What is the place of linguistics in the undergraduate curriculum? The question is pertinent because linguistics, which has in general existed as a graduate discipline of increasing specialization, frequently finds itself obliged to justify its existence when budgetary pressures force curricular cutbacks or retrenchment.

The claims of linguistics in the larger curriculum have generally centered on the usefulness of the study of language and have usually focused on the pragmatic aspects of linguistics, i.e., applied linguistics. Under applied linguistics, we can group any attempt which brings the theories of the nature or function of language to bear on the solution of real problems. Although such an eminent theorist as Chomsky maintained that linguistics has nothing to say to language teachers, many fields have been drawn to meld the theory of linguistics with the technology of the field, whatever it might be, e.g., foreign language teaching, the teaching of composition to native speakers, special education (including remedial reading), bilingual education, language and culture of the deaf, speech therapy, and psychotherapy. Applied linguistics thus is not essentially different from a large stream of American education which holds that the reason for acquiring knowledge is to seek out its applications in a technology.

There is, however, another problem pervasive in higher education: to identify the Liberal Arts curriculum, to shape it, form it, and guide it, and to show its relationship to the other curriculum which works out its implications in the establishing of a technology. For those for whom this is a significant problem, the current discipline of linguistics, understood as the analysis and interpretation of language, holds largely untapped potential.

At Macalester College we have been involved in a project for the past three years which in part endeavors to exploit these possibilities. In 1978 we were awarded a five year implementation grant by the National Endowment for the Humanities "to extend the influence of the humanities throughout the curriculum" in the following ways:

1. An all-college writing program which would train faculty members drawn from all departments of the college in the approaches and techniques of teaching composition in order that students would find a concern for good writing in all areas of the college and at all levels of the curriculum.
2. A similar project for teaching the techniques of critical reading so that skills of analysis and interpretation could be systematically extended to the pedagogy of the entire curriculum.

3. The training of the faculty to teach three freshman courses as parts of the Freshman Seminar Program. These courses are entitled:

(a) Ways of Knowing, a course organized around the history of science over the past 300 years, exploring the background, causes and implications of the Copernican revolution, the Darwinian revolution, and the revolution in modern physics;

(b) The Life of the Mind, a principles of interpretation course for reading in the humanities, introducing students to the general questions to be asked of any human artifact in order to read it and interpret it with depth and understanding, whether it be a poem, a play, a novel, a film, a painting, a building, a piece of music, or a history;

(c) Humans and Their Language, a course organized around an analysis of human language and the implications that that analysis yields for further study in all of the disciplines which have a linguistic aspect, principally psychology, sociology, anthropology, biology, computer studies, philosophy, art, and literature. The month-long summer workshop and subsequent joint teaching of the Humans and Their Language course involved a biologist, a mathematician, a psychologist, a sociologist, a linguist, a foreign language teacher, a teacher of literature and philosophy, and an historian. Out of this conversation came some sense of the possibilities and limitations of the contribution of linguistics to a liberal arts curriculum. Out of the conversation also came a fruitful notion of what liberal arts education is or might be, given the present character of American higher education.

One of the organizing themes of this conversation was the search for the 'human element'. A logical place to begin might be, as we see in several introductory textbooks in linguistics, an analysis of animal communication and machine language and a comparison and contrast of them with human language qua system.

As a matter of fact, given the widespread and increasing use of computers in the present world, it becomes increasingly important as part of a liberal education to become acquainted with their capabilities and limitations. In a fascinating book entitled *La Cybermétique et l'humain* (Gallimard 1965), Aurel David demonstrates at length that machines have in large measure taken over the calculating functions...
which used to be performed by human beings. But even after an examination of the full range of their capabilities, 'talking machines', 'thinking machines', and 'reading machines' can be shown to lack two capabilities that human beings possess in their use of language: (1) the capability for appropriate response to a novel situation and (2) intentionality or purposiveness. For example, the automatic pilot can fly a plane better than a human being, but the one thing it cannot do is to choose the destination.

A foray into the field of animal communication leads to the entire range of questions implicit in biology and the evolutionary perspective. To the biologist the central question of human language may be the concern with how we got the wiring for it. Since the use of language depends upon a sufficient brain size, it might be concluded that as soon as the brain got proportionately large enough, we started to talk. Humanness in this sense would be equated with a degree of complexity of organization which is seen in the record of the body, i.e., ontogeny replicates phylogeny. At this point the combination of linguistics and psychology and especially Piagetian psychology, extends the questions even further, showing for example that the linguistic performance of the chimps is approximately equal to that of a 20-24 month old child but involves none of the transformational competency which the human child has acquired by the age of six. Why should we limit the principle of 'ontogeny replicates phylogeny' to the moment of birth? Why could not a Piagetian view of the development of human cognition coupled with an analysis of the transformational aspects of language by generative linguists provide a model, a microcosm of the development of the species up to the point of humanness? But neither biology, nor Piagetian psychology, or syntactic analysis taken separately would yield this kind of question.

When joined with philosophy, the analysis of the performance of the talking chimps leads in another direction, for if it is demonstrated that human language is generative, i.e., is characterized by formulation of new sentences in response to novel situations, then Washoe can indeed be considered human. To the notion of creativity and purposiveness as distinguishing human characteristics, philosophy adds the dimension of moral accountability. 'Washoe has achieved human language, she is a kind of human, well, she had a baby, didn't she? And she killed it. Should she be indicted for manslaughter? for homicide? for infanticide? or at least reported to the Humane Society? At what point of complexity or organization does an organism become indictable?'

The question of humanness can be further focused by examining the role of language and metaphor in art and literature, and in this connection Kafka's A Report to an Academy provides a summation of questions. In this short dramatic piece Kafka presents as narrator an ape who has become human and achieved the cultural level of the average
European. The ape is making a report to a learned society in Europe, having been asked to talk about his former life as an ape. Since he has passed from apehood to humanhood, however, he only knows what it is to be human. Humanness, as we see it from the ape's point of view, consists of awareness, the awareness of the loss of his freedom, the longing for his freedom and the desperate resolution to find 'a way out', which he does by learning how to speak and to perform in a sideshow. In the work itself, however, we see the capability of the artist (Kafka) for using a metaphor, using something seen in order to move to the understanding of something purely abstract and intellectual, to see himself seeing or to watch himself thinking, and to contemplate his experience in form. Washoe does not become indictable until she acquires the modal system of verbs, with the underlying awareness of the concepts of 'must', 'should', 'might', 'might have been', or 'will', and also the capacity for using metaphor. She will be safe until she generates a sentence such as *Life is like a doughnut*....

At this point, a picture of the Liberal Arts education starts to emerge—it is a conversation which goes on first of all among faculty members who are expert in some limited area and who try to see the connections between their own specialized knowledge and a unity underlying all knowledge. Once having engaged in the conversation they show students how to do it, what the questions are, and where the interesting ideas might be. In this sense, a liberal arts education is not something that one either has or does not have. It is rather an unfinished process, a mode of inquiry that one has learned how to conduct. It involves (1) looking at a common problem from multiple perspectives and (2) moving from multiple and paradoxical perspectives to the underlying unity of knowledge.

In this enterprise the study and interpretation of human language is fertile and rich. Through the analysis of the use of language we can encounter all of the fundamental questions about human life, the questions which philosophy has always dealt with. Furthermore, we can make the study of language an exercise in theory construction, since each time we encounter a new fact or set of facts from a particular discipline we must enlarge the theory that we have in order to accommodate them. In this way language provides exercise in the ways of thinking that a liberal arts education seeks to develop. Through the study of the phenomena of language we encounter not only the perspectives of each discipline but we also see how the scope of the questions raised by one discipline is extended by other disciplines and in the process we also encounter the untested assumptions in each discipline and have to give an explanation and account of them to the non-specialist.

We also see in this conversation the ways in which linguistics is not useful. While the analysis of language may lead us to the encounter
of social and ethical values in conflict, there is nothing arising out of the study of language which will join knowledge with values. One of the implications for linguistics is that to cast its future solely upon the notion of 'scientific study of language' as a separate discipline is to lean on a weak reed. 'Science' tends to isolate within a discipline as it focuses on more and more rigorous analysis of a narrowing phenomenon, whereas all of the implications of linguistics are found in other disciplines than linguistics.

The study of language does reveal, however, one of the 'ways out', in that it leads to the study of art and literature which are precisely the depiction of human moral possibilities. One might in fact argue that the future of linguistics is not as discipline *per se* but as a crossroads or unifying principle.