lack of solid evidence is by no means proof that no social adaptation goes on. It may simply illustrate the difficulty of trying to isolate the contribution of social factors where several factors interact. Average pitch of voice seems to be partly a function of vocal anatomy, partly of environmental factors such as excessive smoking or drinking, partly a reflection of the intonation patterns of the speaker's language or dialect, and partly a result of social adaptation.

There is limited evidence that what is regarded as socially desirable in a voice varies from culture to culture. Maxine Hong Kingston gives us an example of contrasting ideas of 'feminine' voice quality in her autobiographical book *The Woman Warrior*:

> Normal Chinese women's voices are strong and bossy. We American-Chinese girls had to whisper to make ourselves American-feminine. (Kingston, 1976, p. 172)

Recent research supports the notion that cultural ideals vary. Valentine and St Damian (1988), for example, contrasted the way ideal male and female voice types for radio presenters were perceived in Mexico and the United States. The concluded:

> Comparison of the ideal male voice types revealed that ideal male vocal delivery was somewhat low in pitch and somewhat slow in delivery. Both ideal voice types were additionally described as firm, cheerful, well-modulated, and careful in enunciation. However, the ideal Mexican male was expected to use greater volume and take more care with diction than was his United States counterpart.
>
> The ideal female voice types in Mexico and the United States were similarly described as soft in volume, medium to somewhat slow in rate of delivery, and careful in enunciation. However, the ideal Mexican female voice was additionally expected to sound delicate and sensual. (Valentine and St Damian, 1988, p. 300)

It would be surprising if people did not use their voices to project a

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culturally desirable image. Other parts of the human body which have been endowed with social significance are manipulated, groomed or decorated before being presented in public. We know that voices are socially significant, we know humans have the capacity to alter their voice; it would be strange indeed if the voice was not subject to socially motivated adaptations. But even if people do not, in fact, manipulate their voices (either consciously or unconsciously) to create social images, the voices they use may still be endowed with immense social meaning. In the remainder of this chapter we will examine the independent evidence that relates to such social meaning.

The Social Meaning of Men's and Women's Voices

We will look briefly at the three most popular ways of describing the meaning of voice qualities. These are the sociobiological, the social psychological and what we have called the sociopolitical.

Sociobiological Explanations

Studies of animal behaviour by ethologists show that in many species the male has a louder and deeper pitched vocalization than the female. Such differences are thought to have resulted from selective breeding caused by the twin evolutionary pressures of 'sexual selection' and the general 'struggle for life'. For example, male toads have deeper pitched croaks than females, and it has been shown that female toads seek out as mates the males with the deepest croak (Fairchild, 1981). This is thought to be because the depth of croak indicates the size and vigour of the male animal. In other species, though, the low pitched vocalizations of the male have developed not as a means of attracting females but as a means of intimidating rival males, and setting up male dominance hierarchies. The male of one species of bird-of-paradise, for instance, has developed a remarkable vocal tract which is many times longer than the bird itself and which is coiled like an intestine under the skin. Mary Clench, who has made a special study of this species, suggests that 'the tracheal elongations of birds-of-paradise serve to lower the pitch of, and amplify, their vocalisations' (Clench, 1978, p. 428). The vocal displays are part of a striking mating ritual which sets up

a male dominance hierarchy and ensures that only one male gains access to any female who appears (Lecroy, 1981).

Amongst our human ancestors, the male voice is thought by some to have played a similar role. Darwin supposed that most distinctive male characteristics, including the facts that man is 'taller, heavier, and stronger than woman ... more hairy and his voice has a different and more powerful tone' emerged through what he called the 'law of battle', namely, the fight between men for women:

> With savages, for instance the Australians, the women are the constant cause of war both between members of the same tribe and between distinct tribes... With some of the North American Indians, the contest is reduced to a system... It has ever been the custom among these people for the men to wrestle for any woman to whom they are attached; and, of course, the strongest party always carries off the prize... There can be no doubt that the greater size and strength of man, in comparison with woman, together with ... his greater courage and pugnacity, are all due in chief part to inheritance from his half-human ancestors. These characters would, however, have been preserved or even augmented during the long ages of man's savagery, by the success of the strongest and boldest men, both in the general struggle for life and in their contests for wives. (Darwin, 1874, pp. 556–8)

Support for this idea that male vocalizations are designed to be aggressive and threatening comes from Ohala (1983, 1984) who observed that there was a remarkable similarity in the vocalizations used in competitive encounters by a very wide range of species including birds and mammals:

> The sounds made by a confident aggressor or dominant individual are low pitched and often harsh, whereas those of a submissive or subordinate individual are high pitched and tone like. The dog's threatening growl and submissive whine are familiar examples of this pattern which I will henceforth refer to as the 'frequency code'. (Ohala, 1983, p. 7)

The 'frequency code', claimed Ohala, is a universally used and innately recognized method of signalling dominance and aggression. When animals fight, it will usually be the larger one who wins. Hence antagonists can avoid injury if actual contact is avoided and if the competition displaced and made symbolic. Animals use a variety of means to indicate (and exaggerate) their body size: dogs

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erect their hair, cats arch their backs, birds extend their wings and so on. Ohala continues:

The pitch of voice can also indirectly convey an impression of the size of the vocalizer since there is a correlation (an inverse one) between the rate of vibration of the vocal cords (or the syringeal membranes) and overall body mass... Moreover, the more massive and thick the vibrating mass, the more likely it is that secondary modes of vibration will be set up in it and in that way give rise to irregular vibratory patterns and thus harsh voice quality. The individual that intends to prevail in the contest – initially both competitors may – will try to convey his largeness (even if it is a bluff) by producing the lowest-pitched and harshest vocalization he is capable of. The individual who wants to capitulate will attempt to appear small and non-threatening and will therefore emit as high-pitched and tone-like a cry as possible. (Ohala, 1983, p. 8)

Ohala suggested that a further reason why a high pitched voice appears submissive and subordinate may be because it imitates the cry of an infant which triggers an instinctive taboo against the harming of offspring. Ohala's proposal was intended specifically to explain the origins of the human male voice. He suggested that since the lowering of men's voices appeared at puberty, it may serve a similar evolutionary function to other secondary sexual features:

Growth of hair at the perimeter of the face of males, as with so many other primate species, increases the apparent size of the head and thus enhances the visual effectiveness of a threat display. The enlargement of the vocal anatomy gives the male a lower-pitched voice and lower resonances which, according to the frequency code, also indirectly enhance his apparent size. It would seem plausible, then, that the dimorphic aspects of the vocal apparatus serve to improve the male's ability to protect the family unit, i.e., that they are adaptations to the sex specific role of the human male (in earlier days, if not at the present stage of human society). This is consistent with current ethological speculation on the factors leading to sexual dimorphism and with the role played by adult males in other primate groups. (Ohala, 1983, p. 13)

Men's larger larynx is thus likened to the large proboscis of the elephant seal, which lowers the pitch of its call and increases its 'success of maintaining a harem in the face of competition from other males'.

So it seems from studies of animals that the low pitched, male

voice has developed in order to sound aggressive and dominant. This aggression was directed at other males rather than females, but it is noteworthy that the evolutionary story is one in which women are anyway given a submissive and subordinate role. The details vary according to which evolutionary mechanism is thought to have been responsible, but the stories are mutually compatible. If the lower pitched voice arose through the mechanism of sexual selection, then this could only occur in an environment where men were promiscuous and fought or intimidated other men for access to women. If it arose through the 'struggle for life' then there must have existed a society in which there was an inescapable division of labour; and in which men roamed the world battling with the men of other tribes and engaging in other dangerous pursuits while the women devoted themselves to child-rearing and domestic labour. Sex differences in our ancestors' voices, according to the evolutionary explanations, reflected and helped maintain their primitive pattern of labour and sexual relationships.

Some people certainly believe that men's voices have very similar functions today – to help get a mate and to dominate over other males. Luchsinger and Arnold, in a classic medical text on the human voice, suggest that these attributes of the male voice are lost in old age:

> At this age the voice no longer serves for physical attraction as it does in the young male who is about to found a family and to strive for their care. Likewise, the senile voice is no longer suitable for the militant leadership of assembled males, be it in army barracks or in executive offices of industrial enterprises. (Luchsinger and Arnold, 1965, p. 137. Cited in Laver, 1975, p. 304)

Although the majority of ethological accounts of the human voice focus on the male, rather than the female, there have been one or two attempts to explain female vocal behaviour in such terms. Whispery voice, which is an extreme form of breathy voice, carries particular associations, Laver suggests:

> the use by some popular female singers and film actresses of whispery voice ... simulates the effect on phonatory quality of the change in consistency of the mucal lining of the larynx which takes place during sexual arousal. (Laver, 1975, p. 298)

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lon (1985), discovered that female speakers in two

British accents consistently used a more breathy voice quality than men in ordinary speech. They noted that breathiness was an inefficient mode of voice production which had various 'communicative limitations' and continued:

> It may not be too speculative to assume a physiological basis for the association between breathiness and arousal... This is not to say that British women using a breathy voice are actually aroused; rather that they imitate the voice quality associated with arousal. If a woman can manage to *sound* as though she is sexually aroused, she may be regarded as more desirable or with greater approbation by a male interlocutor than if she speaks with an ordinary modal voice. At an ethological level, breathy voice may be seen as a part of the courtship display ritual, as important as bodily adornment and gesture. A breathy woman can be regarded as using her paralinguistic tools to maximize her chances of her achieving her goals, linguistic or otherwise. (Henton and Bladon, 1985, p. 226)

Although explanations of human behaviour in terms of atavistic animal behaviour seem popular in some quarters, there are several reasons for caution. Such sociobiological accounts often make unwarranted assumptions about the similarities between humans and other animals and may be guilty of trying to justify and legitimate some of the more sexist and oppressive aspects of human behaviour as 'natural', and instinctive. When the evolutionary and ethological explanations require us to make assumptions about the biological inevitability of a certain prehistoric sexual division of labour and human sexuality, both of which have complex social dimensions, we may become particularly uncomfortable. Both the social psychological and the sociopolitical explanations of the meaning of female and male voices reject the sociobiological one for these reasons.

Social Psychological Explanations

We can say with some confidence that biological explanations of social meaning can provide no more than a dangerous 'grain of truth'. Such explanations are, for example, extremely partial. It seems intuitively correct to suppose that loud voices can be threatening, today as in prehistory, but the ordinary speaking voice is not exactly a frightening or screaming one. If the male speaking voice carries such conviction, authority and sexual attractiveness it

must do so by a subtler method than through brute strength, or even through its symbolic representation.

Ohala, whose idea about the universal pitch code we have already discussed, showed in experiments that listeners hear lower pitched voices as more confident and dominant than higher pitched ones (Carleton and Ohala, 1980) and argued that this supported his ethological explanation. The finding, however, fits well with a range of experiments by social psychologists which show that listeners make complex responses to men's and women's voices. Higher pitched voices are heard as less competent (Brown et al., 1973) or even less truthful and generally less 'potent' (Apple et al., 1979). Such characteristics seem to be components in more general perceptions of 'masculine' and 'feminine'. Coleman (1973) played recordings of 20 women's and men's voices to a panel of listeners and he asked them to rate each speaker's 'masculinity' and 'femininity' on a single scale. He found that when people made such judgements they seemed to be mainly influenced by the pitch of the speaker's voice. (See figure 2.4)

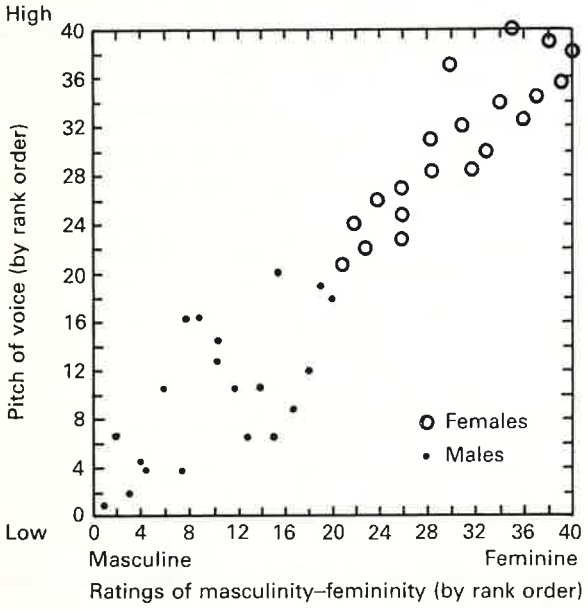

Figure 2.4 The relationship between speaking pitch and perceptions of masculinity–femininity

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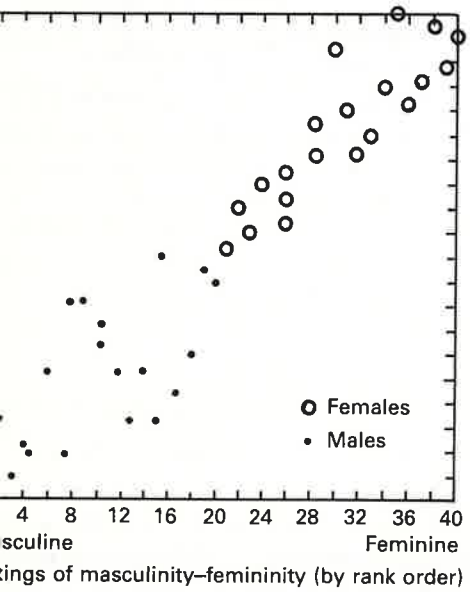

ings of masculinity–femininity (by rank order)

lationship between speaking pitch and perceptions of masculinity–femininity

Coleman thought of gender as a psychological attribute which formed a continuum from very masculine to very feminine. A man might possess certain feminine characteristics just as a woman might possess masculine ones. Such a model of gender is a great deal more sophisticated than a two way division which sees all males as masculine and all females as feminine, but it has the disadvantage that it assumes that anyone who is high on masculinity must also be low on femininity. More recent work on the psychology of gender uses separate masculinity and femininity scales. Hence a person can be simultaneously 'aggressive' (judged to be a masculine trait) and 'affectionate' (seen to be more socially desirable in a woman). A person who possessed both masculine and feminine traits in this way is referred to as *androgynous*. This model of gender provides a more complex psychological space on to which people can map other people's gender identities. Since evaluations of a person's gender identity also depend on whether they are identified as male or female, the space is not strictly two-dimensional but contains two overlapping rectangles. Figure 2.5 shows this schematically.

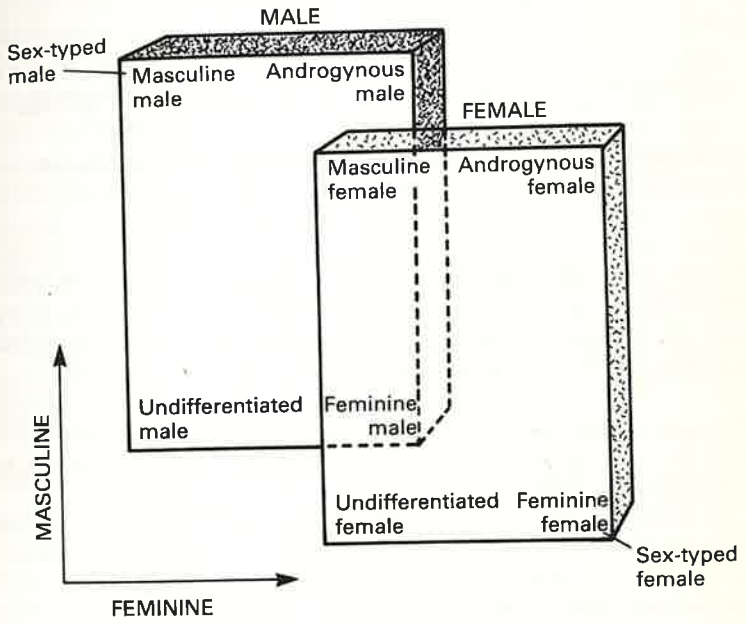

Figure 2.5 A schematic representation of the multi-dimensional nature of gender identity

Smith (1985) tried to find out whether listeners can locate speakers in such a space on the basis of their voices. He asked a large group of people to evaluate themselves on standard rating scales for attributes which were considered stereotypically 'masculine' and 'feminine'. He then selected the four men and four women who had located themselves in the extreme corners of the gender rectangle. He was able to show that listeners' evaluations of speech samples corresponded roughly with the speakers' own self-evaluations (figure 2.6).

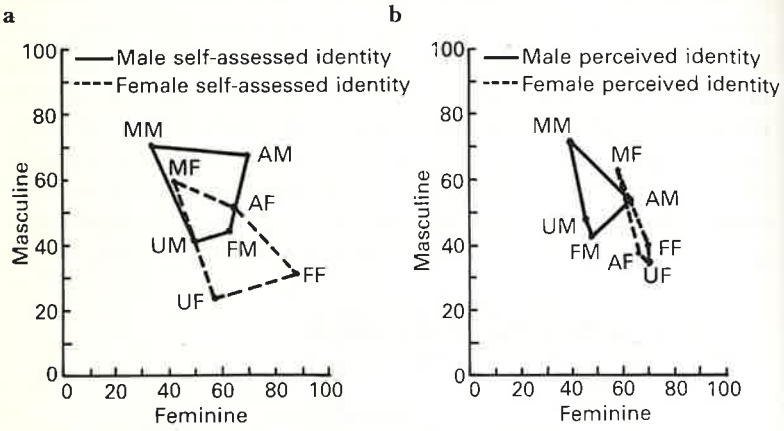

Figure 2.6a Self-assessment of gender identity by eight subjects
Figure 2.6b Perceived identity of the same eight subjects.

It is not clear what, exactly, people are listening to when they make these judgements. Certainly, pitch of voice is very important, as we have demonstrated, but so are various other voice qualities. Laver identifies harsh voice and breathy voice as two salient factors;

> We seem prepared, as listeners, to draw quite far reaching conclusions from voice quality about long-term psychological characteristics of a speaker, in assessments of personality.
>
> In Western culture, we are ready to believe, for example, that a harsh voice is correlated with more aggressive, dominant, authoritative characteristics, and a breathy voice with more self-effacing, submissive, meek personalities. (Laver, 1968, pp. 49–50)

Such studies demonstrate that rather complex gender images are

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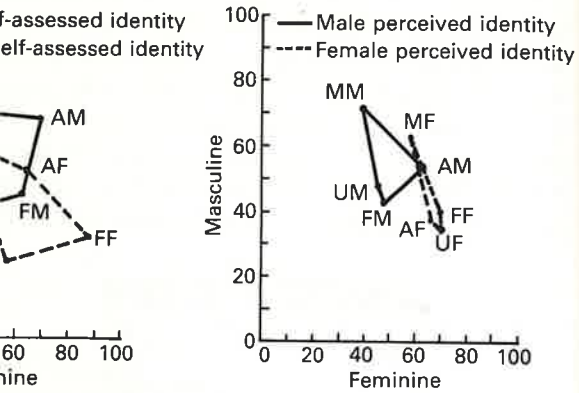

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projected through the voice and are interpreted by listeners. Furthermore, when you look more closely at what these dimensions of 'masculinity' and 'femininity' are, they turn out to be based on socially stereotypical features such as 'aggression', 'dominance', as opposed to 'affectionate', 'submissive' and so on.

Sociopolitical Explanations

Feminists have often claimed that the appearance of naturalness which surrounds so many aspects of gender has important political implications. If certain characteristics – such as the sexual division of labour – appear to based on 'natural' (i.e. biologically determined) qualities, then such social arrangements may be seen as inevitable and beyond sensible questioning.

Vocal images are interesting in this respect. Even if one accepts that many differences in voice quality between the sexes are consequent upon evolutionary history and anatomical make-up, it does not follow that the meanings which these voice qualities have acquired are as biologically determined as the voice qualities themselves. In any form of symbolic communication the relationship between a perceived entity (or signifier, to use the term adopted in semiotics) and the meaning which is attributed to it (the signified) is essentially a matter of social convention. A flower is a product of nature and its form and colour can be explained in botanical and evolutionary terms. Nevertheless, the meanings people attach to particular kinds of flower – a rose which signifies love or a poppy which signifies remembrance – are not created by natural history but by human history and social convention. It is thus to be expected that a single species will acquire different meanings in different cultures and at different times (a poppy signified forgetfulness in classical times, for instance) and such meanings will be susceptible to redefinition.

So, it has been argued, with the meanings attached to the human voice. The linguist, Debbie Cameron, suggests there is no intrinsic reason why women's voices are heard to be lacking in authority:

> It is inconceivable that these judgements have anything to do with pitch. If men talked in higher pitches than women, low voices would be said to lack in authority... Linguistic sex-differences act simply as a badge of femaleness, and are valued negatively quite irrespective of their substance.

> Explaining that women's high pitch is learned/can be authoritative/is really very pleasing to the ear will have no effect on the irrational process by which everything 'female' is pejorated, whether it actually reflects women's behaviour or not. (Cameron, 1985, p. 54)

Cameron is here invoking the Saussurean doctrine of the 'arbitrariness of the sign' which we described in chapter 1. This suggests that there should be no intrinsic reason why breathiness symbolizes female sexual availability, or why low pitch signals authority. In principle, such meanings could be changed through concerted social effort. It is, after all, exactly such semiotic engineering which the advertising and propaganda industry is constantly engaged in. A decade ago, the drinking of lager in England was seen as effeminate, but has been transformed into a macho activity by the brewing industry (who played upon its different connotations in Scotland and Australia). Cameron is pessimistic about the chances of such attitudinal change with regard to the voice, and rightly so, but she probably underestimates the complexity of the problem in two respects.

First, the meanings of different voice qualities are *not* entirely arbitrary or conventional. In the case of animal communication, for example, low pitch is not *symbolic* of largeness but is *indicative* of it – just as a human footprint in the sand is indicative rather than symbolic of the passage of a human being. Certain voice qualities in humans besides pitch are also indicative as we have shown – nasality is indicative of a head cold, breathy voice of sexual arousal. However, as we have also argued, such voice qualities may be produced intentionally and have acquired more complex connotations. The singer who adopts a soft, breathy voice is projecting an image of sexual interest and availability rather than experiencing or simulating sexual arousal in the recording studio. But the symbolic nature of such gestures can be obscured in unreflective reasoning because of the inherent 'grain of truth'. Because breathy voice can indicate sexual arousal, it does not mean that all instances of breathy voice are indicative in this way.

Although in principle one might imagine a feminist utopia in which high rather than low pitch was heard as authoritative, this would be extremely hard to achieve whilst the world is filled with child voices, large growling dogs and so on. What might be much more successful is an attempt to evaluate these meanings differently

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an attempt to evaluate these meanings differently

– to undermine the tyranny of the voice by making aggression and dominance less attractive social features. This, of course, is precisely a part of the programme of the women's movement.

There is a second way in which Cameron underestimates the role of the voice. It is not sufficient to observe that high pitch, wide pitch variation, breathy voice, and so on have certain meanings in western culture without also noting how this complex of meanings fits squarely with the wider set of ideas denoted by femininity and masculinity. Through their vocal behaviour, women are not just perceived to be 'feminine'and men 'masculine': the validity and legitimacy of these complex stereotypes is also confirmed. Women are heard to be 'naturally' submissive, weaker, less reliable and more suited to domestic work than to the rigours of public life. Men, on the other hand, are heard to be dominant, aggressive, competent, authoritative – attributes which are daily denied to women by their voices.

Vocal gender images are not just abstract, mental things. They can directly affect the lives of individuals, their job opportunities and their relationships with other people. High pitch and low pitch may not just signal femininity and masculinity but may also have deeply rooted sexual connotations. This fits with the notion we reported earlier, that sexual activity has long term effects on voice quality. Havelock Ellis, an influential British sexologist in the early twentieth century who played an important role in the development of post-Victorian views on female sexuality illustrated the wider implications of such ideas:

> Delaunay remarks that while a bass need not fear any kind of sexual or other excess so far as his voice is concerned, a tenor must be extremely careful and temperate. Among prostitutes, it may be added, the evolution of the voice and of the larynx tends to take a masculine direction. This fact, which is fairly obvious, has been accurately investigated at Genoa by Professor Masini, who finds that among 50 prostitutes 29 showed in a high degree the deep masculine voice . . . only six of the 50 showed a normal larynx; while of 20 presumably honest women only 2 showed the ample masculine larynx. (Cited in Ellis, 1896, p. 237)

This supposedly scientific report betrays its social values. The situation today may not have greatly changed. Breathiness may be flirtingly suggestive of sexual availability, but socially acceptable in a woman if associated with a high pitch that connotes a lack of

sexual experience. High pitch in a man may, on the other hand, offend against traditional views of male sexuality. Ellis himself possessed a high pitched voice and once tried to explain away the embarrassment by suggesting that this was 'remarkably common in men of intellectual ability ... possibly be due to a slight paralysis of the vocal cords' (see Grosskurth, 1980, p. 266).

It does seem to us that sexuality forms an important dimension in dominant images of male and female voices, though we can only speculate on what, exactly, is involved. Nevertheless, it seems that whilst a man can aspire to a voice quality which attracts many socially desirable connotations (bigness, sexually experienced, and authoritative) a woman will be faced with compromises. The vocal attributes which signal authority and competence, for example, conflict with those that signal desirable features of femininity and female sexuality. Margaret Thatcher provides a now well-known example of how social attitudes to voices can affect a woman's career. In her early days as British prime minister her voice was considered a liability to the public image which her advisers wished to project. Gordon Reece, a TV producer called in to advise on TV interview techniques, is reported to have remarked that:

> The selling of Margaret Thatcher had been put back two years by the mass broadcasting of Prime Minister's Question Time as she had to be at her shrillest to be heard over the din. (Wapshott and Brock, p. 170. Cited in Atkinson, 1984, p. 115)

The solution decided upon was a programme of voice training to make her voice sound more in keeping with the image of a powerful and competent politician:

> Under the guidance of a tutor from the National Theatre, she underwent a training programme which included special humming exercises aimed at lowering the pitch level at which she formerly spoke. From tape recordings of speeches made before and after receiving tuition a marked difference can be clearly heard. When these are played through an electronic pitch analyser, it emerges that she achieved a reduction in pitch of 46 Hz, a figure which is almost half the average difference in pitch between male and female voices. (Atkinson, 1984, p. 113)

It may be that the sacrifice in perceived femininity that such a training implies is a small one for a woman in her position to make,

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or it may be that it can be countered through careful attention to dress and appearance. However, it is not just Margaret Thatcher who experiences such problems, but practically any woman who has to speak in public. In the media, TV and radio producers are notoriously circumspect about using women for 'serious' work, such as news bulletins. It was many years before female news readers and continuity announcers were heard, and when they were, only 'suitable' voice qualities were selected. Producers play a much more active role than might be suspected in such matters. We know how difficult it can be to persuade BBC producers who make Open University programmes to let women provide commentaries or voice-overs, for example. The insistence on low pitched voices for serious presenters may be one way in which the association between authority, competence and certain kinds of low pitched voice qualities are perpetuated and it actively prevents other kinds of voice from playing such a role. In other areas of the media, more conventional programming values still apply. We ourselves know of cases in the recording studio where a producer has encouraged a man to adopt 'a more aggressive, harder edge' to his voice and a woman to 'soften her tone' in order to conform to expected vocal contrasts. Producers vary in the reasons they give for choosing the voices they do, but the end results seem the same.

The majority of women are not actors and politicians, but discrimination of this kind goes on in much humbler occupations. Women often have jobs in which they deal with the general public, and employers will take into account the public's expectations and reactions to the voices of their telephonists, receptionists and secretaries. Even advertisments for shop assistants and till operators in supermarkets routinely make requirements about voice and speech. Women whose voices conform to received qualities of manner and clarity have an advantage over those with voices perceived as unfeminine.

Conclusion

In this chapter we have shown that many apparently natural aspects of men's and women's voices cannot be explained simply in terms of anotomical differences between the sexes but are acquired as speakers learn cultural norms of feminine and masculine behaviour.

We have also reviewed some of the arguments that establish a line of connection between men's and women's voices and their different life experiences; between, for example, the pitch of a man's voice and the wider employment opportunities available to men; between breathiness in a woman's voice and the treatment of women as sexual objects, and so on. Characteristics of voice take on a wider and perhaps more sinister significance through the demonstration that they form part of the social mechanism that maintains gender inequality. Employment and sexuality are two clear examples of the political importance of vocal gender images, but it must be admitted that the complex and wider relationship between voice and gender inequality is still poorly understood. Better understood and more extensively researched is the closely associated area of pronunciation and accent which we investigate in the next chapter.