Review:

C.F. Hockett: *The view from 1anguage: selected essays 1948-1976*. Athens, University of Georgia Press, 1977. 338pp.

W.J.Hutchins
University of East Anglia, Norwich

The influence of Charles F. Hockett on the development of American linguistics has been profound and wide ranging. As one of the principal 'Bloomfieldian' linguists of the1940's and 1950's he made seminal contributions to phonology and grammatical theory and wrote the highly influential books *A manual of phonology* (1955) and *A course in modern linguistics* (1958). No less important have been his studies devoted to Chinese linguistics and to American Indian languages, in particular his work on Potawatomi and his editing of Bloomfield's research on Menominee. He has made significant contributions to linguistic theory within a 'stratificational' framework and to mathematical linguistics (e.g. *Language, mathematics and linguistics* (1967)), although in both cases he now regards these aspects of his work to have been mistaken. Finally, Hockett has continued and strengthened the vigorous American tradition of anthropological linguistics, and in his position as a professor of anthropology he has always stressed the centrality of language in the social and cultural evolution of man, most impressively in his recent book *Man's place in nature* (1973).

The present collection of essays does not cove the full range of Hockett's linguistic, interests; its principal exclusion is any treatment of "a technical linguistic topic"; there is nothing here on issues of phonological or syntactic analysis, for example. These essays written over a twenty year period are concerned with the role of language in man's social and cultural life and with the place of linguistics among the sciences. Some essays are well known to many linguists, others have not been published previously. All are preceded by short passages describing the circumstances in which they were written, the origin and gestation of the ideas presented and discussed, and often the subsequent development of certain themes in his later publications (whether included here or not). In some cases Hockett points out where he now thinks he was mistaken or in error, a refreshing honesty which enlivens these prefatory passages and contributes to their interest as a lucid outline intellectual biography of Hockett's work as a linguist.

One major theme of Hockett's approach to linguistics is presented in the earliest essay, 'Biophysics, linguistics and the unity of science' (1948). In it he states forcefully his opposition to 'vitalist' and 'mentalist' views in the biological and social sciences, and hence to mentalism in linguistics. He rejects the assumption that explanations of biological phenomena require the use of such notions as 'life', 'élan vital', 'entelechy', etc. as biological primitive terms and that they cannot be reduced to statements couched in physical and chemical terms alone. Likewise he rejects the view encountered in the social sciences that human behaviour requires the assumption of such human-sociological ultimates as 'mind', 'spirit', 'human nature', etc. and that, therefore, human activity cannot be adequately described in purely biological and physical terms. He rejects these views not because they have been proved wrong, but because they do not provide the proper basis for true scientific investigation: "neither the vitalist nor the mentalist assumption tells us what experiments to perform, what observations to make, in order to test its validity"; in other words, vitalist and mentalist theories are not intrinsically 'falsifiable' (by Popper's criteria (1972)) by presently known procedures. By contrast, reductionist or physicalist theories put forward explicit hypotheses which can be tested. The description of biological phenomena in physicalist terms is the province of biophysics; for the description of human-sociological phenomena in biological terms Hockett proposes a science of 'sociobiology' (thereby anticipating the independent development by E.O.Wilson (1975) of a very similar conception). In this science Hockett sees linguistics taking a central role, providing substantive achievements in methodology and "well-established information" about language which can be applied

in the more complex areas of anthropology and the social sciences. Since language is undoubtedly the most important factor in human behaviour, linguistic "affords an excellent point d'appui for the attack on the whole field". . This conviction of the central role of linguistics in the social sciences is far removed from the superficially similar view of the French semiologists-(Barthes, Levi-Strauss, etc.) Hockett's conception of the scope of linguistics is very much more limited: "by language the linguist means to include only speech, communication by sound, to the exclusion of gesture, writing and other modes of behavior which are sometimes loosely called 'language'", and his physicalist approach effectively excludes (as these essays demonstrate) any deep analysis of semantic phenomena – those aspects which are the core of semiological speculations. Nevertheless, these essays do show an impressive range and variety of cultural activities which can be related to and, in principle, 'reduced' to a physicalist linguistics.

The foundation of Hockett's physicalism is to be found in Shannon's information theory (1949). In the review of Shannon's book (1953) reprinted here, he sets out to demonstrate the relevance of information theory to linguistic research. The demonstration is most successful, as we should expect, in the areas of acoustic phonetics and phonemic analysis, less convincing is the discussion of morphological and syntactic analysis. In his preface, Hockett admits this inadequacy but says that at the time he felt sufficiently encouraged to pursue the search for the 'atomic morpheme' in a two-stratum model of language. Now, however, he believes he was gravely mistaken and in the prefatory passages to many of these essays he takes pains to repudiate any 'stratificationalist' tendencies.

The most fruitful application of the information-theoretic approach has been in the development of 'editing' and 'blending', as basic mechanisms of speech production and linguistic behaviour in general. Editing is manifest in the form of hesitations, false starts, self-corrections, etc.; in information-theoretic terms it is a 'feedback' mechanism, one of the basic 'triggering' mechanisms of language. For Hockett, communication is composed of acts which trigger responses, verbal or physical, in others; and language is conceived as a system of triggers. In this way, Shannon's theory provides physicalist support for the behaviouristic framework of Bloomfieldian linguistics. The pervasiveness of editing in general linguistic activities has been neglected (Hockett claims) by linguists; their preoccupation with written or 'normalised' language has blinded them to basic features of language and distorted the conception of language itself. The importance of the regulatory function of feedback in transmission extends to grammatical analysis: "Reception is a larger category than transmission, since one receives all of one's own transmission plus some of the transmission of others ... In studying the grammar of a language, we should examine speech in that language from the hearer's point of view, not from the speaker's" (p.118).

When the mechanisms of editing fail, we hear slips of the tongue, malapropisms, metatheses, haplologies, and so forth. These phenomena were the subject of his well known article for the Jakobson commemorative volume, 'Where the tongue slips, there slip I' (1967). Many of these speech errors are the result of 'blending', the formation of aberrant forms from a blend of two (or more) other forms, e.g. *shell* from *shout* and *yell*, and *avord* from *afford* and *avoid*. Analogic formation can also be explained in these terms, e.g. the familiar Jespersen example *It's three hot in here* and Hockett's own example *Daddy, you're interring up* (from *wake up: waking up*, *sit up: sitting up*, *interrup(t): ...*) Hockett locates the source of 'blending' in the inherent indeterminacy of physical systems; instability causes 'noise' in signal transmission leading to errors. But mistakes can be productive, and he speculates (in two previously unpublished essays) that blending and analogic formation constitute the basic mechanism of all creative activity, whether verbal (e.g. in poetry) or not (e.g. in musical composition). The essay 'Notes on the creative process' is prompted by Hockett's own activities as a composer. The other essay, 'Cauchemar on creativity', initiated speculations on the role of creativity in evolutionary processes, the adaptation of creatures to unusual circumstances, which led eventually to the article written with R.Ascher, 'The human revolution' (1964). This article explained the evolution of man, his cultural development and the origin of language in primarily information-theoretic terms; but despite its close relationship to the themes of this collection, it is not included, presumably because it is widely available elsewhere.

Hockett's anthropological interests are represented by two essays which seek to demonstrate the relevance of linguistic methods to anthropological research, 'Ethnolinguistic implications of recent studies in linguistics and psychiatry' (1958) and 'Scheduling' (1962), and by two essays devoted largely to Hockett's well known concept of 'design features' in relation to questions of language universals, 'Logical considerations in the study of animal communication' (1960) and 'The problem of universals in language' (1963). Hockett's lists of basic design features will be familiar to most linguists: vocal-auditory channel, rapid fading, total feedback, arbitrariness, discreteness, displacement, duality of patterning, etc. In the context of this collection it is instructive to see how these features emerge naturally from his physicalist foundations and illuminate, support and extend the basic theses of the information-theoretic position.

In overall conception and in most particulars, Hockett's view of language and of linguistics is clearly opposed to currently dominant 'mentalist' approaches derived from or inspired by Chomsky's theories of grammar and language acquisition. The very idea of a formal grammar is ruled out by the indeterminacy of physical systems: "The search for an exact determinate formal system with which a language can be precisely characterised is a wild goose chase, because language neither is nor reflects any such system"(p.256). In an early essay of 1953 printed here, Bloomfieldian linguists are praised for their avoidance of 'pseudoexplanations' cast in mentalistic terms; not surprisingly, Chomskyan linguistics is seen as a regression to a 'pre-scientific' stage of language studies, a stage where introspection and intuition are the favoured methods of analysis and interpretation. Notions such as 'innate knowledge' and 'ideal-speaker-hearer competence' are summarily dismissed; to account for the child's acquisition of language Hockett sees no need to go beyond well established mechanisms of cultural transmission, and to account for the norms and regularities of language as a system there are the socially determined mechanisms of analogy formation and speech conventions: "Speech actualizes habits – and changes habits as it does so. Speech reflects awareness of norms, but norms are themselves entirely a matter of analogy (that is, of habit)..." (p.255) The central role of analogy in Hockett's linguistics places him firmly in the tradition going back to Hermann Paul and the Neo-Grammarians, if not earlier, and equally firmly places him 'beyond the pale' for adherents of transformational grammar.

None of these essays are criticisms of the 'mentalism' of transformational grammar as such – for that one must read his polemical *The state of the art* (1968) – but they do represent a powerful challenge to current linguistic orthodoxies. A linguistics based on 'reductionist' principles has strong arguments in favour of its methodology. Reductionism of some kind is frequently held up as the only truly 'scientific' approach, not only in the physical-chemical sciences where it has been notably successful but also in the psychological sciences, in particular in the form of 'behaviourism' associated with the names of Watson and Skinner. However, as these essays demonstrate, reductionism in linguistics by no means entails the adoption of the kind of behaviourism which Chomsky attacked so thoroughly in his review of Skinner (Chomsky 1959). Hockett does not advocate a simplistic stimulus-response paradigm, nor is he a determinist; as we have seen, he regards physical systems (including language systems) as inherently unstable and subject to random error. In this respect he is now, since the general acceptance of quantum physics, much closer to modern 'scientific' thinking than either Skinner or Chomsky.

While physicalist explanations may be acceptable in the areas of phonetics and phonology, many (perhaps most) linguists will doubt the adequacy of such reductionism in other areas. As Popper (1972) demonstrates there must always be reservations about physicalist approaches in explaining human and cultural activity, whether the physicalism is set in an information-theoretic framework or not. It cannot explain adequately "how such non-physical things as purposes, deliberations, plans, decisions, theories, intentions, and values, can play a part in bringing about physical changes" (Popper 1972:229). It is surely not without significance that Hockett has so little to say about semantic aspects of language (even granting that the essays are not intended as comprehensive 'technical treatments'). It is not enough to say: "Linguistic signals function in correlating and organizing the life of a community because there are associative ties between signal elements and features of the world" (p.170, his most

explicit statement regarding 'meaning' in this collection). An adequate semantics must go beyond 'associative ties' if it is to account for man's conceptual organisation of 'reality', for the expression and understanding of thoughts, beliefs, opinions, ideologies, for what Popper calls 'objective knowledge', in short for the 'world creating' power of language.

In recent years there has been increasing uncertainty about the theoretical and methodological foundations of current linguistics, reflected in discussions of the empirical basis, explanatory adequacy, methods of argument, etc. of transformational grammar to be found in Botha (1973), Cohen et al. (1974, 1975) and Wirth (1976). Much of the discussion has assumed that only transformational grammar provides a linguistic theory which these fundamental questions can be asked. It may well be true that this theory makes sufficiently strong and precise claims about the nature of language to be 'falsifiable' and hence scientifically 'interesting' (by Popper's criteria). But is it the only such theory? A reductionist linguistics of the kind Hockett describes makes equally strong claims about language, and furthermore, it can be claimed that in this framework (or something very like it) some of the most solid achievements of twentieth century linguistics have been made. There may be grave doubts about a physicalist semantics, but no linguist can fail to be impressed by the richness and diversity of the linguistic phenomena that Hockett is able to deal with in his physicalist framework. No linguist unfettered by theoretical prejudice will read these essays without benefiting from the thoughtful, stimulating and lively words of one of the major figures of American linguistics.

References
Botha, R.P.(l973): *The justification of linguistic hypotheses*. The Hague, Mouton.
Chomsky, N.(1959): 'A review of B.F.Skinner's *Verbal behavior*.' *Language* 35, p.26-58
Cohen, D. ed.(1974): *Explaining linguistic phenomena*. New York, Wiley.
Cohen, D. & Wirth, J. R, eds. (1975): *Testing 1inguistic hypotheses*. New York, Wiley.
Hockett, C.F.& Ascher, R.(1964): 'The human revolution' *Current Anthropology* 50, p.135-l68
Popper, K.R.(1972): *Objective knowledge: an evolutionary approach*. Oxford, Clarendon Pr.
Shannon, C.E. & Weaver, W.(1949): *The mathematical theory of communication*. Urbana, Univ. of Illinois Pr.
Wilson, E.O.(1975): *Sociobiology: the new synthesis*. Cambridge,Mass., Harvard Univ.Pr.
Wirth, J.R.(1976): *Assessing linguistic arguments*. New York, Wiley.