from Andrew Crisell, *Understanding Radio*, 1st edn (London: Methuen, 1986) pp. 45-56.

[I shall here examine] the raw material of radio, […] the signs which its codes make use of in order to convey messages, and for this purpose I shall borrow some rudimentary distinctions from what is in fact a highly sophisticated classification of signs devised by the American philosopher, C. S. Peirce (1839—1914). Peirce, who is commonly regarded as a founding father of semiotics or semiology, the study of signs, distinguishes between the icon — a sign which resembles the object which it represents, such as a photograph; the index — a sign which is directly linked to its object, usually in a causal or sequential way: smoke, for instance, is an index of fire; and the symbol — a sign which bears no resemblance or connection to its object, for example the Union Jack as a symbol of Great Britain (Peirce, 1960: I, 196; II, 143, 161, 165, 168—9; Hawkes, 1977: 127—30; Fiske, 1982: 50). In radio all the signs are auditory: they consist simply of noises and silence, and therefore use time, not space, as their major structuring agent (Hawkes, 1977: 135). The noises of radio can be subdivided into words, sounds and music, and we will look at each of these in turn and also at the nature and functions of silence […].

WORDS

Since words are signs which do not resemble what they represent (we may represent a canine quadruped by the word 'dog' but we may equally refer to it as 'chien', 'hund' or 'cur' or even invent a private word of our own), they are symbolic in character. Their symbolism is the basis of radio's imaginative appeal, for if the word-sign does not resemble its object the listener must visualize, picture or imagine that object. But there is an important difference between words which are written or printed on a page and words on the radio, and that is that words on the radio are always and unavoidably spoken. They therefore constitute a binary code in which the words themselves are symbols of what they represent, while the voice in which they are heard is an index of the person or 'character' who is speaking — a fact which was perceived and researched fairly early in the medium's history (Pear, 1931). In other words such factors as accent and stress have semiotic functions, or at least effects (O'Donnell and Todd, 1980: 95). Almost irrespective of what is said in a French accent, for example, the listener may automatically ascribe a romantic personality to its speaker. In fact, voice can be so powerful an expression of personality that merely by virtue of some well-delivered links a presenter or disc jockey can impose a unifying and congenial presence on the most miscellaneous of magazine or record programmes. Moreover, the voice of a continuity announcer is an index not only of herself, whom she may identify by name from time to time, but of the whole station or network. As a matter of deliberate policy she will give a kind of composite unity to its various programmes, set the tone or style of the whole network (Kumar, 1977: 240—1). Indeed an announcement such as 'You're listening to Radio 4' is ambivalent, for it means not only 'The programmes you're presently hearing are the output of Radio 4' but 'Since the network has no other self-conscious means of expression, I am Radio 4'. The ambivalence can be seen rather more clearly, and is taken even further, in the name of the USA's world service where at intervals we can hear 'You're listening to the Voice of America' in which the 'voice' is an index not only of the continuity announcer and the radio station, but of the entire nation.

By now it will be clear that signification is not static or rigid, but a highly fluid or elastic process which varies according to context and the preconceptions we bring to it — a fact which is not sufficiently acknowledged by some semioticians. A voice may be interpreted merely as the index of a human presence; or on another level as the index of a personality (a country bumpkin, seductive French woman,

and so on); or on yet a third level as the index of a programme, broadcasting institution or entire nation. It might be useful to see the latter two levels as examples of extended signification.

SOUNDS

Unlike words, which are a human invention, sound is 'natural' — a form of signification which exists 'out there' in the real world. It seems never to exist as an isolated phenomenon, always to manifest the presence of something else. Consequently we can say that sounds, whether in the world or on the radio, are generally indexical. We could of course say that recorded sound on the radio is iconic in the elementary sense that it is an icon or image of the original sound or that a sound in a radio play is an icon of a sound in the real world, but if we do we are still faced with the question of what the sound signifies, what it is that is making the sound. Thus sounds such as the ringing of a door-bell or the grating of a key in a lock are indexical in signifying someone's presence. Shut your eyes for a moment and listen. The chances are that you will become aware of sounds which you have been hearing for some time but which you have not been aware of before. You have not been aware of them because you are reading such a fascinating book that you have ignored the messages coming from your ears. Suppose, however, that your desire for a cup of coffee is almost equal to your absorption in this book and that a friend has agreed to bring one to you about now. You will be quite capable of picking out from the welter of unimportant noises which surround you the keenly awaited sounds of rattling cup and turning door-handle. But the radio medium is such that the listener cannot select his own area of attention in this way: the broadcasters must prioritize sounds for him, foregrounding the most important ones and eliminating the irrelevant ones, or if this is not possible reducing them to the level of the less important ones. This has been illustrated in respect of radio drama by Erving Goffman (1980: 162—5). Taking a conversation at a party as his scenario Goffman points out that whereas in real life we would be able to distinguish the important from the less important strand of sound, this has to be done for us on the radio by certain conventions. Among the possibilities he instances:

1. Fading in party chatter then fading it down and holding it under the conversation, or even fading it out altogether.
2. Allowing one or two low sounds to stand for what would actually be a stream of background noise.

What Goffman is concerned to stress about these conventions is their artificiality, which is aptly conveyed in the stock phrase 'sound effects': 'the audience is not upset by listening in on a world in which many sounds are not sounded and a few are made to stand out momentarily; yet if these conditions suddenly appeared in the off-stage world, consternation would abound' (ibid., 163). Nevertheless it is important to realize that such conventions are indispensable even in radio which deals with real life. In a location interview, for instance, the interviewer will set the recording-level on her portable tape-machine so that the sound of her voice and that of the person she is interviewing will be fore- grounded against all the other noises of the location. Let us imagine an inter view which takes place against a background of traffic noise. If the interview is with a superintendent of highways about noise pollution the traffic noise, while of less importance — and therefore less loud — than the interview, will still be of relevance to it. If, however, the interview is with the Chancellor of the Exchequer about his Budget proposals the noise of traffic will be quite irrelevant, an unavoidable evil, and the listener will be fully capable of distinguishing between these positive and negative functions of background noise. This second type of location interview is, of course, a *faute de mieux*: it brings a broadcasting facility to an interviewee who cannot be brought into the studio, for an important function of the studio with its sound-proofing is that it eliminates irrelevant noise altogether. My point, then, is

that radio does not seek to reproduce the chaotic, complex and continuous sounds of actual life: it may tolerate them to a degree, but seeks to convey only those sounds which are relevant to its messages and to arrange them in their order of relevance. Nevertheless the ultimate test of relevance is the verbal context: it is the subject under discussion in the interview which will tell us whether we should be paying any attention to the traffic noise.

Yet even when the relevant sounds have been distinguished from the irrelevant, the level of that relevance often needs to be determined. Let us imagine a programme which begins with an owl-hoot. The 'relevance' or importance of the sound is not in doubt since we can hear virtually nothing else. But what does that relevance consist in? Are we to take the sound simply as an index of the bird, as we would in a documentary about wild-life or the countryside? Or does it carry what I have termed an extended signification in evoking not merely a solitary owl but an entire setting — an eerie, nocturnal atmosphere, as it would in a radio melodrama or a programme about the occult? In the first place, how do such sounds as owl-hoots acquire an extended signification? A crowing sound, for instance, frequently signifies not only 'a cock' but 'daybreak', while the sound of strumming may suggest not only a guitar but a Spanish setting. Because radio broadcasters seldom walk while broadcasting, the sound of footsteps, frequently heard — and ignored — in real life, acquires a peculiar suggestiveness on the radio. Drama producers will use it sparingly, and to convey not only that a person is moving but also that an atmosphere of tension or solitude is developing. This extended signification seems to be established through a process of custom and habit. It is likely that such sounds were originally chosen as an effective way of reinforcing particular pieces of dialogue or description. But since they are effective and part of what is a rather limited range of resources open to the radio producer they were chosen again and again and came to acquire the status of a convention, an acoustic shorthand, in that they could replace or absorb much of the adjacent language. In hearing the hoot of the owl the listener would begin to brace himself for darkness and mystery before a word had been uttered. Nevertheless, while such conventions may be useful in replacing much of adjacent language they cannot wholly replace it, for ultimately it is only the words which follow upon our owl- hoot which will tell us whether what we are listening to is Sounds Natural or Afternoon Theatre.

But it is not simply the case that radio broadcasters must discriminate between important and unimportant sounds on their listeners' behalf and that they must also make the level of that importance clear: in some cases they must clarify the very nature of those sounds. Why? Shut your eyes and listen again to the sounds around you. You may be surprised at how few of them you can identify with any precision. The frequency range of most sounds is narrow and what we often overlook about the way in which we normally recognize them are the clues our other senses afford, notably the visual sense. When we do not actually see what is causing them they often mean nothing at all. Moreover studio simulations of sounds can often sound more 'real' on the radio than the actual sounds themselves would. Among the better known and genuine examples of these studio simulations are the clapping together of coconut shells to convey horses' hooves and the rustle of a bunch of recording tape to convey someone walking through undergrowth (McLeish, 1978: 252). These are not straightforwardly indexical, since the sounds made by coconut shells and recording tape have no direct connections with horses and people in undergrowth. They are 'images' of the sounds made by horses and people and are therefore best described as iconic indexes. They might also be described as 'non-literal signifiers' analogous to an actor in the theatre who represents a table by kneeling on all fours (Elam, 1980: 8); but in radio such signifiers must approximate rather more closely to that which they signify than signifiers in the visual media. Yet however carefully selected and 'realistic' the sounds may be, the listener may still be unclear as to what aspect of reality they are meant to signify. The rustle of recording tape may sound like

someone walking through undergrowth, but it also sounds like the swish of a lady's gown and remarkably like the rustle of recording tape. In a radio play which of these things would it signify?

```
Accompanied by 'Damn! I don't often hit it off the fairway': a
   golfer searching for his ball in the rough.
Accompanied by 'Darling, you'll be the belle of the ball  tonight':
   a lady in an evening gown.
Accompanied by 'This studio's a pig-sty. Throw this old tape out': a
   bunch of recording tape.
```

In other words, sounds require textual pointing — support from the dialogue or narrative. The ear will believe what it is led to believe. This pointing might be termed 'anchorage', which is how Roland Barthes describes the function of words used as captions for photographs. Visual images, he argues, are polysemous. But so are sounds. Hence words help 'Fix the floating chain of signifieds in such a way as to counter the terror of uncertain signs' (Barthes, 1977: 39).

MUSIC

Music on the radio, as on television, seems to perform two main functions. It is an object of aesthetic pleasure in its own right, in record shows, concerts, recitals, and so on; and either by itself or in combination with words and/or sounds it performs an ancillary function in signifying something outside itself.

As an object of pleasure in its own right, music is quite simply the mainstay of radio's output. Some stations offer little or nothing else. Even on the four BBC networks, one of which — Radio 4 — devotes over three-fifths of its output to news and current affairs, music accounted for 61.3 per cent of total radio output in 1983—4 (BBC Annual Report and Handbook 1985, 1984: 145). The difficulty is to define such music in semiotic terms since there is some doubt as to the sense in which music can be said to signify. Broadly speaking, words and images refer to something outside themselves but the assertion cannot be quite so confidently made about music. Music with lyrics seems to present less of a difficulty since we could say that the significance or meaning of the music means one thing and the lyrics mean another and that they are quite capable of counterpointing as well as complementing each other. Quite apart from this, the question of what meaning (if any) attaches to wordless music is a formidable one. It can of course be seen as an index of the instruments and musicians that are playing it. When we hear a record on the radio but miss the disc jockey's introduction to it, we may still be able to identify which group is playing by the characteristic sound it has evolved. But to leave the matter there is rather like saying that spoken words are signs of nothing but the identity of their speaker. Dictionary definitions of music generally ascribe an emotional significance to it, and some compositions (for example Tchaikovsky's 1812 Overture) evoke historical events: but while acknowledging this we would have to point out that music does not convey these emotions or events with anything like the precision that words do. Indeed there is room for disagreement about the emotional significance of certain compositions with unrevealing titles like 'Opus No. 3' or 'Study in E Flat' — and who could tell merely from hearing it that Chopin's Minute Waltz is about a dog chasing its tail? This means that written commentaries which point to particular features of a piece of music as referring to particular emotional or historical conditions tend to rely consciously or unconsciously on circumstantial evidence — the title of the piece and/or the famous legend which it 'narrates', the situation in which it was composed, the biographical and psychological details of the composer, and so on. Hence our very difficulty in discerning what music refers to means that if it does signify, then apart from its local imitations of 'natural' sounds its mode of signification will be almost entirely symbolic.

This virtual absence, or at any rate imprecision, of meaning in music makes it at once highly suited to the radio medium and somewhat unilluminating as to its nature. It is highly suited because in being largely free of signification it allows us to listen without making strenuous efforts to imagine what is being referred to, but to assimilate it, if we wish, to our own thoughts and moods — a fact which helps to explain why music has become even more popular since radio's rebirth as a secondary medium. But it is unilluminating in the sense that in its fully realized form (that is, not as a written score) it consists almost purely of sound, refers scarcely at all to anything outside itself, and is therefore one code which is not distinctively shaped by radio since radio is itself a purely acoustic medium. This was recognized fairly early in broadcasting history by a features producer who wished to dismiss the idea that there was anything especially 'radiogenic' about music:

There is no such thing as radio music. Composers go on composing music just as if wireless had never been invented, and the music of all periods is played before microphones in exactly the same way as it has always been played. It does not have to be 'adapted'. (Sieveking, 1934: 24)

Apart from the fact that radio allowed the listener to hear music without visual distractions (and even in this was anticipated by the gramophone), the point is that music is rather less revealing about the nature and possibilities of the medium than, say, news, drama and light entertainment: for whereas we can compare radio versions of the latter with their corresponding forms on the stage, screen or in newspapers and see the distinctive way in which the medium has adapted them, music in its essential form is always and everywhere the same. Not modified by radio, it does not particularly illuminate it.

Nevertheless the broad emotive power of music enables it to be combined with words and/or sounds as a way of signifying something outside itself, and some of these forms of signification are worth considering in detail.

1. Music as a 'framing' or 'boundary' mechanism. Musical jingles (sometimes known as 'IDs') identify or 'frame' radio stations just as signature or theme music frames an individual programme by announcing its beginning and/or end. Station IDs are similar in function to the voice of the continuity announcer, they set the style or tone of the station and could be seen as both index and symbol. It is interesting to speculate why musical IDs are more closely associated with 'popular' and verbal IDs with 'quality' net works; but it is certainly the case that the work done by continuity announcers on Radios 3 and 4 is performed largely by Jingles on Radios 1 and 2!

As a way of framing individual items theme music is also common in film and television, but it is of particular significance in radio because of the blindness of the medium. Silence, a pause, can also be used as a framing mechanism, but unlike that of film and television it is total, devoid of images. To give the programmes connotations, an overall style or mood, music is therefore an especially useful resource on radio — less bald, more indefinitely suggestive, than mere announcements. Let us take a formal but lively piece of eighteenth-century music played on a harpsichord — a gavotte or bourrée composed by Bach, perhaps — and consider its possibilities for the radio producer. It is highly structured and symmetrical in form and therefore commonly regarded as more cerebral or 'intellectual' than the Romantic compositions of the following century. She might therefore regard it as ideal J theme music for a brains trust or quiz programme. But its characteristics have other possibilities. The 'period' quality of both the harpsichord and the music is unmistakable and might lend itself to a programme about history or antiques Alternatively the 'tinny' tone of the instrument combined with the rhythmic nature of the piece might introduce a children s programme about toys or music boxes or with a faery or fantasy theme You can doubtless imagine other possibilities for yourself, and I would simply make two further points. The first is that depending on the specific contents of the programmes I have suggested, it would

be possible to discern all three modes of signification in such theme music — the symbolic, the indexical and the iconic. Secondly I would stress that these are extrinsic meanings of the music: we could not say that it is 'about' cerebration or history or toys. Another way we might describe them is as 'associative' meanings: in a serial, for instance, the theme music will bring to the listener's mind what he already knows about the story-line; even more than this, it is a 'paradigm' of that genre of programme (Fiske and Hartley, 1978: 169). This function of music as a framing mechanism and the two following functions are noticed by Goffman (1980: 164—5).

2. Music as a link between the scenes of a radio play or the items of a programme. Such links are analogous to curtain drops in the theatre, since they keep certain aspects of the programme apart and may additionally signal advertising breaks But as well as keeping apart they bridge the changes of scene or subject, thus providing a kind of continuity

3 'Mood' music during a play, a background enhancement which is under stood not to be heard by the characters, but is heard by the listeners as a clue to the characters' feelings or thoughts. These last two functions of music could be seen as symbolic, but there is another which Goffman appears to overlook:

4. Music as a kind of stylized replacement for naturalistic sound effects in a play, for example musical simulations of storms or battles. It has an imitative function and is a sort of iconic index. It is heard by the characters in the play, but not in that form.

5. Music in an indexical function, as part of the ordinary sounds of the world which radio portrays. These sounds are usually known collectively as 'actuality'. Here is a typical example from a news programme:

FADE IN SOUND OF BAGPIPES AND DRUMS

Presenter: The Band of the Argyll and Sutherland Highlanders, who were today granted the freedom of Aldershot.

The semiotic function of the music would be much the same whether it were live actuality from the freedom ceremony, or a recording of the actuality, or simply taken from a gramophone record (radio producers often 'cheat'). In the first instance the music would be indexical and in the other two instances the recordings would simply be acting as icons of the sounds the band was making at the ceremony — sounds which are an index of its presence. They would therefore be iconic indexes.

SILENCE

Though it is natural for us to speak of radio as a sound medium we should remember that the absence of sound can also be heard. It is therefore important to consider silence as a form of signification. It has both negative and positive functions which seem to be indexical. Its negative function is to signify that for the moment at least, nothing is happening on the medium: there is a void, what broadcasters sometimes refer to as 'dead air'. In this function silence can resemble noise (that is, sounds, words and music) in acting as a framing mechanism, for it can signify the integrity of a programme or item by making a space around it. But if the silence persists for more than a few seconds it signifies the dysfunction or non-functioning of the medium: either transmitter or receiver has broken down or been switched off.

The positive function of silence is to signify that something is happening which for one reason or another cannot be expressed in noise. Because radio silence is total (unlike film and theatrical silences, which are visually filled) it can be a potent stimulus to the listener, providing a gap in the noise for his imagination to work: 'Pass me the bottle. Cheers. Ah, that's better!' But such silences or pauses can

suggest not only physical actions but abstract, dramatic qualities, generate pathos or irony by confirming or countering the words which surround them. They can also generate humour, as in a famous radio skit which featured Jack Benny, a comedian with a reputation for extreme miserliness:

The skit consists of a confrontation between Benny and a mugger on the street. Says the mugger: 'Your money or your life'. Prolonged pause: growing laughter; then applause as the audience gradually realises what Benny must be thinking, and eventually responds to the information communicated by the silence and to its comic implications. (Fink, 1981:202)

How, then, does the listener discriminate among these various negative and positive functions of silence? His guide is clearly the context — in the first instance whether any noise frames the silence and in the second, what that noise signifies.

REFERENCES

Barthes, R. (1977) *Image — Music — Text* (trans. S. Heath) Glasgow: Fontana.

BBC *Annual Report and Handbook 1985* (1984) London: British Broadcasting Corporation.

Elam, K. (1980) *The Semiotics of Theatre and Drama*, London: Methuen.

Fink, H. (1981) 'The sponsor's v. the nation's choice: North American radio drama' in Lewis, P. (ed.) Radio Drama, London and New York: Longman.

Fiske, J. (1982) *An Introduction to Communication Studies*, London: Methuen.

Fiske, J. and Hartley, J. (1978) *Reading Television*, London: Methuen.

Goffman, E. (1980) 'The radio drama frame' in Corner, J. and Hawthorn, J. (eds) *Communication Studies*, London: Edward Arnold.

Hawkes, T. (1977) Structuralism and Semiotics, London: Methuen.

Kumar, K. (1977) 'Holding the middle ground: the BBC, the public and the professional broadcaster' in Curran, J., Gurevitch, M. and Woollacott, J. (eds) *Mass Communication and Society*, London: Edward Arnold.

McLeish, R. (1978) *The Technique of Radio Production*, London: Focal Press.

O'Donnell, W. and Todd, L. (1980) *Variety in Contemporary English*, London: George

Allen & Unwin.

Pear, T. H. (1931) *Voice and Personality*, London: Chapman & Hall.

Peirce, C. S. (1960) *Collected Papers*, vols I and II, (eds) Hartshorne, C. and Weiss, P.,

Cambridge, Mass: Harvard University Press.

Sieveking, L. (1934) *The Stuff of Radio*, London: Cassell.