



PSYCHOLOGY

of **LANGUAGE**

A critical
introduction

Michael A. Forrester

Psychology of Language

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MICHAEL A. FORRESTER



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1

Introduction

It is difficult to imagine what life would be like without language. Even if we could visualise such a state of affairs, our imaginations and thoughts would themselves depend upon the language we are brought up with. For most of us, we think in the language we learn as children, and in some curious way it could be said that our thoughts are not truly 'our own'. In other words, although each of us has a unique way of putting together the sounds we know in order to carry out the innumerable activities which depend on the use of language, we need to remind ourselves that the forms, structures, rules and parameters of that language exist before we are born. Using language in everyday contexts is, for most of us, similar to using our bodies – we don't think about it unless we have to – and we rarely remember how we learned to do so in the first place. However, if we wish to understand human psychology, then the study of mental life and human action would be incomplete, if not impossible, without a knowledge of the relationship between language and psychological processes. One aim of this book is to provide a broad view of the study of language, with particular emphasis on identifying important relationships between language and human psychological processes.

Our everyday understanding and use of the word 'language' can lead to a certain amount of confusion where our concern is with the psychology of language. When we say that somebody has a very distinct body language, we are probably referring to the fact that he/she uses particular arm or facial gestures when talking to us. Again, where we describe somebody as a good communicator, we are likely thinking of the way he/she speaks. The word 'language' derives from the Latin *lingua*, meaning tongue, and Harris (1989) reminds us that 'it was the invention of writing that made speech *speech* and language *language*' (p. 99). This quote should help remind us that there are a number of important differences between the words 'language' and 'communication'. Consider examples of how the words are defined in the *Oxford English Dictionary*,

language: a system of human communication using words, written and spoken, and particular ways of combining them; any such system employed by a community, nation, etc.

communication: the transmission or exchange of information; making or maintaining of social contact, conveying or exchanging information; succeeding in evoking understanding.

There is considerable difference between the systematic, structural and rule-governed phenomenon called language and a quite different behaviour altogether, communicating (talk, speech, sound, gesture, and so on). Communicating can clearly take many forms (textual, audio, visual, kinaesthetic), and it will be important in the following chapters not to lose sight of key distinctions between communication and language. The latter can be subsumed within the former, as in one commonly used definition of communication theory, 'the branch of knowledge which deals with language *and other means* of conveying or exchanging information' (OED – my italics). At the same time language can find expression in a variety of 'de-contextualised' forms (loosened from the constraints of immediate participative contexts), where it is not always clear what the originating communicator intended to convey. One only has to consider the difficulties philologists of ancient Egyptian or Armenian have in interpreting obscure texts, or the continuing criticism and debate over interpretations of James Joyce's *Ulysses* or *Finnegans Wake*.

This book aims to cover in detail three forms of communication which have particular significance for a psychology of language: self-communication (or thinking); talk – where the emphasis is upon everyday conversation; and text, including the study of reading and writing. Throughout, what will be of central significance is understanding how the many and diverse areas of language study contribute to a psychology of language concerned with communication processes. There is clearly more than one 'system of communication' or form of language available to us when we are attempting to 'evoke an understanding', i.e. communicate, and we will be considering the many forms such systems can take.

Understanding how language bears upon communicative processes, broadly conceived, requires that we move beyond the commonly observed boundaries of the psycholinguistics textbook. There are important historical and institutional reasons why psycholinguistics has tended to emphasise certain aspects of language (particularly the formal-structural ones) at the expense of others. During the late 1960s and 1970s, the bringing together of descriptive linguistics with the experimental methodology of psychology resulted in a creative and mutually beneficial antidote to the rather stilted conservatism of late behaviourism. However, the emergence of psycholinguistics glossed over or ignored many areas of language, some of which should be of considerable interest to the psychology student. Such topics as conversational analysis, social semiotics, deixis, power relations in talk, narrative analysis, and so on, can be found in domains which border psychology (e.g. sociology). Often, however, relevant approaches to the study of language are found in more distant disciplines (e.g. literary criticism). Part of the reason for this is that post-war psychology was particularly sensitive to the accusation that it was not a proper scientific discipline, and thus it tended to avoid disciplines which employed non-scientific methods of academic inquiry. We will go on to discuss the relationship between methodology and the study of language in due course.

For the present, and at some risk of oversimplification, an overview of those disciplines which study language (and their related sub-branches) would help inform what is to follow.

The study of language in different disciplines

Given the central significance of language as a human activity, there are many academic disciplines which have an interest in the study of language, and for several different reasons. Speech therapists study language because they want to know how best to assist people who display some difficulty in communicating; computer scientists study language because they wish to build artificial intelligence systems that can communicate with us; neuroscientists study language because they want to understand those parts of the brain with a causal/physical role in language comprehension and production. And of course, within the humanities, the study of language is interdependent with our cultural outlook, in addition to its primary aim as part of a humanities education: i.e. critical analysis through textual comparison (in whatever form).

One way to gain an overview of the primary subject areas with an interest in language is to consider the variety of disciplines found within the four faculty areas commonly found in institutes of higher education (see Figure 1.1). The first thing to note is that at least one subject area within each faculty has the word 'linguistics' attached to it (except of course in humanities, where linguistics itself is to be found), reflecting the considerable influence linguistics has had on emerging sub-disciplines such as sociolinguistics, computational linguistics and psycholinguistics. Linguistics is generally defined as the scientific study of language, and linguists are primarily concerned with the description and explanation of the formal structure of language. We will go on to consider how historical developments within linguistics have influenced the three themes of this book – thinking, talk and text.

Within the social sciences, language studies are to be found in social anthropology, the social psychology of language and sociolinguistics. Social anthropologists are interested in understanding how different cultures use language in order to classify and categorise their experience of the world, and a sub-branch of the discipline is known as linguistic anthropology (Hickerson, 1980). Sociolinguists examine the association between language and society. Their primary concern is with the social function of language and they examine how factors such as gender, environment, social class, upbringing, and so on, influence the way we use language. Social psychologists study the ways in which individuals are influenced by, and in turn influence, their membership of different groups. For them, questions about language have to be answered with respect to issues such as personal and social identity, social categorisation and power relations between people.

Information technology, and in particular the various branches of

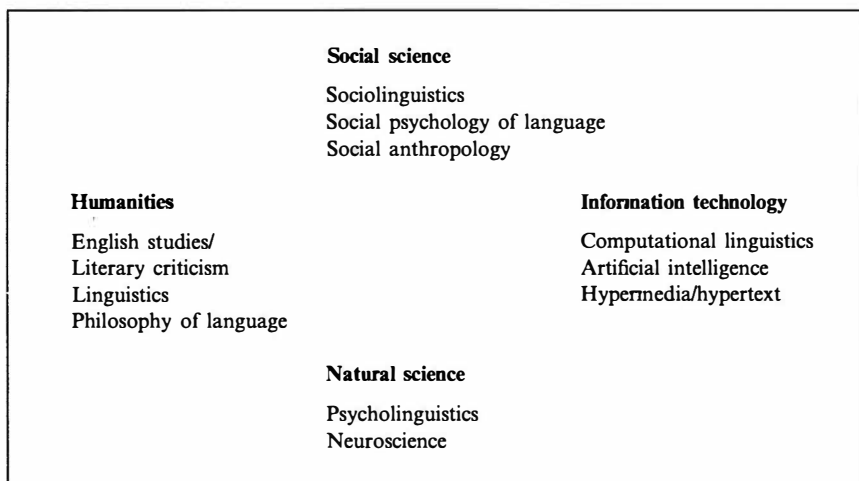


Figure 1.1 *Subject areas which study language*

computer science, also have a growing interest in language. Computational linguistics is concerned with the description and explanation of formal languages (natural and purely symbolic languages). Trask (1993) notes that the term now covers a very broad range of activities, all involving computers. These include machine translation of natural language texts, computer searching of texts and the construction of large concordances of literary works. One example of this is what is now known as hypermedia and hypertext. This area examines the possibilities and problems associated with having an infinitely large number of texts (including video and sound-clip 'texts') available on computer which can be linked together in a multitude of different ways. Within computer science, the field known as artificial intelligence (AI) has had the greatest interest in the study of language. Attempting to construct intelligent systems which could communicate called for modelling of knowledge processes and procedures, including human thinking. Researches in AI were particularly influenced by the developments in linguistics which followed the publication of Noam Chomsky's (1957) work on grammar. Providing a mathematically precise way in which to describe and formalise language created considerable enthusiasm within the research community which continues to the present.

The post-Chomskian revolution in linguistics also gave rise to the emergence of psycholinguistics. By bringing together the methodological approach of experimental psychology and the descriptive formalism made available by Chomsky's proposals about the nature of grammar, a whole new range of topics were opened up for study. Psycholinguistics continues to have considerable interest in how people understand words and sentences, their knowledge of sentence construction, their comprehension of metaphors and numerous other topics. We will go on to look at the historical development of psycholinguistics in more detail below. For now,

we can note an increasing interest in study of language from other areas of the natural sciences. Neuroscientists and neuropsychologists, for example, attempt to map out those areas of the brain which underpin language processing. Given the central hypothesis of neuroscience, i.e. the brain is the source of behaviour, research which identified areas of the brain responsible for language contributed significantly to the emergence of neuropsychology as a distinct research field. Technological advances in the area are interdependent with the progress of theory and method, and the more recent enthusiasm for the study of language processing is due in part to the development of brain scan procedures (such as CT and PET¹). This makes it possible to study in detail brain activity during language comprehension and production.

It hardly needs to be said that within the humanities there are many areas where the study of language has a long tradition. Aristotle and Plato discussed and debated sentence structure, propositions and the nature of metaphor. Theology and religious studies contain many instances where influential writers and commentators turn their attention to the nature of language. Throughout history, different cultures have sought to understand the relationship between myth, ideas and language as cultural anthropology and psychoanalytic studies have demonstrated. Many key religious propositions have a pronounced reliance on beliefs about the divine nature of language. And of course, debate and controversy regarding the importance of language can be found in many contemporary fields within the humanities (e.g. certain schools of philosophy propose that a philosophical critique of *any* kind, is first and foremost a critique of language).

Language as the object of study is, of course, central to English and other languages as academic subjects. English studies and literary criticism rest upon a detailed and continuing critical commentary on language and the texts which make up its subject matter. Literary criticism in particular has had considerable influence on ideas surrounding authorship, the role of the reader in text comprehension, narrative models, the social conventions which bear upon the act of writing, and so on. Such studies also have a significant bearing on cultural developments more generally, for example where academic debates and commentary over postmodernism, deconstruction and post-structuralism find expression in our everyday experience of language – attention to criteria underpinning the language of ‘political correctness’.

Influences on the emergence of psycholinguistics

There is little doubt, however, that the formal study of language within the humanities is primarily the domain of linguistics. One way to better understand the significance of linguistics for the psychology of language is through a consideration of its primary historical developments. This is summarised in Figure 1.2. This figure can be used as a kind of navigational

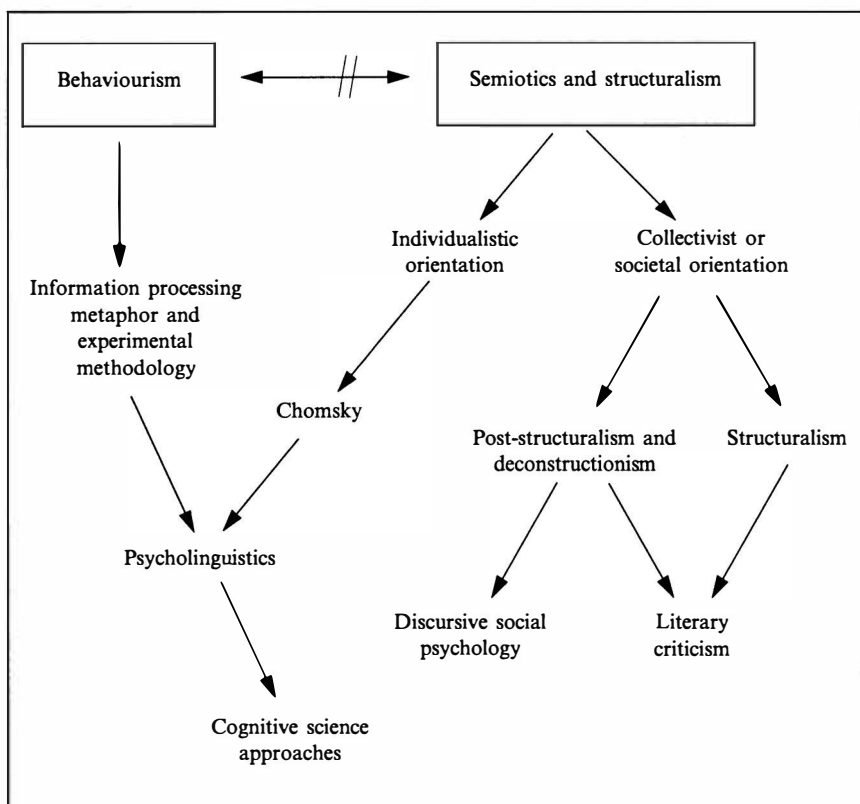


Figure 1.2 *Different theoretical strands in the psychology of language*

aid in our efforts at identifying the underlying influences on any given approach to the study of language. One thing which should be clear by this point is that one of the greatest difficulties for the student of language is understanding why there are so many different approaches in the first place. Another difficulty, particularly for the psychology of language student, is understanding why a neuropsychologist's approach to the study of language seems to be nothing like that of the developmental psycholinguist (somebody studying the acquisition of language in children). Again the psychologist interested in understanding how people comprehend extended texts will use theories and methods quite distinct from the conversational analyst who wants to know how people manage their conversational interchanges (everyday talk). These are some of the issues which this book seeks to address; for the present, it is important to gain some familiarity with the theoretical ideas which inform contemporary psycholinguistics, as well as understanding why some topics remain somewhat marginalised.

Psychology had originally emerged as a discipline which to some extent crossed the divide between science and the humanities. However, by the

1940s it was clear that without a firm commitment to scientific principles, there would be little progression and development. The study of behaviour or behaviourism provided a means whereby the appropriate methods and procedure of science could be applied to the study of human beings and their activities. The goal was the development of *nomothetic* theories of generalised human behaviour, rather than *idiographic* explanations of the behaviours of specific individuals. In fact, the concern with the establishment of the discipline as a science, combined with the scepticism about earlier ideas regarding the nature of the mind (e.g. what was known as introspection), gave rise to the view that 'mentalistic' questions (e.g. what it might mean to have an internal image in your head) were viewed as very suspect. If a psychologist at that time was to use the word 'mind', he/she would have been considered as either improperly trained or maybe even a little demented. Behaviourism was the dominant theme up until the late 1960s.

A behaviourist approach to language was primarily concerned with function. The kind of question a behaviourist would ask would be: what is being accomplished with the use of particular words in specific circumstances? The answers to such questions were to be sought in the relationship between the responses 'called out' by exposure to the particular stimulus involved. The essential nature of this approach is summarised by Skinner (1957) in his book *Verbal Behavior*. A popular account of this view of language would propose that, as children, over time we learn to respond (make a sound) in an appropriate way, because any noise attempts we make which sound anything like real words are reinforced, i.e. we gain a pleasurable reward through the positive responses others direct to us on hearing these noises. Commentators have noted that there are certain correspondences between this approach and the 'taxonomic' developments within descriptive linguistics during the 1940s and 1950s. Sturrock (1986), discussing behaviourism, reminds us that 'language was a certain kind of physical event in the world, a response to stimuli from the environment, and its structures, accordingly, were all on the surface, being the sum total of all known grammatical practices' (pp. 7–8).

However (and see Figure 1.2), in contrast to the behaviourist approach to language, from the 1920s onwards, in both Europe and the United States, as a central part of the movement that became known as structuralism, linguists began to move their attention away from the description of different languages, which had dominated their activities throughout the nineteenth and early twentieth century, towards a *theory of language*. Ferdinand de Saussure, who is often looked on as the patron of structuralism, was interested in uncovering the structural nature of language, in other words he was seeking to articulate what was *constant* in all languages. Structuralism, as a definition, is used both as a description of an influential intellectual movement and as a specific set of ideas which can be utilised in a diverse number of disciplines (e.g. history, literary criticism, philosophy). The definition of a language offered by a Saussurean

structuralist would be that it is a system formed of linguistic signs. And semiotics, as the science of signs, would include language as one of many different possible sign-systems (see Sturrock, 1986, for a valuable introduction to structuralism).

A structuralist would point out that there are at least two ways to study language, a diachronic approach, which involves the study of the evolution of language over time, and a synchronic approach, which involves a static structural analysis – an examination of linguistic facts in a single system. Structuralism is really concerned with the synchronic view. The earlier work by descriptive linguists and linguistic anthropologists had provided sufficient evidence for the formulation of a synchronic ‘theory of language’. Saussure was fundamentally concerned with the semiotic analysis of language as a sign-system, and one of the first important distinctions he formulated was between *langue* (language) and *parole* (the speech or written event). The first is an abstract theoretical system, the second the actual concrete event. The first is system, the second practice. But you cannot have one without the other, and what is critical in understanding *the process and principles of signification* is the production and comprehension of recognisable signs.

Every word is a sign, and the sign has both a *phonetic* or *acoustic* element (if you like, a sound aspect, but note written signs would not necessarily have to be sounded out or pronounced) and a *meaning* element. Saussure used the term ‘signifier’ for the first and ‘signified’ for the second, but he was always at great pains to stress that in recognising or producing a sign, the elements are indissoluble. It is also very important to recognise that the term ‘signified’, or the meaning element, has nothing to do with what philosophers of language call the ‘referent’. When you ask a child what the word ‘cow’ means, and you are lucky enough to be out in the countryside at the time, then she will quite understandably point to one nearby. However, a structuralist would remind you that although the word (sign) ‘cow’ may have many different signifiers (cow in English, *vache* in French, *kuh* in German), this does not mean that it has a common signified. The signified of ‘cow’ is to be found in the collective consciousness of the English-speaking community, the signified of *vache* in the collective consciousness of the French speaking community, and so on. And none of these signifieds is to be found standing in a field. This is not an easy idea to keep a hold of, as we are particularly susceptible to confusing signified with real objects in the world (their referents). Such correspondence might be possible if language consisted of only nouns and verbs, but you only have to think of the difficulties of pointing to a ‘perhaps’ or an ‘although’ to see why the comprehension of signs is not as simple as it might first appear.

Saussure took as his originating object of semiological enquiry the word. He went to considerable lengths to show that the recognition and status of any sign, as sign, was only with reference to the whole system of which it was one element or part. In contrast, the influential linguist Chomsky took

the sentence to be the key structural aspect of language. For Saussure, signification processes were essentially collective; linguistic structures and their meaning pre-existed any specific individual, and 'signifieds' (the conceptual element of this abstract sign-system) were part of the human collective consciousness. For Chomsky, meanings were individual competencies, part of any human being's genetic inheritance. He argued that children had to be genetically endowed with the ability to comprehend and produce language. Significantly for psychology, he also wrote a thorough, and damning, critique of Skinner's book *Verbal Behavior* (Chomsky, 1959), and during the same period provided a mathematically rigorous outline of language competence which, he argued, could explain the inherent creativity of children's language abilities (Chomsky, 1957).

Two quite distinct accounts of language emerged from structuralism. One emphasised the role of society and has an essentially collectivist orientation (social semiotics). The other, and one which had considerably more influence on psychology during the 1960s and 1970s, was distinctly individualistic (leading to the emergence of a distinct psycholinguistics). There were other important factors which bear upon the emergence of psycholinguistics. Experimental work within what had been known as 'verbal learning' (now memory research) implicated the existence of more than one kind of memory, which was simply anathema to the behaviourist approach, which eschewed any serious consideration of mental states (Postman, 1961). At the same time, psychologists were beginning to borrow metaphors and ideas from information theory and were proposing theories of human information processing (Lindsay & Norman, 1972). And although this new cognitive psychology inherited the operational methodology of behaviourism, it had a much closer kinship to Chomsky's proposal that language competence should be considered as the internal manipulation of symbols.

The coming together of Chomsky's theories of grammatical competence with the experimental procedures and methods of experimental psychology produced an enthusiastic flurry of new studies into language comprehension (see Garnham, 1985, for a review). There is little doubt that the birth of psycholinguistics as a new branch of the discipline is interdependent with the publication of Chomsky's (1957) book *Syntactic Structures*. We will go on to consider Chomsky's ideas in more detail in the next chapter; for now it is important to recognise that cognitive psychologists hold to the principle that human cognition is essentially concerned with the internal manipulation of symbols (mental states, propositions, and so on). Arguably, many post-Chomskian linguists share the same views, and both these disciplines have a significant influence on what is now known as cognitive science. Cognitive science is a collocation of different subjects (artificial intelligence, cognitive psychology, linguistics, neuropsychology and the neurosciences, philosophy and social anthropology) which all share a commitment to understanding symbol-manipulating systems, human and artificial. The research programme has been described as

a formally complete understanding of the nature of human mental processes [where the fundamental premise] is that human behaviour is rule governed and generative. That is to say, algorithmic rules intervene between different stages in coding processes in order to permit goal-directed problem solving. (Sinha, 1988, p. 115)

Returning to Figure 1.2, in parallel to the developments within psychology, during the 1960s and 1970s structuralism and semiotics were having a significant influence on disciplines outside psychology. In social anthropology, the work of Lévi-Strauss (1963) illustrated how a structural analysis could be applied to the study of myth and folklore. In history, structural analysis was employed by Braudel and became known as structural historiography. Rather than concentrating on events, a structuralist historian looks for 'the system within which events happened and by reference to which their historical value may be assessed' (Sturrock, 1986, p. 59). Within philosophy structuralist and post-structuralist ideas and theories have come to dominate 'Continental' philosophy (Descombes, 1986). And within cultural criticism, debates surrounding post-structuralist and 'deconstructionist' ideas have generated considerable interest in the media and the quality press.

Some of the reason for this interest stems from the radical nature of the propositions being discussed. Post-structuralists such as Derrida (1977) argued that Saussure, although providing the necessary tools for the structural analysis of language, did not take the programme far enough. Derrida, as a philosopher of language, took the view that the Saussurean critique and analysis of language provided the means to dispel some long-cherished and 'idealist' views about the nature of thought and language. Derrida's accusation was that Western philosophy since Plato and Aristotle presupposed the existence of a realm of 'meaning' underpinning language. For Derrida, this is simply wrong; nobody can step outside language and somehow attain a pre-semiotic intuition. One essential point of the deconstructionist view is that no 'sign' exists somehow on its own, and every 'signified' has the potential for being another's signifier. The upshot of this kind of view is that meanings cannot be somehow easily 'contained' within texts, given that they depend in part on an ever-receding interconnected 'field of unlimited semiosis'.

In parallel with these developments, within literary criticism post-structuralists such as Roland Barthes and Julia Kristeva were calling into question long-cherished notions about authorship and the role of the reader. In a well-celebrated essay 'The Death of the Author' (Barthes, 1977), the traditional view that the originating author is the ultimate authority on the text is critically analysed or 'deconstructed'. As Selden (1985) notes:

[Barthes's] author is stripped of all metaphysical status and reduced to a location (a cross-road) where language, that infinite storehouse of citations, repetitions, echoes and references, crosses and re-crosses. The reader is thus free to enter the text from any direction; there is no correct route. The death of the author is

already inherent in structuralism, which treats individual utterances (paroles) as the products of impersonal systems (langues) . . . [readers] are free to connect the text with systems of meaning and ignore the author's intention. (p. 75)

The intricacies and complexities of the debate between structuralists and 'deconstructionists' deserve considerably more space than can be allowed in a book on the psychology of language. Suffice it to say that the study of language within literary criticism (reading, writing, text analysis, comprehension) adopts methods and procedures quite different from those found in experimental psycholinguistics, as we well go on to consider in Chapter 9.

Post-structuralism as a movement is not concerned solely with the study of language. Architecture, art, media and film studies, social anthropology, sociology and cultural studies have all been influenced by changing conceptions of originality, authorship, responsibility, accountability, thinking, the nature of literary texts, and so on. We should not be surprised, given the close affinity between sociology and social psychology, that a specific 'discursive' social psychology has emerged. Discursive social psychology has adopted key ideas and methods from discourse analysis (linguistics) and ethnomethodology (sociology) and integrated these in a social psychological approach which focuses upon the 'discursive' nature of action and cognition. For discourse analysis language

exists as a domain of social action, of communication and culture, whose relations to an external world of event, and to an internal world of cognitions, are a function of the social and communicative actions that talk is designed for. (Edwards, Potter & Middleton, 1992, p. 442)

Certainly the agenda within this sub-branch of psychology is different from the concerns of psycholinguists. There have been some noteworthy debates over the nature of the relationship between language and memory (Baddeley, 1992). Some philosophers of the social sciences argue that the orientation of the discursive social psychologists and other social constructionists will have a pervasive and radical influence on psychology as a discipline (Harré, 1993). Leaving aside such prophecies for the moment, our brief history of the study of language has only touched on the influence of sociolinguistics and social semiotics. Essentially sociolinguists search for general patterns in the relationship between language and society. For example, they will examine linguistic variation within different speech communities and attempt to identify the social factors which explain specific trends. In a useful introduction to the subject Holmes (1992) suggests that these common trends can be seen as sociolinguistic universals, e.g. the observation that as the social power and status between people increases you tend to find an increase in linguistic forms expressing negative politeness.

Social semiotics can be described as a contemporary critique of semiotics, and has developed from the position that the social dimensions of semiotic systems are so intrinsic to their nature and function that systems cannot be studied in isolation. Hodge and Kress (1988), for example, argue that the

orientation developed in semiotics (largely of an abstract and 'independent' form – i.e. as the study of sign-system structure) appeared to ignore the very thing it was said to study – the social basis of sign-systems. Although Saussure affirmed the social over the individual, he did so only as an abstract, somewhat immobilised, version of social reality. This order itself is open to potential threats by the particular actions of individuals and groups, and social semioticians consider that the study of language, as an examination of signification processes, is interdependent with an analysis of culture, politics and ideology. There is a recognisable affinity between feminist social psychologists and discourse analysts and the theoretical approach of contemporary social semiotics.

A cognitive account of language processing

This short, and deliberately selective, overview of historical developments in the study of language will help provide a background frame for placing the topics and themes of this book. Throughout the following chapters, orienting comments and reminders should assist the reader in understanding why one or other approach appears either similar to, or quite distinct from, another. Given the considerable diversity of this field, unless the reader can occasionally refer back to the underlying theoretical orientation of any given approach (and its historical antecedents), it will remain difficult to gain a coherent global picture of the psychology of language. We have seen already how language can be treated as an object of study, as the study of human behaviour, and as a method of examining the relationship between language and thought. All such views (and more) are to be found in the psychology of language.

Another difficulty the psychology of language student faces is with terminology. Linguistics as the scientific description of language has a whole variety of terms and definitions which serve to identify the basic elements and objects of inquiry. At this point it would be useful to provide a summary description of the areas of language study which have received the most attention within psycholinguistics. Figure 1.3 outlines the principal fields, as described by Greene (1986).

Lexical processing: The study of lexical processing rests on the fundamental assumption that each of us has within our heads some kind of dictionary or 'mental lexicon'. Within linguistics the term 'lexicon' describes that complete list of words which make up any natural language. Traditionally the lexicon has been seen as 'the repository of miscellaneous facts forming no part of any generalisation' (Trask, 1993). Within psycholinguistics lexical processing has focused on word recognition and there have been well over a thousand studies of word recognition over the last ten to fifteen years. Considerable effort, for example, has been spent on identifying the relationships between the 'visual lexicon' and cognitive letter detection

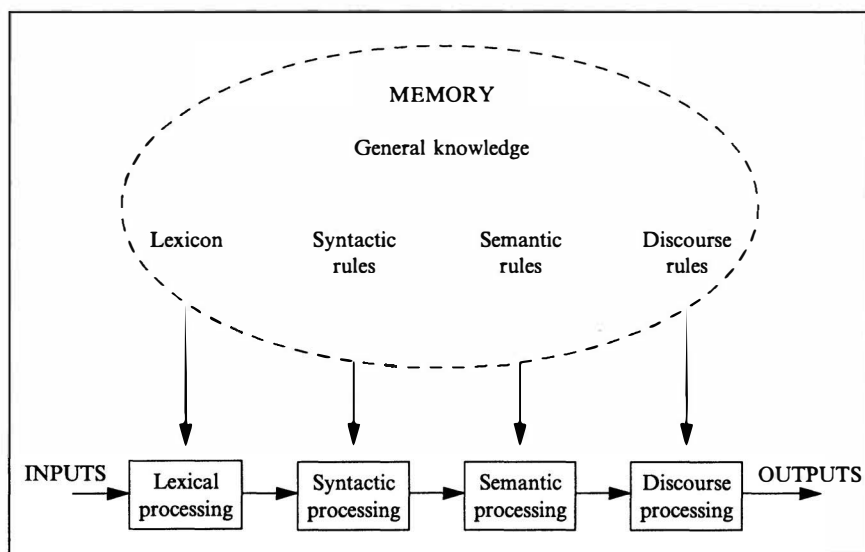


Figure 1.3 *Greene's (1986) model of language processing*

processes. There is also extensive research within neuropsychology which employs the word recognition paradigm in studies of brain damage and related disorders. Given the already well-documented texts on this topic (Garnham, 1985; Taylor & Taylor, 1990) and the problems of including all aspects of language in a text of this nature, this is an area which will not be covered in any great depth in the following chapters.

Syntax and syntactic processing: Syntax is the analysis of sentence structure, the rules and procedures whereby individual words go together to form sentences. In Chapter 2 we will consider how significant the study of syntactic processing has been for psycholinguistics, particularly with respect to the models of mind and cognition which underpin theories of syntactic processing.

Semantics and semantic processing: This part of the study of language is concerned with what words and sentences might mean. Understanding the nature of meaning has been a central problem for the philosophy of language for many years. Psycholinguists are interested in the 'rules of meaning' which people appear to employ when they make sense of the language they hear and read. The study of semantics has close ties with developments within formal logic, and for many researchers in artificial intelligence and computational linguistics formalising rules of meaning remains an important goal of their work.

Discourse processing: Within linguistics, discourse analysis has traditionally meant the application of methods developed in research on syntax and

semantics to the study of extended texts. In contrast, some psycholinguists use the term 'discourse processing' to refer to how people comprehend text, whereas social psychologists use 'discourse analysis' to refer to study of everyday language behaviour. This is a good example of the care we must take in identifying not just what a definition might mean, but who happens to be using it. In the Greene (1986) model in Figure 1.3, she uses the term to refer to the rules which we appear to use when understanding text (i.e. our comprehension of the structural devices in texts which help us understand how a story develops and so on).

Judith Greene's (1986) model (Figure 1.3) serves as a useful illustration of how one school of psycholinguistics would approach the study of language. When we read or hear language, we first have to be able to recognise the individual letters and words which make up the basic elements (lexical processing). This is said to depend on the lexicon, a storehouse of words which we have built up throughout our lives and exists somewhere in our memory as general knowledge (as do all four of the above components). Next, we are able to recognise how these words are put together in meaningful chunks, according to the rules of the language that we happen to understand. We could not utter intelligible sentences if we did not (intuitively) know the rules for grammar. But of course, it is not enough to know the rules of sentence structure, if we don't know what this sentence or utterance is meant to convey. The often quoted example 'Colourless green ideas sleep furiously' was employed so as to remind us that structure can be recognised, without anything meaningful being communicated (people tend to say that this strange expression is a grammatical sentence even though it is meaningless). There has to be an element of semantic processing, therefore, and meaning must be structured and obey particular rules and conventions. Finally, larger chunks of meaning as 'discourse' are processed, and thereby we can understand and construct extended texts.

In this cognitive 'linear stage model' approach to language, there are a number of missing topics which are of considerable interest to psychologists. How people interact during everyday conversation, how language is used to carry out particular speech acts, the use of specific words in order to indicate social status, are all topics which call for an approach to the study of language which goes beyond the boundaries of a cognitive orientation. A contemporary psychology of language will include key topics such as conversational analysis and pragmatics. Again, we can summarise these briefly:

Conversational analysis: As the name suggests, conversational analysis is an approach which examines the structural elements of conversation, including turn-taking procedures, use of intonation patterns, interruption strategies and methods of opening or closing a conversation. It derives from an approach within sociology known as ethnomethodology, which takes as its