

7 Two puzzles for linguistic theory: nativelike selection and nativelike fluency

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1 Introduction

This essay discusses two linguistic capacities which we term *nativelike selection* and *nativelike fluency*.¹ The first of these is, roughly, the ability of the native speaker routinely to convey his meaning by an expression that is not only grammatical but also nativelike; what is puzzling about this is how he selects a sentence that is natural and idiomatic from among the range of grammatically correct paraphrases, many of which are non-nativelike or highly marked usages. The second is the native speaker's ability to produce fluent stretches of spontaneous connected discourse; there is a puzzle here in that human capacities for encoding novel speech in advance or while speaking appear to be severely limited, yet speakers commonly produce fluent multi-clause utterances which exceed these limits. Although the general nature and practical importance of nativelike selection and fluency are recognized, at least tacitly, by all second language teachers, these linguistic abilities present certain problems of formal description and explanation that have generally been overlooked. It will be suggested that in order to describe and explain them we must take a view of the native speaker's grammatical knowledge that is somewhat different from any that now has wide currency among grammarians.

Drawing on studies of English conversational talk, we will argue that fluent and idiomatic control of a language rests to a considerable extent on knowledge of a body of 'sentence stems' which are 'institutionalized' or 'lexicalized'. A lexicalized sentence stem is a unit of clause length or longer whose grammatical form and lexical content is wholly or largely fixed; its fixed elements form a standard label for a culturally recognized concept, a term in the

language. Although lexicalized in this sense, most such units are not true idioms but rather are regular form-meaning pairings. The stock of lexicalized sentence stems known to the ordinary mature speaker of English amounts to hundreds of thousands. In addition there are many semi-lexicalized sequences, for just as there is a continuum between fully productive rules of sentence formation and rules of low productivity, so there is a cline between fully lexicalized formations on the one hand and nonce forms on the other.

The theory does not jibe well with the traditional compartmentalization for explaining nativelike fluency and selection. In the store of familiar collocations there are expressions for a wide range of familiar concepts and speech acts, and the speaker is able to retrieve these as wholes or as automatic chains from the long term memory; by doing this he minimizes the amount of clause-internal encoding work to be done and frees himself to attend to other tasks in talk-exchange, including the planning of larger units of discourse. An utterance will be nativelike to the extent that it consists of a lexicalized sentence stem plus permissible expansions or substitutions. However, many such stems have a grammar that is unique in that they are subject to an idiosyncratic range of phrase structure and transformational restrictions; that is to say, by applying generally productive rules to these units one may produce an utterance that is grammatical but unnatural or highly marked.

The theory does not jibe well with the traditional compartmentalization of grammar into syntax (productive rules) vs. dictionary (fixed, arbitrary usages). Nor does it allow acceptance of Occam's Razor, or the principle of parsimony, in the evaluation of descriptions of the native speaker's linguistic competence. Insofar as many regular morpheme sequences are known both holistically (as lexicalized units) and analytically (as products of syntactic rules) it is necessary to specify these sequences at least twice in the grammar. Some possible implications of the lexicalized sentence stem hypothesis for the theory of grammar will be sketched in the final section of the paper.

2 The puzzle of nativelike selection

Although foreshadowed in earlier, structuralist work, the concept of a 'generative' grammar is due principally to Chomsky (e.g. 1957, 1965), as is the equation of knowledge of a generative grammar with 'linguistic competence'. Since the 1960s, at least, it has

been widely accepted that one part of the language learner's task is to:

- (1) learn a/the system of rules which enumerates the infinite set of sentences in the language, assigns correct structural descriptions to these sentences, and distinguishes them from ungrammatical sequences.

A focus on the creative power of syntactic rules has been one of the main attractions of the Chomskyan approach. Few linguists have quarrelled with the assertion that the possible sentences in any natural language are an infinite, or at least an indefinitely large set. The transformational-generative models developed in the late '50s and the '60s provided a plausible account of the grammatical basis of this particular kind of linguistic creativity. There are, of course, a number of different forms that a generative grammar might take. Lately there has been much debate on this matter, and on such questions as whether the domain of syntactic rules should be limited to the sentence, whether or not syntactic rules can in all cases be adequately described without reference to meaning, presuppositions, shared belief systems, coherence requirements on connected discourse, and other not-strictly-syntactic knowledge. Without quibbling over these issues, let us accept that a generative grammar is part of what a person must know in order to be a competent user of any language, and turn to another, little-studied problem.

The problem we are addressing is that native speakers do not exercise the creative potential of syntactic rules to anything like their full extent, and that, indeed, if they did do so they would not be accepted as exhibiting natively-like control of the language. The fact is that only a small proportion of the total set of grammatical sentences are natively-like in form – in the sense of being readily acceptable to native informants as ordinary, natural forms of expression, in contrast to expressions that are grammatical but are judged to be 'unidiomatic', 'odd' or 'foreignisms'. This assertion still holds, we believe, if the total set of sentences is restricted to those that make sense and do not exceed three clauses in length. Items (2) and (3) illustrate, contrasting a piece of narrative, spoken by a New Zealand man of about 70, recalling his family's circumstances at the outbreak of World War I, with a paraphrasing of the narrative in a style that is grammatical but generally unnatural:²

- (2) I had /four uncles-
they /all /volun/teered to |go a|way-
and ah / that was one /Christmas-
th't /I'll /always re|member--
because ah-my /four /uncles /came |round-
They were /all in uni/form-
an' ah /they are /goin' t' /have /Christmas dinner with /us--
'n' /what w's /more im |portant-
/they're /goin' t' pro|vide it-
'n' /that was /really |something
- (3) The brothers of my parents were four
Their offering to soldier in lands elsewhere in the army of our
country had occurred.
There is not a time when my remembering that Christmas
will not take place,
because of the coming of the brothers of my parents to our
house,
having put on their bodies the clothes of the army.
The eating of Christmas dinner by them in our company was
to happen
and above that thing in importance
the buying of the food by them was to occur,
a thing that was indeed unusual and indeed good.

If a language learner is to achieve nativelike control, then, he must learn not only a generative grammar as this term is usually understood – a set of rules specifying all and only the sentences of the language. In addition he needs to:

- (4) learn a means for knowing which of the well-formed sentences are nativelike – a way of distinguishing those usages that are normal or unmarked from those that are unnatural or highly marked.

How this distinction is made is the 'puzzle of nativelike selection'.³ The special difficulties of acquiring this component of communicative competence will be appreciated by anyone who has learned the rules of sentence construction in a new language from a grammar book, before he has had much exposure to the language as it is actually spoken and written in everyday life. In the early stages of putting one's 'book knowledge' into practice (no matter how good the book and how diligent the study of it), it is a common

experience to find that most of one's productions are, to the native ear, unidiomatic. Each sentence may be strictly grammatical. The trouble is that native speakers just do not say things that way. The nature of the problem will be less obvious to those who have learned their language(s) by immersion in the speech community more or less from the start. A member of this fortunate group somehow learns how to speak idiomatically at the same time as he acquires the ability to speak grammatically.

It is tempting for the grammarian to dismiss natively-like selection as 'merely a matter of style, not grammar', as though this relieved him of the responsibility of trying to understand it. But that does no more than give a name to the problem, without accurately characterizing it or explaining it. Conversely, it may be suggested that we are actually dealing here with discourse that is ungrammatical, breaking grammatical conventions of a subtle kind which as yet have not been made explicit in grammatical analysis. While this suggestion deserves careful consideration, one must again take care to avoid a solution by naming. It is easy but unenlightening to stretch the notion 'rule of grammar' to refer to phenomena which are rather different in character from those normally treated under this heading. An unfamiliar thing is not elucidated simply by subsuming it under a familiar label, in the hope that it will turn out to be like other things so categorized. It is as well to recognize that the nature of the problem is not well understood at present. Our discussion so far may, indeed, have given a false impression that it is possible to define the exact range of material that calls for explanation. Such is not the case because there is no sharp boundary between the classes of natively-like and non-natively-like sentences (in much the same way as there is no sharp boundary between the classes of grammatical and ungrammatical sentences in English). This may be seen in the following examples.

A hostess at an evening party spoke these words to a friend who had unexpectedly brought along a mutual friend who had been out of town for some time:

(5) I'm so glad you could bring Harry!

The rules of English sentence construction would have permitted her to use any of the following paraphrases, among others:⁴

(6) That Harry could be brought by you makes me so glad.
That you could bring Harry gladdens me so.
Your having been able to bring Harry makes me so glad.

I am so glad Harry's being brought by you was possible.
The fact that Harry could be brought by you causes me to
be so glad.

I am in a glad state because you could bring Harry.
Because of your having been able to bring Harry I am in a
very high state of gladness.

A lover may express his (or her) wishes with the familiar words:

(7) I want to marry you.

The same objective information, if conveyed in the following terms, might not achieve the desired response:

- (8) (a) I wish to be wedded to you.
(b) I desire you to become married to me.
(c) Your marrying me is desired by me.
(d) My becoming your spouse is what I want.
(e) I want marriage with you.
(f) What is desired by me is to wed you.
(g) I, who am speaking, want to marry you, whom I am addressing.
(h) It is my wish that I become married to you. etc. etc.

While none of the alternatives listed in (6) and (8) are likely to be accepted as ordinary, idiomatic usages by English speakers, some of the sentences are less unnatural than others. But we need not be unduly concerned to find that there are degrees of naturalness. The study of grammar proceeds by comparing the properties of clear cases of grammatical and ungrammatical strings, and succeeds in isolating regularities in spite of the fact that there is a large class of unclear cases, and in spite of the fact that informants will often give inconsistent judgments, as well as 'more or less' estimations of the grammaticality of particular sequences, influenced by such factors as ease of comprehension, frequency of use and knowledge of context. It is sufficient that there be a core of agreements.

It is possible here to give no more than a few comments on the nature and explanation of nativelike selection. What follows is intended to show that the data do not permit of a unified solution, in terms of syntactic structure alone, for example, or discourse context, familiarity, etc.

Some commentators have suggested that naturalness is largely a matter of length and grammatical simplicity. Native speakers pre-

fer the shortest and simplest of the grammatical alternatives. The maxim goes something like this: to speak idiomatically, never use a phrase where a single word will do, and never use a complex sentence where a simple sentence will do. There may be something in this suggestion but, plainly, lexical and grammatical complexity are not the sole principles to which nativelike selection answers. For instance, in everyday speech *Do what I say!* and *Do what I tell you!* are more common than the roughly synonymous *Obey me!*, while *He won't do what he's told* is just as nativelike as *He won't obey orders*, and *That's got nothing to do with it* is as idiomatic as *That's irrelevant*.

Some of the unnatural usages in (3), (6) and (8) arguably are syntactically deviant. However, the conventions concerned in most cases belong to discourse rather than sentence-level syntax, and sometimes are statable not as categorical rules but only as a scale of preferences. For example, in the series in (8), two of the sentences, (c) and (d), have the new information placed in the initial (topic) position in the sentence, a non-preferred usage in English discourse. Even so, the sequence would still be unidiomatic if *My becoming your spouse is what I want* were changed to *What I want is my becoming your spouse*. There is a preference, if not a categorical rule, that in a nominalization such as *my becoming your spouse*, which is the predicate rather than the subject, and which contains a possessive NP co-referential with the subject NP, the possessive NP must be stressed or else omitted. (*What I want is MY becoming your spouse, not BILL* seems less odd). Again, there appears to be a preference for verbal complements, such as to *marry you* with a verb such as *want*, in contrast to nominal complements (*marriage with you*, etc.); but this is, once more, no more than a preference not an absolute rule. Sentence (c) also uses the passive in the predicate phrase, and a nominalization instead of a verbal construction in the subject phrase; these usages compound the impression of formality already given by the use of *desire* rather than *want*.

That nativelike selection is not a matter of syntactic rule alone, however, nor of length or complexity, is nicely illustrated by conventions for telling the time in English (and other languages). Instead of saying:

(9) It's twenty to six.

one might say, no less grammatically and briefly:

(10) (a) It's six less twenty.

- (b) It's two thirds past five.
- (c) It's forty past five.
- (d) It exceeds five by forty.
- (e) It's a third to six.
- (f) It's ten minutes after half-past five.

There happens to be a convention in English that one tells the time in half and quarter hours but not in thirds of an hour, and (in the writers' dialect) that one uses *to H* and *past H* (where *H* names the hour, rather than, say, the half-hour) instead of *before H*, *preceding H*, *after H*, etc.⁵ Nativelike talk about other quantitative matters, such as height or weight, or amounts of money, is subject to conventions that are, grammatically, just as arbitrary. For instance, one may say that *John is five feet nine (inches)* but not, ordinarily, that *John is five and three quarter feet* or *John is six feet less a quarter (of a foot)*.

It has been suggested that the problem of nativelike selection is to be solved in terms of a theory of speech acts and discourse context. Any grammatical sentence will seem unnatural in certain contexts, but conversely, contexts can be found where it will be heard as a natural thing to say.⁶ According to this approach, for example, the expression *I want to marry you* is a ritual formula, appropriate in a certain type of speech context (as a serious proposal of marriage, made to a familiar in private conversation). The more or less synonymous but less natural alternatives listed in (8), on the other hand, may be appropriate to other contexts (e.g. in a letter to a woman who is known to place great store in formal patterns of address, or in humorous or satirical speech). Again, it may be held that if the sentences in (8) are transformed into statements by one person about another, so that they are no longer to be heard as marriage proposals, their unnaturalness would disappear. However, this last argument does not seem to be correct. For example:

(11) John wants to marry Nelly.

remains more natural than (12) or (13)

(12) John's becoming Nelly's spouse is what he wants.

(13) What is desired by John is to wed Nelly.

The suggestion that every grammatical sentence will fit naturally into some context may well be true but it hardly advances our understanding of how nativelike selection works. It is possible to view the problem in terms of an opposition between (more or less)

marked and unmarked contexts or usages, but in the absence of a well-developed 'grammar' of speech acts and contexts in English, the puzzle still remains: what are the linguistic features which distinguish utterances of different degrees of markedness in different contexts? In particular, what are the features that make certain forms of expression 99 per cent more likely to occur in a given everyday context than their paraphrases, which are equally grammatical? The comparison in (9) and (10) illustrates the difficulties to be surmounted in formulating a theory of contexts to account for nativelike selection.

The unidiomaticity of the sentences in (8), in what we may call 'normal contexts', seems to be due to a variety of things. For example sentence (g) breaks a conversational convention requiring that the speaker should avoid stating the obvious, and specifically that he should not refer to the fact that he is the speaker and that he is speaking to the addressee. On the other hand, some of the sentences are unusual in employing an uncommon or formal lexical item or combination, in contrast to the ordinary or informal equivalent, e.g. wed for marry, desire for want and the circumlocutions become married to and become (your) spouse instead of marry. We have already referred to certain respects in which the sentences in (8) are syntactically unusual, and have noted that a sequence such as (c) Your marrying me is desired by me compounds a number of different marked usages.

It seems likely that familiarity will play some role in determining the native speaker's judgements about the naturalness of a sentence or utterance. Something more will be said on this matter in later sections. However, it hardly needs saying that nativelike sentences are not confined to those which the language user has heard before. The syntactic patterns, and certain other details may be familiar but in many cases the lexical combinations will be novel. One does not need to have heard the sequence I want to marry you before to know that it is nativelike.

3 The puzzle of nativelike fluency

It is no mean feat to keep talking more or less continuously for even ten or twenty seconds. Fluency in spontaneous connected speech may take the adult learner of a foreign language years to achieve. As a rule, the native speaker performs such feats easily in conversational talk, and may become aware of how much skill and work is needed to sustain fluency of speech only when he is

required to express his thoughts on an unfamiliar subject, or to deliver an unrehearsed monologue to a silent audience, as when tape-recording a letter or radio talk, or when called upon to speak in a public address or formal interview. The intense mental activity that goes on at such times, the struggle to 'think of what to say', to 'find the right words' or to 'express oneself clearly', is reflected in the excerpts of spoken discourse which follow by the fluctuating tempo, the frequent pauses and the changes of direction in mid-construction.

In (14), F, a draughtsman in his mid-20s, is discussing evangelical Christianity with several hostel-mates. (The transcriber marked pauses with a dash but did not provide more exact details of pause length or tempo.)

- (14) Yeah - I think
 y' know -
 Ah - I've found - in um -
 y' know - um
 not in religion at the beginning of this year
 y' know -
 ah - ah - the experiences I had - ah - on Queen's
 Birthday weekend
 y' know -
 the peace that I found -
 simply being able to throw my -
 or - not - not to throw myself just to -
 sort of - just to - y' know - ah
 just hold on to another person -
 y' know -
 let -
 just - just - y' know ah -

(At this point another speaker took over from F.)

Although one's first impression of F's speech is that it is disjointed and extremely hesitant, in fact there are rather few hesitations within the simple clauses that he produces. As has been shown in some detail elsewhere,¹ and as examples (3), (15) and (16) show, pause or slow down at or near clause boundary is the normal pattern in lengthy connected discourses, even among speakers who are heard as very fluent. In F's speech structural breaks as well as pauses are characteristic. What contributes most to the impression of disjointedness and nonfluency in F's monologue is his habit of changing syntactic and semantic course in mid-

clause or between clauses. It is apparent that before he begins to utter a construction, F has not planned its syntactic and lexical content more than a phrase or – at most – a single clause ahead.

Speakers more able than F may show a similar pattern of hesitations and a considerable number of structural reformulations in their connected discourse. Speaker Q is a confident and experienced public speaker, recorded here during his Ph.D. oral defence, answering a question about the phonological integration of borrowed words into the phonemic system of a certain New Guinea language. Q shows no signs of examination stress during this and other replies; his relatively nonfluent speech here seems to reflect the novelty of the subject matter and a careful choosing of words in a speech situation where exactness rather than fluency is most valued.

- (15) and it /seems to be – –
 [accel]
 if a /word is /fairly – – /high on the frequency /list/ –
 [slow] [accel]
 I /haven't /made /any count –
 [accel]
 but – /just – – im/pressionistically – – um
 [slow]
 um – – the /chances are –
 that you get a – com/pound –
 [slow]
 or – a/nother – – phono/logically deviant – – |form –
 [slow]
 with ah /which is al/ready in other /words
 [accel] [slows]
 /which is /fairly frequent – ly the /same – /phono/logical
 [accel] [slows]
shape – –

Unlike F, Q seems to have a rough general plan of his total exposition already formulated before he begins to speak. This is indicated partly by the syntactic structure of his answer, which begins with two clauses that state a qualification and a condition, respectively, on a following assertion, and partly by the fact that he is able, eventually, to state this assertion (itself a pretty complex proposition ('the chances are...shape')) in spite of introducing a couple of hedging qualifier clauses en route. Nevertheless, the written transcript brings out clearly the difficul-

ties of the encoding task for Q. His hesitations are as frequent as F's. His reformulations are almost as frequent though more consistently at clause boundaries rather than clause internal. It is evident that, whatever his general plan of semantic and/or syntactic content Q has not planned the actual word content of his discourse very far ahead. The pattern of his dysfluencies indicate that he does this planning a few words at a time.

There is in fact a sizeable collection of evidence of several different kinds that the largest unit of novel discourse that can be fully encoded in one encoding operation is a single clause of eight to ten words.⁸ One kind of evidence pointing to this 'one clause at a time constraint' on the planning of novel speech is the distribution of dysfluencies in spontaneous connected discourse. We find that even the most skilled and consistently fluent talkers regularly pause or slow down at the end of each clause of four to ten words, during a sustained piece of discourse, though they rarely do so in mid-clause. Their 'fluent units' correlate highly with single clauses, ('Fluent unit' is used here as a technical term to refer to a stretch of pause-free speech uttered at or faster than normal rate of articulation – about five syllables per second in English.) Examples demonstrating this correlation appear in excerpt (2) cited earlier, which is much more typical of conversational speech in this respect than (14) and (15). Observation and experimental work has shown that in conversational speech English speakers typically (a) maintain a rate of articulation during fluent units which averages 270–300 syllables a minute; this rate does not increase significantly in rehearsed speech, (b) show a high proportion of fluent units (more than 50 per cent) that are complete, grammatical clauses, (c) rarely pause for longer than 0.5 seconds in mid-clause hesitations or for longer than 2.0 seconds at clause boundaries in mid-construction⁹

In the narrative speech of George Davies, the correlation of fluent unit with clause can be seen, together with the syntactic 'strategy' which most speakers favour in formulating spontaneous connected discourse. This strategy contrasts markedly with that adopted by Q in the previous excerpt. Whereas Q used a complex 'clause-integrating' strategy, committing himself to grammatical constructions which require him to take account of the structure of an earlier or later clause when formulating a current one, George Davies prefers a 'clause-chaining' style. He strings together a sequence of relatively independent clauses, clauses which show little structural integration with earlier or later constructions.

- (16) /we /had a /fan tastastic /time --
 [slows] (1.1)
 /there /were /all kinds of re/lations /there/
 [accel] [slows]
 /I dun/no where /they /all come /from/
 [accel] [slows]
 I didn't know /'alf o' them --
 [accel] (0.9)
 and' ah - the kids /sat on the floor ---
 (0.2) (1.5)
 and ol' /Uncle Bert /he /ah/
 o' /course /he was the life and soul of the partly
 [accel] [slows]
 /Uncle /Bert 'ad a /black bottle ---
 [accel] [slows] (1.5)
 an ah - 'e'd t/ tell a /few stories
 (0.2) [accel] [slows]
 an 'e'd /take a /sip out of the /black bottle/
 [accel] [slows]
 n' the /more /sips he /took /outa /that bottle ---
 [accel] (1.0)
 the worse the /stories got ---
 (1.6)

Davies keeps to a mainly clause-chaining style even when talking about static relationships as opposed to temporally ordered events, and in this he is typical of working class speakers – indeed of most speakers – in our sample. This style is more effective than the integrating style, as measured by fluency and grammaticality. The more frequent mid-clause pauses and structural breakdowns associated with use of a highly integrating syntactic style can be explained in terms of the one clause at a time constraint. When the spontaneous speaker embarks on a stretch of novel discourse extending over several clauses, he does not (as a rule) know in advance exactly what he is going to say beyond the first few words. He must gamble on being able to finish what he has started. The risks of syntactic breakdown are greater when using the integrating style. With the chaining style, a speaker can maintain grammatical and semantic continuity because his clauses can be planned more or less independently, and each major semantic unit, being only a single clause, can be encoded and uttered without internal breaks. To achieve the same degree of coherence using the inte-

grating style the speaker generally must reduce his articulation rate and/or make more frequent clause-internal pauses. This choice is not much favoured either by speakers or listeners. It is a facility in the chaining style that is characteristic of all groups of English native speakers. We may speak, then, of a 'one clause at a time *facility*' as an essential constituent of communicative competence in English: the speaker must be able regularly to encode whole clauses, in their full lexical detail, in a single encoding operation and so avoid the need for mid-clause hesitations.¹⁰

Part of the puzzle of nativelike fluency is how the language learner achieves the one clause at a time facility. It is not just a matter of composing grammatical clauses under severe limitations imposed (a) by the time-bonding in normal speech exchange, and (b) by his restricted ability to plan novel speech. As a participant in talk exchange it is also necessary that he attend to other requirements besides grammaticality. A speaker is expected to make contributions to conversation that are coherent, sensitive to what has gone on before and what might happen later, and sensitive to audience knowledge and other features of the social situation; his talk should be nativelike and in an appropriate register and meet other general and specific requirements (e.g. of accuracy or vagueness, as the situation demands, of logic, wit, modesty and the like). He is by no means free to concentrate on the grammatical content of his productions.

There is one especially problematic feature of nativelike fluency that has not as yet been discussed. It is common for multi-clause fluent units to occur in spontaneous speech – stretches of pause-free, promptly delivered speech extending over two or more clauses. For example:

(17) I /don't /need /|anyone to /tell /|me /what to /do!

Such utterances are problematic because they appear to conflict with the one clause at a time constraint, or at any rate, with the hypothesis that there should be a pause or other dysfluency coinciding with the planning of each clause. When multi-clause fluent units follow a long silence on the speaker's part, it is possible to explain the absence of internal dysfluencies on the grounds that the speaker had time to combine several encoding stages before beginning to speak. But there is a residue of discourse-medial fluent units which still remain to be explained. We shall return to these in later sections.

4 Memorized sequences

So far the burden of our argument has been simply that nativelike selection and fluency present certain features that are not easily described or explained. The conclusion that control of a language must entail knowledge of something more than a generative grammar, as this is usually defined, is unlikely to be controversial. The question is, what additional knowledge underlies these abilities? In this section and the next we turn to the concepts of 'memorized sentence' and 'lexicalized sentence stem' as elements of linguistic knowledge. The terms refer to two distinct but interrelated classes of units, and it will be suggested that a store of these two unit types is among the additional ingredients required for native control. The present section will deal, fairly briefly, with memorized sentences. In Section 5 the idea of lexicalized sentence stems will be discussed at more length. In the final section we will consider some possible implications of what appears, at first, to be a fairly innocuous addition to the usual apparatus of linguistic description.

Observations of conversational talk indicate that there is a 'novelty scale' in the spontaneous speaker's production of clauses. A minority of spoken clauses are entirely novel creations, in the sense that the combination of lexical items used is new to the speaker; the combination will of course be put together according to familiar grammatical patterns. Some clauses are entirely familiar, memorized sequences. These are strings which the speaker or hearer is capable of consciously assembling or analysing, but which on most occasions of use are recalled as wholes or as automatically chained strings. Still other clauses fall at various points along a cline between these two extremes, consisting partly of new collocations of lexical items and partly of memorized lexical and structural material."

The number of memorized complete clauses and sentences known to the mature English speaker is probably many thousands. Much more numerous still, however, is a class of phraseological expressions each of which is something less than a completely specified clause. We refer to sequences which contain a nucleus of fixed lexical items standing in construction with one or more variable elements (often a grammatical inflection), the specification of the variables being necessary to complete the clause. Such 'phraseological' units will be discussed more fully in Section 5.

A few minutes' reflection produced the following sample of clauses that are familiar to the writers as habitually spoken sequences in Australian and New Zealand English.

- (18) Can I come in?
Can I help?
Need any help?
Need a hand?
Are you all right?
Is everything OK?
Are you ready?
What did you say?
What's for dinner?
Where are my keys?
Look in the drawer.
It's a matter of priorities.
It's on the tip of my
tongue.
You would ask that
question.
There's no pleasing some
people.
Some people are hard to
please.
Some people are never
satisfied.
You can't be all things to
all men.
You can't please everyone.
I've never noticed that
before.
That's new.
You can't be too careful.
Where did you find it?
I looked everywhere for it.
What would I do without
you?
Call me after work.
I'll be home all weekend.
What's your home
number?
We're in the book.
- Did you have a good trip?
How is everyone at home?
How long are you staying?
He's not in. Would you
like to leave a message?
Can I take a message?
He's busy right now.
Would you like to wait?
I can't wait any longer.
Take one three times a day
after meals.
Would you like some
more?
Have some more.
I enjoyed that.
I enjoyed every minute of
it.
I'd do it all over again.
I don't regret a single
moment.
Have you heard the news?
Who would have thought
it?
I'm simply amazed.
I was just trying to help.
It's none of your business.
You keep out of this.
Speak for yourself.
That's only my opinion.
Watch your step.
That was a close call.
Eight eights are sixty four.
Maths never was my strong
point.
I'll have half a dozen.

Habitually-spoken sequences longer than a single, simple clause are also numerous. The items listed below exemplify this class:

- (19) How are you going to do that?
Once you've done that the rest is easy.
I see what you mean.
It's as easy as falling off a log.
I'll believe it when I see it.
You don't want to believe everything you hear.
I knew you wouldn't believe me.
You can't believe a word he says.
If you believe that you'll believe anything.
There's a sucker born every minute.
It just goes to show, you can't be too careful.
There's nothing you can do about it now.
That's easier said than done.
You're not allowed to do that.
It's a free country isn't it?
Don't interrupt when someone's talking.
Children should be seen and not heard.
You shouldn't have said that, you've hurt his feelings.
Tell me what happened.
I thought you'd never ask.
I'm terribly sorry to hear that,
I'm just dying to hear all the gossip.
I'm surprised to hear that.
You just never know what they'll do next.
I don't know where he's gone.
I don't know and I don't care!
Call me as soon as you get home.
Do you know when she's coming?
There's something I forgot to tell you.
You forgot to give me my allowance.
Shut up and listen!
Do what you're told!
Eat your vegetables or you won't get any pudding!
Don't answer back or you'll get a clip over the ear.
It's easy to talk.
He never has a bad word to say about anyone.
Be careful what you're doing with that.
If I'd known then what I know now, . . .
He's not the man he used to be.

I told him but he wouldn't listen.

You can lead a horse to water but you can't make it drink.

Memorized clauses and clause-sequences form a high proportion of the fluent stretches of speech heard in everyday conversation. In particular, we find that multi-clause fluent units – apparent exceptions to the one clause at a time constraint – generally consist partly or wholly of a familiar collocation. Speakers show a high degree of fluency when describing familiar experiences or activities in familiar phrases.¹² It is notorious that speakers are at their most hesitant when describing the unfamiliar.¹³ The attempt to find a novel turn of phrase to describe the familiar is also likely to produce dysfluencies: it is easier to be commonplace. Recognizing the difficulty of talking about unusual things, or in talking about ordinary things in an unusual way, listeners are tolerant, up to a point, of mid-construction dysfluencies in such discourse. But they do not care for more than a little of this at a time,

It should not be thought that a reliance on ready-made expressions necessarily detracts from the creativity of spoken discourse. Novelty of clause or sentence is only one element in the creative use of language in talk exchange. As already noted, the conversationalist has many matters to attend to besides the syntactic form and lexical content of his discourse. Possession of a large stock of memorized sentences and phrases simplifies his task in the following way. Coming ready-made, the memorized sequences need little encoding work. Freed from the task of composing such sequences word-by-word, so to speak, the speaker can channel his energies into other activities. He can, for example, attend to matching the timing, tone and rhythm of his utterance to his conversational purpose; he can produce a slightly novel, unexpected variation on the familiar usage; and he can do the work of constructing a larger piece of discourse by expanding on, or combining ready-made constructions. Indeed, we believe that memorized sentences and phrases are the normal building blocks of fluent spoken discourse, and at the same time, that they provide models for the creation of many (partly) new sequences which are memorable and in their turn enter the stock of familiar usages.

5 Lexicalized sentence stems

A distinction must be made between a morpheme sequence that is memorized and one that is lexicalized. Memorization belongs

to the domain of 'performance' and lexicalization to 'competence', in the Chomskyan sense. In speaking of a word, phrase, etc. as being retrieved as a whole, or by an automatic chaining response, we are speaking of a particular action, performed by an individual, rather than of a piece of timeless knowledge shared by the members of a language community. Not all sequences memorized by individual speakers are lexicalized. What makes an expression a lexical item, what makes it part of the speech community's common dictionary, is, firstly, that the meaning of the expression is not (totally) predictable from its form, secondly, that it behaves as a minimal unit for certain syntactic purposes, and third, that it is a *social institution*. This last characteristic is sometimes overlooked, but is basic to the distinction between lexicalized and non-lexicalized sequence.

In saying that a lexical item is a social institution we mean that the expression is a conventional label for a conventional concept, a culturally standardized designation (term) for a socially recognized conceptual category. Rather than being a 'nonce form', a spontaneous creation of the individual speaker, the usage bears the authority of regular and accepted use by members of the speech community. Both the meaning and its formal expression are familiar; it is their conjunction which forms the social institution. Thus, the expression *long house* is lexicalized when it refers to the kind of communal dwelling traditionally built by the Land Dayaks of Borneo. When the same sequence simply describes a house in London as being long, however, it is not the token of a lexical item. Native English society does not recognize a traditional architectural type, 'long house', and as a description of a particular English dwelling the expression hardly has special claims to the status of normal description above those, say, of *elongated house*, *house that is long*, *house of elongated shape*, *longish sort of house*, etc. Similarly, the terms *backache* and *headache* refer to culturally recognized types of physical disability in our society and are the standard labels for these conditions, whereas *footache*, *thighache*, and *toeache* do not have this status. The latter conditions may be common enough, in fact, but they do not enjoy the same degree of social recognition as the former group,¹⁴ and in any case are more likely to be referred to by such expressions as *I have an ache in my thigh*, *I have an aching toe*, *my toe hurts*, etc. Whereas the sentence *I have an ache in the head* would be an unusual way of paraphrasing *I have a headache*.

By now it will have occurred to the reader that if we pursue this line of argument we will be led to recognize degrees of lexicalization. The difference between standard label and nonce form, between official designation and casual description, is not in all cases a clear-cut thing. An expression-meaning pairing may be more or less arbitrary, more or less standardized, more or less of an institution; we end up dealing with a cline rather than discrete classes. But it should be recognized that this situation reflects the facts of language, i.e. of the native speaker's knowledge, not a weakness in the definition of lexical item.¹⁵

The number of single morpheme lexical items known to the average mature English speaker is relatively small; a few thousand. The number of morphologically complex lexical items is much greater, running – it will be argued below – into the hundreds of thousands. A very considerable proportion of the total body of (relatively) well-defined complex lexical items consists of what we will term here 'lexicalized sentence stems'.

A sentence stem consists either of a complete sentence, or, more commonly, an expression which is something less than a complete sentence. In the latter case, the sentence structure is fully specified along with a nucleus of lexical and grammatical morphemes which normally include the verb and certain of its arguments; however, one or more structural elements is a class, represented by a category symbol such as TENSE, NP or PRO. For example, in the conventional expressions of apology:

- (20) I'm sorry to keep you waiting.
 I'm so **sorry** to have kept you waiting.
 Mr X is sorry to keep you waiting all this time.

a recurrent collocation can be isolated together with a grammatical frame:¹⁶

- (21) NP be-TENSE **sorry** to keep-TENSE you waiting

Such a collocation, with the obligatory elements in its associated sentence structure, is a sentence *stem*. The realizations of the variable constituents in the stem are termed its *inflections*. If there are additional constituents of an optional kind these are its *expansions*. In the above examples, *I'm* and *Mr X* are inflections, the subject NP being an integral (though deletable) part of the unit, while *so* and *all this time* are expansions.

In the sentences

- (22) Tell the truth!
Jo seldom tells the truth.
I wish you had told me the truth.

the recurrent sentence stem is:

- (23) NP tell – TENSE the truth

the subject NP being variable in content, as is the tense.

A sentence or sentence stem is lexicalized if it

- (i) denotes a meaning which is culturally authorized, i.e. is a standard concept in the speech community.
- (ii) is recognized to be a standard expression for the meaning in question,
- (iii) is an arbitrary choice (or somewhat arbitrary choice), in terms of linguistic structure, for the role of standard expression. That is, there is nothing in its structure which would uniquely select it as the standard from among the larger class of synonymous expressions. For example, *I want to marry you* has this status as an arbitrary standard usage, in contrast to some of its paraphrases listed in Section 2.

Idioms, epithets and many other types of sentential expressions fall into the class of lexicalized sentence stems. *A stitch in time saves nine* for example, is an institutionalized sentence – but not *a stitch in time saves twenty-six*, nor *By taking the trouble to repair a small defect now you may save yourself from having to do a much bigger repair job later*. But most lexicalized sentence stems are not true idioms, in the sense of having a meaning not predictable from the internal structure. Rather they are literal expressions, in most cases. They may, however, have conversational uses (implicatures, speech act functions, etc.) in addition to their literal sense, and these additional uses may also be conventionalized and to some extent arbitrary, for example:

- (24) Why do-TENSE n't NP_i pick on someone PRO_i-gen own size!
(Why doesn't that bully pick on someone his own size.
Why don't you pick on . . ., etc.)
- (25) Who (the EXPLET) do-PRES NP_i think PRO_i be-PRES!
(Who the hell do you think you are. Who does that woman think she is, etc.)

- (26) That be-TENSE the last time I'll (ever) ask NP to V (NP) for me!
(That'll be the last time I'll ever ask Harry to do a job for me, etc.)

Each is used to express a particular reaction of indignation by the speaker, and as such has a conventional conversational force quite distinct from its literal meaning.

Similarly, the expression

- (27) If it be-TENSE good enough for NP, it be-TENSE good enough for me,

has a specific conversational force which is not fully predictable from its literal meaning. We use this expression, for instance, to explain or justify conduct that is queried by reference to a distinguished precedent for our action, e.g. *If it's good enough for the Queen of England to wear jeans to work it's good enough for me.*

There are many problems in the treatment of lexicalized sentence stems that cannot be given extended discussion here. The reader will, for instance, wish for an answer to this question: How is a lexicalized sentence stem defined? How do you tell it apart from non-lexicalized sequences? There is no simple operation for doing this. The problem is essentially the same as in distinguishing any morphologically complex lexical item from other sequences; the question is what is 'lexicalization'? What makes something a lexeme? A number of defining features were listed earlier in this section, and there are various tests relevant to these criteria which may be applied. However, particular cases are not always capable of a clearcut classification, because lexicalization is a matter of degree, as we have had occasion to mention. An expression may be more or less a standard designation for a concept, more or less clearly analysable into morphemes, more or less fixed in form, more or less capable of being transformed without change of meaning or status as a standard usage, and the concept denoted by the expression may be familiar and culturally recognized to varying degrees. Nor is there a sharp boundary between the units termed here 'sentence stems' and other phraseological units of a lower order.¹⁷ A collocation may be more or less a complete sentence (clause, phrase, etc.). Again we would assert that this feature of gradation is a fact of language, and in seeking discrete classes we are in danger of misrepresenting the nature of the native speaker's knowledge.

The number of sentence-length expressions familiar to the ordinary, mature English speaker probably amounts, at least, to several hundreds of thousands. The extent of this familiar material can be gauged roughly by noting the number of frequently-used morphemes or words and listing the sentential expressions in which a sample of these elements participates in. The following is a partial list of habitually-used expressions in which the verb *think* occurs. (We have not attempted in all cases to distinguish the fixed elements from the variable elements in these collocations.)

- (28) Come to think of it, . . .
What do you think?
I thought better of it.
Think nothing of it.
Think it over.
I hardly dare think about it.
It doesn't bear thinking about.
(Just) think about it for a (moment, second, minute, while).
I'd think none the worse of you . . .
I think I'd have done the same thing in his (shoes, etc.).
Do you think I came down in the last shower?
Do you think I was born yesterday?
Who do you think you are?
I don't think much of that (suggestion, idea, etc.).
Can you think of a better one?
I (just) can't think straight.
I'll need a few days to think it over.
I haven't stopped to think about it.
Think twice before you VP.
Who (ever) would have thought it!
I don't think NP will like that.
I think a *lot* of P.
 P_i thinks the *world* of P_j .
 P_i thinks the sun shines out of P_j 's (bottom, arse, etc.).
 P_i thinks PRO_i is really somebody.
 P_i thinks PRO_i shit doesn't stink.
 P_i think's he's the cat's pyjamas.
 P_i thinks nothing of P_j .
P thinks nothing of V-ing NP (e.g. walking **50** miles).
Think what that could mean to P.
I thought you'd never ask!

[S, NP, ADJ], I don't think. (ironic tone)
 I was (just, only) thinking aloud.
 Think before you open your mouth!
 I couldn't think of (a single thing, anything) to say.
 I don't know *what* to think!
I thought you knew better (than that, than to s).
 I thought you knew!
 I think so.
 I thought I told you not to do that!
 What I think is, . . .
 Do you really think so?
 He only thinks of himself.
 He thinks highly of you.
 Think again!
 Think nothing *of* it!

A similarly extensive list may be compiled for many other reasonably common words.

The relevance of this repertoire of familiar sentence-length expressions to nativelike fluency in English was discussed in the preceding section. There it was suggested that lexicalized sentence stems and other memorized strings form the main building blocks of fluent connected speech. This claim can of course be tested only by examining spoken discourse: written text should not be taken as representative of the spoken language, either in regard to syntactic structure or in regard to the frequency of standard collocations as opposed to nonce forms.¹⁸ Space does not permit analysis here, but the reader is invited to examine the transcribed material in (3), (14), (15) and (16), noting the relationship between fluent units and standard or formulaic expressions.

It seems likely that lexicalized sentence stems also play a role in nativelike selection. The role may be a limited one, in that the set of lexicalized sequences is only a small subset of the total class of nativelike sentences (leaving aside the probability that neither set is sharply delimited). It has been pointed out that lexicalized sentence stems may be 'inflected' or 'expanded', except for a minority of expressions that are completely rigid in their form. In order for a speaker to derive (partly) novel forms using a given lexicalized sentence stem, it is necessary for him to know the grammar of that stem. A novel sequence will be nativelike at least to the extent that it consists of an institutionalized sentence stem plus permissible variations. It appears, however, that each such sen-

tence stem has a more or less unique grammar; each one is subject to a somewhat different range of phrase structure and transformational restrictions. It is a characteristic error of the language learner to assume that an element in the expression may be varied according to a phrase structure or transformational rule of some generality, when in fact the variation (if any) allowed in nativelike usage is much more restricted. The result, very often, is an utterance that is grammatical but unidiomatic e.g. *You are pulling my legs* (in the sense of deceiving me). *John has a thigh-ache*, and *I intend to teach that rascal some good lessons he will never forget*.¹⁹

6 Theoretical implications

Let us assume for the present that the hypothesis put forward in the previous section is true. What might the implications be, then, for the theory of grammar? While a full consideration of this question would require lengthy study, the observations that follow, though necessarily sketchy, suggest that such study may be worthwhile.

The hypothesis holds that by far the largest part of the English speaker's lexicon consists of complex lexical items including several hundred thousand lexicalized sentence stems.

One possible reaction to this claim might be that it requires no basic change in existing models of English grammar – that it can be accommodated within the framework of any theory of grammar which distinguishes a dictionary from a set of productive syntactic rules – phrase structure, transformational, or whatever. While recognition of a vast number of new complex lexical items may alter the quantitative balance among the major components of the grammar, it might be argued that no important *qualitative* change is entailed. True, the dictionary will be bigger than before and probably more complex in respect of the grammatical information it contains (see below). But the basic components of the description will remain constant, with certain information about possible (or nativelike) sentences being provided by a set of syntactic rules that are productive or have general application, and with other information (about each lexical form and its syntactic properties) being provided by the dictionary.

It is possible, however, to see in the theory of lexicalized sentence stems more serious consequences. One possible consequence has to do with procedures for evaluating a description or theory of grammar, a matter discussed at length by Chomsky

(especially 1964, 1965). In normal descriptive practice, choice among rival treatments of a particular body of syntactic data is made, for the most part, in terms of economy and generality – we prefer that account which specifies all and only the grammatical sentences, and their internal structure, in the most parsimonious manner. It will be recalled, however, that 'descriptive adequacy' in the sense of Chomsky is achieved when a (partial) description corresponds to our evidence about the form of the native speaker's internalized knowledge of his grammar, i.e. when the units and rules are those tacitly recognized by the native speaker. The question arises as to what parsimony has to do with the organization of the speaker's linguistic knowledge.

In the hypothesis under consideration, the internal structure of many complex items must be specified at least twice in the description. This duplication applies to lexicalized sentence stems of regular formation, for example, as well to idiomatic sequences other than those of irregular structure. There is a difference between a lexicalized sentence stem such as *Will you marry me?* and an idiom such as *as beat around the bush*, however, in that the meaning of the former is regular ('literal') while the meaning of the idiom is by definition irregular ('non-literal'). Form-meaning pairings of literal sequences will be specified twice insofar as these sequences are picked out by the language as institutionalized usages (standard terms). This duplication is necessary in order to account for the fact that such a sequence has a dual status in the language. On the one hand, its potential occurrence and meaning is predicted by the productive rules of syntax and semantics. These account for its status as a grammatical string and specify its internal structure and structural relationship to other sequences; they do not, however, mark the sequence as having a special status among the set of grammatically possible strings. On the other hand, the dictionary entry for the same sequence (say, for *Will you marry me?*) should note its status as a lexical item, a (somewhat) arbitrary selection as a standard expression or name for a culturally authorized concept; that is, it should record the fact that the sequence is an actually occurring, natively-like form, a 'common usage' having an institutionalized function, in contrast to other sequences which do not have this status.

Each dictionary entry for a complex lexical form of literal meaning will, presumably, be a mini-grammar. The entry will give the morphological structure of the sequence, and state the ways in

which the lexicalized sequence may be 'inflected' and 'expanded' (in the sense described in Section 5) and transformed, without changing its status as a natively-like and lexicalized unit. Complex lexical forms are usually transformationally 'defective' in that certain transformations, when applied to these forms (or their underlying structures) result in strings that are grammatically acceptable but are non-natively-like or non-lexical usages, e.g. \$ *Nine stitches are saved by a stitch in time*, \$ *Pleasing (John, some people) is hard*, \$ *Who is it thought by you that you are?* But many forms are capable of some transformations without losing their natively-like usages or as lexical items. For instance, one can *lead someone up the garden path* or *be led up the garden path by someone*, and besides *Some people are hard to please* we find *It is hard to please some people*.

It is possible to achieve a far more economical description of the sequences in question by specifying them only once. Each sequence can be treated as an unanalysable lexical item, i.e. as a morpheme, or it can be left out of the lexicon altogether, i.e. specified only as a potential well-formed string by the rules of syntax. The shortcomings of these two alternatives as treatments of *idioms* have been well described by Weinreich (1969) and a number of other writers who are troubled by the difficulty of choosing between a 'lexical' and a 'syntactic' description of idioms.²⁰

The 'problem' of choice between a lexical and a syntactic treatment of derived words, idioms and other complex lexical items is, however, surely not a genuine difficulty if we accept Chomsky's definition of descriptive adequacy. For what really matters is not the economy of the description but its fit with what the native speaker knows of his language. If the native speaker knows certain linguistic forms in two ways, both as lexical units and as products of syntactic rules, then the grammarian is obliged to describe *both* kinds of knowledge; anything less would be incomplete.

If we ask why there should often be two modes of knowing we come to the question of 'explanatory adequacy' as defined by Chomsky. Is there something in the language learner's natural capacities, in the structure of the human brain, that makes such dual knowledge advantageous, or inevitable? It is not difficult to see why this might be so. On the one hand, people are good at generalizing, at perceiving patterns, and there is no doubting the importance of general rules in language learning. On the other hand, people are not good (compared, say, with man-made com-

puters) at performing a number of different mental acts simultaneously or in rapid succession; however, they do possess an enormous memory capacity."

The generalizing capacity is essential to the acquisition of linguistic competence in Chomsky's sense, knowledge-in-principle, separated from limitations of time, processing ability, and other external matters. The processing capacity is vital to the language user in his normal situation, when he is required to compose and decode spoken discourse, often under a tight time-bonding. What may be an economical or efficient way of organizing knowledge-in-principle may not be efficient for the demands of ordinary language use. Holistically stored sequences have the advantages of being quickly retrievable and of being familiar to the hearer as well as to the speaker. And they have certain advantages in the use of language as a cultural instrument. They provide convenient ways of referring to those concepts that happen to be salient in a particular culture and which are not provided for by the stock of unitary lexical items. Furthermore, the class of morphemes in a language is virtually closed and it is often not convenient to extend the use of existing morphemes to new concepts. But the class of standard concepts in a language is not closed; new names are constantly required for new ideas. It is always possible to draw on the fully-productive and semi-productive syntactic and semantic rules to provide morphologically complex descriptions, however, and in due course one or more of the descriptive expressions for a new concept may become its conventional designation, i.e. it may be lexicalized.

Once again, it may be argued that this discussion of evaluation procedures and the problem of duplication of information in the description need have no bearing on the structure of the grammar. The grammar still consists of the same types of rules as before, and one might hold that there is still a fundamental division between the lexicon and the productive syntactic rules which apply to classes of lexemes, phrases, etc. It appears that this last position is not compatible with the theory of lexicalized sentence stems adumbrated above. The locus of the conflict is among those patterns that are semi-productive and those sequences that are semi-lexicalized.

In the final sections of *Aspects*, Chomsky refers to derivational processes as a particularly problematic feature of language for the generative grammarian. The difficulty posed by derivational processes stems from the fact that they are typically sporadic and only

quasi-productive' (184). Compare, for example, the gaps in the realization of derivational possibilities exhibited by groups of forms like *horror, horrid, horrify; terror, *terrid, terrify*; and *candor, candid* and **candify*. As there are 'no rules of any generality that produce the derived items . . . it seems that these items must be entered in the lexicon directly' (186).²² However, Chomsky considers this a very unfortunate conclusion, 'since it is clear that from the point of view of both the semantic and the phonological interpretation it is important to have internal structure represented in these words' (186). This dilemma is noted to be 'typical of a wide class of examples with varying degrees of productivity, and it is not at all clear how it is to be resolved, or in fact, whether there is any non-*ad hoc* solution that can be achieved at all' (187). Elsewhere he remarks that, possibly, 'we are approaching here the fringe of marginal cases, to be expected in a system as complex as a natural language, where significant generalization is just not possible' (192).

In speaking of 'marginal cases' Chomsky is, of course, referring to marginality in the sense of not being amenable to systematic analysis, to the methods which linguists have successfully applied to regular processes. He does not say that material which is hard to systematize is of only marginal interest in the study of language, or that it makes up only a small part of any language. However, it is only a short step to this last position. Indeed, it is possible to detect in many works in modern linguistics the assumption that a language consists essentially of its productive elements – the rules of grammar – and that material which is not part of this system of rules plays a relatively small and unimportant part in the ordinary use of language.

We must be careful not to take this step. While it is a legitimate research strategy to exclude certain recalcitrant data from one's domain of study, for a time, on the grounds that although the present theory cannot accommodate these data it is otherwise successful, the problematic data are not to be permanently excluded nor downgraded in importance. It has been suggested here that complex lexical items are much more numerous than has generally been conceded and that semi-productive grammatical patterns play an important part in the creation of new linguistic forms.

It may be convenient to posit a separate component in the description to handle the large body of institutionalized complex lexical forms, and the semi-productive rules for generating new, navelike sequences by inflecting, expanding or transforming

these forms. This 'phrase book with grammatical notes' would occupy an intermediate position between the general grammatical patterns (described in terms of productive rules applying to category symbols) and the list of unitary lexical items (described in terms of their phonological form and meaning and their privileges of occurrence in basic structures defined by the general, productive rules). But any strict compartmentalization would not truly reflect the native speaker's grammatical knowledge if the facts are (as we believe) that lexicalization and productivity are each matters of degree.

Notes

1. We would like to thank the many people who have discussed with us the problems treated in this paper, earlier versions of which were presented in Pawley's lectures at the 1977 Institute of the Linguistic Society of America and to the Linguistic Society of Hawaii in March 1978. In particular, we are indebted to Peter Crisp and George Grace for observations which helped to set us thinking about nativelike fluency and selection, and to Laurie Bauer, Chris Corne, Talmy Givon, George Grace, Jeannette Gundel, John Herbert, Greg Lee and Ricky Jacobs for critical commentary on a draft. Funds supporting the collection of conversational data were provided by a 1972 grant from the New Zealand Council for Educational Research.
2. In transcribing spoken discourse we have followed the notational conventions used by Crystal (1969, 1975) with some modifications. Pauses are marked by dashes: - for a silence of less than 0.5 of a second, -- for one of 0.5 to 0.9, --- for one of 1.0 to 2.0, and ---- for silences of more than 2 seconds. A double bar = over a letter indicates a phoneme which is perceptibly longer than normal for its position; marks the tonic or nuclear stress in an intonation contour; other stressed syllables are preceded by a slash /; a half-raised dot ˙ indicates a break between two different intonation contours which is not accompanied by pause as when a speaker suddenly reformulates in mid-construction. CAPITALS mark sustained very loud volume or an unusually prominent tonic stress. In the transcripts given here these and other details are omitted when not relevant to the problem under discussion.
3. But for Charles Darwin the term 'natural selection' might have done just as well here. 'Idiomatic selection' would also do, though 'idiomatic' has two distinct senses only one of which we intend. George Grace (1981, p. 40) describes this sense of idiomaticity as follows, in the course of an account of translation types:

The other [type] is 'pragmatic' or 'free' translation or 'paraphrase', which retains the substance of the content of the original but expresses it in a form which is 'idiomatic' in the language being translated into. . . . We say, for example, that something is not

idiomatic' English when it (perhaps) is said in English, but not in the way a native speaker would say it. The Oxford English Dictionary defines this sense of 'idiomatic' as follows:

1. Peculiar to or characteristic of a particular language; pertaining to or exhibiting the expressions, constructions, or phraseology approved by the peculiar usage of a language, esp. as differing from a strictly grammatical or logical use of words; vernacular; colloquial.

There seems to be no place for this concept of idiomaticity in the current grammar-lexicon models of languages.

4. We are not concerned here with exactly synonymous alternatives (arguably these do not exist) but with the kind of pragmatic synonymity or functional equivalence that is recognized to be a feature of ordinary language use; for example, with utterances that are regarded as 'saying the same thing' in translation between languages, in legal judgments, in newspaper reporting of speeches, and in conversationalists' recounting of their own utterances.
5. We are informed that Danes speak of the time as being ten minutes past half past an hour and that Egyptians conventionally divide the hour into thirds.
6. Highly marked paraphrases of normal usages are sometimes used to make a conversational implicature in the sense of Grice (1975). If a concert reviewer says, instead of *Miss Xsang 'Home Sweet Home'*, that *Miss Xproduced a series of sounds that corresponded closely with the score of 'Home Sweet Home'* he may be presumed to have flouted the brevity and clarity maxims in order to imply that Miss X's singing was bad (Grice 1975, p. 55–6). Searle has, however, noted (e.g. 1975, p. 76) that it is difficult to use an unidiomatic sentence as an indirect speech act, because the normal conversational assumptions which underly indirect speech acts are largely suspended by hearers of an odd-sounding expression.
7. The extensive literature reporting experimental studies on the pattern and significance of pauses in spontaneous speech is partly summarized in Goldman-Eisler (1968) and Rochester (1973). While observers have consistently found that pauses occur at most clause boundaries, some experimenters have found that fluent stretches are normally shorter than a clause in spontaneous speech, as opposed to reading or well-practised speech, nearly half of all pauses occur in non-grammatical places (Goldman-Eisler 1958; Henderson *et al.* 1966). Following a study (Goldman-Eisler 1961b) which found that in speech describing and interpreting cartoons, 75 per cent of fluent chunks were four words or fewer, Goldman-Eisler (1968, p. 31) concludes that 'Spontaneous speech was shown to be a highly fragmented and discontinuous activity. . . . [The] attribute of flow and fluency in spontaneous speech must be judged an illusion.' Other studies, however, show that in some types of spontaneous connected discourse, a high proportion of clauses are uttered as fluent units (Pawley and Syder 1975, 1976) or single

intonation contour units (Crystal 1969, p. 256). As Goldman-Eisler's own experiments demonstrate, clause-internal pauses are most frequent when the cognitive task is most difficult, as in a first formulation of ideas about a newly observed set of relationships (e.g. in stating the point of a cartoon), and that when the task is easier, hesitations at places other than major grammatical boundaries diminish markedly. Some subjects are much easier to talk about than others, and practice enables us to become more fluent in talking about a subject matter that was found difficult at first (Goldman-Eisler 1961b; Goldman-Eisler 1968 pp. 17,51-8). Stating the moral of a cartoon is a much harder subject than the average one attempted in everyday conversation. See also Note 12.

8. The one clause at a time hypothesis is discussed in detail in Pawley and Syder (1975,1976). See also Chafe (1979).
9. Goldman-Eisler (1968) describes several of her own studies of rate of articulation (esp. 1954, 1961a), noting the average rate of articulation to vary between speakers from 4.4 to 5.9 syllables per second. She found that frequency and duration of pauses varies considerably according to difficulty of cognitive task (see Note 8), but that pauses in 'discussions' were never longer than 3 seconds and 99 per cent were less than 2 seconds (1961b, 1968, p. 15). See also Note 12.
10. We are not claiming here that it is impossible to fill in the lexical details of a clause, without hesitation, while one is actually uttering that clause. Experiments have repeatedly shown, however, that decision-making in speech normally requires a pause and that it is difficult to combine the tasks of speech planning and speech production (articulation) (Goldman-Eisler 1968; Miller 1951). Memorized clauses are a partial exception. Here the speaker can attend to planning tasks while leaving the production of the current clause 'on automatic pilot', as it were. Besides the one clause at a time facility, natively fluent fluency also demands an ability to plan the approximate content and form of sequences longer than a clause. But it is necessary to distinguish between semantic and syntactic planning (Keenan 1977; Kroll 1977; Stratton 1971) and full lexical planning of an utterance. It is one thing to plan a syntactic frame such as *If s then s, While you VP I'll v that s*, and it is another thing to produce the complete sentence without hesitation or chance of course. It appears that by adopting the 'chaining strategy' a speaker reduces the risk of mid-clause as well as between-clause dysfluencies.
11. Examples illustrating this cline appear in Section 5. Evidence for two types of speech-production or 'language' has been reported by neurologists and linguists concerned with localization of function in the brain, e.g. the opposition between 'propositional' or creative speech associated with the left hemisphere, and 'automatic' or memorized speech associated with the right hemisphere. See van Lancker (1973, 1975).
12. Experiments show that speakers do not talk any faster after much practice in, say, a particular task of description, but the *length* of

fluent (pause-free) units increases significantly. Thus, Goldman-Eisler (1961b) found that when a group of subjects had to describe and interpret cartoons, only 25 per cent of their fluent units were five words or more on the first trial, but on their sixth attempt the percentage rose to 50. Observers have often pointed out that public speakers depend heavily on prefabricated sequences to maintain the flow of their oratory, and we find close parallels in studies of the 'impromptu' composition of epic verse in Homer's Greece and in certain contemporary European traditions. Porter (1962, p. 2) observes that 'If the poet . . . is to tell long stories in a highly metrical form, he must not only know the stories well but he must also have at hand a very large store of lines, half-lines, or whole passages, ready fashioned, on which to draw as he recites.' A very insightful analysis of the strategies of narrative composition used by contemporary American English speakers of diverse backgrounds is given by Labov and Waletzky (1967) and Labov (1972a). Labov notes that the most effective narrators are able to speak with great fluency and rhythm, using an extremely simple syntax in relating the 'narrative action' of familiar events.

13. Compare, for example, the transcripts in (14) and (15), where the speakers are trying to say something quite new, with those in (2) and (16), where the speaker is reminiscing. See also Notes 8 and 12.
14. In our society, the statement **I** have **a** headache is, for instance, sufficient and immediately understood grounds for a person to retire from a social gathering. By contrast, **I** have an ache in the knee is not such an immediately acceptable excuse.
15. In view of the evidence for gradations in grammaticality, productivity of rules, markedness and idiomaticity, the suggestion that there are degrees of lexicalization should occasion little surprise. Work on complex nominals, from Lees (1960) to Downing (1977) and Levi (1978), although not directly concerned with the question of degrees of lexicalization, provides much evidence bearing on this matter. See also Weinreich (1969).
16. In writing lexicalized sentence stems here, the following abbreviations and other notational conventions are used:

lower case	part of the expression in which the individual morphemes are fixed (fully specified)
CAPS	part of the expression in which there is some variability of morphemic (lexical) content
i, j	referential indices
N	noun
NP	noun phrase
P	personal name
PAST	past tense
POSS	possessive ending on noun or pronoun, e.g. <i>boy's</i> , his
PRES	simple (habitual) present tense
PRO	personal pronoun
TENSE	tense

syllable	"marks tonic (contour peak) stress
\$	non-nativelike but grammatical string
v	verb
VP	verb phrase
(X)	X is an optional constituent.
[x, y, ... n]	a choice of one among the bracketed elements is allowed in this constituent

17. Cf. Weinreich's (1969) discussion of the treatment of idioms in a grammatical description, where he notes that 'familiar phrases' other than true idioms have a claim to be represented in the dictionary of complex lexical items.
18. Modern grammatical descriptions are to a remarkable degree still based on the study of written texts and/or self-consciously composed, 'citation form' utterances whose form tends to resemble the written standard. Although the tape recorder has been available for more than 30 years, learning methods for recording natural conversation is still not a standard part of a training in linguistics and linguists are only now beginning to develop conventions for representing many features of spoken discourse. Habits of data collection that go back over 2000 years are not easily broken. What is not yet widely appreciated, perhaps, is how far this bias in the sample of data has narrowed our view of (a) what is normal or typical in spoken discourse, (b) what the important research problems are in linguistics. A similar point is made by Givon (1979, p. 228). The nature of fluency in a language: and the psychological basis of fluency, for instance, have not been important topics of descriptive and theoretical research.
19. On the other hand, native speakers sometimes deliberately make an unusual substitution, expansion or transformation to a lexicalized phrase in order to add an element of freshness, humour, surprise, etc. to their talk. Oscar Wilde is one wit who exploited this procedure to considerable effect.
20. Besides Weinreich, who presents perhaps the most detailed discussion of this problem, writers such as Chafe (1968); Fraser (1970); Bolineer (1975, 1976) and Makkai (1972) deal with various aspects of it.
21. The distinction between holistic and analytic knowledge is considered by Grace (1978-79) and noted to present certain problems for the theory of grammar. In particular, Grace comments on the uncritical acceptance of Occam's Razor as providing a satisfactory way of choosing between competing theories, not only in linguistics but in Western science generally since Newton. Ann Peters (1977, and especially 1980) has recently discussed the consequences for children's language acquisition of their limited processing capacity vs. their excellent long term memory. See also Wong-Fillmore (1976).
22. Bauer (personal communication) suggests that the generality of the rules in this case, and in derivational processes generally, has been underestimated. In word-derivation we find many instances of the contrast between grammatical forms that are nativelike and non-

nativelike, as well as of gradations between familiar, less familiar and strange usages. Compare, for example, the forms in each of the following groups: *see*, *\$seeable*, *visible*, *foreseeable*; *marry*, *\$marriageable*, *marriageable*; *steal*, *stealable*, *thief*, *?stealer*, *type*, *typist*, *\$typer*.

Questions for discussion, study and further research

1. English time-telling conventions do not allow expressions like 'It's four and a third', though that would be the idiomatic Egyptian Arabic expression for 4.20. In Tunisian Arabic, which counts minutes by five minute intervals, the same time would be labelled 'four and four'. Compare nativelike talk about time or some other quantitative matter (height, weight, age, cost, etc.) in English with the way those concepts are idiomatically expressed in some other language you are familiar with. Pay attention to the selection of modifiers such as *only*, *nearly*, *more or less*, *about*, *around*, *over*, *under*, *at least*, etc., which may be associated with quantitative measurement. To what extent is a theory of contexts sufficient and/or necessary to explain nativelike selection in your examples?

2. Even when standard labels are equivalent across languages, the culturally recognized concepts with which they are matched may vary. The expression 'next year' may mean various things in English; some point in time approximately 12 months hence, or some time between January 1 and December 31 of the following calendar year, or the entire duration of the coming calendar year, or some point in an academic or fiscal or other specially defined year. Collect examples of utterances containing the expression 'next year' which have different meanings and compare their meanings to speakers of various English dialects.

One thing 'next year' is not likely to mean in sentences like 'I'm going to buy a new car next year', said on December 20, is January 1, 2 or 3. This least likely interpretation in English is the most likely interpretation in Japanese. Compare the concepts behind such expressions in English with those of equivalent expressions in a language you know. To what extent might differences in interpretation be attributable to extralinguistic cultural factors, such as the importance of the New Year festival as a landmark in Japanese life and culture?

3. Collect some tape-recorded data of your own and analyse it to see whether the correlation reported here of fluency with clause-chaining style (and of nonfluent speech with clause-integrating

style) hold for data from other sources. In your data is it possible to identify novel sentences? If these can be identified, are there more of them in your samples of nonfluent speech?

4. Compare the lexicalized sentence stems reported in this chapter for apologies with those indicated for compliments by Wolfson in Chapter 3. Can you identify lexicalized sentence stems for other speech acts, such as: praise, blame, promise, threaten, etc.?

5. It is suggested here that the grammar of a language contains, in addition to productive rules, a 'phrase book with grammatical notes'. Does this argue that phrase books such as those widely available as quick introductions to a language for the tourist should become part of a modern teaching programme? How can memorized sentences and lexicalized sentence stems be taught? Consider at least the possible roles of dialogues, vocabulary lessons, class discussion and cross-language comparisons.

6. Language learners are said to build up their grammatical competence in a language through the use of innate principles of language learning (inferencing, generalization, etc.) rather than through imitation. How do you think they acquire the ability to produce sentences that are both grammatical **and** likely or natural, that is, to speak idiomatically?

7. In what ways does Pawley and Syder's description of the components of nativelike speech compare with that given by Canale?

8. Try translating some of the clauses given on page 206 into another language you know. Is a similar 'memorized' clause available or are you required to generate a non-memorized utterance?