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ABSTRACT

During the 1980s, there has been some movement toward a return to grammar in the applied linguistics of language teaching, as seen in the number of grammar-based English-as-a-Second-Language textbooks published and in the grammatical emphasis of certain successful textbooks. However justifiable this is as a reaction to the move away from grammar and toward communication, it is a regressive step if the concept of grammar used is confined to outdated and invalid concepts. Applied linguists must seriously consider the advantages of contemporary models of grammar that have developed between 1980 and 1988. Neglecting these developments could progressively isolate the applied linguist from current and relevant research into native-language acquisition and second-language learning, impoverishing the field of applied linguistics for language teaching. (MSE)

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V. J. Cook

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THE RELEVANCE OF GRAMMAR IN THE APPLIED LINGUISTICS OF LANGUAGE TEACHING

by

V. J. Cook

0 Introduction

Many of the influential developments in linguistics in the past ten years have concerned grammatical theory - Generalised Phrase Structure Grammar (GPSG; Gazdar et al., 1985), Government/Binding Theory (GB; Chomsky, 1986), or Lexical Functional Grammar (LFG; Bresnan, 1982), to name but three. Much of the psycholinguistics work of the same period concerned with first language acquisition has been substantially involved with grammar, for instance Pinker (1984), Hyams (1986), Morgan (1986), and McWhinney (1986). A major part of cognitive science research into natural language processing has used grammar in dialog systems, parsers, and learning systems, for example, Winograd (1983), Rumelhart and McLelland (1986), and Anderson (1983). Though each of these areas has those who strongly oppose the central role of grammar, for example Wilks (1973), nevertheless it is the most important area of linguistics to many, if not most, linguists. To many people concerned with language grammar is an exciting area, cen-

tral to the study of the human mind, of Artificial Intelligence, of language acquisition, and of speech processing, in short a core area of linguistics and cognitive science in the 1980s.

Yet in the applied linguistics literature between 1980 and 1988, as represented in journals such as *Applied Linguistics*, *IRAL*, *English Language Teaching Journal*, and *Language Learning*, grammar as such is hardly mentioned. Several teaching-oriented English grammars have appeared in recent years, such as Swan (1980), Eastwood & Mackin (1982), Allsop (1983), Bald, Cobb & Schwarz (1986), and Bosewitz (1987); they have, however, little connection to any modern grammatical theory derived from linguistics. Insofar as grammar is mentioned or overtly utilised in coursebooks for teaching English such as *Headway* (Soares & Soares, 1987), or *Opening Strategies* (Abbs & Freebairn, 1982), there is again no apparent connection with grammar as seen by linguists, with the notable exception of the *COBUILD English Course* (Willis & Willis, 1987). The guides to the use of grammar in language teaching such as McKay (1985) similarly show little awareness of any version of grammar utilised in contemporary linguistics, with the exception of Rutherford (1987). Nor can it be said that second language learning research has used contemporary grammar as a basis, apart from work carried out within the theory of Universal Grammar, surveyed in Flynn (1988), and Cook (1988a) *inter alia*. Applied linguists, teaching methodologists and coursebook writers evidently disagree with mainstream linguists in the role they assign to grammar.

And yet it seems incumbent upon applied linguists to entertain the possibility that such grammars might be useful to them, even if they decide in the end that such grammars are not for them. The communicative slant to much applied linguistics has set goals for language teaching in which

grammar plays a minimal role; this has had the side-effect of discouraging applied linguists from getting to grips with the substantial progress made in the linguistic study of grammar. Nonetheless it seems necessary from time to time to consider whether such neglect of one of the vital areas of contemporary linguistics is justified. It is, to say the least, disturbing when a subject that calls itself applied linguistics cuts itself off from the important changes that have taken place in linguistics proper in the 1980s; it is unfortunate if applied linguists are not sharing the excitement that has overtaken the study of grammar in recent years. The first half of this paper draws attention to the limited and dated concepts of grammar prevalent in the applied linguistics of language teaching; the second half outlines some contemporary ideas of grammar and suggests ways in which they might be more fruitful; English is used as the example language throughout.

A necessary preliminary distinction is between an "I-language" (Internal) approach to grammar and an "E-language" (External) approach, as Chomsky has termed it (Chomsky, 1987; Cook, 1988a). An I-language approach concentrates on the knowledge of language stored in the mind of the individual - "a system represented in the mind/brain of a particular individual" (Chomsky, 1986); an I-language grammar tries to mirror this mental reality. An E-language approach on the other hand studies a collection of data separate from the speaker's mind; an E-language grammar describes the regularities and patterns found in the collection - "a grammar is a collection of descriptive statements concerning the E-language" (Chomsky, 1986, p.20). I-language grammars typically rely on example sentences; E-language grammars on transcripts of spoken language or written texts. The contrast is partly between a psychological approach that sees language as part of the

individual mind and a sociological approach that sees it as part of the community. In a sense recent language teaching has concentrated on the E-language end - on "behaviour" and "communication" - rather than keeping a balance between I-language and E-language perspectives (Cook, to appear).

The grammar of a language is an account of the native speaker's knowledge of language. A speaker of English knows, for instance, that English declarative sentences usually have overt subjects and Subject Verb order; a native speaker of Spanish knows that such sentences need not have subjects and may have Verb Subject order as well as Subject Verb order. The language student is attempting to acquire some aspects of this knowledge. Hence the grammar plays some part in the description of what the student has to know, the syllabus.

To I-language theorists the grammar is also an account of what the native speaker has learnt. The language knowledge that is stored must have a source; grammar can be considered a description of what a human mind comes to know, given exposure to a human language. In the Universal Grammar theory (Chomsky, 1986; Cook, 1988a), the description of language knowledge is in part an account of the principles of grammar that are already present in the mind waiting to be triggered; appropriate data pushes the child towards English, Spanish, or Chinese. Grammar is therefore needed as one strand in the student's acquisition of a new language.

The grammar is in addition a partial account of how the native speaker processes language. While grammar represents language in a static form, this representation is also related to the processes native speakers use in language comprehension and production. For example, the Marcus parser (Marcus, 1980) and Augmented Transition Network

parsers (Wanner & Maratsos, 1978) show how particular models of syntax can be used as models for language processing provided they are supplemented with plausible memory constraints on "lookahead" or working memory. Inasmuch as language students are processing and learning to process language, such aspects of grammar are important both as their ultimate target and for immediate use in the classroom.

Overall, grammar is important for language teaching as an account of part of the knowledge the students want to attain, and hence of what they have to learn, and as a partial account of the processes involved in language production and comprehension. This affects firstly the syllabus the teacher wants to use, which relates to the native speaker's knowledge; secondly the sequence for introducing elements the teacher adopts, which relates to the learning process; and thirdly the classroom techniques the teacher employs, which make use of language processes. Even if the overall goal of language teaching is confined to communication, grammar necessarily plays some part in each of these levels; applied linguists need to consider the relationship of current grammatical theories to each of them.

1 Types of grammar found in the applied linguistics of language teaching

1.1 Structuralist Applied Grammar

What do applied linguists and language teachers usually mean by grammar? Since the matter is seldom discussed publicly, much of the evidence for what they mean has to come indirectly from syllabuses, teacher-training manuals, and coursebooks. A conventional notional/functional syllabus sooner or later yields a list of "structures"; in the case of

Threshold Level English (van Ek & Alexander, 1980), for instance, a "structural inventory" that goes in alphabetical order from "A/An" to "Zero article" for some 39 pages. The usual complement to such inventories is displays that map a column of "functions" onto a column of "structures", again profusely illustrated in the Threshold Level:

Identifying	demonstrative pronouns ...
	demonstrative adjectives ...
	personal pronouns ...
	declarative sentences ...
	short answers ...

The underlying assumption is that the grammar of a language consists of a certain fixed number of "structures"; these discrete items can most conveniently be handled in lists or inventories, unorganised except alphabetically.

Individual structures consist of sequences of slots filled with words. Those who adopted the audiolingual method of language teaching assumed that students learn structures by substituting vocabulary into structural slots. One source of this assumption seems to be American structuralist grammars such as Fries (1952), but it also draws on the strong British tradition of Palmer (1926) and Hornby (1954). Because of its links with the structuralist tradition and its distinctive use of the term "structure" as a countable, let us christen this familiar way of thinking about grammar in applied linguistics Structuralist Applied Grammar, or SAG for short. What after all is wrong with SAG as part of language teaching?

Let us start with the substitution table. Palmer (1926) talked about "ergonic construction" in which the student puts together sentences from "working units" selected by the teacher, as in this table:

Ich	kann	meinen Stock	heute	nicht	nehmen
	muss	meinen Bleistift	morgen		sehen
	soll	Ihren Regenschirm	heute morgen		bringen
	...	...	...		...

Students make up sentences by choosing one of the alternatives in each column. Despite the apparent unfashionableness of such exercises, this grammatical tradition is far from dead in language teaching. To quote Harmer (1983), "if we slot bits of grammar into this tree or frame, we get a sentence. By changing the bits of vocabulary we get completely different sentences ...". Substitution tables are still frequent in the present generation of course-books such as *Opening Strategies* (Abbs & Freebairn, 1982) or grammar books such as Bald et al. (1986, p.24); an example from Bosewitz (1981, p.65), for instance, is:

She	has	already	left
They	have	just	paid
I	am	still	living here
We	will	never	learn
...			

Nowadays the use of such tables has shifted ground, being more a graphic display of the grammar than the direct teaching exercise it was formerly. But the grammatical insight is still the same.

Lurking behind the slot-and-filler idea of "structures" is a model of grammatical processing in which hearers and speakers process sentences from left to right. Each choice they make influences the next one until the end of the sentence is reached. So in Palmer's substitution table, the speaker starts by choosing "ich" and then decides to utilise a possible noun-phrase such as "meinen Stock" or "Ihren Regenschirm"; he or she then chooses an item from the next

set of possibilities; and so on till the end of the sentence. In terms of the concepts put forward by de Saussure (1916), the speaker is making a paradigmatic choice from the paradigm of possibilities sequentially open at each point of the sentence rather than a syntagmatic choice from the possible order of elements in the sentence. Such sequential left-to-right choice is amply illustrated by tables in Krashen & Terrell (1983); it is also present in the popular open dialogue techniques seen in, say, *Opening Strategies* (Abbs & Freebairn, 1982) and recommended in Krashen & Terrell (1983). Technically this is a Finite State Grammar in which the mind passes through a series of transitions from one state to another as it progresses from start to finish of the sentence.

The familiar linguistic objections to this picture of grammar go back for generations. One difficulty is the question of discontinuous constituents. Producing a question such as "Is he going?" involves a right-to-left relationship in which the choice of "is" depends on the prior choice of the subject that actually follows it rather than on the usual left-to-right sequence. Another difficulty is the apparent breach of the principle of structure-dependency, which says that all languages depend on structural relations rather than on linear order (Cook, 1988a). Substitution tables often violate this by their insistence on linear left-to-right processing of items rather than processing in terms of grammatical constituents. For this, and other reasons, it is inadequate as an account of grammatical knowledge. It is also implausible as a model of learning. Miller & Chomsky (1963, p.430) argued that learning English as a set of transitions from one state to another would mean learning 10^9 transitions "in a childhood lasting only 10^8 seconds". Left-to-right processing above all ignores the top-to-bottom direction; despite its use of the word "structure" SAG treats the sentence as a sequence of

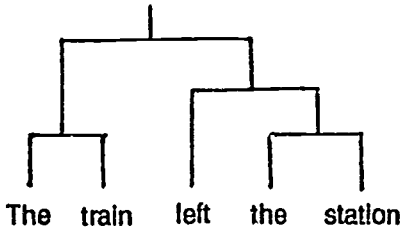
items rather than a structured whole. Most theories of speech production, and indeed most ideas of communicative language teaching, assume that speakers have some overall idea of what they want to say before they start. If I say "Ich muss Ihren Regenschirm morgen nicht nehmen" (I mustn't take your umbrella tomorrow), it is because there is an overall idea I want to express related to umbrellas, you, and tomorrow. In other words the sequential choices in the substitution table are unreal because a speaker never in reality has to choose arbitrarily between vocabulary fillers for slots in this way. This is not to say that more sophisticated versions of such theories have not been developed, for example Augmented Transition Networks (Woods, 1970) and connectionist theories (Rumelhart & McLelland, 1986); as it stands, however, the SAG model used in applied linguistics does not reflect any coherent contemporary view of grammar. One of its problems is indeed the transition from an E-language technique for describing data to an I-language grammar for representing knowledge; as a description of actually occurring sentences, a substitution table view of "structures" may be quite acceptable; the problem comes when claims are made for its psychological reality as knowledge and for its relationship to language processing, both of which may be crucial for its use in language teaching.

Let us turn from the narrow version of SAG seen in the substitution table to its broader implications. A preliminary point is the reliance on structures almost to the exclusion of other grammatical concepts. Grammar to linguists is not just "structures", but involves relationships such as movement or agreement that link distant parts of the sentence. The word "inventory" used by syllabus designers is peculiarly apt; such lists resemble inventories of totally unrelated items stored in a warehouse rather than the overall links and

relationships that grammar is actually concerned with - grammar is an interrelated system of systems, not merely lists of structures arranged in an arbitrary order.

Another familiar objection to lists of structures is their sheer length. SAG contains an indefinite, though large, number of discrete structures. Belasco (1971) once suggested that a student might need some 50,000 "structural features" to master a second language; the first of the six stages in Alexander et al. (1975) contains 30 "patterns" with an average of 7 sub-patterns each, which extrapolates to some 1,260 in the whole book; *Threshold Level English* (van Ek & Alexander, 1980) contains around 400 main entries, some having up to 9 sub-entries. It is difficult to see how anybody learns such massive quantities of distinct structures in any realistic timespan; "the number of patterns underlying our normal use of language and corresponding to meaningful and comprehensible sentences in our language is orders of magnitude greater than the number of seconds in a lifetime" (Chomsky, 1972). The very essence of syntax is that it makes possible economies of statement - generalisations, rules, or principles - rather than accumulates items; it is a closed system of choices rather than an open-ended accumulation of items; however appropriate alphabetical lists of items may be for vocabulary, they completely miss the point of syntax.

The slot-and-filler concept of structures glides smoothly into the concept of Phrase Structure Grammar (PSG) familiar from tree diagrams, such as:



Phrase Structure Grammar differs from the substitution table grammar seen above in that it puts structures within structures, rather than constructing lists. It breaks the sentence into smaller and smaller immediate constituents, a technique familiar from Bloomfield (1933) and formalised by Chomsky as rewriting rules such as S –> NP VP (Chomsky, 1957). It thus appears to give a coherent overall view of the structure of the whole sentence.

Since they do not appear to have been mentioned recently in the applied linguistics literature, it is worth recapping some of the objections to PSGs:

(i) Tree diagrams (and the equivalent substitution tables) lack the power to generalise from one sentence to another if the parts of the tree or the boxes on the table are unlabelled. If "the train" is not identified as a noun phrase, or "ich" as a pronoun in the table, the reader or student cannot tell what class of words is substitutable at that point; the particular items to choose from cannot be generalised to all the others that might occur in that position. This might seem an obvious and dated criticism if it were not that many tables in coursebooks ignore labels in this way, e.g. those labelled "Grammar to study" in *Communicate* (Morrow & Johnson, 1980), or "Classroom language" in *Teaching English through English* (Willis, 1981), or "structure review" in *BBC Beginners' English* (Garton-Sprenger & Greenall, 1987), as in:

I	feel	amused
You	...	frightened
He	feels	excited
She	looks	bored

(ii) Like substitution tables, PSGs cannot deal with discontinuous elements, a not uncommon feature of

English. Stage 1 of Alexander et al. (1975), for instance, includes "Why are you standing up?", in which "are" and "standing up" together form a verb phrase interrupted by "you". Simple PSGs will not handle the everyday grammar necessary for language teaching; either such phenomena will be left out or the analyses will distort the facts. Again this is not to say that there are not contemporary versions of PSG such as Generalised Phrase Structure Grammar (Gazdar et al., 1985) that deny any such lack, but to show its existence in the form espoused by most teaching materials.

(iii) PSGs cannot handle various types of structural problem, for example the hackneyed pair of sentences "John is eager to please" and "John is easy to please" in which both sentences have the same tree structure in PSG terms but clearly have different grammatical structures - in the former, "John" is in a "subject" relationship with "please", in the latter, in an "object" relationship. While linguists no longer explain such structures in terms of straightforward deep versus surface structure distinctions, nevertheless the problem of underlying structure still remains; an adequate model of grammar has to be able to capture such differences potentially. The applied linguist may object that such differences are rare and unimportant for language teaching, but this still dodges the whole issue of levels of underlying structure that such sentences highlight.

To sum up the objections to substitution tables and PSGs, SAG is inadequate as I-language description of knowledge; it uses outdated forms of grammar that exist today only in more sophisticated versions. Applied linguists should clearly look for more adequate grammatical models. The same is true of much of the research into second language learning

of syntax during the 1970s, which essentially employed some version of SAG, as we see in such accounts as *Language Two* (Dulay, Burt & Krashen, 1982). The acquisition orders for various syntactic items such as grammatical morphemes or negation largely come down to whether an appropriate item is supplied in the right structural slot; the impression is given that there is an inventory of item/structures which the learner acquires item by item rather than that grammar is a system. The well-known set of grammatical morphemes of which so much has been made (Dulay, Burt & Krashen, 1982) is treated as a convenient set of items, rather than connected to different grammatical systems. One may well query what aspects of the noun phrase (articles, plurals, possessives) have to do with aspects of the verb phrase (past tense, present tense, auxiliaries, and copulas) in any respectable grammar. The giveaway, however, is the criterion of occurrence or non-occurrence; does the learner use "the" or "a" or not? A parrot can be taught to say "the"; the fact that "the" occurs in its speech tells you nothing about its grammatical knowledge. The important question for syntax acquisition is whether the learner knows the article system for English, consisting at least of "the", "a", and zero article ("the man", "a man", "man"), and uses the oppositions between the items meaningfully, i.e. knows the article system of English. Similarly with "progressive -ing" and all the others; sheer occurrence of the item "-ing" matters little, what counts is whether the learner has a meaningful contrast between progressive and non-progressive tenses, and so on. Indeed, Rutherford (1987) points out that this underlies Krashen's very concept of the "i+1" level of comprehensible input (Krashen, 1985); syntax is still being seen as the acquisition of discrete "structures" that can be numbered.

1.2 Descriptive Applied Grammar

Alongside SAG, the applied linguistics of language teaching sometimes makes use of the European descriptive tradition that runs from Jesperson (1933) and Zandvoort (1957) to Quirk et al. (1972); "all grammarians draw freely on the work of their predecessors and at the same time use their new vantage point to see where fresh headway can be made" (Quirk & Greenbaum, 1973, p. v-vi). The aim of this approach is to describe the structure of English as completely as possible, usually for the benefit of students: "our aim is to satisfy the needs of university students" (Quirk & Greenbaum, 1973, p.v). Its grammatical background is eclectic, as the earlier quotation showed, drawing on elements of the American, British and Northern European descriptive grammatical traditions; Cobbett (1819) and Bald et al. (1986) are recognisably in the same mould. In so far as this form of grammar is used in applied linguistics, let us christen it Descriptive Applied Grammar, or DAG for short. DAG has been important partly because of its influence on the grammatical content of syllabuses such as *Threshold Level English* (van Ek & Alexander, 1980) but also through its contact with the grammar-explanation technique of language teaching, still not uncommon in university teaching of languages.

The applied linguist concerned with language teaching has often been urged to make use of linguistic descriptions. Stern (1983) for instance insists that "the second major function of linguistics in language teaching is linguistic description"; while Corder (1975) claims that "the starting point of every application of linguistics ... is a description of the language or languages involved." Mostly only lip-service appears to have been paid to such use of linguistic descriptions; the wave of communicative syllabuses and coursebooks was not based on actual descriptions of language in

communicative use, since these did not exist apart from rare exceptions such as Bung (1973); only perhaps the *COBUILD* series (Willis & Willis, 1987) can claim to be based on a solid foundation of descriptive research. Instead, the syllabus content relied on the general principles of communication being applied intuitively by the applied linguist to the appropriate situations; despite the widespread frequency of, say, "Buying things in shops" as a teaching point in coursebooks, there appears to be no description of what English people actually do in shops. Insofar as linguistic descriptions are used, communicative syllabuses have by and large relied on SAG and DAG, with occasional exceptions such as the Fillmore Case Grammar partly used in Wilkins (1973); grammar books aimed at EFL students broadly use DAG, such as Allsop (1983), Bosewitz (1987), and Bald et al. (1986).

What are the problems with using DAG? Those working in generative grammar in the early days were careful to point out that much of DAG was useful description of language. Two things were wrong with it. One was the question of explicitness. The rules given in DAG are essentially uncheckable as they depend on the reader being a native speaker of the language; generative grammar attempted to formalise and make explicit much of the information presented in DAG. Indeed, this is the meaning of the much misused term "generative": "when we speak of the linguist's grammar as a "generative grammar" we mean only that it is sufficiently explicit to determine how sentences are in fact characterised by the grammar" (Chomsky, 1980). DAG's second major lack was its avoidance of the obvious. The grammar, perfectly properly, did not state things that the reader already knew by virtue of being a human being; general aspects of human language did not have to be stated because everybody took them for granted; hence a DAG grammar

was largely a statement of the exceptions to general principles. An often used example is the question of structure-dependency (Cook, 1988a). All languages permit questions such as:

Is John the man who is tall?

but forbid sentences such as:

*Is the John is the man who tall?

Their speakers know that movement of words in the sentence depends not on the item as such but on its position in the sentence; the auxiliary may only be moved from within main clauses not from embedded clauses; movement always depends on the structure of the sentence. Since all human languages use structure-dependent operations rather than structure independent ones, this does not need to be stated in the grammars of individual languages such as English or French. Hence, because it does not include such general principles as structure-dependency, DAG lacks both generality and comparability between languages, quite legitimately as that is not its aim; it is a grammar about a single language for people who know it already. But, for applied linguists, these general principles may be the most relevant points; language teaching needs a general framework for human language and a method of comparing different languages in order to establish what to teach and what *not* to teach. Nor does DAG make any claims about language learning or development, or about speech processing; its responsibility is faithfulness to the E-language facts of whether something occurs ("use") rather than to I-language psychological reality ("knowledge").

The main problem with DAG in language teaching is not

primarily inadequacy as a model; it has aims and objectives of an E-language type that are distinct from contemporary I-language grammars. If the student is aiming at an academic knowledge of the "facts" of the language, DAG will supply it in a form that has proved acceptable for at least a hundred years. But there is no necessary reason to suppose that DAG can be used as a teaching technique for acquiring unconscious linguistic competence or performance rather than academic knowledge consciously available to the student. Many of the DAG-based grammar-books explicitly or implicitly suggest that they are useful in learning the language itself rather than the facts about the language, in attaining unconscious grammatical competence rather than conscious grammatical knowledge of rules, and so on; somehow conscious grammatical understanding consolidates and reinforces grammar learnt in other ways. To take some representative quotations: "I have written this book to help foreign learners of English ... who need to be able to check up on points imperfectly understood during the lesson ..." (Allsop, 1983, p.7); intermediate students "need a simple grammar to refer to. Such a grammar helps them to consolidate what they have learnt and to organise it into a system" (Bald et al., 1986, p.viii); Leech and Svartvik (1975) hope that students "will improve and extend the range of ... [their] communicative skill in the language" by using their communicative grammar; most succinctly of all, Bosewitz (1987) says, "This book has been written to help learners of English to help themselves". The implicit claim is that the learner can convert consciously acquired and understood grammatical rules into grammatical competence and from thence into active performance. One piece of evidence in favour of this claim is the large number of Europeans who acquired fluency in English precisely by memorising Jesperson (1933) and similar authorities; another is the evident

demand for EFL grammarbooks measured by the number that are continually being produced. However, such a position is never justified by its proponents for more than an introductory paragraph; it is taken for granted that the usefulness of such EFL grammarbooks is self-evident and does not require any appeal to language teaching methodologies or second language learning theories, contemporary versions of which offer scant support for this claim.

This is not the place to look at the perennial controversy about the possible conversion of conscious knowledge of language to unconscious ability to use it, one side seeing an absolute distinction between "learned" conscious knowledge and "acquired" unconscious knowledge (Krashen, 1981), the other claiming the possibility of conversion from conscious to unconscious via "automatisation" (McLaughlin et al, 1983), or "proceduralisation" (Anderson, 1983). Nor is it the place to discuss whether general "consciousness-raising" (Rutherford, 1987; Rutherford & Sharwood-Smith, 1985) or increased "language awareness" (E. Hawkins, 1984) rather than the teaching of specific grammatical points are useful components of language teaching. It should perhaps be pointed out that, if the conversion of explicit to implicit knowledge is indeed possible, there is no reason to suppose that the form of the grammar to be used should be DAG or SAG; it may be that "rules of thumb" are more effective than serious descriptions (Krashen, 1981). The main criterion for choice of such descriptions would certainly be "learnability" and "teachability" - whether they are relevant psychologically to the learning process and whether they can be conveyed through teaching - rather than their basis in native speaker use. There is little point in arguing whether conscious grammar can be made unconscious if grammar is confined, say, to SAG. While DAG has many virtues, it is not an I-language account of what people

know, it contains no notion of how people acquire it or how people use it in processing, and it makes no comparisons between languages, all of which are crucial to the teaching application. It may be an advance to go from SAG to DAG, but perhaps we can go even further. Rightly or wrongly, current theories of syntax are making powerful generalisations about grammar that go far beyond the type of statement possible in DAG.

2 The potential relevance of current grammatical concepts to the applied linguistics of language teaching

Let us now attempt to be more constructive by looking at some aspects of contemporary grammar that the applied linguist might well pay heed to. The following takes particular points out of each approach to show some relevance for the applied linguist. Obviously such brief presentation distorts the totality of each theory; several other sets of relevant points could be drawn from the same wells. Indeed, such theories are in process of rapid evolution and any account of them has to be seen as snapshots at a particular moment in time rather than as a final portrait. Nevertheless the intention is to give some idea of the kinds of grammatical concept that are currently being discussed that on the face of it need to be related to language teaching.

2.1 Implicational universals

During the past decade a considerable amount of attention has been paid to overall features common to many human languages, an E-language approach; these will be termed here implicational universals. For example, Tomlin (1986) provided statistically valid information about the frequency of the different possible combinations of subject,

verb, and object based on 999 languages. Statistically corrected to make them representative, the orders found in the world's languages are:

SOV 45% SVO 42% VSO 9% VOS 3% OVS 1% OSV 0%

(0% does not mean non-existence since some OSV languages have been found). Such information about the major word order patterns seems a central aspect of the speaker's knowledge of language and of the process of learning; yet to my knowledge the grammar used in applied linguistics hardly recognises that perhaps the major grammatical statement to be made about English is that it is an SVO language; this is at best buried in appendices to syllabuses or glossed over in grammarbooks - unmentioned as a general point about English in, say, Allsop (1983) or Bosewitz (1987). Yet it must be a major learning point for the L2 learning of English by speakers of the 58% of the world's languages that are not SVO.

A slightly different type of implicational universal can be seen in the Accessibility Hierarchy (AH) of relativisation (Keenan & Comrie, 1977); this describes the relationship between nouns and the relative clauses that modify them in terms of the positions in the subordinate clause from which they may come. English has a full range, including relative clauses related via subjects as in "The man who saw John was Fred", those related via object of preposition as in "The man he gave the book to was Bill", and those using the genitive "The man whose book I disliked was Ken". The full range of positions can be put in a hierarchy:

Subject > Direct Object > Indirect Object > Object of Preposition > Genitive > Object of Comparison

All languages start from the left and have subject relative clauses; some go one point along the hierarchy and have object relative clauses as well; others go further along and have indirect object clauses; some go all the way along and have every type of relative clause. It is claimed that no language can escape this hierarchy. A language may not have, say, subject relative clauses and object of preposition relative clauses but miss out the intervening object and indirect object clauses. The AH was established by observations of many languages and has been widely investigated in L1 and L2 learning by Gass (1979) and R. Hawkins (1987) among others; the conclusion being, broadly speaking, that learners go through the sequence of development reflected in the AH, with some differences between L2 learners according to their first language. Hence not only is this type of grammar well-established for the native speaker but its development in learners is also known. Can syllabuses that include relative clauses or teaching exercises that teach them or grammarbooks that try to explain them to learners ignore this type of grammatical point?

The overall assumption of the implicational universals approach is that a human language has to conform to certain constraints; a language that had relative clauses from the ends of the AH but not the middle would never occur. Broadly speaking this is an E-language approach concerned with external objects called "languages" rather than an I-language approach concerned with knowledge in the mind. Let us take a more extended example of the implicational universals proposed by J. A. Hawkins (1982, 1983), four among them being:

(i) "If a language has OV order, then if the adjective precedes the noun, the genitive precedes the noun", (Hawkins, 1983, p.64), i.e.

OV > (Adj N > Gen N)

So a language with SOV order and Adjective Noun order must have Genitive Noun order, as in Japanese.

(ii) "If a language has verb-first order, then if the adjective follows the noun, the genitive follows the noun" (Hawkins, 1983, p.66), i.e.

V1 > (N Adj > N Gen)

So a language with Verb Subject order and Noun Adjective order must have Noun Genitive order, as in Arabic.

(iii) "If a language has Prep word order, then if the adjective follows the noun, the genitive follows the noun", (Hawkins, 1983, p.66), i.e.

Prep > (N Adj > N Gen)

A language with Prepositions that occur in front of Nouns (as opposed to Postpositions that occur after them) and with Noun Adjective order must have Noun Genitive order, as in Greek.

(iv) "If a language has Postp word order, and if the adjective precedes the noun, then the genitive precedes the noun." (Hawkins, 1983, p.67), i.e.

Postp > (Adj N > Gen N)

A language with Postpositions rather than Prepositions and with Adjective Noun order should have Genitive Noun order, Chinese being one example.

The generalisations embodied in these four universals are based on E-language observations of the 336 languages in

Hawkins' sample.

J. A. Hawkins (1987) suggests that children always speak possible human languages. The child's language at each stage must be one of the permissible combinations: "At each stage in acquisition, PreAdult Languages and Interlanguages remain consistent with implicational universals derived from current synchronic evidence" (Hawkins, 1987, p.457). In terms of the present discussion this means that children should never have a stage when they have Prepositions and Noun Adjective order *without* having Noun Genitive order. This argument concerns possible synchronic states of language, rather than sequence of acquisition *per se*. Hawkins (1987) supports it with acquisition data on fricative consonants and on conditional clauses.

Hawkins also advances the broader concept of cross-category harmony or consistency (Hawkins, 1982): "there is a quantifiable preference for the ratio of preposed to postposed operators within one phrasal category (i.e. NP, VP/S, AdjP, AdvP) to generalise to the others" (Hawkins, 1983, p.134) - the more a language is consistent, the more it is preferred. That is to say, there is a tendency for a language to have the "heads" of phrases on the same side of the phrase. Evidence that learners prefer consistency has been put forward by Lujan et al. (1984); while my own work with learners' extrapolation strategies in phrases of micro-artificial languages (Cook, 1989b) produced some support but showed that other factors were at work.

So, although there has not been extensive research on these universals in a L2 learning context, certain conclusions seem clear. One is that interlanguages should always be possible languages; no stage of L2 learning should combine features that are impossible in human languages, say Object of Comparison and Direct Object relative clauses alone. A second conclusion is that learners will make cross-category

generalisations; learning one type of phrase structure will automatically tell them about other types of phrase structure. Cook (1989b), for example, looked at the learning of micro-artificial languages by L2 learners and found that they consistently extrapolated from verb phrase structure to preposition phrase structure, though not precisely in the way predicted by Hawkins. An extension of this is the experiment by Eckmann et al. (1988) with the Accessibility Hierarchy for relative clauses. They argued that, rather than progressing all the way along the hierarchy in sequence, learners should extrapolate from the final position back to the others; learners taught the object of comparison construction learnt all forms of the relative clause better than learners taught subject or object constructions. In other words, rather than entertaining the impossible language which has only object of preposition relative clauses, learners filled in all the intervening points on the hierarchy to get a possible language

So far as teaching is concerned, we have several major generalisations that may apply to the syllabus and to the sequencing of grammar. No stage in acquisition or teaching should violate these universals; grammatical syllabuses have to be checked, not just in terms of the final target, but also in terms of whether each stage predicated for the student fits the range of possibilities for human languages. Students may profit by being given the chance to apply "consistency" to the language they hear, say by generalising over several phrase types at once; points where the language is inconsistent will provide particular learning problems, for example the vacillation in English between Genitive Noun "John's book" and Noun Genitive "the parting of the ways". Differences between languages can now be expressed in the syllabus in terms of choices from implicational universals and hierarchies. Each aspect of syntax taught to the students

will have to be evaluated against its possibilities for generalisation to other structures rather than simply in it own right.

2.2 Universal grammar

In one way the universal grammar (UG) theory typified by Chomsky (1986, 1987a) is at the opposite pole from implicational universals; it is an I-language approach concerned with the knowledge in the head of one speaker rather then with properties of many languages. Yet the approach to syntax in the work we have just reviewed shares many properties with the GB (Government/Binding) model used in UG; Hawkins (1982), for example, interprets his universals within the X-bar theory of syntax used in the UG framework. The main characteristic of GB is its use of principles and parameters. Knowledge of language consists not of rules but of knowledge of how a particular language fits universal principles via variable parameters: "The environment determines the way the parameters of universal grammar are set, yielding different languages." (Chomsky, 1987). An example of one of these principles that has been studied within the L2 learning research of recent years is the pro-drop parameter. In English one can say:

I am the walrus

but one cannot say:

*Am the walrus

However in Italian one can say:

Sono il tricheco (am the walrus)

without an overt subject. English has to have an overt subject; Italian does not. In English it is also possible to say:

Night falls

but not:

*Falls night

However again in Italian one may invert subject and verb to get:

Cade la notte (falls the night)

English may not have subject/verb inversion in declarative sentences, Italian may. This difference between English and Italian is mirrored in many other languages and is termed the pro-drop parameter. In the principles-and-parameters model of syntax this is derived from a more general relationship called government. The difference between languages like English and languages like Italian is whether the subject of the sentence is governed by an abstract feature of agreement. The analysis of the pro-drop parameter is compli-cated and contentious; an account is given in Cook (1988a). For present purposes this feature of grammar is concrete and readily grasped; multilingual groups of EFL teachers in my experience have found it a readily appreciated aspect of grammar that gives them a new insight. Pro-drop has been used extensively within the parameter-setting model of language learning as a test case of first language acquisition (Hyams, 1986, 1987) and second language learning (White, 1986; Hilles, 1986). Perhaps it is too soon to expect this comparatively recent discovery to be alluded to in sylla-buses, textbooks, or EFL grammarbooks. But it is precisely

the kind of practical insight afforded by contemporary grammar which renders the contact with current work vital for the applied linguist.

Let us take Theta theory as another example. This deals with some of the semantic roles (Theta, i.e. "thematic", roles) in the sentence (Cook, 1988a). Examples of Theta roles are Agent (the person or thing carrying out the action), Patient (the person or thing affected by the action), and Goal (the recipient of the object of the action). Thus in the sentence "Peter read the letter to Mary" the noun phrase "Peter" has the Theta-role Agent, "the letter" has the Theta-role Patient, and "Mary" has the Theta-role Goal. Briefly speaking each lexical item is specified for the Theta-roles it projects onto the sentence; a verb such as "read" is specified as having three possible roles, Agent, Patient, and Goal. The Theta-theory module of the grammar is concerned with the relationship between these semantic roles in the sentence. To be grammatical, a sentence must have the right roles to suit its lexical items; the Theta Criterion specifies that each NP may have one and only one Theta-role. This broad notion of semantic roles is attractive to teaching in several ways. It may make sense as explanation to the students; it may be valid as a way of sequencing the introduction of syntax in the grammatical "core" of the syllabus rather than using the structures of SAG; it may be an important component in language learning. Again it is ignored in virtually all applied linguistics, apart from its historical links to the concepts of Case Grammar used in Wilkins (1973).

However, the real importance of the examples given so far is their reliance on the notion of "principle" rather than "rule". Rules are specific accounts of one part of the grammar - the rules for passive, for forming relative clauses, and so on; principles are general requirements that cut

across rules. The pro-drop parameter, as we have seen, affects not only the presence of subjects but also subject/verb inversion, and other rules not mentioned here. The theory of government, within which the pro-drop parameter operates, affects much of the syntax of the language ranging from agreement to the allocation of Theta-roles and Cases. The shift from rules to parameters is part of what Chomsky calls the second major conceptual revolution in generative grammar (Chomsky, 1987). To give a quick illustration, let us take an example that is used in Chomsky (1982) and Cook (1988a), namely the rule for the verb phrase, often given as:

$$VP \rightarrow V\ (NP)$$

that is to say, a verb phrase (VP) always contains a verb (V) and optionally contains a noun phrase (NP). In GB theory this rule captures the interaction of UG principles in the way that it happens in English. First of all it claims that V comes before NP. It is in fact a general property of English that lexical heads of phrases such as V occur on the left of complements such as NP, also found in noun phrases, adjective phrases and prepositional phrases; the VP rule is giving a particular instance of the general setting for what is known as the head parameter. Secondly the rule includes an optional NP to account for the difference between transitive and intransitive verbs. However, the theory includes a "projection principle" that lexical categories "project" their properties onto the sentence. A verb such as "like" needs two Theta-roles, "X likes Y", and two NPs to receive them; a verb like "faint" requires only one Theta-role and hence one NP, "X faints". Thus the optional NP in the VP rule is redundant. The projection principle ensures that an NP is present when it is needed, so this part of the VP rule is unnecessary because it is fully taken care of in the lexical

specification of items. What is left of the original rule? Simply the claim that a verb phrase contains a verb. However, this too is part of a general principle common to all phrases in all languages, namely that phrases have heads of the same category - verb phrases have verbs, noun phrases have nouns, and so on. The VP rule is an artefact of the intersection of these principles of language, with the parameters set for English.

Thus the speaker's knowledge consists not of rules but of a set of principles of UG and their instantiations in a particular language. The child learning a first language is acquiring the appropriate values for the parameters in that language. The second language learner's task is to acquire a new set of values for the parameters, either from scratch or by resetting the L1 values, with most research suggesting the latter (Cook, 1988a). Unlike Hawkins' universals, this approach has been extensively researched in L2 acquisition; see accounts in McLaughlin (1987), Ellis (1985), and Cook (1988a). The conclusions that can be reached are general and controversial. Most would agree that the research shows the availability of universal grammar to second language learners *via* their first language. On the one hand, interlanguages always seem to obey the general principles of language incorporated in UG, for instance the constraints on deletion studied by Schmidt (1980); on the other, L2 learners tend to reflect the setting for a parameter in their first language either by showing differences in grammaticality judgements according to L1, as in the pro-drop settings studied by White (1986), or by being faster at making judgements of ungrammatical word order that fits their L1, as in the head parameter (Cook, in progress).

Turning to second language teaching, the grammatical content of the syllabus needs reconsidering in terms of principles rather than rules; the sequencing of grammatical

items needs redoing in terms of the relevant principles or parameters for the L2. The grammar itself is a complex interaction between elements in the syntax, including such vocabulary-oriented ideas as the projection principle and such semantic notions as Theta-roles. The first language contributes certain parameter settings to the learner, a slightly different interpretation of transfer within a UG framework. Students learning English who speak a non-pro-drop language will start from a different point from students who speak a pro-drop language (White, 1986). The role of vocabulary also needs reconsidering, as we shall see below. The classroom techniques for teaching grammar need to be considered in terms not of practice or understanding, but of providing the right evidence for L2 learners to reset parameters. Language input "triggers" parameter setting; it may be the one appropriate example that enables learning to take place rather than sheer practice and number of examples. The UG position necessitates a rethinking of the role of grammar in language teaching; further discussion can be found in Cook (1989a) and Cook (to appear).

2.3 Generalised Phrase Structure Grammar

A powerful alternative to the types of grammar outlined so far is Generalised Phrase Structure Grammar (GPSG), an outline of which is presented in Gazdar et al (1985) and introductions in Sells (1985) and Horrocks (1987). GPSG shares some of the assumptions of contemporary syntactic theories we have already encountered. It uses the type of lexical category found in the UG theory, has similar views of phrase structure, and has the same type of formalism in part. GPSG separates syntactic relations into two types - immediate dominance (ID) and linear precedence (LP). An ID rule expands phrases into categories without putting the categories into a sequence; one form of the VP rule is the ID rule:

VP → H[2], NP

This states that a verb phrase can consist of a head (H) of type 2, and a noun phrase, but not necessarily in that order. To be adequate, this needs to be accompanied by the LP statement:

[SUBCAT] < ~[SUBCAT]

which states that in English a lexical category that can be subcategorised (i.e. a lexical category) is followed by anything that is not subcategorisable (i.e. a phrase). LP rules describe the order of categories. In some ways this captures the same type of insight as the UG approach to VP in that it separates out the factor of word order and links the rule closely to the lexical category. But alongside this version of the VP rule, Gazdar et al. (1985) have 18 others in an open-ended list, four of which are (including the one already given):

1. VP → H[1]
2. VP → H[2], NP
3. VP → H[3], NP, PP[to]
4. VP → H[4], NP, PP[for]

....

The rules are complemented by lists of the lexical items that act as the relevant heads:

H[1] die, eat, sing, run
H[2] sing, love, close, prove
H[3] give, sing, throw
H[4] buy, cook, reserve

....

Thus a type 1 head must be intransitive according to rule 1,

yielding, say, "John died"; a type 2 head must be transitive and have a following NP, "John loved Mary"; a type 3 head must have in addition a preposition phrase with "to", as in "John gave the book to Mary"; a type 4 head must have a preposition phrase with "for", as in "John bought the book for Mary". Like UG, the rules are connected to the properties of lexical items; thus rule 1 goes with a certain set of verbs. In contrast to UG, GPSG does not have transformations changing one construction into another or movement that takes some part of the structure and places it elsewhere. Instead, the version given in Gazdar et al. (1985) uses "metarules". These state that if there is a rule of type X then there is also one of type Y.

In some ways GPSG is more "linguistic" in that its aim "is the development of a general theory of the structure of natural languages" (Gazdar et al., 1985, p.1). It is not at present concerned with psychological issues of the representation of linguistic knowledge or of its acquisition. It has nevertheless been used extensively for parsing natural languages, partly because of its sympathy with the computer language PROLOG. For language teaching, the type of grammatical insight involved in the ID/LP distinction may be useful in syllabus description, as a way of separating different strands of syntactic acquisition, or as a model of language processing. It may be particularly useful to language teachers in Britain because it is being used by many of their linguist colleagues (Lyons et al., 1987). On the one hand, its historical relationships with SAG and DAG render it easier to assimilate. There are, for example, similarities between the 19 VP rules given in Gazdar et al. (1985) and the 25 verb patterns given in Hornby (1954); GPSG rule 1 is Hornby's pattern 21, rule 2 is pattern 1, rules 3 & 4 are pattern 18, and so on. On the other hand, computer implementations of this model are likely to become available

shortly (e.g. Thompson, to appear). It is, for instance, the underlying model of syntax utilised in techniques for computer-assisted language learning currently being developed (Cook, 1988b). Certainly it provides a useful descriptive alternative for applied linguists who are put off by the psychological accessories that go with UG and who are interested in its similarities with SAG.

2.4 Similarities between the syntactic models

We can now develop some points that the theories we have been considering have in common (Newmeyer, 1987). One is the notion of phrase structure that is involved. A phrase is seen as consisting of a head and other elements, plus a separate statement describing the order of the head and the other elements. The head is usually a lexical category such as noun or verb. In general this is the theory of X-bar syntax employed in Universal Grammar Theory, and in GPSG, though the details vary; it has also been used by Hawkins (1982) in the analysis of implicational universals. The attraction for applied linguists may be its simplicity and neatness; rather than the complications of much linguistic analysis, at some level this reduces grammar to simple statements about phrase structure coupled with considerable lexical information. It is a more precise way of looking at phrase structure than the substitution tables found in SAG, and one that appeals partly by its very simplicity. While exceptions to it always have to be made, this can be done within a consistent framework rather than through endless lists of "structures" or "rules".

Most contemporary theories of grammar insist on the importance of the lexicon: "It is interesting that contemporary syntactic theories seem to be converging on the idea that sentence structure is generally predictible from word meanings ..." (Wasow, 1985, p.204). In GPSG, as we have

just seen, the rule is tightly linked to the head category; H[1] becomes "die"; in other words the grammar is inseparable from the properties of lexical items. Hence a proliferation of VP rules is needed to deal with all the lexical subclasses of verbs in English. In UG the Projection Principle also ties syntax into the lexicon. Information about possible combinations of verbs and noun phrases depends on lexical information about the verbs. Lexical Functional Grammar, which we have not discussed here, also utilises lexical information in preference to transformations, for example in explaining the passive (Bresnan, 1982). While SAG arbitrarily separated structures from vocabulary and DAG has no great interest in vocabulary, contemporary linguistics sees knowledge of syntax as inseparable from knowledge of vocabulary items. Needless to say, while grammar has been neglected in the applied linguistics of language teaching, vocabulary has hardly been touched on, assumptions about frequency and control still prevailing. To use contemporary syntax, a syllabus cannot neatly separate syntax and vocabulary; the description of the syntax and the vocabulary known by the native speaker must be integrated. This implies a different emphasis to the process of language acquisition. The student has to acquire a comparatively simple range of grammatical rules or principles and a large number of lexical items categorised for their fit to the rules. The actual rule VP $\rightarrow$ H[1] may be comparatively simple but the student needs to know a list of items that can act as H[1] for it to work. In the UG theory the acquisition of a grammar has two sides. One is seeing how the principles of syntax are utilised in a particular language, which may be a comparatively minor task needing a sentence or two of the language to act as a "trigger". The other is acquiring the lexical items of the language with their entries specifying Theta-roles etc., which may be a vast or indeed never-ending task. In some

ways the research done into L2 learning in the UG framework can be deceptive in its concentration on the principles and parameters; the learning of vocabulary may be the most important and most controllable part of language learning. Language teaching should perhaps be concentrating on techniques for teaching the subcategorisation of vocabulary items rather than on the teaching of grammar, as L2 learners have felt in the past (Hatch, 1978) and some "fringe" methodologies have suggested (Lozanov, 1979), though not with quite the view of vocabulary taken here.

To sum up, the 1980s have witnessed some moves towards a return to grammar in the applied linguistics of language teaching, as seen in the number of EFL grammar-books cited here and in the grammatical emphasis of such successful coursebooks as *Headway* (Soares & Soares, 1987). However justifiable this may be as a reaction to the excessive E-language emphasis on communication, it is a retrograde step if the concept of grammar that is used is confined to outdated and invalid concepts. If grammar is to be reinstated, applied linguists will have to look seriously at the advantages of contemporary models of grammar, perhaps those mentioned here, perhaps others, rather than go back to the grammatical solutions of earlier generations. A person who wrote an introduction to chemistry based on the ideas of alchemists would be regarded as eccentric. Why should applied linguists take seriously versions of grammar that fail to encompass developments in the study of grammar since the 1950s - versions that are at least as far removed from contemporary views as the alchemists are from modern chemistry?

What is more, such neglect will progressively cut the applied linguist off from current research into L1 acquisition and L2 learning. First language acquisition currently employs a range of types of grammar going from the UG/GB approach of Hyams (1986) to the Lexical Functional

approach of Pinker (1984). No L1 acquisition theories ignore current syntactic theories, even if only in the sense that they have to defend themselves against them. A large proportion of second language learning research now relies on current views of syntax, mostly within a GB framework. The applied linguistics of language teaching will be impoverished if it cuts itself off from these relevant areas of research. It is perfectly possible for those concerned with language teaching itself to continue to use grammar in any way that their students find useful; but those who call themselves applied linguists have a duty to see that their concept of grammar takes account of sound and relevant current theory rather than superseded or irrelevant concepts.

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