DOCTOR OF PHILOSOPHY

Synchronic variation and historical change in language.

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SYNCHRONIC VARIATION

AND HISTORICAL CHANGE

IN LANGUAGE

The palatal glide,

the sequence /Cju/ and

the selection of variants

[Cju Čju Ču Cu]

PAUL RYAN FALLON

DEDICATION

I dedicate this work

to all my parents

Mary Ryan and

Martha + George Fallon (RIP)

My gratitude is

inextinguishable

and inexpressible

THANKS

I wish first to express my thanks to the staff and pupils of the participating schools for their cooperation in the interviews and tests. In particular I am grateful to my former colleagues, John Malone (poet and head of the English department of the city centre school) and to Jim Toal (of the English department in the suburban school and *Lato* of the Listener crossword) for arranging access to their respective (and respected) schools, as well as ensuring the smooth running of the operation. I am also appreciative of the hospitality and accommodation they provided for me. In addition their interest in and comments on the work in progress were a useful antidote to my apparent obsession with the palatal glide. I also mention John Haram of Liverpool Polytechnic for his supply of paper which I was able to recycle, and for his help in photocopying. My doctors in Liverpool (since 1983) have also shown concern and interest.

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The department of Linguistics in Bangor is fortunate in having a staff dedicated to teaching and research. Their solicitude in enquiring about my progress, the observations they had noted on the use of the palatal glide, and their offers of articles were much appreciated. My greatest gratitude is extended to my supervisor Philip Scholfield for his patience and encouragement. Despite the increasing burden of work which many academics have had to undertake, and despite my enforced absence from Bangor, his careful criticisms and comments on the drafts submitted were always detailed and constructive. They made revision of the work easier, especially improvements in presentation and exposition. His early recommendation to buy a word processor reduced the number of palimpsests which otherwise were inevitable. If at times his advice appeared pedestrian, it helped me to put one foot in front of the other rather than in the mouth. His direction and supervision are invaluable.

However I take sole responsibility for the facts and opinions presented, as well as for the errors and omissions. I am aware that my contribution is far from the last word on the subject.

PREFACE

The specific sequence which is to be explored is the palatal glide /j/ before the vowel /u(:)/ and after certain preceding consonants. Following Wells (1982:140) the optional use of the long mark (:) does not reflect any important difference between RP and General American. Either form adequately represents the general phonetic nature of this vowel; the simpler form is used here.

The system of section numbering in the text was designed to avoid the proliferation of splintered subsections, and also to assist the author in deciding what goes where. In a letter of 1934 Prokoviev described how he went about composing a concerto. He jotted bits down when they occurred to him, and used them later as his building bricks. A similar procedure was adopted here.

The abbreviations and phonetic symbols used are conventional. The only exception is [r] which, while it represents a lingual roll elsewhere, is here taken to be the frictionless continuant usually represented by [ɹ], or its variant the alveolar tap [ɾ].

920707 St Cyril + St Methodius

Originators of the non Glagolitic Slavonic alphabet

SUMMARY

Variation in the sequence /Cju/ (as in *nubile, issue*) is manifested in the phonemic variants, glided [Cj], unglided [C], coalesced [Č(j)]. Of the 17 possible C, variation mainly occurs in the set of [+cor][+ant] consonants. The origins of the sequence are traced to OE and Anglo French sources. The former created /Cju/; the latter began the modification to variants. The primary linguistic causes of change were stress in borrowed suffixes shifting to native patterns, leading to some categorical variants with [Č] in /t d s z/; and phonotactic constraints on word initial clusters in /r l/ producing unglided [C]. Lexical diffusion proceeds within the preceding consonant by subenvironments, defined by word initial position or by suffix, rather than by frequency.

Empirical testing of linguistic constraints on the distribution and selection of variants, took place in 2 boys schools in Liverpool, with 77 subjects aged 12-13 and 17-18 years. Elicitation was by reading passage and word list (k = 65). Dialects from the urban basilect Scouse (used largely in the city centre school), to adopted RP (found in the suburban school) were examined. Results confirmed the variability among coronal consonants but with categorical subenvironments, mainly in the coalescents /t d s z/. In British English while the continuants /s z/ access all variants, stops are restricted to +glide and Č. The complex patterning of variants for /s z/ was resolved. After /l/, loss was pervasive lexically and socially. The presence of palatalized variants in /h n l/ was noted. Glide loss was recorded in the basilect after word initial /n/. Minor areas of loss occurred in some non coronal consonants, when /u/ reduced to shwa. Generally there was little idiolectal variation in spread of variants. Of the synchronic linguistic explanatory variables, (including syllabification and word position), stress was the most useful, sometimes working with the others. For the coalescents, [-stress] operates in conjunction with stress in contiguous syllables.

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CHAPTER 0

INTRODUCTION AND THEME

0100 General statement of topic

Some of the pupils were enthusiastic when, after the interlude, their favourite musicians introduced some new tunes: others were neutral in their response. As consumers of the pop industry, it can be argued that their cultural nutrition is at risk, yet not as much as is assumed from nuclear fallout. But their varied responses did illuminate the dual aspects of glide disappearance - loss and coalescence.

Of the dozen or so possible glidable items in the passage above, a conservative RP speaker will score at least 10 in terms of the use of a palatal glide, as opposed to a coalesced or unglided variant. On the other hand, an advanced Scouse speaker may only score 3 or less. This will put him on a par (in the environments above) with some speakers in East Anglia. But there are differences in the availability of non glided variants in non standard dialects. There is more coalescence in Liverpool compared with the greater use of unglided forms in the east. And speakers in America and Australia have other combinations of variants.

It is important to bear in mind that the expression, *the palatal glide*, in this thesis is restricted to the CGV sequence represented by /Cju/. This can be realized by up to four variants over the range of possible preceding consonants (PCs). Not all variants apply to the plain (ie non coalescing) consonants. And not all variants apply to the same dialect. (While the variants for the examples below apply to most dialects, the pronunciations given are for RP.)

(#1) with a glide

/Cju/ as in *music* ['mjuzɪk]

(#2) glideless

/Cu/ as in *rule* [rul]

(#3) with a phonemically palatalized consonant

/Ču/ as in *culture* ['kʌlčə]

restricted to /t d s z/

(#4) with coalescence plus glide

/Čju/ as in *casualty* ['kæžjuəltɪ]

(the rare usage in the alveolar fricatives /s z/ and /h/)

But the observed facts are not as simple as this quadripartite division may indicate. Areas of variation can occur dialectally, idiolectally and lexically. Most importantly from the point of view of the results of this present study, it gives no indication of the global variation within certain preceding consonants. This was often the consequence of a mixture of categorical subenvironments identified in this investigation, and a residue of variable forms.

The present investigation deals with pronunciation in a relatively small area. All accents agree substantially on the lexical incidence of the sequence. It encompasses some native (ie OE) stock, together with a much larger set of words and affixes of mainly Latin, Greek and French origins. Items in the former category tend to be in common use like *few*; words in the latter group tend to be more erudite and restricted in their use, such as *erudite*. The distribution has been categorized for stressed syllables in Wells 1982. Words are represented by the subsections of his GOOSE (b) and CURE (all) and (cll) standard lexical sets. These subsections exemplify the complete range of preceding consonants involved (except /g/). Unstressed syllables have not been classified by Wells, but the same PCs apply.

0110 Previous work on the palatal glide

A brief review of specific work on variants of the palatal glide in /Cju/ is now given under three headings: incidental references, theoretical accounts and empirical surveys. The literature is relatively sparse, since it does not enjoy the same prominence as such linguistic variables in English as (ng) or (r). But recently, the results of more substantial investigations have appeared.

0111 Incidental references

Linguists and other commentators on pronunciation have long been aware of the glide and the variability in its use in the /CJu/ sequence. The earliest comments on the conjunction of the glide and the back vowel were almost contemporary with its emergence. The 16c English orthoepists noted its origins and lexical distribution and its use among speakers, together

with its omission in anglicized borrowings with [y] from French especially after /t/. The monumental work of Dobson 1968 was an invaluable quarry. Later, the 18c tendency to palatalize /t d s z/ was also observed. In the 20c, references to the historical progress of the glide can be found in Zachrisson 1927; Wyld 1914, 1920; and Strang 1970. Other authors like Barber 1964, Potter 1969 and Aitchison 1978 have concentrated on areas where change appears to be taking place, or where fluctuation was evident. Fowler 1926 introduced a different dimension by noting the social implications in polite society of dropping the glide after /l/. The use of the glide here and after /s/ is associated with better educated speakers or more careful speech. Comments on pronunciation have been made for the benefit of native and non native speakers, by MacCarthy 1950; Jones 1956, 1967; Gimson 1980 and Roach 1983 among others. The findings of this study may have pedagogical implications and uses. Wells 1982 also discusses various aspects of the changing use of the glide. In addition, he is responsible for some of the nomenclature for stages in the progress of the glide.

0112 Theoretical accounts

There have been five theoretical treatments, each motivated by different circumstances and objectives. Jones 1956 concentrated on stress as an explanatory variable, bringing in the effect of contiguous syllables. Chomsky & Halle 1968 suggested three glide deletion rules, again based on stress. Bailey 1977 saw the process as diphthongization and established an implicational hierarchy of preceding consonants. Cooley 1978 examined the phonotactic constraints on the production of the glide, from a historical perspective, and her conclusions were taken up by B Phillips 1984.

0113 Empirical surveys

Four empirical surveys have been conducted, each coincidentally located in an eastern coastal region of the country concerned: eastern England, eastern Australia, and the south eastern states of the USA. Of these studies 2 concentrated specifically on the glide: 2 were fragments of a larger work.

Trudgill 1974 devoted part of his research in Norwich to the glide. It has a special place in that dialect, since it represents the most extreme example of yod loss in British (or possibly any dialect of) English. Trudgill concluded that the presence of [j] depended on the preceding consonant and to some extent on the lexical item itself. His (yu) variable exhibited differences from the others he looked at, and he noted "certain complicating factors" affecting its usage (*op cit*:102). Horvath 1985, in her extensive survey of Sydney speech examined the four main consonants susceptible to coalescence, namely /t d s z/. She confirmed that an unstressed vowel favours palatalization; [- glide] not being an option.

Both of the specific studies dealt with American English and were restricted to the alveolars /t d n/, having been initiated with a brief inquiry by Stephenson 1970. He conjectured that glide insertion in those environments, was on the wane in the southern states. Phillips 1981 conducted a more detailed empirical investigation. She challenged the Schuchardtian hypothesis that the most frequently used words changed first. However, Pitts 1986 was unable to confirm this. In order to reconcile what she saw as the opposing trends in the use of the glide in the north and the south, she invoked the social factor of prestige.

0114 Psycholinguistic aspects

Ainsworth & Paliwal 1984 investigated the palatal glide, (together with the three other continuants /w r l/), from the point of view of production and perception. They tested the hypothesis that a listener refers to his own articulation when perceiving speech. Their results tended to reject this hypothesis. More recently, Recasens 1990 has reexamined the articulatory characteristics of palatal consonants. He suggests that the articulation of the glide merits its inclusion in a category of front palatals. This may have repercussions for the allocation, in terms of distinctive features, of the glide as [-cor].

0120 Objectives and plan of this thesis

The present work contains a historical introduction identifying and classifying the origins of glidable ModE words, excursions into the processes of sound change and lexical diffusion, together with an empirical investigation into the distribution of the variants across the 17 possible preceding environments and an examination of the factors influencing those variants. While variation is axiomatic between national varieties, variation within idiolects seemed worthy of deeper investigation.

0121 Historical development of the glide

The historical aspect aims to trace from the time of OE, the origins and development of the strands which merged to give the modern /ju/, and then the subsequent erosion of the glide after certain PCs. This historical account of standard English in the next chapter, is complemented by brief descriptions of the extent of glide loss in selected relevant dialects. Glide

replacement is or has taken place to greater or lesser extents. General American and East Anglian reflect rather more widespread loss than RP and most other British accents.

0122 The empirical testing in Liverpool

The empirical aspect involves an investigation of the choice of variants among four groups of 77 Liverpool schoolboys, covering a wide range of idiolects from adopted RP to Scouse (see chapter 3). The reasons for examining Liverpool speech are primarily personal. Born in Old Swan, I have lived in the city (in Tue Brook and West Derby, see map 30-01) for most of my life, and had also worked in the city centre school for a quarter of a century. Otherwise, comparing the role of (yu) as a linguistic variable in Norwich for Trudgill 1974, was a motivating factor.

The study was designed to ascertain the extent of gliding and other variants in Liverpool for all of the 17 preceding environments, (which include zero consonant), and compare this with RP and the hierarchy constructed by Bailey 1977. It was also designed to concentrate on the /l/ environment where variation had not been fully elucidated. But as the analysis of the results of the tests progressed, the variation observed in this PC was not prominent. More analytical attention was consequently given to /n/, which turned out to exhibit more glide loss than expected, and to the 4 coalescing consonants.

A fundamental aspect involved restricting the number of social variables. Thus sex is restricted to male; age is restricted to the groups 11-12 and 17-19 years; and regional provenance is restricted to those born in Liverpool. The main explanatory variables are linguistic, and involve the effects of stress, syllabification, phonetic environment, and for /l/,

phonological and morphological similarity. The contexts for elicitation are also restricted to the relatively formal. Natural conversation does not readily generate an adequate number of types (or tokens) especially in the variable PCs. Positive elicitation techniques were therefore vital.

0123 Features of this investigation

While necessarily repeating aspects of previous research, it does more than imitate. This investigation is innovative with regard to the examination of variants of the palatal glide, in that it is the first to involve an extensive empirical investigation over all the possible PCs, taking into account the lexical load of each, and sampling a wide range of idiolects. In addition, comparatively little empirical research has been carried out specifically on Liverpool speech. Noteworthy are Knowles 1974, 1977, 1978; de Lyon 1981; and Newbrook 1986. And while not subscribing to the strictures of Smith 1989 on quantitative linguistics, this investigation moves away from the emphasis on sociolinguistic interpretations and computer assisted statistical techniques. But indices of glide loss will be created from the data collected, so as to facilitate comparisons between groups and between individuals. The study is **microlinguistic** in both of the senses defined by Crystal (1985:194), as well as the distinction made by James (1980:27). It encompasses a view of a topic that distinguishes strictly linguistic from, for instance sociolinguistic factors, and without making much reference to the uses to which the linguistic code is put. The term is also used to refer to analyses of linguistic data which involve a greater depth of detail.

The difference in the status of the linguistic variable (yu) in Norwich and Liverpool has led me to use the idea of minor forms of the

variable, units which have not been specifically used before in this context. The putative macro variable (yu) in Liverpool does not embrace all possible preceding consonants as in Norwich. While some PCs here exhibited little variation, others like the 4 coalescents /t d s z/, and /l n/ did, and were distinguished as mini variables. They are differentiated by being enclosed in curly brackets, {Cyu}. Within these mini variables there were smaller areas of variation, potential micro variables. These have chevrons, eg «lyu». They sometimes represent the only true areas of variation within a PC.

To recapitulate: the objectives are to establish how linguistic parameters operate within the mini and micro variable to influence the selection of variant; and if choice of variants is reflected socially in groups or individuals. That the resolution of these objectives is difficult is admitted by Horvath (1985:109).

> "The variation associated with this sequence both within a given dialect and between dialects is very complex and ... has never been satisfactorily treated."

My investigation sets out to resolve the complexity by attempting to produce some order out of the chaos with respect to the sometimes contradictory and conflicting constraints which operate in the production of the variants of the sequence /Cju/ as manifested both in {Cyu} and «Cyu».

f i r s t s u b j e c t

CHAPTER 1

GENESIS AND EXODUS OF THE /CJu/ SEQUENCE

1000 Introduction and plan of chapter

This first chapter provides in 2 parts, an account of the phonological and lexical origins of the /Cju/ sequence. I propose to begin about the 10c, and to trace the phonological origins and changes, first to a convenient date in the 13c, and then to look forward in time to the middle and end of the 15c. This coincides with the simpler late ME system of the phonemic diphthongs /iu eu ęu/ which presaged the emergence of /ju/. The lexical antecedents are also divided into the same broad parts. First there were the 'native' words of OE; extant items number about 2 dozen. They were then supplemented after the Norman Conquest by the influx of OF words: of these about 3 dozen are left. The effects of these sources on the production of the glide are quite different.

The second stage, from the 16c onwards will be reviewed in section 12. This chronicles the rise of the phonetic variants of the glide, the beginnings of glide erosion, as well as the additions to the lexicon made during the later periods of borrowings in eModE from Latin and Greek. This second phase substantially increased the number of words with /ju/.

1100 OE and OF precursors: the seeds of the glide

The five native sources are derived from the combination of a long front vowel or diphthong and a following w. They are all identifiable by the 10c. Phonologically a division may be made between these earlier OE sources and the post Conquest French contributions. The OF imports may be grouped into 3 strands. For reference in table 11-01, each of the 8 sources is given a typical word and a date for its first appearance as recorded in the *OED*. The 8 strands are divided into 4 broad categories (based on their 13c diphthong status); three from native spellings shown by the prefix E, and the group of French sources prefixed by F.

Table 11-01
Categories of sources of the ME diphthongs leading to /ju/

(E1)	OE ī + w	*īw*	c725
(E2)	OE ēo + w	*brēowan*	c893
(E3a)	OE eo + w	*streowlan*	971
(E3b)	OE ēa + w	*hēawan*	900
(E3c)	OE ǣ + w	*mǣw*	c725
(Fa)	OF pure vowel /y(:)/	*vertue*	1225
(Fb)	OF diphthong ul	*rlwle*	1225
(Fc)	OF triphthongs leu, eau	*beauty*	c1275

By the time of late ME, category E1 had become /lu/. Group E2 had developed into /eu/; while E3 became a more open /ɛu/. The three French strands had a more chequered development. Each of the sources will be expanded in turn and illustrated with relevant words, showing that the lexical load of each source was far from equal.

1110 *The native sources*

The OE system of long vowels has been described by Prins 1974 as structurally unbalanced, as it has a gap in the back vowels.

i: y: u:

e: o:

æ:

• ɑ:

In addition to the long vowel system, four OE diphthongs are recognized (Wyld 1914). They are *īo* and *īe* together with *ēo* and *ēa*. Each has both long and short forms of the first vowel. They are generally regarded as falling diphthongs in late OE, with the second element opening to a back vowel, and weakening to shwa. A characteristic of the transition from OE to ME is the smoothing of these OE opening diphthongs to monophthongs, and the subsequent introduction in ME of new diphthongs which are all falling and of a closing character.

I shall now detail each of the five native strands: the 2 long OE diphthongs with *ē* (and the short *eo*), as well as the long vowels *ī*, *ū*. In these combinations, OE <w> was vocalized to form a diphthong with the preceding vowel (Kristensson 1967:189).

1111 *OE ī + w*

OE *ī + w* being based on a pure vowel underwent fewer changes than other compounds. In the 12c it was diphthongized to /i:u/. In the following century the first element was shortened so that it became /iu/. This shortening meant that it was not affected by the Great Vowel Shift, so it did not undergo the development from [i:] to [ai]. The 14c saw a modification to /i̯u/ which was how it stayed

until the 16c. (Mossé 1952; Brunner 1963; Kristensson 1967:73; Jordan 1974:110). Category E1 is represented by

hĪw	900	<hue>
Īw	c725	<yew>
nĪwe	Beowulf	<new>
stĪweard	955	<steward>
tĪwesdæg	c1050	<tuesday>

1112 OE ēo + w

Prins (1974:57) has stated that Primitive Germanic /eu/ developed into OE *ēo*, which represents the first of the 2 long OE diphthongs. In the 11c it was reduced to a monophthong. In general and over a longer timescale, *ēo* > /e:/ > /i:/, as in *hrēod* > *reed*. But compared to *ĕa* + /w/ which appears to have undergone a simple development, the progress of *ēo* + /w/ is more varied in its geographical distribution. Jordan (1974:109) draws evidence from orthographic and poetical sources. Some texts contain the spelling <ew> for words in this category. He maintains this usage cannot be explained as a substitute for /iu/. When <Iw> had an allograph it was <yw> and not <ew>. Secondly, in the use of rimes like *shrewe ~ newe*, Jordan finds it difficult to accept the pronunciations /ɛu ~ Iu/. Together with Kristensson 1967 and Prins 1974, he believes that in the 11c, OE ĕo had developed to /ø:/ and that this was retained in the southwest and west midlands up till the 14c at least. However in the north and east midlands generally it was unrounded during the 12c. Kristensson (*op cit*:175) finds no evidence of /ø:/ in Lancashire. By the end of the 12c, /eu/ predominated in these latter regions, to be raised to /Iu/ in the 15c.

Items which are obsolete include

hlĕow	c1000	<lew> = mild, sunny
lĕow		<thigh>
lĕowe		<league, mile>
lārĕow		<teacher>

Words from group E2, similar to the typical word *brēowan*, include

blēow	c1000	<blew>
cnēow	Beowulf	<knew>
ēowu	c1000	<ewe>
grēow	c725	<grew>
hēow	900	<hew>
hlēowoc	c1205	<luke(warm)>
hrēowan	Beowulf	<rue>
nēowe	c825	<new>
trēowe	Beowulf	<true>
trēowþ	c893	<truth>, <troth>

1113 OE eo + w

The only OE short vowel contributing to the eventual production of /ju/ was *eo*. This is the version with the falling diphthong; the variant with the rising diphthong developing into ME *ǫu* (Ekwall 1975). Not surprisingly, the short vowel shared a parallel development with its longer counterpart. ēo + w, but the outcome was a little different. In the 11c there was a general rounding to /øu/; later in the following century, some regional variations have been discerned. The /øu/ pronunciation was retained in the west midlands and the south, where it was preserved till the 14c; but in the northern region, the east and south midlands and Kent, it became unrounded to /eu/, (Kristensson 1967). In the course of the 13c this crucially became a more open version /ɛu/. Jordan (1974:127) has surmised this from the opening of the diphthong /ei/ to /ɛi/.

Examples for illustration of the short vowel in the E3a group are few. Those that exist are susceptible to alternative explanations; or they were subjected to changes in stress so that they did not progress to /ju/. They represent instances of incomplete lexical diffusion.

gleow	c900	<glew> = make merry
speowlan	c897	<spew>
streowlan	971	<strew>

Some words which have become obsolete are

hreowan	‹grieve›
hreowlan	‹repent›
þeow	‹servant›
speow	‹succeed›
hreows	‹respect›

1114 OE ēa + w

This is the second of the OE long diphthongs. According to Prins 1974, the pronunciation of *ēa + w* altered in the 11c from /ɛ:aw/ to /æ:w/. This change to a monophthong meant that it became identical in sound with the category below ǣ + w, and from the 11c it shared its development.

Category E3b can be exemplified by

cnēaw	c1000	‹knew›
dēaw	c800	‹dew›
þēaw	Beowulf	‹thew› = custom
fēawe	Beowulf	‹few›
glēaw	c725	‹glew› = clever, wise
hēawan	900	‹hew›
sēaw	c900	‹sew› = juice

1115 OE ǣ + w

Toon (1983:120) has described the /æ/ sound as being among the most volatile in the history of the English language, particularly in early OE, where he links it to the increasing political dominance of the Mercians, since as he maintains

> "an increased tendency to raise [æ], conditioned or unconditioned, was a concomitant of Mercian political ascendancy". (*op cit*:159)

The relationship between pronunciation and long political ascendancy may be worthy of further investigation from the point of view of adopting prestige variants. The long vowel ǣ maintained its pronunciation until the end of the 11c, when it began a process of raising which took it at first to /ɛ:/. The specific combination here, with ‹w›, became /ɛ:u/. In the course of the 12c, the first element was shortened to /ɛ.u/. This was maintained until the 14c.

Words from group E3c, like *mǣw*, are

hlǣwas		<Lewes> Sussex
lǣwede	890	<lewd>
mǣw	c725	<mew> = gull
scrǣwa	c725	<shrew> = animal
slǣwþ	c888	<slewth> = laziness

Obsolete words include

lǣwan		<betray>
lǣwend		<traltor>
lǣwfinger		<forefinger>
lǣwede	< laicus	<layman>
lǣwe		<weakened>
rǣw	1225	<rew> = successively

It is perhaps coincidental that the obsolete words cited begin with a liquid. If they had been extant when glide erosion after /l/ was beginning, it is interesting to speculate whether they may have resisted because of their native origin, since the nature of the vowel [y:] in the French borrowings and shifting stress, militated against persistence of the glide, as will be seen in the following subsection.

1120 The French contribution

The French contribution involves more variability than the native sources. This variability occurs in the phonetic area, and in extralinguistic factors such as geographical origins of speakers and their station in society. In terms of lexical items the phonetic contribution is provided largely by words with OF /y(:)/, partly by the diphthong <ui>, and to a lesser extent by the triphthongs <ieu> and <eau>. Much of the discussion in the literature revolves around the nature of the front rounded vowel and its adoption or adaption in these islands. The varieties which emerged are basically social (and educational), and especially in conjunction with the

remnants of OE /y:/, they also exist on a geographical basis. By the time of the main influx of French and Norman vocabulary in the second half of the eleventh century, OE /y:/ was on the wane, having been replaced in general by the unrounded version [i:]. Following Prins 1974, three geographical areas based on chronology may be identified.

(1) In the ninth century, the rounded front vowel became unrounded and lowered to /e:/ in the south east.

(2) Around the end of the OE period, it had become unrounded to /i:/ in the north and the east midlands. Jordan 1974 suggested that in the east midlands, popular pronunciation had lost the capability for the rounded front vowel and that either /eu/ or /i:/ was used as replacement. Kristensson (1974:238) speaking with special reference to the six northern counties agrees that OE /y(:)/ appeared as /i(:)/, except in Lancashire where [y:] and [i:] were interchangeable south of the Ribble.

(3) Elsewhere it remained as /y:/ until the end of the 14c when it unrounded to /i:/.

These three divisions, and the general reflexes of OE /y:/ may be borne in mind when the largest influx of French and Norman vocabulary occurred after the conquest. As bilingualism developed, so did the vocabulary. Strang (1970:250) in an extended metaphor of almost diluvian proportions claims that

> "the sluice gates opened, and there poured into English the greatest flood of loans from a single source by which the language has ever been inundated."

This continental contribution will be considered (like an earlier division of Gaul), in three parts. The first of these are words with the vowel /y(:)/,

1121 OF pure vowel /y(:)/

Central to the discussion of the effect of OF /y(:)/ in Britain is an awareness of the geographical distribution of the vowel in France, its transmitters in England, and social and geographical circumstances attending those natives coming into contact with words containing this vowel. First the nature of the vowel. Vulgar Latin /u:/ had begun to be fronted to [y:] in the Gallo Roman period (5c-9c), but while Brunot & Bruneau (1949:91) say

> "il est ... difficile de préciser la date à laquelle cette évolution s'est produite",

it is possible to identify its geographical origins in the south. The process of fronting had not reached all parts of northern France in the 11c (Bliss 1969:204), lingering longest in the northeast. Since William recruited most of his followers from the north and northwest (mostly from Normandy, Maine and Brittany), it is likely that some of them did not have /y:/ in their inventory of sounds, and that even if they did, it may have still been in variation with /u:/. In these cases we may have expected the sound to have merged with the native English /u/, [PJS]. Indeed Emerson (1909:xxl) is sceptical about the use of the French [y:] in the midland and southern regions of England (except by those having learned French). He bases this view on the evidence of rime; and on the small number of words with this OF sound which were borrowed, together with their very gradual adoption.

Most commentators have concentrated on the phonetic aspects of production and their geographical and social distribution. The geographical spread is linked to the extent to which OE /y(:)/ was extant. (See Jordan 1974:209 and Serjeantson 1935:297 for details). Where OE /y(:)/ was still used, then the sound was retained in the imported French words; where OE /y(:)/ had disappeared (especially in the north and east midlands), then it

followed the pattern of the OE reflexes, pronounced as /eu/ or /i:/. In the west midlands for example, /y/ was probably retained up to the end of the 13c; in the west it lasted into the following century. While it existed, it was naturally used for the Fr /y/. In the north, there was a similar /y:/ sound which had originated from OE /o:/ (Brunner 1963:29). But in the southern parts of the north region and in the north midlands, as Jordan (*op cit*) indicates, an /u:/ pronunciation existed and this was applied to Anglo French texts. But in areas like the east midlands where OE /y(:)/ had been unrounded to /i(:)/, perceptually the nearest native sound, Fr /y:/ was replaced in part by the diphthong /eu/. It thus merged with the /eu/ which was developing there from OE *ēo + w*. (See §1112).

Some social variation may be discerned. Those in the upper strata of society (those more in contact with the court, education and the law, where AN was still used), may well have been predisposed to use /y:/ rather than other variants. See Jordan (*loc cit*). But the pronunciation stratum in which /eu/ was used predominantly, became /iu/ at the beginning of the 15c.

The French borrowings in category Fa include

acuser	1297	<accuse>
deluge	c1374	<deluge>
estuve	1305	<stew N> = stove
estuver	c1400	<stew V> = cook
endurer	1375	<endure>
fortune	1300	<fortune>
glu	1382	<glue>
mesure	c1200	<measure>
mue(r)	14c	<mew> = moult
nature	c1250	<nature>
rude	c1340	<rude>
pursuer	c1290	<pursue>
use	1225	<use>
vertu	1225	<virtue>

1122 OF diphthong ul

The diphthong is usually represented orthographically by *<ul>*, and had developed from Latin ū + l. In AN it alternated between a rising and a falling pronunciation. For more detail see Menger 1904, Serjeantson (1935:298), Jordan (1974:215), Rickard 1974. The falling diphthong became predominant, and then became monophthongized to [y:]. As with the pure vowel /y:/ discussed in §1121, this emerged as /eu/ in popular speech. (See also Mossé 1952; Brunner 1963; Bliss 1969).

For category Fb, examples of diphthongs are

couvre feu	1285	<curfew>
cruete	c1290	<cruet>
endulre	c1400	<endue>
estul	1386	<stew>
fruit	c1175	<fruit>
hul	1292	<hue> (and cry)
nulsance	1410	<nulsance>
pule	1393	<pew>
ruide	c1340	<rude>

1123 OF triphthongs leu eau

Both the triphthongs were formed later in the 11c and 12c. The first, <leu> came mostly from Latin /ɛ/ + u. To begin it was descending, but in the 12c the stress shifted in continental French, and in AN here it was reduced to /lu/. (Serjeantson 1935:299; Brunner 1963; Jordan 1974:217).

For group Fc, the first triphthong includes

juleu	c1275	<jew>
lleu	c1290	<lleu>
porsleure	c1290	<pursue>
sleute	1297	<sult> = law, dress
co(u)rll(e)u	1340	<curlew>

The other triphthong, <eau>, came about as a result of the vocalization of /-l-/ to /-ł-/. (Jordan *loc cit*; Mossé 1952; Brunner 1963). When the OF triphthong /ɛau/ was borrowed, it was rapidly changed.

> "The OF triphthong /ɛau/ (originating through vocalization of velar or secondary velar /ɫ/ in the series /-aɫ/ and /-ɛɫ/ > /ɛaɫ/) which rarely occurred in English was simplified to /ɛu/." (Jordan 1974:217)

This rarity accounts for the paucity of examples. In addition Serjeantson (1935:299) points out that before labials or /š č/ for instance, it was monophthongized to /ɛ:/ as in *Beauchamp* and *Belvoir*. In Wiltshire, Beausire became *Beazer* (861222 Domesday BBC1). This long vowel was raised to /i:/.

beaute	c1275	<beauty>
leaute	1300	<lewty> = loyalty
eau ardente	c1315	<ewe ardaunt>

1130 To the end of ME

I have outlined the results of the gradual shortening, smoothing and raising of OE long vowels, and diphthongs + /w/. Aside from the rounding of /e/ to /ø/ in the south and west midlands, (which in any case became unrounded again after three centuries), there is a progression towards /iu/, /eu/ and /ɛu/ which begins earlier in some environments than others. The changes in the contributory sounds are summarized in the time chart 11-02. The details try to make some allowance for regional differences. From the chart it can be seen that while some of the original sources had developed to /iu/ by the beginning of the 14c, others were at the /eu/ and /ɛu/ stages.

Between 1250 and 1400 the dominance of the south began to wane, and the midland dialect became the foundation of the new standard language. The south stayed more conservative than the north. The transition to Middle English had been marked by changes at various levels of language. In phonology, by the 11c both OE diphthongs *ēa* and *ēo* had been reduced to simple vowels. But this was compensated for by the formation, starting in the second half of the 12c of new diphthongs. Among the reasons for this

according to Mossé 1952, was the shifting of the syllable boundary. Idiolectal differences in modern syllable boundaries will be used later in the analytical part of this study. While the OE diphthongs had been falling but opening, the new ME diphthongs had more of a closing character. There was also the simplification of initial consonant clusters with /h-/, where the first was lost. This was to be mirrored later by the creation of new clusters as a result of the development of the glide /j/ with a preceding consonant. The solution to offending clusters was the loss of the second member, especially when a pair of glides were clustered.

At the end of ME there were seven diphthong phonemes (Mossé 1952; Barber 1976), all of which may be regarded as closing. They were

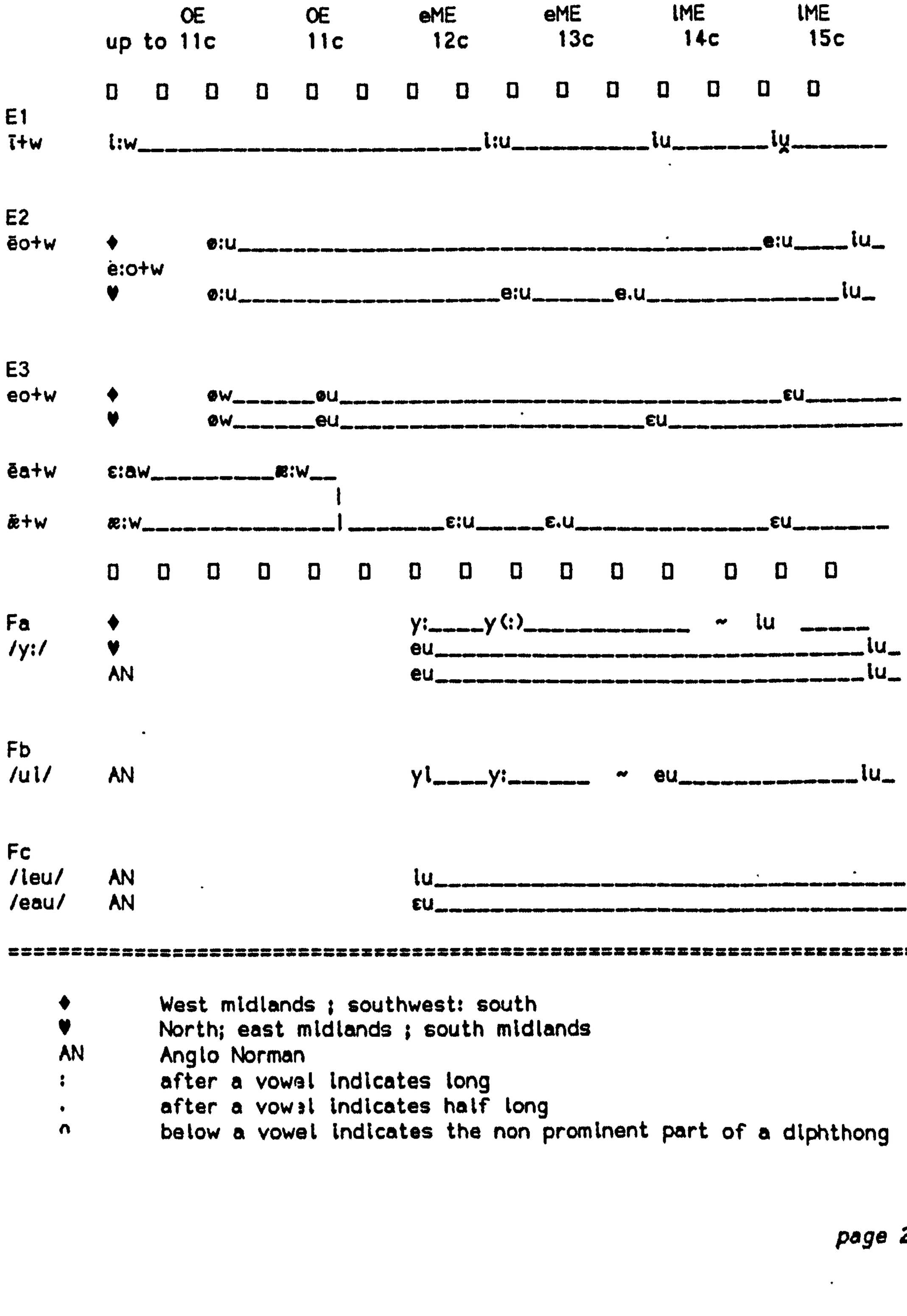
/iu eu au ou

ai oi ui/

The first 2 are relevant here. It is their merger and subsequent development with preceding consonants which produced the sequence under investigation.

Danielsson 1963 describes the transition from late ME in the 14c to early ModE in the 16c as being marked by instability in certain aspects of the language. Rapid changes were taking place. Orthography was in a state of confusion, and this was recognized as such. In printing there was instability in the spelling of learned words. Henry V had encouraged the use of English in documents. Chancery officials had based their spelling on the language of the central midlands. But by the time of Caxton there was no firm standard. In fact the compositors employed from the continent made matters worse by introducing their own conventions and adopting without thinking variant spellings. Danielsson refers to the situation at the beginning of the 16c as 'fluid' (*op cit*:64).

Table 11-02
Time chart from OE to the late ME diphthongs



♦	West midlands ; southwest: south
♥	North; east midlands ; south midlands
AN	Anglo Norman
:	after a vowel indicates long
.	after a vowel indicates half long
̯	below a vowel indicates the non prominent part of a diphthong

In addition there were periods of instability in the social and political life of the time. Most of the 14c was riddled with campaigns and wars against Scotland and France. The Black Death made its first appearance in 1348. A poll tax was first introduced in 1381. A rising of peasants occurred soon after. The 15c was marked by the continuation of the conflict with France. Internally the Wars of the Roses led to a change of dynasty. The 1530s saw the Reformation and the dissolution of the monasteries, with its consequent effects on population movement. The price revolution and accompanying inflation of the 16c led to widespread economic discontent and movement between social groupings. A mere catalogue of some of the events affecting the life of a country cannot explain the changes in language that were taking place. But it has been tempting for some commentators (such as Prins 1974 and Schlauch 1959) to look for a connection between what was an unstable or developing economic and social structure and the way in which people used language. (The rapid development of Scouse, the urban basilect of Liverpool, in such circumstances, is an instance meriting research.)

Out of the instability came a sort of salvation. In the 16c a new breed of schoolmasters began their attempts at creating a more relevant spelling system; not necessarily involving reform, but regularization. It was obvious that pronunciation had deviated markedly from the former values of the letters. Their attempts were not successful. Where they did achieve lasting success was in the value that their publications have for subsequent interpreters of pronunciation change. Their success is represented in the developments in the next section.

1200 Modern English

The main points to be covered in this section on modern English include the reduction of the reflexes of the OF [y(:)] to [U] or [ɪ]; the merger of the late ME diphthongs to [ju]; linguistic features favouring glide disappearance; how this was manifested; and the extent of the subsequent variation, (chronological, social and lexical), as well as glide restoration. Much of the evidence comes from contemporary orthoepists. Their original works have been used when available, together with Dobson 1968.

1201 The 16c and 17c background

The emergence of a standard language and the slow crystallization of its forms had a variety of consequences. The foundation of grammar schools in the 16c; the expression of social status in the use of language; the prescriptive attitude of certain manuals and the descriptive approach of some of the orthoepists - all these encouraged a greater awareness of language, particularly among the aspiring and rising groups in society. But there are also instances of where the lower sorts (to use the vocabulary of the late 16c), are in the forefront of pronunciation change. Wrightson 1987 indicates that the use of the word 'sorts' reflected the broad groups of society - the haves and the have nots. It

> "reflected not only the polarisation of English local society produced by demographic expansion and economic change but also the realities of power relations in the local community." (*op cit*: 21-22)

By 1640 an extra term, the middle sort had crept in, and was much used in the pamphlet literature of the Civil War. As Wrightson points out, the language of sorts proved, by virtue of its very resonant imprecision, capable of capturing the process of social change. Some historians (notably Tawney

1954ab) have referred to the period 1558-1640 as *The rise of the gentry*, characterized by the rapid upward social mobility of many families. I suspect that just like today, some of those 17c aspirants were keen to demonstrate their acquisition of status by being in the forefront of linguistic change. An area which can make considerable impact and impression is the use of recently introduced words.

1202 The pronunciation of Greek and Latin

As well as recognizing the influx of learned vocabulary during the 16c and 17c, we must also give some consideration to contemporary attitudes towards the pronunciation of the classical languages, since both areas are interrelated. In essence there was a conflict (rather like that presently occupying different schools of interpretation of older western music), between those favouring the 'modern' method, and those favouring the 'authentic' approach.

When the study of Greek was resumed in western Europe, the pronunciation first adopted was that of the modern language, since this was used by the Greek teachers. A reaction against this practice was initiated by Erasmus. He adopted what he argued was the ancient pronunciation. In this country he was copied in the mid 1530s by Cheke (1514-57) and Smith (1513-77). They were then in their very early twenties. Almost inevitably they encountered opposition, which persisted even after they were appointed to the regius chairs of Greek and of civil law respectively in Cambridge. Opposition in particular came from the chancellor, (Gardiner, bishop of Winchester). He issued a decree in 1542 "forbidding the use of the new pronunciation on pain of expulsion from the Senate, loss of honours or scholarships, or caning", as may be required. (Dobson 1968:39).

Cheke, following Erasmus, maintained that Greek *υ* was the same as French *u*, as was to be pronounced with the descendant of ME [y:] that is *iu*. Thomas Smith, publishing in 1568, but reflecting the usage of the 40s distinguished *eu* in *few, dew* from ME ęu deriving from long *u*. He adds that the reformers used [ɛu] for Greek *ευ* and [e(:)u] for *ηυ*. For the other classical language Cheke favoured the identification of Latin *u* with ME ū. He also says that this was often pronounced as *y*, a fault adopted from the French. Dobson (*op cit*: 43) suggests that what Cheke had in mind was the use of [y:] (or [iu]) for Latin 'long *u*'. In fact this seems to coincide with the traditional English pronunciation (Dobson *op cit*:51 fn2). Holmberg 1964 cites Robinson 1617 as giving a description of the anglicized pronunciation of Latin long /u:/. Using his transcription of *(j)iw*, we get

duclt	*diwslt*
tenuis	*tenjiwis*

1203 The influx of vocabulary

In the period after the Reformation and the Renascence, the language was host to yet another flood of vocabulary. It had the effect of further reducing the reliance on OE terms, as it was based on Greek and Latin words. For an illustration we may use the 98 glidable words tested in this investigation. Only 8 may be described as native. Five are 16c+ romance imports. Of the remaining 85, fifty were taken from French and 35 from Greek and Latin. In the first group, a half were first recorded in the 14c. Of the classical words, a half appeared in the 16c. While these figures are not necessarily representative, they do give an indication of the balance and provenance of the vocabulary in general. Since many of the words were restricted in usage to educated people, and since the words were being

anglicized (as opposed to using the original pronunciations of the reformers), the pronunciation of the long /u:/ in such words was that identified at the end of the subsection above: the glided sequence. In a sense this sequence may have been perceived as being identifled with learned vocabulary, particularly by the unlearned. Whether this fostered glide loss needs further study. What evidence there is, is intriguing.

1210 The progress of the lME diphthongs ęu and iu

1211 Their long separation and eventual merger

At the beglnning of Modern Englisb the ME diphthongs *ęu* and *iu* were still separate, with some speakers still distingulshing between *dew* [deu] and *due* [diu]. But the evidence from contemporaries, in particular the 16c and 17c orthoepists, together with later assessment of their work, suggests that the development of the diphthongs, while ultimately leading to the phoneme combination /ju/, has marked regional variations. ME *ęu* was originally pronounced as [ɛu]. In early ModE the first element develops in the same way as ME ē. When this was raised to [e:], ME *ęu* became [eu]. Then as Dobson (*op cit*;798) states, the second element of the diphthong began to exercise an assimilatory raising influence on the first. This caused [eu] to change rapidly to [iu]. But it did so at different times for different regions and different styles of speaker. Dobson (1968:19-30) gives the example of Peter Levins from the East Riding of Yorkshire. His *Manipulus Vocabulorum* 1570, the first English riming dictionary, seems not to distingulsh between ME *ęu* and *eu*. Southern orthoepists continue to do so for another century. Bullokar from Sussex, and with his speech strongly colourad by vulgar and by dialectal pronunciations, shows in his *Book at Large* 1580 that the diphthongs

were distinct. But also he is very aware of the advanced pronunciations typical of the Mopsæ (and of Essex). Dobson (1968:85 fn1) describes the Mopsæ as "affected, perhaps wanton, women", suggesting that 'wenches' may be a good gloss. They were "affected speakers of an advanced form of StE." (*op cit*:88), (not necessarily precursors of Essex girl). Bullokar is also important because as Dobson points out, he was a representative of the kind of person that while of no worldly distinction or wealth, gives up his natural dialectal and vulgar speech in favour of another form which was regarded as better. He is evidence of the spread of Standard English. But while he was not unsuccessful in conforming to the accepted standard, he still retained many traces of his original pronunciation, some of which came to be customary in the standard language.

Charles Butler from Buckinghamshire published his *English Grammar* in 1633. He still keeps the ME diphthongs separate, but makes the main distinction between *ęu* and *iu*. So does Richard Hodges in his *Special help to Orthographie* 1643. Wallis *Grammatica Linguae Anglicanae* 1653 says that words like *neuter, few, beauty* were sounded 'per e clarum et w', but goes on to admit that some people use */iu/*. Yet Price 1668 still has *neuter* and *few* separate. In discussing proper diphthongs, "wherein both vowels keep their sound" (*op cit*:30), Price comments that while <ew> keeps its sounds in *few, lewd, ewe*, "it hath now obtained the sound of, *iw* as *new, jewel*", (*op cit*: 34). It is distinct from <eu>. There is orthoepistical evidence of a mode of pronunciation which failed to distingulsh between ME *ęu* and *iu*. This evidence dates from quite early in the 17c. But until about 1660, the time of the Restoration of the monarchy after the Commonwealth, the evidence is based on careless and vulgar speech.

It is not until the publication in 1685 of (yet another) *Grammatica*

Linguae Anglicanae by Christopher Cooper, that the merger between ME *ęu* and *eu* for all styles of speech, appears to have taken place. He did not distinguish [eu] from [iu] in his phonetic system. (Dobson 1986:281).

> "Cooper was ... the schoolmaster and parson of a comparatively unimportant town [Bishops Stortford - PRF], and there is no reason to suppose that he enjoyed any reputation as a scholar."

His own pronunciation may therefore be regarded as conservative. We may consequently take the end of the 17c as the approximate date for the complete merger of ME *ęu* and *eu* (incorporating *iu*). There was another variant of ME *ęu*, a form not merging with /iu/. This did raise the first element to /e/ some time in the 16c. But Prins 1974 says this variant was dying out by the middle of the 17c and had become obsolete in the next century.

The closer late ME diphthongs *eu* and *iu* had been identical from at least as early as 1500. and since they merged in the latter form, it is the development of [iu] as such which is considered here. It was at first a falling diphthong with a short second element. It then changed to a rising diphthong. Since the second element was stressed, it became longer and quickly moved to [ju], and seems to have developed first in word initial position. This proves to be a point of weakness for change; it has been and is in the forefront of glide loss, as the Liverpool recordings will show. The change began in the last decade of the 16c, and possibly as early as the 1560s in non standard dialects, (Dobson 1968:709; Prins 1974). While the sequence of events is the same, the dates at which these stages occurred, depends on the style used in the standard language. [ju] appears to have been normal in the standard form from about the 1640s, that is, around the time of the Civil War Yet [iu] persisted as may be expected, in carefu. conservative speech until the late 17c. But as late as 1685 Cooper said that

/iu/ was preferred in careful speech. (Dobson 1968; Barber 1976). A change in the pronunciation of the vocalic element of /ju/ had been noted by some contemporary observers. A centralization (or fronting) of the back vowel was evident due to the assimilatory influence of the [j]. This is a tendency which is also noticeable today in a broader context for some southern English speakers. A similar but different quality is evident among broad Scousers.

1212 The status of [y:]

The point about fronting raises the thorny question of the extent to which this was in use. The contenders are [iu] from earlier ME *iu* and *eu*, and the sounds used in ME for OF [y:]. The orthoepists themselves were divided; but then they did not have at their disposal the techniques of the modern phonetician. On top of this the orthoepists of the 16c and 17c shared a common failure of denying the existence of some well established pronunciations which they did not use themselves (a failure which may still dog some researchers); and in any case [y:] may only have been a diaphonic variant. Having sifted and assayed the evidence for and against and in between, Dobson (1968:711) concludes

> "In the lack of proof I prefer to accept the evidence in favour of [y:] and to believe that there was a variation in pronunciation which causes the variation, and in some cases ... the confusion, in the evidence."

But Chomsky & Halle (1968:252) refuse to be drawn into what they call the

> "involved question of whether ME had the sound [ü], but shall assume that this was not the case and that all English reflexes of foreign [ü] coincided with the contemporary reflexes of ME /ēw/."

Earlier, Zachrisson (1927:79) had maintained that "The early new English pronunciation of [ju:] in *use, new* and *few* is a very difficult and much debated problem." His suggestion was that in the 16c and 17c the reflex of ME ēu was commonly pronounced as ['iu i'u ju], possibly also as [i'ü jü], but with no conclusive evidence for [y: yu iy:].

What is incontrovertible and important, to take up the point made by Dobson about variable pronunciations, is that in words borrowed from French with [y:], the vowel was most likely modified in different ways by those using such words. Some groups of speakers will have retained the original vowel; other groups may have seized on either the rounding or the fronting as being the feature to imitate. The latter occurrence may have happened in conjunction with changes in stress from the French pattern to stress on the first syllable, consequently producing a short vowel. Wyld 1920 has shown from extant spellings that in words like *fortune, value*, stress shift had occurred. (Thus *lecter* 1526 for *lecture*). By the 16c both forms coexisted. But in the 17c the form with stress on the relevant vowel had disappeared and with it the scope for a glided form.

We also have evidence for this stress shift and vowel change in sporadic lexical items, which predated the emergence of the glide in this context. While such spelling evidence may be idiosyncratic, and erratically so, forms like 15c *argament* suggest that what appeared to have been later glide loss (as in *edicate*), may really have been the successor of an earlier vowel reduction. It is the evidence for, and interpretations of, the main body of glide loss which concerns us next.

1220 Variation in the new glide

In the next stages of the progress of the glide are the beginnings of the variations in its realization. No sooner had the glide been established than it came under attack from linguistic sources buttressed by social effects. Overall three main aspects may be discerned.

(1) the tendency for /Cju/ to become /Cu/

(2) the coalescence of certain consonants with /j/

(3) the restoration of the glide in some environments

Besides the reasons for the synchronic changes in variants of the glide (gliding, degliding and coalescing), there is also the diachronic question of why loss began and progressed across PCs in the way it did. In terms of preceding consonants, the glide was lost first after /Cr/ and /Cl/. But other parts of the system of initial clusters were involved and these will now be examined.

1221 Phonotactic constraints and loss after /r l/

In order to explain the underlying reasons for the loss of the glide in environments like these, Cooley 1978 drew attention to the role of surface phonetic constraints (SPCs). These, she suggested, can both facilitate and impede sound changes. Aware of the fact that certain phonological changes have resisted satisfactory explanations, she feels that our intuitions may be a factor. A surface phonetic constraint states specific restrictions on possible combinations of phonetic features and possible sequences of phonetic segments. We must bear in mind that languages have accepted sequences in the past which are no longer part of their current phonotactic system, and which do not form part of the intuitive resources of

a speaker with that system. In English, certain initial clusters which used to be acceptable, like /hl hn hr/ are no longer so, with /hw/ almost extinct. If change leads to an unacceptable sequence, uncertainty and instability result. In order to resolve the disequilibrium, there is either additional phonological change, or there are alterations to the SPCs.

During the 16c and 17c, three rules (R1 - R3), were added to English phonology.

(R1) the emergence of the palatal glide [ju] from [lu],

(R2) the deletion of the velar stops [k g] word initially before [n],

(R3) the deletions of the palatal glide after coronal consonants.

These were optional in some contexts and obligatory in others.

Hill (1958:74) had already intimated that R1 and R2 may have been related.

> "There is thus an interesting hint of language history in the present position of nasals in the clustering pattern. It is possible, though unproved, that the loss of /kn-/ and /gn-/ is connected with the development of new clusters like /myu-/."

Hill allocated the consonants to different (initial) positional classes (pc).

Table 13-01
Initial positional classes of consonants in ModE

pc1	spirants or fricatives	f	v	
		θ	ð	
		s	z	
		š	ž	
pc2	stops, affricates, nasals	p	b	
		t	d	
		k	g	
		č	j	
		m	n	ŋ
pc3	approximants and /h/	r	l	
		j	w	
		h		

Four constraints (C1 - C4) govern their use in initial clusters.

C1 All clusters follow the order 1 2 3 of the pcs above.

C2 Not all positions have to be filled.

C3 If there is a triple cluster, the only available member of pc1 is /s/. The first of 2 consecutive obstruents must be /s/ and the second a voiceless stop.

C4 No cluster has more than 1 member from each class.

This last constraint had exceptions with restricted incidence.

e1 In pc1, /sf-/, largely restricted to specialized Greek words and prefixes.

e2 In pc3, /hw-/ which has virtually disappeared in most dialects.

e3 Also in pc3, /hj/ + /u/.

But there was also the question of /rj/ and /lj/, both of which are in pc3, breaking constraint 4. No other combined forms have been found in the subsystem of approximants. (§2103).

In relating the rules and constraints, Cooley identified R2 - the deletion of the velar stops [k g] before [n] word initially - as the focus of the problem. Its connection with the others had not generally been realized. Cooley challenged the assimilatory hypothesis of velar by nasal, and in its place offered a different explanation.

> "I suggest that the diversity of explanations for this change rises from the probability that the loss of velars resulted not only from internal pressure toward various phonetic assimilations, but primarily from an attempt to correct disruptions of phonetic constraints." (Cooley 1978:127)

When the glide /ju/ developed in place of the diphthong /iu/, new phonetic prevocalic clusters were created. Some of these like /dj vj stj/ conformed to the existing SPCs. Others did not. Those consisting of a

resonant plus the new glide, /sprj lj klj knj/, as in *spruce, lewd, clue, knew,* violated those constraints. Cooley argues that if SPCs do have a real function in linguistic structure, then we expect such a situation to be unstable. It will lead to changes. Cooley suggested four theoretical possibilities for correcting the sequential pattern.

(a) delete /j/;

(b) delete the first resonant,

(c) or alternatively reassign it to a different positional class;

(d) change the SPC.

It was suggested that the nasals were reassigned elsewhere. This caused rule 2, which deleted stops before nasals to come into operation. Thus sequences like /knj- gnj-/ were dropped. This still left clusters like /rj sprj/ in a state of violation. They were rescued by the intercession of rule 3 - the selective deletion of the /j/ glide after coronal consonants.

The arguments here only apply to word initial position. If the sequences are to apply medially the clusters have to be tautosyllabic. Otherwise a relatively rare survivor like *exude* with /-gz$j-/ will represent an example of clusters last stand. I now explain why rule 3 was selective.

In the case of /r/ the reasons for it being the first to lose the glide are articulatory and lexical as well as systemic. Appendix 7322 which gives a list of typical /r/ words shows that of those noted, about % involve a clustered /r/. These are word initial or morpheme initial. Some, in addition, were of French origin with [y(:)]. This conjunction of disfavourable circumstances clearly conspired to cause the glide to disappear first in this preceding consonant. From a social point of view, it may have been that the many unschooled were in the forefront of glide loss.

Analogy may have helped the early erosion of the glide with /l/,

occurring in tautosyllabic clusters, particularly when word initial. The change was not necessarily extended to all words by all speakers, and may have persevered over a few centuries, not least because of the greater number of items, (at least 4 times as many as */r/*). The word *blue* is now always degilded. Yet the first edition of the *Oxford English Dictionary* (1887: vol 1:942) explains that

> "In pronunciation, nearly all the dictionaries still recognize (blˈū), but the more easily pronounced (blū) is general in educated speech."

Influence from /Cl/, meant that the glide began to be lost after plain /l/. *Valy* for *value* occurs in 1642, so it was sufficiently well established for Ledyard 1725 to note its loss. But there was social resistance. Towards the end of the regency period, Smart 1836 edited a new version of the 18c pronouncing dictionary of Walker. In it (*op cit*: x), Smart castigated as vulgar, the glideless pronunciation of words like *lute, lucid, lunatic*. Later, Alford 1864 was rather more specific. He described the glideless pronunciation as

> "an offensive vulgarism, most common in the midland counties, but found more or less everywhere."

In the present century Fowler had concentrated on this area with respect to standard pronunciation. In both editions of his guide, it was emphasized that to pronounce the /j/ after /l/ was formerly *de rigueur*, "or the speaker was damned in polite circles" (1926:335; 1965:484). The earlier version, embodying a personal view, was that the omission of the glide was slowly but surely displacing the pronunciation with it. In the later edition, while the omission of the glide after /l/ (and /s/) was held to be on the increase, it was now suggested that this may be due to the influence of the USA. But there was uncertainty as to what governed the progress of glide loss. Inconsistency appeared to rule. In the clustered *conclude* and *recluse*

the glide had been lost as expected. Yet items like *dilute* and *prelude* kept the glide; while *delude* and *allude* were wavering. Dealing with the disappearance of the glide in this PC, Potter (1969:20) exemplifies its absence with *absolutely*. "The *j* has gone ..., and this is obviously the pronunciation of tomorrow." And he points out that young people (iconoclastic and innovative as ever), even used the spelling *loony*. (The *OED* dates this to the final quarter of the 19c.

1222 Cju > Cu after the alveolars /t d n/

The distinction between fuller and reduced forms of the vowel becomes evident in many words deriving from OF /y/. In the context of these examples, and because of the uncertainty over pronunciation, ME [y:] is to be taken in stressed syllables, as meaning either [y:] or the variant [iu] later to become [ju]. But if the syllable in which it occurs is fully unstressed it becomes [ɪ]. This later weakens to shwa, especially before <r>. Dobson (1968:850-855) has examined the evidence of the orthoepists. They provide many examples of this distinction. What is important are the implications for the analysis later of the role of stress in variation; and also the converse, the existence of extensive categorical subenvironments.

In syllables not immediately preceding the stress, for instance in *multitude, spiritual*, [y:] is usual in Robinson 1617 and Hodges 1643. Before final <-r> (or in derivatives of such words), like *creature, venture, natural, measure*, contemporary evidence is more fluctuating. In syllables immediately following the stress, variation between [y:] and [ɪ] (or shwa) is common. *Lecter* is attested as early as 1526. Bullokar 1580 representing the vulgar speech of his time, states that as a general rũle <-ure> is pronounced with shwa and final /r/. He does have some transcriptions showing [y:r], but

Dobson (*loc cit*) attributes these to the influence of more correct speech. The variation in this environment takes on a more noticeable social dimension, since it is largely identified with the vulgar pronunciations of the 16c and 17c, It affects not only words adopted in ME but also later borrowings which have been anglicized on the model of older adoptions. There is variation between orthoepists. Again there is intra individual variation extending in some commentators to variation within words. There is chronological variation as we move onwards from Hart 1569, always with [y:], via Robinson 1617 normally [y:] but with shwa in *venture*, Hodges 1643 normally [y:] but with shwa in more words, to Cooper 1685 where all <-ure> words have shwa. There is social variation in that Bullokar 1580 shows shwa as his more usual form, that is the variant of the lower orders. Hodges and Cooper while avoiding pronunciations that are evidently vulgar, provide evidence in their homophone lists, which are based on vulgar speech. Thus pairings such as the following appear - *gesture, jester; lecture, lector; pasture, pastor; tenure, tenor.* Pyles (1971:190) gives as an example, a couplet from 'Verses on 2 celebrated modern poets' by Jonathan Swift:

> If this to clouds and stars will venture
> That creeps as far to reach the centre.

In words like *mutual, particular, fortune, continue*, where OF /y/ is not followed by <r>, the sound is normally represented by ME [y:]. Yet there are examples here of reductions to [ɪ] and shwa: 16c *monlment* (Spenser *The faerie queen* 2, 7:5), and 1655 *continlal.* Cooper 1685 in his English text describes such reductions as 'barbarous speech', but his Latin maintains that it is 'facilitatis causa'. Prins 1974 provides evidence of glide loss in the 18c after the coronals /t d n/ from Ladyard 1725 and Scott 1768. The *Pronouncing dictionary* of the latter suggested that dropping the glide after

the stops was considered fashionable. Indeed in the 18c conservative pronunciation kept an unpalatalized /t/, followed by shwa.

The predilection for prescription and correctness in language became evident again in the late 18c and 19c, especially after the end of the Napoleonic wars. Again like the mid 17c, there was a period of postwar turmoil, reconstruction and opportunities for social mobility upwards. Concomitant with the movement was the need to be accepted in politer circles, and how correctly you spoke was of importance to many. Wyld 1920 gives the example of Walker (b 1732). His *Rhetorical grammar* 1801 maintains that polite speakers say *educate* with a glide: the older form was ['ɛdikeit]. Yet as K Phillips (1984:136) confirms, there is literary evidence of a tradition of word and morpheme initial glideless pronunciation among the dandies of a previous generation. Selecting from Thackeray and Dickens with their orthographic convention of ‹oo›, he gives the following examples.

> (1) Thackeray *Pendennis* (1849-50) ch 16, 19.
> Major Pendennis, described as a dandy grown old, is quoted as saying 'the course for us to pursoo' and 'a doosid deal'.
>
> (2) Dickens *Little Dorrit* (1857) ch 21,
> Edmund Sparkler, (enjoying a suitable surname for a man about town), refers to 'a doosed fine gal'.

Deuced seems to have been a fashionable lexical marker. Now, dandified men about town are absolutely characterized by other distinguishing shibboleths.

Loss after /t n/ is also mentioned with reference to a 19c native of Liverpool. Krapp (1925:155) cites Lord Frederick Hamilton. In his book *The days before yesterday* 1920, Hamilton recalls that Gladstone used bare [-Cu-] in words like *constitutional, news*. Gladstone was born in 1809, long before the Irish influx into Liverpool. The circumstances of his family and birth may have reflected an acceptable pronunciation of the time, even if it was provincial. It is instructive that Hamilton saw fit to comment on this kind

of pronunciation, since in the final quarter of the 19c, Anon 1879, as prolific as ever, advised against the pronunciation of *duty, due* without the glide. But Gladstone was also conservative in keeping postvocalic [r], and liberal in his use of it.

Glide loss after shwa or even a non existent vowel occurred in other environments, and in earlier times, such as 15c *argament* and 1677 *miracllous*. Dickens in *Pickwick Papers* 1836 provides an example for /g/ (occurring after tonic stress) for Sam Weller.

"Ven a mans wery poor ... and eats oysters in reg'lar desperation."

1223 Coalescence: Cju > Ču

A prominent feature of the changes taking place at the beginning of modern English were the assimilations of pairs of consonants, leading to an additional point of contrast in the consonant system. As Gimson (1980:164) has observed with reference to /t/,

> "The alveolar stop contact is particularly sensitive to the influence of the place of articulation of a following consonant."

The first orthoepistical evidence available comes from a Robert Robinson (difficult to identify precisely). The *Art of Pronuntiation* 1617 shows the development of [sj] and [zj] medially before unstressed vowels to [š] and [ž]. However contrary to expectation and according to Dobson 1968, the coalesced variants depend on the development of a glide [j] and not the development of [iu] to [ju], since medial unstressed /i/ before a vowel normally becomes [j] if the following vowel is unstressed. While Robinson epitomizes a recurring predicament among teachers and academics - "he was poor and lived as a schoolmaster" (Dobson 1968:201) - he was from London and had had a good education. Later, Cooper 1685 says that the use of [š] in stressed syllables,

such as *sure, sugar* is (again) 'barbarous speaking'. His Latin text (again) uses 'facilitatis causa'. Strang (1970:116) dates the use of the assimilated form /š/ for /tj sj/ to the closing years of the 16c. This occurred in a number of following environments, (eg *nacion*). As Strang points out, Shakespeare scans endings like *-tion, -cion*, with 1 or 2 syllables. But the disyllabic form must by then have been rather old fashioned. Its relevance here is in the effect on words like *sugar, sure*. Wyld 1920 had collected examples of spellings which reflect this pronunciation. The earliest instances of [sju- > šu-] are from the late 16c and middle 17c. *Suit* was represented by *sheute* in the 1590s; *shulte* 1653, *shut* 1654. For *sure*, there is *shur* 1642, *shewer* 1657, (*op cit*: 293). It must only have been about three decades or so since the appearance of /ju/ in the advanced standard, as dated by Dobson 1968, that the assimilated variant appeared. Cooper 1685 gives [š ž] as the pronunciation used in such common words as *pressure, measure*. He notes that [sj zj] were less usual, [šj žj] least so. The dating of these changes is at variance with that given by Schlauch 1959. There she states that in the 15c, /t d/ began the process of palatalization which eventually produced [č J]. "How far the process had gone by 1500 or thereabouts, it is hard to say" (*op cit*:48).

When the change to [š], which simply increased the functional load of an already existing phoneme, was fully established, it was paralleled in the 17c by the assimilation to [ž] in the corresponding voiced sequences, eg in *measure, usual*. This new phoneme filled a gap in the phonemic structure. At first because of the circumstances of its origin, it was confined to medial position. Subsequently it has been extended to final position in loan words, where it alternates with [J], as in *garage*. However it has never become word initial. So for the PC /z/ the coalesced variant [ž] does not

appear word initially. But its functional load is not heavy (app 7334). Comparable assimilations produced /č/ from /tj/ later in the 17c; and /j/ from /dj/ in the 18c, eg *gradual*.

1224 Restoration of the glide

Purists never approved of the coalescing pronunciations, and they have had some success in restoring the glide. The 19c saw it restored in words where [š] had been usual, like *sewer* (= a channel for discharge). *Chambers dictionary* (ed Geddie) 1959 noted the old fashioned form [šɔ:], but gave the modern pronunciation as variably glided. *Supreme* has changed from [š] to [s]. Strang (*op cit*) maintains that the corresponding voiced sound [ž] has survived better, but suggests that /zj/ is sometimes restored in *casual*. The 19c also largely removed the /j/ from other sequences like *immediate, idiot, odious* and *Indian*. The latter has a relic as Strang 1970 notes, in *honest injun*. For the glide plus back vowel, there is variation in some dialects between word initial [dju-] and [ju-]. But not in RP where the former is used. Strang also notes that the voiceless member of the pair [č], has proved more durable. This statement is made on the basis of items like *feature, nature*. It is possibly the consequence of citing such a productive morpheme, which occupies an extensive part of the /t/ inventory. The impact of categorical subenvironments is made clearer in the analysis of my results in chapter 5.

1300 Summary

In table 13-01 I identify three broad divisions in the historical development of the /Cju/ sequence, together with the names that Wells 1982 has given to divisions 2 and 3a. They contain the more important subdivisions concentrating on the preceding consonants in the context of broad dialectal and idiolectal divisions. Some are lateral rather than sequential. First there were the many stranded contributions from OE and OF which led to the existence of the /iu/ diphthong in early ME, and its subsequent mutation as a result of shifting stress to /ju/. Soon after this there began in conjunction with the preceding consonant, the process of glide disappearance. This was effected in a pair of ways. The glide was either dropped, a process which has gone further in some dialects than others. Alternatively it was absorbed into the preceding consonant, modifying it from [+ant] to [-ant]. In some dialects the second and third divisions may overlap. The emergence of what I have referred to as *subenvironments*, within the environment of the preceding consonant, is obvious. Many of them by now are categorical in their use of a variant.

The native sources underwent the transmission eu > iu̯ > j̊u > ju. But the last stage was not consistent for every preceding consonant. The liquids were most at risk. Incompatibility within the subsystem of approximants coupled with the other phonotactic constraints of initial clustering (which were a part of a wider process), conspired to bring about a rapid initiation of glide loss (EYD). Others like /t d s z/ underwent glide change in different directions. LYD (later in the sense of reaching its widest spread) began at about the same time as EYD, but in the other realm of vocabulary, the recent imports from France. This time it was no longer the

frictionless continuants which were affected, but other alveolars; and with a bidirectional change. Here the main subenvironments favouring change are word initial position and items borrowed from French with /y/, in conjunction with their regularization by shift of stress from the relevant syllable. The choice of variants in opposite directions was most evident in the unvoiced pair /t s/. The progression for <-ture> may be represented by

$'ty(:)r > 'St∂(r) > 'S$č∂

When there was change in the voiced pair /d z/, it was in disparate directions - coalescence and loss. Glide restoration by the hands (and mouths) of purists became conventional in the 19c, both in this country and in the eastern USA, (showing similarities with the restoration of /-ɪŋ/ in present participles). But this convention does not appear to have extended to the rapidly urbanizing lower sectors of society. So for the set of coalescents, where variation was possible, gliding became the prerogative of RP and its imitators; while coalescence and to a lesser extent glide loss, were the preserve of the basilects.

We may note a possible extension of division three. It was observed in the recordings made for this study that a movement towards a post alveolar or even alveolopalatal articulation was occurring, with the consequent effect of glide assimilation. This is introduced as a tentative division 3b.

There is a feature which has not been prominent so far in this discussion. It is the size of the lexical inventory for each PC. This has influenced the duration of the transmission of glide replacement. What has been omitted from the chart is any lexical and subenvironmental distribution within some of the PCs listed above. Chapter five will elucidate this, and the appendices exemplify it.

Table 13-01
Development of variants of the /Cju/ sequence

Division	1	Emergence of glide			
1a		OE V:w	→	/lu/	
		OF V(V)	→	/lu/	
1b	Stress shift	/lu/	→	/ju/	
Division	2	Erosion of glide			
		Cju	→	Cu	
2a	Early Yod Dropping			/Cr r Cl/	all dialects
2b	Later Yod Dropping			/t d n s z l θ/	some dialects some speakers
2c	Generalized Yod Dropping			most PCs	East Anglia
Division	3	Assimilation of glide			
		Cju	→	Ču	
3a	Yod Coalescence			/t d s z/	many British dialects
3b?	Post alveolar articulation			/n l/	a few speakers
Division	4	Permanence of glide			
4	Non coronal retention			labials, velars	

s e c o n d s u b j e c t

CHAPTER 2

THE /Cju/ SEQUENCE

THE LINGUISTIC VARIABLE

AND LEXICAL DIFFUSION

2000 Content of chapter

The second chapter covers some of the topics pertinent to the palatal glide, and its loss both by preceding consonant and across the lexicon. Consequently the sequence /Cju/ is described phonetically and phonologically. Conflicting views on the place of /j/ in the system of distinctive features are examined, as well as its place in the subsystem of approximants. The idea of and criteria for a linguistic variable are discussed, and circularities in its definition examined, together with the place of the sequence translated as (yu), in east Anglia and in Liverpool. Finally the concept of the lexical diffusion of sound changes is examined. This raises the question of the origins and locus of change, which have a bearing on the transmission of glide loss. Lexical diffusion can occur on a macro level across all 17 PCs; on a mini level within a PC; and on a micro level within subenvironments. Dispersion also takes place across idiolects and dialects.

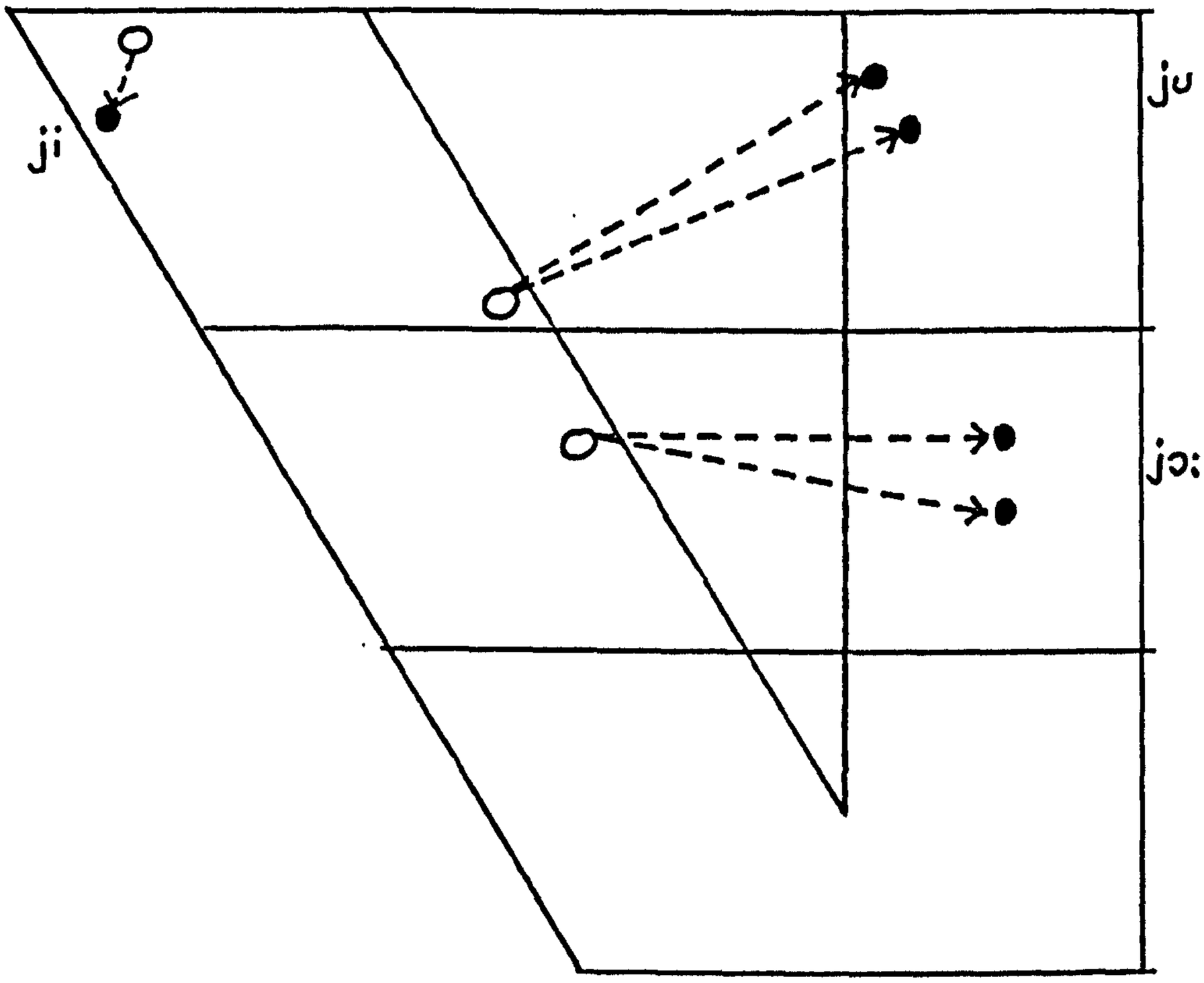
2100 Phonetic and phonological aspects of /Cju/

We shall look at the components of the /Cju/ sequence from both phonetic and phonological standpoints. Besides the glide itself we identify the consonants which can precede it, and also the nature and variants of the following vowel.

2101 Consonantal and vocalic features of the glide /j/

While Roach (1983:50) and Ladefoged (1982:61) prefer the term *approximant*, a glide may be basically interpreted as a transitional sound when the vocal organs move towards or away from an articulation (Crystal 1985:137). However classificatory difficulties can arise with borderline sounds. In the palatal version the front of the tongue articulates with the hard palate (Gimson 1980:34). Phonetically it is more properly treated as a vowel glide on to a syllabic sound of greater steady duration (*op cit*: 35), yet it is usually included in the consonantal category on functional grounds. The phonemes of a language usually fall into 2 classes. There are those which are typically central (or nuclear) in a syllable, and there are those which are noncentral (or marginal). The glide functions in English as a consonant, being marginal in the syllable. The consonantal function of the palatal glide is emphasized by being preceded by the preconsonantal form of the indefinite article; *a* rather than *an*. There was a 19c prescriptive predilection for the second form. K Phillips (1984:137) cites the opinion of Savage 1833 (using *vulgarism* as part of the title of his book), that the use of the indefinite article in the form *a European* was vulgar. Savage stated that he preferred *an European*.

Fig 21-01
Vocalic allophones of /j/ (after Gimson 1980:213)



2102 Acoustic features of /j/

Painter 1979 interprets the glide as a starting point for the rapid movement to the tongue position for the following vowel. The point at which the essential vocalic glide begins depends on the nature of the following sound. Thus the glide of /j/ to /i/ in *yeast* has a closer beginning than that of /j/ to /ɔ:/ in *yore*, fig 21-01. When /j/ is followed by a back close vowel as in *you*, the starting points need not be as close as in the first example, and the lips may anticipate the rounding of the [u], if rourding occurs. The acoustic features of /j/ are similar to those of /i/, especially with regard

to formants 2 and 3. Gimson (1980:211) suggests that the steady state of /J/ is very short, in the region of 30 ms , compared with /l r/ where it is twice as long, (Painter 1979:21). The F1 starting point of the /J/ glide is similar to /l/, about 240 - 250 Hz . F2 is within the range 2280 - 3600 Hz. depending on the following vowel (compared with /l/ at 2250 - 2900 Hz). The transition duration of F2 is in the region of 50 - 100 ms . F1 is the same or shorter.

2103 The subsystem of approximants /l r w J/

The palatal glide combines more readily than any of the other approximants both word initially and word internally. Taking /l r w J/ as post initials, the distribution of each can be seen in table 21-02, where * indicates a non occurring form. The most typical environment preceding the approximants consists of the stop consonants. But while /J/ has a wider distribution than the other approximants, it is normally restricted to a following /u/. Of my 16 consonants, /r/ is missing from the list as it is no longer associated with the glide. The final trio of /m n l/ has a special significance. Approximants do not cluster with each other, except for /l/ and /J/. But glide loss in /l/ is now so widespread as to be virtually non existent, except after tonic stress. It is accompanied by loss in /n/ in English urban dialects, and it appears to be making inroads in /m/ in word initial position for some speakers. If the latter presages a continuing phenomenon, then the reduction and possible disappearance of the glide after /m n l/ will bring it into line with the other approximants for these three environments.

In addition to the simple consonants, Roach (1983:60) and Rockey 1973 give the clusters /sp st sm sk/. This distinction is useful in view of

the categorical subenvironments revealed in the Liverpool tests. Also as my illustrative word lists in appendices 7311 to 16 show, there are wide variations in the lexical inventories of the preceding environments. The examples exclude proper names (*Zwicky*), or cross morpheme clusters (*earthling*) and reductions (*ev'ry*) where different syllables are involved.

Table 21-02
The subsystem of approximants /l r w j/

	l	r	w	j
p	play	pray	*	puny
b	black	bring	*	rebuke
t	*	tray	twin	tune
d	*	dray	dwell	due
k	clay	cray	quick	cue
g	glaze	grey	Gwen	ague
f	flay	fray	*	few
v	*	*	*	view
θ	*	throw	thwart	enthuse
s	slay	*	sway	sue
z	*	*	*	zeugma
š	*	shreik	shwa	issue
h	*	*	*	huge
m	*	*	*	music
n	*	*	*	newt
l	*	*	*	lewd

2104 The palatal glide in terms of distinctive features

However descriptively accurate an articulatory approach may be, a treatment using distinctive features will more succinctly capture the essence of describing and accounting for the environments favouring glide loss, coalescence (or indeed appearance), particularly if /j/ can be shown to be [+cor]. We must first establish the place of the glide [j] in terms of the

class features [coronal] and [anterior]. Despite the fact that, as Smith 1989 points out, later phonological theories (such as autosegmental, see Halle, Bresnan & Miller 1978), have moved away from the classic theory described in Chomsky & Halle 1968, particularly in the reliance on binary distinctive features, they all need a construct equivalent to the feature [coronal]. While it is uncontroversial that [j] and the other palatals are [-ant], there is some disagreement over their relationship to [coronal]. From an articulatory point of view, the palatals are intermediate between the [+cor] alveolars and palato alveolars, and the [-cor] velars. Jakobson, Fant & Halle 1951 characterized palatals as [-grave], which Smith 1989 claims corresponds exactly to [+coronal] in the Chomsky & Halle system. But those authors in *The sound pattern of English* categorized the palatals as [-coronal]. This approach was adopted by others such as Hyman 1975, Ladefoged 1982 and OConnor (1973:206).

2105 The palatal glide as [+cor]: evidence from Ewe

Evidence for the allocation of [j] to [+cor] may be found in Ewe [èβè], a Kwa language spoken in Ghana. In his classes in phonetics and phonology for the MA course in Applied Linguistics at UNCW Bangor (860204 & 11), Dr Frank Gooding set the example of the Ewe liquids as an exercise in deriving the rule governing the distribution of [l] and [r] in terms of classes of phonemes. Ewe allows CLV and CGV as initial syllables. In the former case [l] and [r] are in complementary distribution. To illustrate the argument some words are taken from Ansre 1961. (Diacritics mark tones.)

[blávè]	twenty	[sro]	horse
[ló]	crocodile	[adre]	seven
[kɒlé]	and	[tré]	calabash
[fle]	to pick	[dru]	to be bent
[φle]	to buy	[dzre]	to quarrel
[èβló]	mushroom		

[r] only occurs after [+coronal] consonants. [l] occurs everywhere else (including word initial). What happens after palatal consonants? Ewe has a pair of palatal consonants: the glide [j], and the nasal [ɲ]. These occur clustered.

[jre]	evil	[ɲrẽ]	to sharpen
[jrá]	to bless	[ɲrã]	to be wild

If we assume that the distribution of these sounds is determined as simply as possible, and since both palatals pattern with [r], they must be members of the same set as those in the second column of the first batch of examples. That is, the set of coronals. Therefore [+coronal] includes rather than excludes the palatals. Loanwords prove the rule and the Ewe adaptations confirm it.

German	Krug	>	Ewe	kplu	jug
French	Paris	>	Ewe	kpall	Paris
Portuguese	claro	>	Ewe	klalo	finished
Danish	trappe	>	Ewe	atrakpoe	steps

Thus Ewe sometimes has [l] where the donor language has */r/*. The distribution of [l] and [r] in Ewe follows the allocation of consonants by distinctive features outlined above.

2106 The palatal glide as [+cor]: evidence from physical sources

More recent investigations by Recasens 1990 lend support to the allocation of the palatal glide to [+coronal]. In his survey of the phonetic characterization of the palatal consonants, he used data taken from x ray, linguographic, and (electro) palatographic sources. These data led him *inter alia* to a pair of suggestions relevant to the categorization of the glide.

(1) The production of the palatal consonants may involve a greater degree of articulatory precision than was previously assumed, especially the use of the external tongue muscles.

(2) A finer classification is consequently needed to take this precision into account.

Recasens identifies four classes of palatal consonants, as opposed to the traditional pair of zones. These four are the alveopalatals, and the front, mid and back palatals (or pre, mid and post). Thus the fricative [š] and the affricate [č] are identified as prepalatal; while the nasal [ɲ] and the liquid [ʎ] are mediopalatal. With regard to the glide, linguograms and x ray data reveal that [j] is mainly articulated with the predorsum and/or the mediodorsum according to whether the constriction is more or less fronted. Recasens concludes that the glide is mostly pre and medio dorsopalatal.

> "Tongue dorsum effects are smaller for [n] in the cluster [nj] than for [ɲ], and for [l] in the cluster [lj] than for [ʎ], since a [j] component is available in those clusters". (*op cit*:275)

2107 The implications of /j/ as [+cor]

Allocating [j] to the feature [+coronal] facilitates the explanation of glide loss or coalescence. If the glide is likely to be a front as opposed to a back palatal, like the prepalatals [š č], then it will be allocated to [+cor]. If it is in this sector, then it may provide an articulatory explanation why it does not appear after /č j š ž/ (except in careful speech after the continuants), since the transition between them and the glide is so minimal as to be negligible. It also helps to explain why the coronals such as /t d n/ and especially /l r/ are susceptible to glide loss or replacement.

2108 The back vowel /u/

Initially I suspected that allophonic variants of the back vowel /u/ may have been allied with certain aspects of glide replacement. As it transpired from the recordings, this idea nearly expired, with the exceptions of the fronted version for some of the broader Scousers, and for post tonic shwa.

Both Gimson (1980:121) and Wells (1982:147) describe RP /u/ as a relatively long back close vowel. The raising of the tongue is relaxed from the closest position, and it is rather advanced from the true back. It shares a relationship with /ω/ which is similar to that between /i/ and /ɪ/. The articulation of /u/ is tense compared with that of /ω/. No firm contact is made between the tongue and the upper molars, and the lips tend to be closely rounded. In terms of the cardinal vowel #8, the quality is that of a relaxed, lowered and centralized [u]. Gimson has also suggested that the absence in English of any opposition between /u/ and a front close vowel like [y] is an important reason for the relaxation and fronting of this phoneme from a true back position. In addition, as he has pointed out (*op cit*:122), when /u/ is preceded by /j/, the palatal nature of the glide normally entails considerable centralization of /u/. Wells (*op cit*) feels that a back quality is generally more indicative of a conservative type of accent, and fits more exactly with elocutionary norms of beauty. He states that /u/

> "is often somewhat centralized, even to the extent that there is no perceptible difference between the allophone used in the environment /j__/ and the phonemic norm." (1982:294)

This is corroborated by Bauer 1985. He refers to RP /u/ as it is generally described in the 20c, in relation to cardinal vowel #8, as being lowered by a small amount and advanced, with a much fronter allophone after /j/. Bauer has found that /u/ is being fronted in RP to a far greater extent than is

generally mentioned in the literature. He maintains that there is structural variation within the pronunciation of /u/. The main axis of this variation is front to back. His research indicated a tendency for female speakers to use a fronter /u/ than males. But as he admits, this is not necessarily conclusive, since his female informants were generally younger than the males. The decisive factor may be age rather than sex. But in the London region, centralization is a characteristic of the dialect, both popular and modified. Extreme centralization among RP speakers is inhibited to some extent for social reasons.

Gimson (*op cit*) has noted that a type of [ʊ] is to be heard in many forms of Scottish English as a realization of RP /u/ and /ω/. Wells (1982:148) says that many accents have a definitely central rather than back quality for /u/. For examples, he gives (In addition to most English popular urban speech), that of Scotland and Northern Ireland; the southern hemisphere; and the southern United States. Centralization and unrounding is also a feature of more advanced Scouse speakers.

While phonetically [u] is a relatively long close back vocoid, it is often associated with some degree of diphthongization. The centring diphthong /ωə/ can be used. This has coalesced with /ɔ:/ for some speakers. (See §3034). Gimson (1980:212) says that when /j/ is the final element of accented clusters, only /u/ or /ωə/ may follow, as in *pew, cure*. In unaccented clusters /j/ may be followed by /u ω ωə/ as in *argue, opulent, tenure*. If the vowel is weakened to shwa, there may be a loss of the glide, in environments like /k/ where loss is not the norm.

But consideration of /j/ and /u/ separately does not reveal the complexity of the combination.

2109 The conjunction of /j/ and /u/

OConnor (1973: plate 10) has a spectrogram of [ju]. But there are differing opinions about the phonetic interpretation of the glide plus vowel, and also some disagreement as to its phonological role in English. These differences may however only be superficial, as the interpretations depend on the point of view of the commentator. From a purely phonetic standpoint, the similarity of syllable initial [j] to the front vowel [i] is obvious from its diachronic development. As indicated in §1212 and §1213 the historical change from [iu] to [ju] representing a change from less vocalic to more consonantal has been largely unidirectional and for this reason, as Ladefoged (1982:78) has admitted

> "many books ... treat it as a sequence of a consonant followed by a vowel and symbolize it by [ju]."

But as he additionally states, he prefers to consider it as a diphthong. This is for both phonetic and phonological reasons. First of all [ju] differs from all other diphthongs with /j/ in that the more prominent part occurs at the end. While the majority are syllabic in the first position with a glide second, /ju/ is distinctive in that it is a rising diphthong. A characteristic of Welsh English is that it treats the glide more as a vowel [i], and produces a diphthong of the falling type, where the first element is more prominent than the second. Generally speaking as Knowles 1987 has indicated, in other diphthongs the degree of difference in aperture size between both elements is quite marked. With /j/ and /u/ the aperture sizes are approximately equal. The fact that it is rising makes the evaluation of the presence of the glide more difficult. Secondly Ladefoged considers [ju] to be a diphthong because of the way it patterns in English. If, he says, it is not vocalic, then we are forced to admit a large series of consonantal clusters in English that can

only occur before a single vowel - that vowel being /u/. "There are no English words beginning with /pje/ or /kjæ/." (*loc cit*). Thus with regard to the distributional properties of English sounds, Ladefoged finds it simpler to recognize /ju/ as a diphthong. This results in a reduction in the complexity of statements about the English consonantal clusters.

The idea of the syllable is very real to native speakers and many non native speakers, even if they cannot explain exhaustively what a syllable is. The idea of the syllable is very real to phoneticians and many linguists, even if they have not yet found a satisfactory definitive definition. The idea of the syllable is useful as an explanatory variable for glide use even if it is difficult for a researcher to delimit from recordings their boundaries.

Attempts at the definition of a syllable focus on a pair of approaches - the phonetic and the phonological. For a wider discusion see Crystal 1985, Gimson 1980, OConnor 1973, Roach 1983 and Hyman 1975. The theories based on phonetic information aim at providing a universal definition valid for all languages. A phonetic syllable has three parts: the onset, the nucleus or peak, and the coda. The theories refer to articulatory, auditory, or acoustic features. For the first of these, the psychologist Stetson 1951, cited in OConnor 1973, suggested that each syllable corresponds to an increase in air pressure. Air is released as a series of chest pulses, most noticeable in emphatic speech. But it proves difficult to detect a pulse in certain adjacent syllables, especially when a pair of vowels is involved, as in *seeing*. So it fails to delineate satisfactorily the

boundary of all adjacent syllables. The approach using auditory features indicates that a peak of sonority corresponds to the centre of a syllable. These peaks are best represented by vowels, with consonants providing the valleys. But as Crystal (1985:298) points out

> "This approach gives a useful general guideline, but it does not always indicate clearly where the boundary between adjacent syllables falls."

More success may be obtained by looking at the concept of the syllable from a phonological viewpoint, considering the way in which sounds combine in specific languages. But as I found out in listening to the Liverpool survey recordings, expectations can colour objective judgements to the extent that deciding on syllabification for allocating the PC, becomes a circular process. Even when for phonological purposes a binary split is made, it does not facilitate syllable separation. The binary split divides the onset from the peak and coda, yet Hyman claims that

> The initial consonant onset is irrelevant in determining the phonological properties of a syllable." (1975:189)

As in the phonetic approach, it is the vowels which largely occur at the centre of a sequence of sounds, with the marginal sounds represented by consonants. But with a proviso. Hyman (*loc cit*) says that the basic assumption in phonological approaches to the syllable is that there is a close relationship between word structure and syllable structure. As far as possible, whatever sequential constraints operate at the beginning (or end) of a word, must also operate at the beginning (or end) of a syllable, even if this is word internal. This relationship does not always hold. Hyman refers to the three principles of Pulgram 1970 for determining 'syllable structure, and by extension syllable boundary. Pulgram proposed (1) a principle of maximal open syllabicity, (2) a principle of minimal coda and maximal onset,

and (3) a principle of the irregular coda. These principles are not independent. If the first is transgressed, recourse is had to the second, and so on.

The first principle inserts a syllable boundary after every vowel or diphthong in a word, thus creating an open syllable. This is simple, providing a lax vowel does not end the syllable. It violates a sequential constraint in English, as lax vowels are not allowed in word final position. To resolve this problem, as many consonants as necessary must be taken from the onset of the next syllable and transferred to the coda of the previous syllable. A similar problem occurs if the syllable cannot be kept open because the consonant(s) which form the onset of the next syllable do not occur in word initial position. To solve this, the same solution as before is used. The first solution is exemplified in the treatment of the word *salute*. By principle (1), it becomes *sa$lute*. This violates the lax vowel constraint, so it is modified to *sal$ute*. This is where the circularity of argument is found. After discussing wide and narrow vowels, and rejecting the use of the terms lax and tense, Ladefoged 1982 suggests that they be retained to specify phonologically determined vowel sets. "In this way the set of English vowels that can occur in open syllables may be called the tense vowels...". The third principle states that if after transfers there are still irregularities on both sides of the juncture, then the burden of irregularity must be borne by the coda rather than the following onset.

In conclusion, for the sequence under investigation, /ju/ is never split between syllables, but it may or may not have a syllable boundary immediately before it. Some of the words in my reading material, were unfamiliar. Their slow and deliberate pronunciation revealed aspects of syllabification which appeared to condition the use of variants of the glide.

2200 The linguistic variable

The term **linguistic variable** (LV) was introduced by Labov in order to deal with aspects of variation. It refers, as Crystal states,

> "to the units in a language which are most subject to social or stylistic variation, and thus most susceptible to change in the long term". (1985:324)

The LV differs from older concepts, (which were treated as being qualitatively different), in the emphasis or necessity for quantification of the variables. The significance of an LV lies not so much in the fact that it exhibits variation, but the frequencies with which the variants occur. Sets of variables are described quantitatively with reference to such factors as social class, age and sex, and the results of the covariation observed may be stated in the form of variable rules. Chambers & Trudgill (1980:60) see a variable as a linguistic unit with variants involved in covariation with other *social and/or linguistic variables*, (my emphasis). This implies that extralinguistic factors are not a necessary feature in the characterization of a linguistic variable. They do go on to say that

> "Linguistic variables can often be regarded as socially different but linguistically equivalent ways of doing or saying the same thing."

With reference to free variation, they state that among the achievements of urban dialectology is the demonstration that "this type of variation is usually not 'free' at all, but is constrained by social and/or linguistic factors." (*loc cit*). Later (*op cit:147*) they claim that the variables studied suggest that

> "there is no such thing as *free* variation, and that features which vary are conditioned, sometimes by a complex of linguistic and social factors."

They further maintain that

> "variable constraints participate in determining linguistic variability, thus refuting the hypothesis that such variability is 'free'." *(op cit:144)*

From these quotations, *constrained* equals *conditioned* equals *determined* which possibly equals *caused*. These claims need to be tested experimentally. But a criticism of many of the linguistic variables which have been tested, is that they were selected partly because they were expected to exhibit bound as opposed to free variation.

Walters (1988:126) is more specific when it comes to criteria for defining a linguistic variable. In a practical sense he generalizes the features from areas of variation which have been studied. In a theoretical sense he is too restrictive, since it can be argued that anything which varies is a variable [PJS]. To qualify as a LV, Walters lists five criteria. Ideally they will be frequent so that a corpus of a sufficiently large size can be established. They will be structural units in the language. Third, their distribution has to be socially stratified. Fourth, they must be salient, but not to the extent that they are consciously manipulated by speakers. And finally, they must be quantifiable on a linear scale. These five points will be considered below, both in general and from the specific point of view of the palatal glide.

Labov had earlier (1966:49) identified some of these criteria, and had also (1972:71), given three steps to be followed in analyzing LVs. First we must enumerate the range of contexts in which the variable occurs. Then we must distinguish as many phonetic variants as is reasonably possible. Lastly we must assign each LV a quantitative index. (In the early 70s, most of the emphasis in these studies was on phonetic and phonological investigations.) Yet the criteria do present difficulties.

2201 Frequency

Since the process of analysis can be very time consuming it is advisable to concentrate on variables which occur relatively frequently and which in addition are relatively easy to identify. Hudson (1980a:141) has pointed out that "the frequency requirement tends to rule out the study of individual words", yet they can be studied in the context of appropriate word classes. For the variants of the palatal glide, the conflict between frequency and identification remains. The individual words in the environments where variation occurs are relatively easy to identify, but often they are extremely poor when frequency of occurrence in everyday speech is considered. It was found that reliance on spontaneous natural speech for examples of variable lexical items was unproductive.

2202 Structural units

Modern linguistic thinking believes that a shortcoming of traditional dialectology was that it treated linguistic forms in isolation rather than as part of a structure. Phonetic variation may be better accounted for when it is placed in the context of phonological systems. Atomistic analysis alone is to be avoided. If variation in language must be analyzed, it is preferable to incorporate it by assigning the variable to the status of a structural unit. This will put it on a par with phonemes and morphemes (if this is considered desirable), and make the LV a significant area of analysis. It is the emphasis on extralinguistic factors which marks a departure from previous theory. Chambers & Trudgill (*loc cit*) argue that

> "Such parameters not only *can* be incorporated in linguistic theory, but they *must* be incorporated if the variable is accepted as a structural unit." (*Their emphases*).

Now a paradox emerges. It emerges, as paradoxes will, as a result of

putting theory into practice. The phonological LV is usually distinguished by reference to its phonetic variants in the context of its variable constraints, but it is placed in its social context by extralinguistic parameters. It is only in the presence of the latter that the LV becomes meaningful, because it is dependent upon them and correlated with them. However Chambers & Trudgill admit that in practice the distinction between the linguistic and nonlinguistic aspects cannot always be made "because the most compelling proof of the structural significance of the linguistic variable consists in showing that the variable alters in an orderly way", (*loc cit*), when any of the independent social variables change.

2203 Social stratification

This orderly variation is reflected in social stratification. Features chosen for study as linguistic variables have been chosen because they were suspected of exhibiting such stratification. But if a LV is defined as having a distinctive profile when measured against social class, then it is no surprise to find that LVs exhibit some social stratification.

2204 Sallence

A linguistic variable has to be recognizably salient but not excessively so. Salience is to be distinguished from frequency. It is a psycholinguistic feature which is of course interpreted sociolinguistically. It refers to the level of awareness or consciousness of the particular variable. Some like (h) or (ng) are prominent in many dialects of English. Others, like the palatal glide, are at the lower end of the spectrum of awareness. We need to distinguish the socio from the psycholinguistic aspects. The main general observation that can be made about the glide in

Liverpool is that the use of the variant [- glide] as opposed to coalescence, in the alveolars /t d n/ is psycholinguistically most salient when word initial, and sociolinguistically is associated with what are felt to be American forms of speech, or the equally trendy London style. For the PCs mentioned, it is [- glide] which is prominent. For others like /s l/ the prominence is occupied by [+ glide], and may be related to careful, affected or upper social strata speech.

Psycholinguistic aspects have also been studied by Ainsworth & Paliwal 1984. They calculated the correlations between the production and perception of the four English glides /w r l j/, testing the hypothesis that a listener refers to his own articulation when perceiving speech. After measuring the F2 and F3 onset frequencies for ten speakers for both production and perception, they found that the correlations for these values were not statistically significant. Even when they employed psychophysical units of frequency such as the mel or the bark, they found no isomorphism between the production and perception frequencies. Consequently they rejected their hypothesis. This seems to confirm that broadly, the palatal glide has low psycholinguistic salience.

2205 Quantification

Given the inherently probabilistic nature of LVs, the concomitant problem of how to quantify variants arises. In constructing scales to measure variants, there is a pair of problems referred to (among others) by Romaine 1975. The first is to decide how the scale is to be constructed; the second is to consider what meaning it has. In resolving the first problem, we may distinguish 2 kinds of phonological variable, **discrete** and **continuous**. (See for example Trudgill 1974: 84-85). There are those, usually consonants,

with discrete variants; they often deal with the presence or absence of a feature, and to that extent variants can be quite distinct. Other variables, usually vowels, which may be expressed on a continuous scale, have in theory an infinite number of values. In practice they are reduced to a manageable set of discrete variants based on those which the transcriber thinks he can perceive without difficulty. For the ranking of phonetic variants a pair is selected as maximally different. If there is only a pair of variants this does not cause problems. If there are more, complications can arise. The kind of complication depends on the basis chosen for the ranking. If this basis is phonetic, it remains to be decided whether it will be interpreted phonetically from an articulatory or from an auditory standpoint. These approaches are not necessarily equivalent, so they will not necessarily produce the same partition of the scale. There is inevitably a degree of subjectivity in recognizing phonetic variants, so that different researchers may well produce different versions of a given text, as noted by Hudson 1980ab. These versions will differ not only in terms of the identification of tokens as instances of particular variants, and the phonetic transcriptions of these tokens, but also in the grouping of variants for purposes of analysis. An instance of the first problem occurred in the study of the use of the palatal glide by Phillips 1981 (§4135). Examples like this do raise the spectre of the problem of reliability.

The second point about transcription is not so vital since the ordering of the variants into analyzable groups is more important. This grouping may be decided by information about the linguistic environments in which the variable is used, as this may influence the choice of variant. The allocation of scores to the intermediate positions is easy if they are on a linear scale. Each token recorded on the discrete continuum is given a value

on the scale. For the variants in the segmented continuous range, each is allocated a value on the scale according to which of the idealized types it most closely resembles. Equal spacing of numerical values need not necessarily imply equality of spacing of variants along the 'real' phonetic continuum.

Romaine 1975 has also argued for "a more conscious incorporation of social reality into variable scales" (*op cit*:110). But when the basis of the ranking is social prestige, the same problem occurs. If the most prestigious and least prestigious forms are set at opposite ends of the spectrum, it supposes that a society or community (if these can really be identified and delineated) is organized in a single hierarchy reflected by the variants. This is not always the case. A parallel problem arose with the nongliding variants, coalescence and [- glide], in this study. It is difficult to cope with a bipolarization of divergencies on a unidirectional scale. The same numerical value represented more than a single variant. This relates to the second problem mentioned earlier: the meaning of the scale. It questions the correspondence between the selected points of phoneticians and the way in which people translate them into social judgements. If variants are to be correlated with social variables in this order, then this is putting the cart before the horse; unless of course the social variables are taken to be independent and the variants are to be correlated with them, which is the assumption usually made [PJS].

2210 Types of linguistic variable

While criteria for the recognition of linguistic variables have been suggested, these reflected the kinds of features which tended to characterize

the variables studied. Nowhere does Walters indicate the relative importance of the criteria he lists, nor does he even imply an order of relevance. This may not be too critical since the overriding factors to which the others appear subservient, are nonlinguistic or paralinguistic, viz social and stylistic correlates. There is a comparative neglect of purely linguistic covariates. Not all need to be present to the same degree. The fact that some criteria may be more prominent has led to a classification of linguistic variables.

Chambers & Trudgill 1980 discuss, largely with reference to the work of Trudgill 1974 and the 16 phonological variables he used in Norwich, three main types of LV. These are differentiated on a non linguistic basis. Variables such as Norwich (a:), with class stratification only and which are not involved in systematic stylistic variation, are referred to as indicators. Stylistic variation is related to the formality of the situation, rather than being an inherent feature of people [PJS], but see §5412 for a different interpretation based on the interviews. Trudgill found that there was marked class differentiation. The lower and middle working classes were similar, while the upper working class had an index which was considerably lower than the lower middle class in casual speech. Where both stylistic as well as class, sex and/or age variation are present, the LVs are called markers and may be exemplified by Norwich (ng). This second type is accompanied by more awareness as far as the general public is concerned. When public awareness becomes so great that the variable attains the status of a shibboleth, as with the Brooklyn New York City pronunciation of *bird* then it is classed as a stereotype. In British English (t) and (h) are approaching this stage. Thus part of the difference between indicators, markers and stereotypes lies largely in the degree of awareness they reflect.

A degree of fineness in the middle category of markers is discerned by Chambers & Trudgill (*op cit*). Using the distinction that speakers appear to be less aware of the variable that is an indicator than they are of the variable that is a marker, they ask why speakers are more sensitive to the social implications of some variables than of others. Their reply delineates three subgroups of markers. The first is where there is overt stigmatization in the community. In Norwich (h), (t) and (ng) are all the subject of unfavourable comment when nonstandard, as indeed they are elsewhere. A second factor is where a variable is involved in the process of linguistic change, inferred from age related differences, such as Norwich (o). Thirdly, a marker may not fulfil either of the previous requirements.

2211 (yu) as a linguistic variable in Norwich

What Wells 1982 has called **Generalized Yod Dropping** occurs in a large area of eastern England, both urban and rural. The glide is typically absent not only after alveolars, but also after labials, velars and /h/. Gliding is preserved after a zero consonant eg *ewe*. He suggests that due to pressure from RP, yod dropping is variable, but he does not indicate whether this variability exists in linguistic or non linguistic aspects. He does attribute an example to working class pronunciation, coinciding with the conclusions of Trudgill.

Most of the results that Trudgill has for his Norwich variables, where class and style are compared, follow a broadly similar pattern. The results for (yu) are noticeably different. While the scores of the word list and the reading passage are similar for different social groupings, (since they include the same items), the scores for the speech items - formal and casual - are not. This variable has special complicating factors which have

to be taken into consideration. While there is no overt stigmatization of (yu); no age related linguistic change involved in its distribution; and no large phonetic difference between Norwich and RP leading to stylistic variation by the middle classes, (yu) is still involved in stylistic differentiation. The reason for this lies in the importance that this variable has for the total phonological system, rather than the merely phonetic nature of the variants. The loss of the glide before /u/ encompasses environments following any possible PC. (yu) therefore has variants which are phonological rather than merely phonetic. In standard RP English, minimal pairs exist which depend for their contrast upon the presence of [j]. Examples are

lute	-	loot
feud	-	food
cute	-	coot
beauty	-	booty
dew	-	do
mute	-	moot

In east Anglia they may be homophonous, but the number of pairs may not be very large and genuine confusion in context is unlikely. Homophony is also extended in the direction of what Wells 1968 categorizes as the CURE words, where the Norwich vowel is the /ə:/ of NURSE. Yod dropping makes potential homophones out of pairs such as *pure* - *purr* and *cure* - *cur*. Trudgill suggests that by virtue of the involvement of (yu) in a phonological contrast, the attention of speakers to the alternation may be more readily attracted than with variants which are simply phonetic. Because of this surface contrast, the 2 different variants of (yu) are of more systematic linguistic significance than those variants which are subject to purely phonetic variation. This is seen as a fourth factor in the differentiation of variables. (yu) in east Anglia will tend to show the characteristics of markers. Its role in Liverpool needs to be established. (§3022).

2300 Sound change: diffusion and dispersion

A concomitant objective of this investigation was to identify those weak points, phonetic, phonological or lexical, which favour glide loss, as well as tracing possible routes for its diffusion across the lexicon, across phonological environments, and its dispersion across language users. With these objectives in mind, this section looks at some ideas on the causation and diffusion of sound change.

In the 1975 article of Chen & Wang, their stated objectives using evidence from Chinese, English and Swedish, were to investigate the twin themes of *how* a sound change implements itself and *why* a phonological process assumes a particular form and follows a particular pattern. They concluded that implementation was best accounted for by the notion of lexical diffusion. Actuation was best explained by proposing that the principal determinants of sound change are to be found in the inherent and universal constraints of the physiological and perceptual apparatus of the language user. Emphasis was on psychomotor aspects. Of the social aspect of transmission from speaker to speaker, little was said.

2310 *Causal factors*

Language change in general and sound change in particular, have been attributed to a comprehensive variety of factors or causes. Rather like the erstwhile claim of the *News of the world*, all of human life is there. Social and physical, physiological and psychological, mental and environmental aspects of the human condition have been used to illustrate or explain the act of causation. Part of the problem lies in the last concept. It is unlikely

that there is a single causal factor. While it may be possible in some areas of language to pinpoint the cause that triggers a process, the immediate factor may be less significant than the impetus provided by anterior contributory factors, which are the linguistic circumstances and propensity to change. Causation therefore includes immediate and more distant factors: linguistic and extralinguistic. The former embraces those factors which are found in the structure of a language and in the minds of speakers, and for the purposes of sound change, articulatory and physiological features. Within the latter are those features outside the language system itself, and conveniently collected under the heading social. I have shown that the first areas of loss of the glide in the /Cju/ sequence may be attributed to a combination of factors: articulatory and auditory, phonetic and phonological, lexical and social. Some are systemic, inherent and endogenous: others are incidental and exogenous. Influences can be superficial rather than deep, opaque rather than transparent, diffuse rather than specific, and immediate rather than long term.

2311 Inherent features

To pursue these deeper, transparent, specific and long term causes, we need to look more closely within a language and its speakers. We need to look at the language as a system, and the language users as beings with a capacity for creating what can be described as patterned systems. An aspect of sound change, which unites a language and its users, is that of ease, as may be found in glide loss after the coronals. The anatomical, physiological and psychological aspects of human beings find their expression in what may be universal and possibly innate phonetic tendencies. A much quoted development, because it is so widespread in different languages, is the loss

of word final consonants, particularly the voiceless stops /p t k/. In many Polynesian languages like Maori. /k/ is still retained, but in Samoan, it was replaced in all positions by a glottal stop. This is now barely noticeable (Marsack 1962). The process of attrition has gone far in some dialects of Chinese. While in archaic Chinese there was a considerable array of syllable final consonants, by AD 500 these were reduced to the nasals /m n ŋ/ and the unvoiced stops /p t k/. Since that time, the unvoiced stops have disappeared for the majority of speakers. Modern Standard Chinese has lost all trace of the final stops via the stages of non release, becoming a glottal stop, and omission of the glottal stop. But the dialects of the south east of China still preserve the final consonants: in Cantonese they are unreleased. To demonstrate the auditory counterpart of incomplete articulation, Chen & Wang 1975 tested native speakers of Chinese on their ability to make an auditory distinction between the members of the subsets of final consonants, stops and nasals. The test was carried out devoid of any context which may have helped speakers to identify the items. The words were read singly in lists. Out of 1188 nasals, 845 (71%) were identified correctly. But of the 1188 stops, only 668 (56%) were correct. This is clearly better than guessing, but it does indicate the level of difficulty in distinguishing between the three stops. In standard Chinese a consequence (apart from possible homophonic clashes) has been the overwhelming presence of the universally preferred syllable structure CV, (which together with V are the only possible syllabic types in Samoan). The potential ambiguities of homophony in Chinese have been reduced by the development of polysyllabic morpohological constructions of similar semantic content, and the phonemic function of stress, (to distinguish members of pairs of polysyllabic constructions identical in segmental structure and tones), comparable in a way to the noun and verb

diatones in English to be considered later. A pair of examples will illustrate the point. (The 4 characters are of course different).

jūnshì	['tçỹnʂì]	military affairs
jūnshì	[tçỹn'ʂì]	balance of power

The therapeutic powers of a language and its speakers to redress a potentially confusing situation are epitomized by this process in Chinese. Such developments do not necessarily immediately lead towards a more strictly patterned system. These are more obvious when the converse process occurs, as below.

2312 Systemic changes

Aitchison (1981:144) has stressed that the finite number of patterns which each language contains, enables humans to cope with their native languages so apparently effortlessly. Assimilation of patterns rather than fragmented pieces of information enables us to communicate effectively. She also dwells on the inbuilt self regulating devices which a language utilizes, and which restore broken patterns and prevent too much disintegration which has the effect of hindering communication. A language does not act on its own volition to make these changes. They are achieved by the users of the language, and they are motivated by a possibly innate need to rely on patterns and thereby impose a structure on linguistic information. While language users do not necessarily avoid problems by circumventing them in advance, they are able to respond to opportunities. On the other hand Prins (1974:80) says that unbalanced vowel and consonant systems can last a long time. He further maintains that it is dubious whether phonemic reasons are

the cause of sound changes. While he regards many attempts to assign changes in language to structural causes, as being ingenious and interesting, he claims that structural changes are mostly in the nature of secondary adjustments (1974:7). However some possible examples of this kind of therapeutic approach involve aspects of the development of the palatal glide, in the context of systemic changes in English phonology.

The tendency towards symmetry in the consonant system of Chinese has been noted. The patterning of the fricatives in English is still not yet complete. Before the 18c it was less so. In early ModE there were 8 fricatives.

[- voice]	f	θ	s	š	h
[+ voice]	v	ð	z		

The phonemic status of the volced counterpart of /š/ arose by way of borrowings from French. In addition the native combination of [z] + [j] (not only in the context of the palatal glide plus back vowel under discussion here), tended in certain circumstances to become /ž/. Part of the missing pattern was filled. A reverse process appears to be operative for /h/ in that for some lects it is disappearing.

Another instance involves the subset of approximants. In §2103 it was shown that /m n l/ combine only with the glide /j/, and not with the other three approximants. Removal of this 'anomaly' tidies up the system. It is almost complete for /l/. The process is underway for /n/, while there are tentative indications (both from the Liverpool recordings and general observation) it may be beginning in a restricted subenvironment of /m/. A further example of systemic gaps concerns the English nasals. Of the three,

/m/ is [-cor][+ant] /n/ is [+cor][+ant] /ŋ/ is [-cor][-ant].

There is a gap for [+ cor] [- ant]. Articulations between alveolar [n] and palatal [ñ] are possible. The distinction between palato alveolar and palatal is hard to make (Ladefoged 1971:40), as it is between alveolar and post alveolar articulations. Bearing in mind these difficulties, there appeared to be some evidence of an alveo palatal nasal in the Liverpool recordings. This may represent a movement towards filling a systemic gap for [+cor][-ant], in the way /ž/ filled a gap.

2320 *Lexical and subenvironment diffusion*

Arguments and evidence for a gradual dispersion of a sound change across the lexicon have been presented in Chen & Wang 1975. They were trailed in Wang 1969 and Chen 1972. The earliest article suggested that while phonological changes may be phonemically abrupt, the ways they spread (linguistically and/or socially) across the lexicon will be gradual, and not necessarily complete. A sound change may begin sporadically in the vocabulary. Wang instances the dual pronunciations that are used by the same speaker, giving as an example from American English, (*op cit*:15), the *j* glide which may or may not be used as in [nu / nju]. But intra individual variation can only exist if a speaker is aware of the variants. For /CJu/ vs /Cu/ this is likely. But for the palatalized form the difference is not so obvious in the case of /t d/. He illustrates how the dimension of time may be studied for each of three relatively independent parameters: phonetic, lexical and social. The phonetic evidence can be examined to reveal the changes from sound to sound, and environment to environment; the lexical aspect shows how the change travels from morpheme to morpheme for an individual. Finally, the social parameter involves the change from speaker to speaker in the same

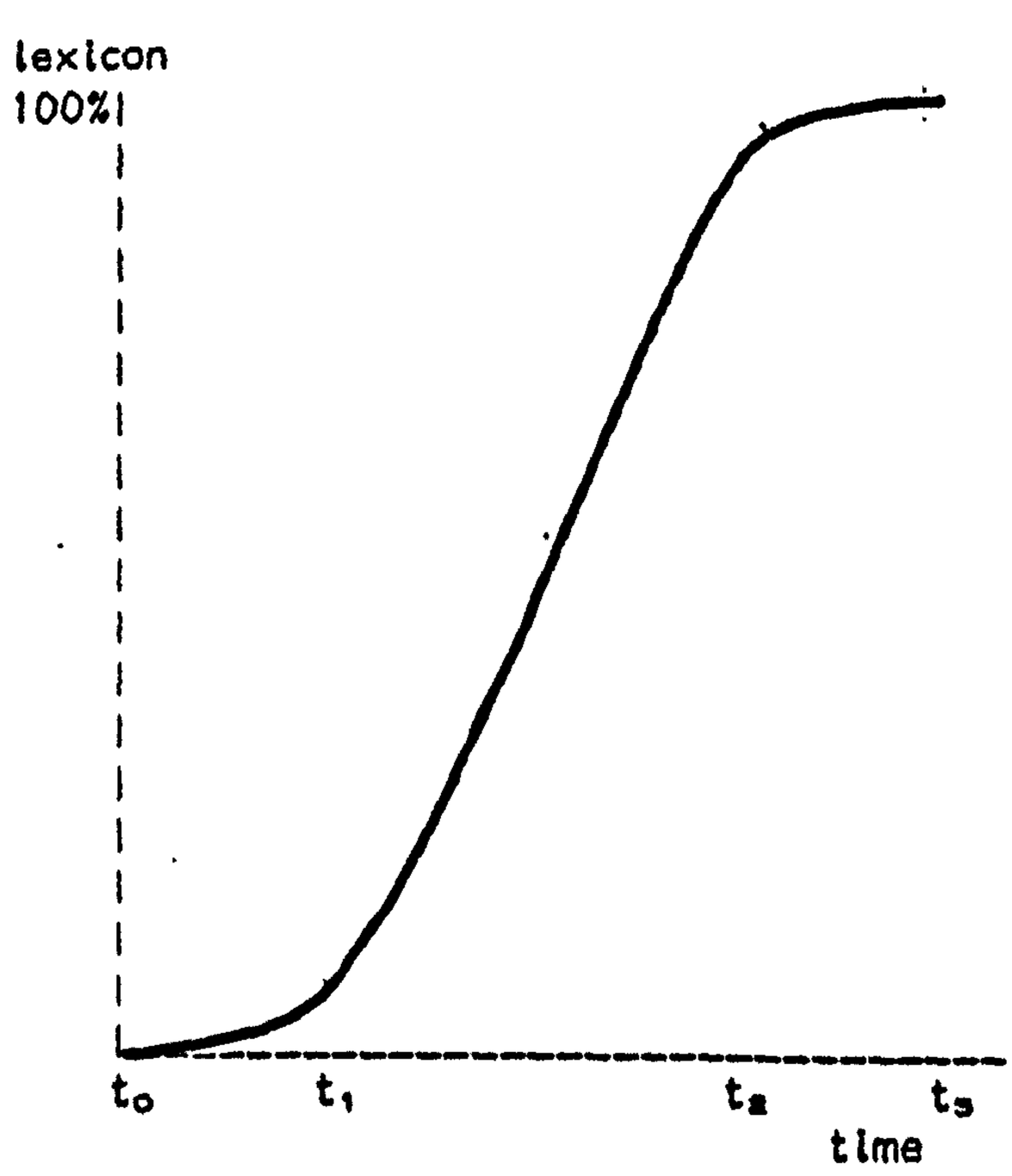
dialect, as well as variety to variety. Of these three aspects, it is largely the phonetic and the lexical which they accorded depth of treatment.

Wang 1969 introduced the term **lexical diffusion**. The basis for this model was stated more explicitly in Chen & Wang (1975:256).

> 'a phonological rule gradually extends its scope of operation to a larger and larger portion of the lexicon, until all relevant items have been transformed by the process.'

While this statement can be interpreted diachronically; at any stage in time the phenomenon appears as synchronic variation. Chen 1972 suggested that a progression in the shape of a cumulative frequency curve (ogive) or S curve may describe the idealized process of diffusion (See figure 23-01).

Fig 23-01
The S curves for lexical diffusion



In this model three broad stages may be discerned. The rate of diffusion is relatively slow at first (t_0-t_1), ideally among the more frequent items. The middle period (t_1-t_2) is characterized by a relatively rapid movement across items of lesser frequency. Finally, the third phase (t_2-t_3) if completed mirrors the first in terms of rate of diffusion, but taking place in the least frequent words. The idealized curve may, in some cases, be composed of a series of overlapping small scale S curves representing different or successive environments.

With apologies to Jonathan Swift and his fleas (*On poetry:337*).

> So diffusionists observe, a curve
> hath smaller curves that sometimes swerve
> and these have smaller curves to smite em
> and so proceed *ad infinitum*.

These smaller curves can represent what I call mini and micro variables and other subenvironments. Examples cited in Chen & Wang 1975:276 and Chen 1976:215 include the loss in French of final [-n] which began in the 10c with the nasalization of the preceding vowel. The process started in the low vowels and continued upwards, being reflected in words like

an *en* *bon* *coin* *bien* *fin* *brun*

Each vowel had its own S curve. A current example of overlapping S curves has been found by Chen 1976 to occur in Shuāngfēng. With regard to the present investigation, it is important to emphasize that it is not just the diffusion of lexical items which is important. There is also phonetic subenvironment diffusion.

2321 Lexical diffusion in Chinese

Before I look at how Chen & Wang 1975 present their case for lexical diffusion, the reader is reminded of the four tones in Modern

Standard Chinese (MSC or Mandarin), and their representation in the pinyin transcription over the syllabic nucleus.

Tone 1 is level and represented by a level line	–	ā
Tone 2 is a rising tone represented by a rising line	/	á
Tone 3 dips and then rises, unless modified to tone 2	v	ǎ
Tone 4 is a falling tone shown by a falling line	\	à.

Chen & Wang begin by recognizing that regularity and uniformity do not preclude the existence of 'a few recalcitrant forms', (*op cit*:256). They examine processes from Chinese dialectology which are adduced as evidence of lexical diffusion. For this they used a computerized data base of about 68000 entries, each representing a lexical item, with its reconstructed phonetic value for Middle Chinese (c600-c1200), and its present pronunciation in 21 dialects. The authors examine tonal development in Cháozhōu. This is part of the Mǐn dialect spoken on the southeast coast of mainland China, in Fújiàn (Fuklen) province opposite Taiwan, and in northern Guǎngdōng or Canton province. (See Kratochvíl 1968:16 for map). The dialects of the southeast generally preserve more of the features of Middle Chinese phonology than do the northern dialects of Beijing such as final unreleased [k˺] in ⟨happiness⟩ *fuk* (MSC *fú*). In Cháozhōu, a bifurcation of each medieval tone occurred, conditioned by the voicing of the initial consonant, so that there is now a symmetrical system of 8 tonemes. Chen & Wang chose items that originally had a third tone in Middle Chinese. For unvoiced initials, 300 out of the 350 recorded (85%), are found in the appropriate category in Cháozhōu. An apparent discrepancy emerges in the voiced initials. Only 107 out of 265 (40%) fall in the appropriate category. Of the remaining 158, no less than

125 (47% of the total), have a second tone. This produces an almost even split between tones 3 and 2.

Chen & Wang rejected the idea of the split being phonologically conditioned, since most Middle Chinese initials split quite evenly between both tones. They reject any extraneous influences such as paradigmatic pressure or interdialectal borrowing. Pressure is rejected since there are no paradigms in Chinese: borrowing is rejected on the grounds that it cannot be phonetically selective. They conclude that the tone change (from third to second), must be a system internal development that has been captured in midstream.

> "In other words, the Cháozhōu situation represents a gradual advance of sound change on the lexical front, 'frozen' in the act." (1975:259)

No information is given about intervening stages in the development of the split, so we have no detail on how the change progressed.

2322 Lexical diffusion in English dialones

Data more transparently relevant to the idea of lexical diffusion come from a historical study by Sherman 1973 of the development of disyllabic dialones from early to late ModE. Disyllabic dialones are those lexical pairs where stress varies between the first and second syllables depending on whether the item functions as a noun or as a verb, like *abstract, accent, addict.* (For many more see Gimson 1980 §9.06.)

Sherman consulted some thirty dictionaries and grammars published between 1570 and 1798, and together with a computerized version of the *Shorter Oxford English Dictionary* 1934, he was able to trace and compile the history of the 150 (or 11%) disyllabic dialones that English then used out of the 1315 isotonic homographs which existed. Table 23-02 gives specimen

years and shows the initial stages in a gradual diffusion of the stress alternation rule.

Table 23-02
Increase in frequency of disyllabic diatones

Year	Source	Num of diatones
1570	Levins	3
1582	Mulcaster	8
1660		24
1700		35
1800		70
1934	SOED	150

The picture is similar with polysyllabic pairs: 70 out of 442 (16%) have converted. Since 1934 more items have become diatonic. Altchison (1981:96) mentions that *address* as a noun is now wavering, probably due to American influence; and *research* is going the way of all stress.

To demonstrate how an equation from the theory of mathematical chaos may be used to measure diffusion across the lexicon, I have taken the data from Sherman. After converting his number of diatones achieved, as a percentage of the total possible figure (1315), I took 1560 as a nominal base year. By using F(x) which measures rate of change, it was calculated that $x_t = 0.2$ corresponds to the year 1916. The difference between this and the nominal base year, 1560 (t = 0) is 356 years. From this t = 0.1 is 178 years. This time scale was used as the basis for converting his other bench mark years into an x_t figure. The technique is not totally objective since it relies on using the final percentage that Sherman established, but in the absence of any other technique, it at least provides a tentative approach. On this basis the following results were obtained.

Table 23-03
Comparison of Sherman 1973 with theoretical figures

Year	x_t	F(x)	%y	Sherman %
1560	0	0	0	0
1660	0.056	0.009	0.9	1.8
1700	0.079	0.018	1.8	2.7
1800	0.135	0.050	5.0	5.3
1934	0.210	0.114	11.4	11.4

It can be seen that there is a similarity between the calculated theoretical figures for diffusion across the lexicon (%y) and the figures that Sherman found. There appears to have been a greater percentage change in the earlier decades (up to 1700) compared with a lesser rate of diffusion after this. The figures for 1934 naturally coincide because of the time scale chosen. The choice of this time scale - 178 years for x_t = 0.1 implies that x_t = 1.0 is 1780 years. This is what the theoretical model suggests is the total time for diffusion to be completed. This puts the end of the process somewhere in the 34th century. While this is consonant with the model, I shall not be vocal in submitting this as a prediction.

Studies in Wang 1977 and B Phillips 1984 show that some sound changes do not operate on the basis of phonetic conditioning alone. With yod loss, how changes are diffused across the lexicon needs further scrutiny. What needs to be discovered is which kinds of lexical items and environments change first. What needs to be investigated is what determines which lexical items and phonetic environments change first. A complementary model and explanation is needed for inter personal and inter varietal diffusion (such as the work of Labov), but this is not the focus of the present study.

2323 *Lexical diffusion and word frequency*

The Neogrammarian emphasis on the regularity of sound changes was modified to the extent that Schuchardt (1885 = 1972:58) had suggested that the reason why some changes affected certain words before others lay in the idea of frequency of use. His opinion was that rarely used words are slow to change, while the most frequently used words are in the vanguard of change. But in sound change, regularization or analogic change takes place more readily in less prominent words. Hooper (1976:99-100) has shown that with reference to irregular past forms of verbs in English, infrequent verbs are the most likely to shift to the regular *-ed* paradigm.

> '[of the] six verbs *creep, keep, leap, leave, sleep,* and *weep,* all of which have a past form with a lax vowel (due to the Middle English laxing ...), ... three, *creep, leap* and *weep,* all may have, at least marginally, a past form with a tense vowel, *creeped, leaped* and *weeped.* The other three verbs are in no way threatened by leveling; past forms **keeped, *leaved, *sleeped* are clearly out of the question.'

These last three words are much more frequent than *creep, leap, weep,* with an average frequency of 485 as opposed to 37. Leaving aside for the moment any comment on the reliability and validity of word frequency counts, and accepting as Hooper has done, the relative values of the average frequencies, she has suggested the hypothesis that

> 'infrequent items are the most resistant to phonetically motivated change, while frequent items are most resistant to conceptually motivated change.' *(ibid:95)*

Hooper takes the position that sound changes are largely phonetically motivated and thus are likely to affect infrequent items last. However she accepts that if it can be shown that some phonetic changes do affect infrequent forms before frequent forms, then this may indicate that phonetic changes can arise from different sources. This possibility may have arisen with respect to yod loss.

The concept of word frequency as used by Schuchardt, Hooper, and by Chen & Wang is inevitably macrolinguistic. It relies on a global interpretation. While counts have hitherto relied primarily on the printed word, later work has recognized the greater reality of the spoken language. But neither resolve the place of the individual speaker with regard to the global figures. What are frequent overall are not necessarily so for individuals. In addition they may only have access (either actively or passively) to a restricted proportion of the relevant lexical items. If for argument we make a division into common and rare words, (as in Reid 1978, and to a large extent equating the rare group with an educated, scientific, or refined kind of vocabulary), the latter group are not in the everyday conversation of the man in the street. From this, a pair of points of consequence arise.

First, the extent to which many speakers do not use these rare words will affect any statements about the extent of glide loss for a PC, and the extent to which the glide may be said to be disappearing for a given idiolect, and by extension for a dialect. I shall give a hypothetical example for an individual. Let us suppose that the glide is deemed to be dropped in 24 lexical items out of 180 for the PC in question. The index of glide loss is 24/180 = 0.15. Let us say the speaker uses only 50 of these words. Now his idiolectal index is calculated to be 24/50 = 0.48. An extension of this argument is that a speaker may drop the glide in a given PC, in all the words he has come into contact with, so that his idiolectal index will appear to be 1.00, ie categorical. Yet if the figures are based on the global total of words for this PC, his percentage figure can be considerably less. More importantly, he will no longer be regarded as a categorical dropper (which in

practice is what he is). But in theory if we allow for the words which he has not yet encountered, we are unable to state whether he will be 100% glideless in these.

The issue, which at least needs airing if not resolving, is whether the amount of glide use for an individual speaker is to be measured by the global repertory of items available in the language, or whether it is to be measured in terms of his own personal repertory of vocabulary. On which basis do we calculate the idiolect index for a given PC? Intuitively, the range of vocabulary of the individual seems to be a better basis for measurement, in that it better reflects his own usage. This approach does have certain drawbacks. It is admittedly difficult to evaluate the usage of a given speaker in terms of frequency of use. How can we establish the range of vocabulary for a speaker? Even if a figure is established, it may be unreliable and subjective and subject to extension. Whereas the global total of words for a PC may be more objectively arrived at. But if a speaker is glideless for all of his accessible vocabulary, then surely he must be deemed categorically glideless. The instances of inaccessible (possibly glided) vocabulary are irrelevant. This dilemma is unresolved.

interlude

CHAPTER 3

LIVERPOOL

AND SCOUSE

3000 The geographical and historical background

In my Liverpool home, in my Liverpool home
we speak with an accent exceedingly rare
meet under a statue exceedingly bare
and if you want a cathedral we've got one to spare
in my Liverpool home.

Chorus of popular barroom ballad, beloved of the bevvied

3001 The city and its Inhabitants

Even after Liverpool had been given a royal charter in 1207 it stayed in the background of national economic and political development until its expansion in the seventeenth century after the silting of the river Dee precluded the continuation of Chester as a port. Prior to the mid 19c the inhabitants were essentially from south Lancashire. The status quo was turned upside down in the late 1840s with the influx of impoverished Irish immigrants. Some used the port as a springboard for America; many did not get that far. The Irish were the most numerous contributors to the demographic cocktail which was to produce a mix which assumed a new and distinctive identity. Yet an important component which is sometimes overlooked, was the contribution from north Wales. Many Welsh came to build houses for the rapidly increasing population. (Their work has been detailed in J Jones 1947). The number of churches and chapels (both old and new) is a testament to their influence). The city was involved in the printing and publication of Welsh books as well as newspapers such as *Yr Amserau* (1843-1859), *Y Cymro* (1890-1906) and *Y Brython* (1906-1939). The connections between the city and the principality were so strong that at a public meeting in the 1850s, Liverpool was described as the capital of north Wales. It was the repeated choice as a venue for the national eisteddfod. Both nationalities settled to a large degree in Vauxhall, Scotland and also in Everton. Their arrival coincided with and contributed to the meteoric rise in the activity of the port as an atlantic terminal, and the rapid increase in its population in the second half of that century. This impact was all the more dramatic in that it occurred not only within a short period of time, but also took place within the confines of an extremely limited urban area to the immediate north of the city commercial centre, creating densities of

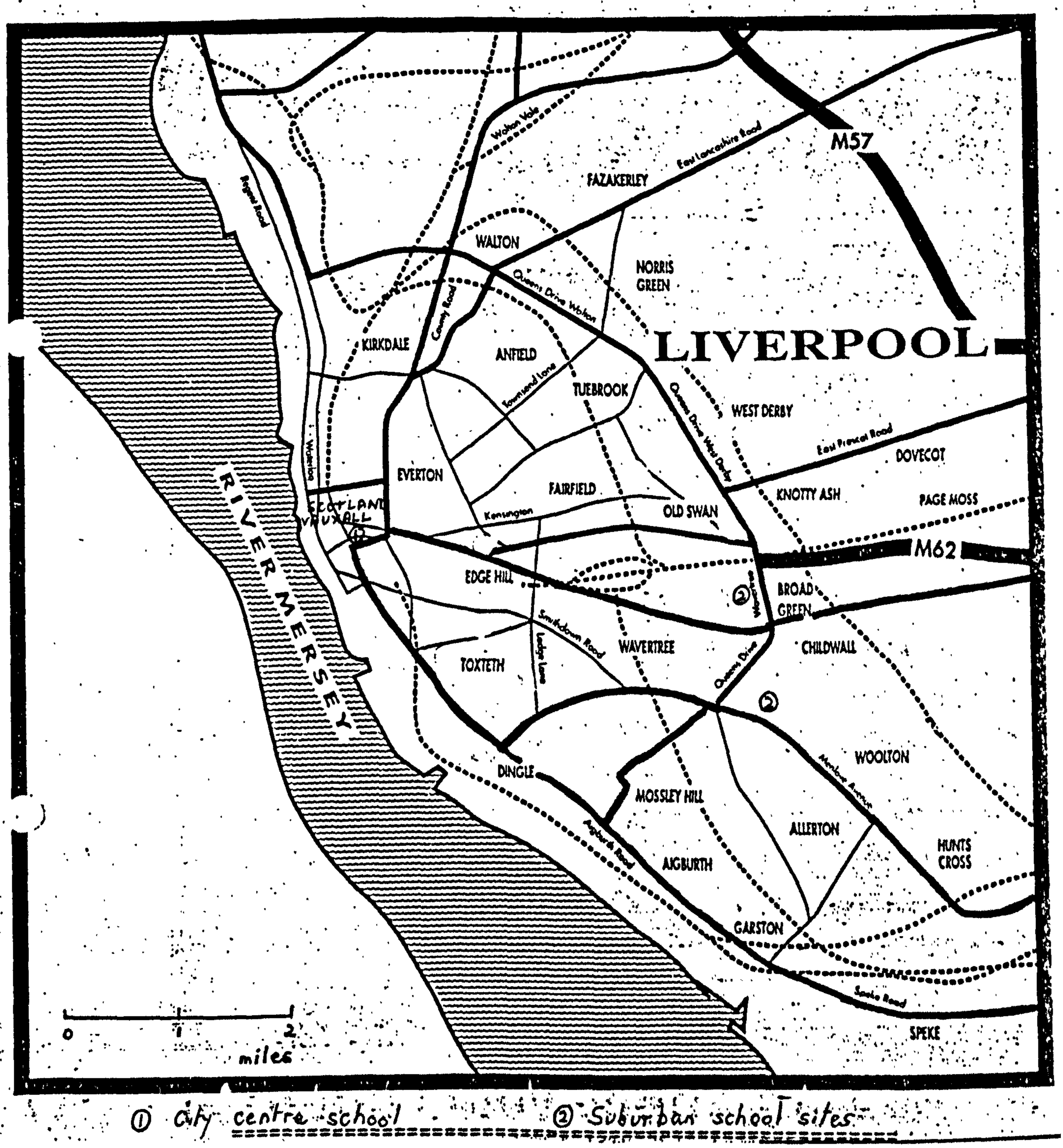
population previously unparalleled. Even today the land area of Liverpool is among the smallest of the large centres of population. It covers less than 45 square miles (compare Leeds at over 200 square miles, and Bradford at 150), and this is after the massive extension of boundaries at the beginning of the 20c.

Picton 1875 had commented on the separate development of the influx of population.

> "It is curious to note the manner in which the different nationalities locate themselves in particular situations. In Liverpool the Irish are principally to be found clustered in Scotland and Vauxhall Wards, where Catholic churches abound, and the Tipperary brogue may be heard in all its richness. Everton is the Goshen of the Cambrian race. Its modern development is almost entirely the work of Welsh builders ... A large part of the population is from the principality. Chapels in which the service is conducted in the Cymric tongue abound. Placards in the Welsh language may be seen on the walls and Welsh newspapers in the shop windows. The sharp click and guttural intonation of the Cambrian dialect may be heard from many a cottage door. ... they are an industrious, steady, sober race. Everton is now principally inhabited by the working classes, and it may be said to their honour that there is no part of the town more orderly, more free from beggary and squalid poverty than this district." (*op cit*:353)
>
> He also provided a description of Everton in the 1820s.
>
> "From the umbrageous foliage of their gardens and pleasure grounds, noble mansions, in tier above tier, looked out on a lovely landscape. ... Everton was a suburb of which Liverpool had every reason to be proud." (*op cit*:333)

But since the the early 19c the district had changed, "until the pretty village of half a century ago, has developed into the crowded town with its 100,000 inhabitants and its 11,000 municipal electors" (*loc cit*). In a general view of these develpoments Picton later argued in favour of the greatest happiness of the greatest number.

Figure 30-01
Plan of Liverpool



① city centre school ② Suburban school sites

"the bosky glades, the rural lanes, the pleasant mansions, and the retired gardens of Everton of the past generation. They are gone past recall, and the rows of cottages and dreary streets which have taken their place may appear a poor exchange. But there is another side to the picture. Modern Everton has arisen out of the commercial prosperity of Liverpool. ... There is little of squalid poverty in the district, and a very large proportion of homely respectability amongst the artizan class which constitute the principal population."
(*op cit*:387)

He did not speculate on later stages in the history of Everton. The political and religious divisions which characterized life in this part of the city have diminished in recent years. (P Waller 1981). Typical of former allegiances, the largely Catholic working class areas of Vauxhall and Scotland returned to Westminster T P OConnor. From 1885 until his death in 1929, he was the only Irish Nationalist member representing an English constituency. He was returned unopposed for the Scotland division. Everton was (and still is) the heart of the Orange Protestant movement. For most of this century in local elections this particular working class vote was predominantly Tory. It is only a few years since the Protestant party ceased to put forward candidates and have members on the city council. Now Conservatives occupy only 2 out of the 99 seats, both of these in the south eastern suburbs. This is after dominating the city for most of the 20c.

R Waller 1983 in his almanac of politics, has surveyed all of the parliamentary constituencies. The separate areas in which the different nationalities located themselves in the mid 19c, are now covered by the same constituency, Riverside (after being Scotland, and Exchange). According to R Waller (*op cit*:120), "it contains some of the poorest and most deprived urban areas in Britain". He specifies Everton which has the worst unemployment rate in Liverpool, with at least 40% of males between 16 and 59 out of work. In terms of housing; owner occupation is at 1% with council properties making up 90%. That was at the beginning of the 80s. Recent improvements in housing

and the environment may bring hope for some. Famous former resident - Cilla Black.

3003 Liverpool south east: Childwall, Woolton and Allerton

The south eastern suburbs contrast strikingly with the north of the city centre. They were formally incorporated into the city at the turn of the century. Some still have expanses of parkland. The domesday village of Woolton (Little and Much), where the upper branch of the suburban school is sited, is centred near the quarry which provided the sandstone for the earlier of the cathedrals referred to in the song at the beginning of the chapter, as well as for many of the large villas in the district. There is more balance socially and politically. (R Waller *op cit*:119). The most affluent, the most middle class, the most owner occupied sectors of the city are located here. Famous former resident - John Lennon.

3004 The schools

A pair of secondary schools was involved in the survey. Both were linked historically, (Ryan 1948), but conducted since their foundations in 1842 and 1853 as distinctly separate, catering for different types of pupils. The earlier was established as a college. The Prefect of Studies appointed in 1866 introduced a spartan discipline. He believed that 'no useful purpose was served by postponing all punishment until the next world'. The church to which it belonged had Gerard Manley Hopkins on the staff in the late 1870s, and Charlie Chaplin attended the college when he was performing in Liverpool. The later foundation acted as the parochial school, numbering among its more recent alumni Elvis Costello and Steve McManaman (ace Liverpool F.C. player). Both schools were situated in what was then the north eastern fringe of the

city in Everton (as described by Picton), but the subsequent spread of housing meant that they became identified with the expanded city centre. At the beginning of the war in 1940, the college was evacuated to north Wales. It later moved, in 1961, to south east Liverpool, to separate sites in Broad Green/Childwall and Woolton (see map). The parish school took over the vacated college building, leaving for a while a pair of large Georgian houses built in the 1830s, like those referred to by Picton. I moved at the beginning of 1962 to the school (now designated *bilateral* and now drawing a third of its pupils from all over the city), and remained there until 1983. In the reorganization of secondary education in Liverpool in the 1980s, both schools reduced their citywide intake of pupils. Those pupils attending from outside the newly created catchment area remained at the school. Those in the sixth forms now represent the last of those pupils. This has an important bearing on the interpretation of the survey results. Because of their geographical locations, both schools provide a marked contrast in terms of surroundings and intake. This is reflected in the range of varieties of language recorded, from near RP to broad Scouse.

3010 Some linguistic features of the region

It is axiomatic that the Liverpool accent is northern rather than southern in character. But in many respects it is different from other northern urban varieties. Since the population owes much to the celtic fringe, I give some indication of glide use in those areas.

For over a millenium, Irish Gaelic has had a systemic phonological distinction between ve:ar(ized) and palatal(ized) consonants. The traditional terms used for these are broad and slender consonants. (Fallon 1986 covers

the orthographic problems). Wells points out that in parts of the south the slender consonants are merely nonvelarized in quality, rather than being actually palatalized. When these are used as realizations of the English /CJ/ it gives the impression that the glide has been dropped.

Yod coalescence in stressed syllables is common in Dublin, not only in popular accents but also in conservative educated speech. There is homophony with *dew = due = Jew* [ju]. In /n/, yod dropping appears common, being frequent in unstressed syllables. It is germane to point out that at least a half of the Irish population in the mid 19c were monoglot Gaelic speakers (Strang 1970).

The sequence /ju/ is not native to the sound system of Welsh, whereas the diminuendo diphthong /ɪŭ/ is. Orthographically this corresponds to the Welsh <*iw*>. As Wells points out, the difference between [ju] and [ɪu] is minor phonetically, involving mainly a change of the feature [syllabic] from [- +] to [+ -]. But it has phonological implications for Anglo Welsh.

(a) *Suit* does not rime with *boot*

(b) It can lead to the use of prevocalic sandhi forms before words beginning with /ɪu/, as in *an union*, (cf 19c English).

(c) There are more minimal pairs. Wells (*op cit*: 386) gives an example from a Bangor correspondent of *blue* [blu] versus *blew* [blɪu].

In Welsh borrowings from English, as in *stiwdio*, and in English words with <*u uCe eu ew*> such as *include, new*, there is this diphthong rather than /(j)u/. It occurs even if the English word is rarely pronounced with the glide. On the occasion of the death of Lord Stockton (861229), the newsreader on HTV referred to him as a man of [ɛrɪu'dɪšən]. Readers of the football results on Radio Cymru regularly refer to *Luton* as ['lɪutən], and Crewe as [kr'ɪu]. However the latter is a Welsh word *cryw* meaning stepping

stones. It now seems that a process of lexical diffusion is taking place whereby /ɪu/ is being eliminated from those words where it does not correspond to RP /ju/. This is most noticeable after /r l/. *Rude* is changing from /rɪud/ to /rud/; both *flu* and *flew* can be /flu/ rather than /flɪu/.

3011 Studies of Liverpool speech

The main modern linguistic studies of the dialect are those by Knowles 1974, 1977, 1978; de Lyon 1981; Newbrook 1986. There are accounts in Hughes & Trudgill 1979; and Wells 1982. In addition, some popular guides to Scouse exist. They mostly concentrate on lexical items or set phrases with greater or (increasingly) less currency, and are accompanied by a self defining representation of pronunciation. Trudgill 1983 has investigated the use of non prevocalic /r/ and intervocalic /t/ by the Beatles.

3012 Scouse: its origins historical and extent geographical

Prior to the mid 19c, the population of Liverpool was largely autochthonous, so the speech was essentially a south Lancashire dialect. See Heywood 1861, Picton 1865 and Lawton 1953. As an urban working class dialect, Scouse is relatively recent in origin, following the massive incursions of Irish, Welsh and Scots into the city. The influences are mainly celtic. Knowles 1978 has recognized the importance of the Anglo Irish influence as "the 'Scouse element' which so sharply marks Liverpool speech from the rest of the Northwest." (*op cit*:80). There is no justification for Molin (1984:163) describing Scouse as a

> "Liverpool Cockney ... that ... has infiltrated "proper" British speech. This "Liverrool" form is the result of Cockney workers migrating from London to Liverpool and taking their speech patterns with them."

The speech has nothing to do with Cockney workers migrating from London to Liverpool, whether they took their speech patterns with them or not. This impression may result from the attempts of some performers on radio, television or the theatre, to reproduce a Scouse style. The only similarity to Cockney is sociolinguistic. Both are generally restricted to that part of the population described as working class. Trudgill (1990:126) has suggested "Just imagine if Liverpudlians sounded exactly like Cockneys!" I refrain from comment.

In geographical distribution, the accent is characteristic of the urban parts of the metropolitan area on both sides of the river Mersey. Like the precise older definition of a Cockney (being born within the sound of the correct Bow Bells), a Dicky Sam or Mary Ellen (the terms in general use up to the inter war period for a true Scouser) had to be born in the district adjacent to the Pier Head on the waterfront. In the aftermath of the 1940s war, and the subsequent dispersion of population, Scouse became more widespread and modified. The sharp dividing line that used to exist is now more amorphous, and has radiated further from the city. 20 miles and more from the city centre, in places previously considered as peripheral bastions of an uncontaminated way of life and speech, the Liverpool accent can now be heard, coexisting and competing. The influence of Liverpool speech has spread beyond the mainland. Gill (1934:3-4) noted that Manx English was beginning to show Liverpool or south west Lancashire influence in the Douglas area. Barry (1984:168) confirms this both geographically across the island and among the younger generation. Yet living in West Derby, almost the geographical centre of Liverpool qua city, I have only to go a few miles to the east (to the former medieval village of Prescot) to find remnants of a south Lancashire accent.

3013 *Varieties of Scouse*

Like all dialects, different varieties of Scouse can be identified, from mild to impenetrable. The explosion of Liverpool accents on radio and television over recent years may have resulted in a greater awareness in the mind of the general public of the variety and range. Even from the 1940s, radio shows such as *ITMA* with Tommy Handley and Derek Guyler, and Arthur Askey, via the repercussions of the Beatles and other groups, to television programmes such as *Z Cars, The Liver Birds, Watching, Bread, The Wackers, Brookside, The Brothers McGregor, Boys from the blackstuff, Waterfront Beat*; all have contributed to place varieties of the accent firmly in public prominence. Together with films and plays like *Letter to Brezhnev, Shirley Valentine, Educating Rita*, they serve to illustrate the wide range of varieties of spoken Scouse, including the distinctive intonation system. However the characteristics of a marked Scouse speaker involve more than auditory perceptions. Knowles 1974, 1978, has also drawn attention to the articulatory setting which is characteristic of advanced speakers. This may be accompanied by a hint of apparent aggressiveness.

Not all people in Liverpool use Scouse. In particular those either aspiring to or claiming to be members of a middle class, may attempt to eradicate any influences or suggestions of a Scouse background, especially if they are female. Altchison (1981:82) has identified Edna and Eric after their move to the south. Some people even used to disdain the descriptive *Liverpudlian*. In their eyes (and ears) they were *Liverpolitans*. The gamut from extreme (and well tempered) Scouse to varieties of RP was recorded in this investigation.

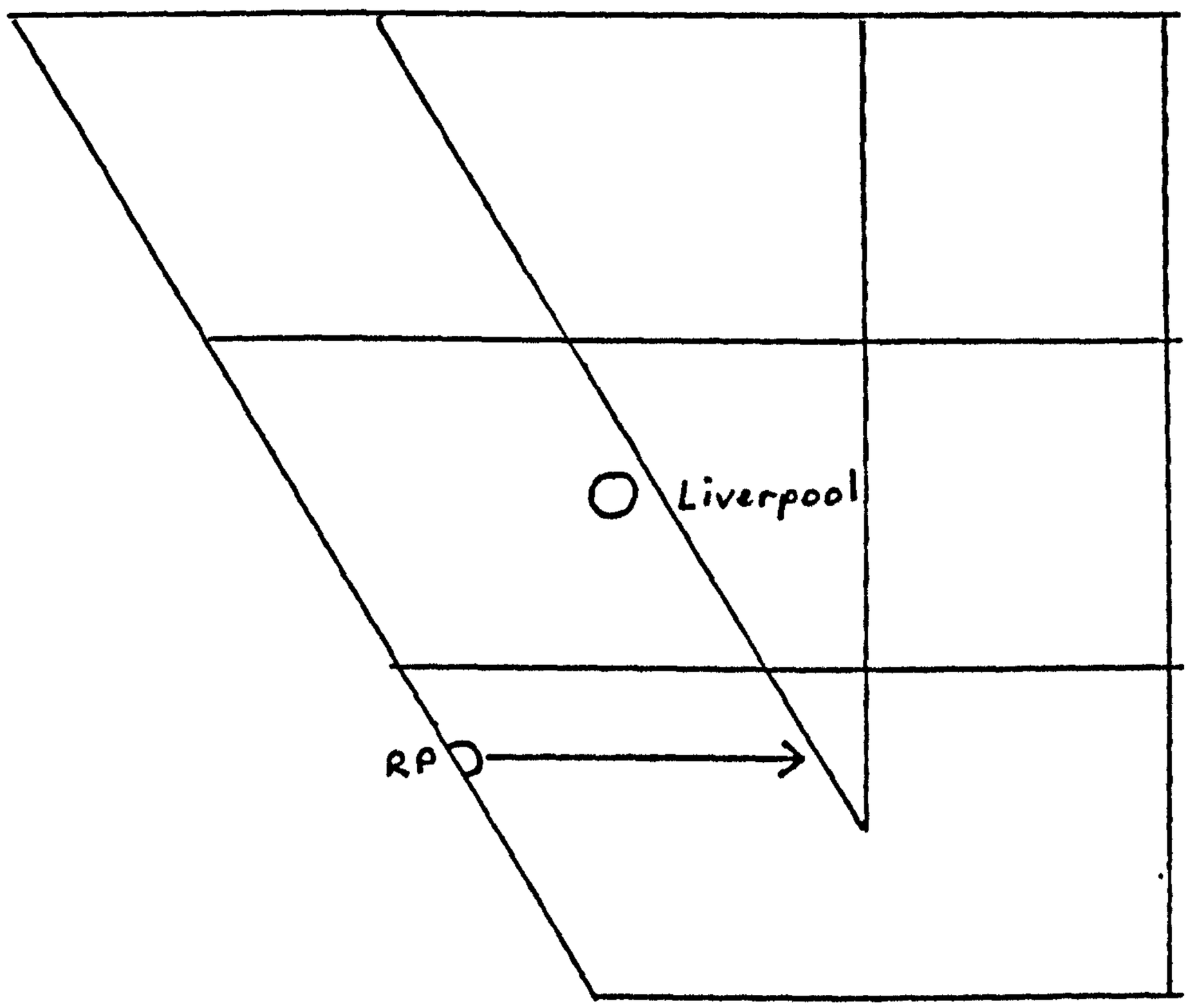
3014 Scouse vowels

What Liverpool shares with the north, is the occurrence of /a/ in many words where standard English has /ɑ:/, such as *dance, daft*, but surely not *hat* as Hughes & Trudgill (1979:61) state. Where /ɑ:/ does occur in Liverpool speech in general, it tends to be replaced by advanced Scouse speakers with [æ̈:] as in *garden*, [gæ̈:dn̩], the Wells START group. Centralization is a typical feature of Scouse vowels. Frequently in the city centre recordings, this occurred with /u/. This is accompanied by neutral lips, observing a surface phonetic constraint that when back vowels are fronted, they become unrounded. With regard to the central vowels, the shibboleth which epitomizes Scouse for most people in other parts of the kingdom, is the lack of contrast between words like *fair, fare* (RP /fɛə/) and *fir* (RP /fɜ:/). Typical realizations are [ɛ:], or more centrally [ɛ̈:], but other forms including [ɜ:] are heard. PJS instances the reversal in *her hair*, which can be [ɛ: ɜ:].

Wells (1982:372) has appositely noted the apparently incongruous use of [ɛ̈ʊ] in the name of the district *Old Swan* (see map), not necessarily identified with female speech. Another feature which occurred largely in the city centre school, is the fronting of word final shwa to [ɛ], as in *Jaguar*. This appears to have been noted only in Knowles 1978.

Compared with RP, there is no mid central vowel /ʌ/, and so no distinction between *put* and *putt*. Both are /pʊt/. RP /ʊ/ is replaced by /u/ in <oo> words like *look*. While words like *look* and *luck* are differentiated by /ʊ/ versus /ʌ/, in Liverpool the distinction is by /u/ and /ʊ/.

Fig 30-02
Liverpool variant of RP /ɛə/ (after OConnor 1973:171)



3015 Scouse consonants

Hughes & Trudgill 1979 have listed some of the main features of the Liverpool consonants. Most of these occurred in the recordings made in both schools. The unvolced stops /p t k/ are heavlly aspirated especially when word initial. When final, they may be realized as the fricatives [ɸ s χ]. In the case of /t/ the tongue leaves the alveolar ridge slowly, resulting in an [s] before the following vowel begins. Prevocalic /t/ in *ten* becomes [tˢɛn], except in the cluster /st/.

Compared with other British dialects, glottal stops are relatively infrequent. Intervocalic /t/ may be produced as a tap [ɾ], particularly if the

first vowel is short. Hughes & Trudgill comment that this may be restricted to specific lexical items, such as *matter*. But the tap is also prominent word finally, especially when /t/ is followed by a vowel, as in *get out, but he, about it, what are*. Aspects which are traceable to Irish phonology in which /d/ is more likely to be dental than alveolar, are found in the use of [d] for /ð/, so that a cause and consequence of heavy ['brid̪n] may be a large family. Word final [θ] may become [t]; *mouth* is [maut].

In common with many other varieties of English, the present participle suffix *-ing* is likely to be [ɪn] when speech is unmonitored. This is not the case in careful and considered speech, where it is more likely to be [ɪŋg]. In *nothing, something*, it is pronounced [ɪŋk]. Unlike RP, there is no distinction between *singer* and *finger*: they both have [ŋg].

Word initial /h/ is normally omitted in all Scouse varieties and social situations, with the possible exceptions of job or linguistic interviews and court appearances, where it may also be accompanied by hypercorrection and a modification of some attitudinal paralinguistic features.

3020 The nature of phonological variables in Scouse

Despite the range of criteria that have been mooted for their identification, LVs have been primarily defined on the basis of their social significance (see §2200). Knowles 1977, 1978 has argued that Scouse variables are different from the traditional sociolinguistic variables. The variants do not necessarily lie on a linear scale. An example is his variable (ɑ:) which has variants [a] and [ɑ:], with an ad hoc compromise [A] in between. He claims that if [æ] is used, it must be ordered phonetically

before [a], consequently lowering scores. But this variant, if used, is used by middle class speakers. As such they are not included in speakers of Scouse (or in such variables). At times, several scales may be involved. Some are complexes of component variables, each with its own set of variants. This view is confirmed by the conclusions of the present study of /Cju/. The failure to incorporate all the components of this phonetic diversity, has led to the selection of the specific feature which best confirms the hypothesis. As examples he cites the Labov (eh) (1966:51-53) and the Trudgill (a) (1974:85-86), where the feature chosen, conveniently puts the variants in the required social order.

A consequence of the incorporation of the phonetic diversity represents a change in the scope of the analysis. There is no longer a manageable small number of easily quantifiable variants, but a larger number of subvariables and variants which may be difficult to quantify. The rationale underlying this conclusion is that speech is not to be interpreted simply as being composed phonetically of strings of segments. Since segments are realized as carefully coordinated and overlapping movements of the vocal organs, it is more realistic to trace variables (and consequently variants) to their source in speech production. Order has to be imposed. The next section shows how.

3021 The variables (uə) and (oə)

Knowles discusses a pair of variables (uə) and (oə), which have some relevance to glide production. In many varieties of urban speech the phonemic merger of /oə/ and /ɔ:/ is being closely followed by the merger of /uə/ and /ɔ:/. A tentative time scale has been suggested, with three groups divided

with reference to the wars. All instances of *sure* are coalesced rather than being glided.

Table 30-03
Age grading in pronunciations of /uə/ and /ɔ:/

	before 1918	1919-1938	since 1938
sure	šuə	šuə	šɔ:
shore	šoə	šɔ:	šɔ:
Shaw	šɔ:	šɔ:	šɔ:

These variables may be considered together or separately. If they are taken together, the following quantitative scale is possible:

(u - 1) : [uə]
(u - 2) : [oə]
(u - 3) : [ɔ:]

If they are presented separately:

(u - 1) : [uə]	(o - 1) : [oə]
(u - 2) : [ɔ:]	(o - 2) : [ɔ:]

Table 30-04
Scouse variations in /uə/ and /oə/

Rules	uə	oə
1 lax [u o] before an unstressed vowel:	ωə	ɔə
or		
2a either diphthongize [u o]:	ɪúə ʃuə	ɟuə
b or front [u]:	ʉə	
3 if 2a, modify VVV to VGV:	ɪwə	ɔwə
4 front final shwa in direction of cardinal 3	uɛ #ωɛ ɪúɛ ʃuɛ ʉɛ ɪwɛ	oɛ #ɔɛ ɟuɛ ɔwɛ

Whichever scheme is chosen, what complicates the issue is that the centring diphthongs are not single phonetic forms, but are complex variables realized by sets of phonetic variants. After choosing whether to carry out the merger or not, (or even to find a compromise vowel), the speaker in theory has the choice of several ordered but optional low level rules, which operate not just for these vowels, but more generally in Scouse phonology. Knowles argues that it is pointless attempting to plot this plethora of marginally differing forms on a linear scale. However a tentative way out may lie in plotting the four rules as such, on a scale and quantifying accordingly. We have a simpler situation for the LV (uə):

(u - 1) : [uə]
(u - 2) : laxed [ω]
(u - 3) : diphthongize or front
(u - 4) : VGV
(u - 5) : final [ɛ]

This is not a perfect solution, since if rule 2b operates, rule 3 cannot. Rule 4 does not necessarily operate on every variant, as *[ωɛ] indicates. Only the first rule carries any prestige. The others operate mainly in working class speech. Thus a combination of laxed [ω] with a fronted shwa, while possible is very unlikely. It is difficult to imagine a middle class speaker fronting final shwa to [ɛ], since this is characteristic of the extremest forms of Scouse typically associated with lower class speakers. The middle classes do not use Scouse as a means of communication, so the problems do not arise.

3022 Implications for the analysis of glide variants

Knowles interpreted his variables with respect to class. This was not a prime concern in this enquiry. But similar issues were found. How scoring for coalescence was tackled, is given in §4341. The issue of subvariables and variants was treated by the use of mini and micro

variables. Because the probabilistic PCs in Liverpool represent only a subset of the possible universe, it was found useful adapt a distinction from Thelander 1982, and incorporate the idea of a micro variable as a lower unit of variation. For Trudgill (yu) was capable of a macroscopic treatment since most of the PCs in all places of articulation were susceptible to varying degrees of glide loss. He was able to set up a pair of variants.

(yu)	-	1	=	[ju]
(yu)	-	2	=	[u]

In this investigation it was found that only half a dozen PCs out of the 17 showed any large scale variability. The six were consequently designated mini variables, and symbolized not by (round) but by {curly} brackets; thus {Cyu}. While the plain consonants /n l/ can be accommodated by a binary split, the coalescents need three, and of these, the continuants have access to all four variants.

{syu}	-	1	=	[sju]
{syu}	-	2	=	[šju]
{syu}	-	3	=	[šu]
{syu}	-	4	=	[su]

While all variants were in theory available, not all necessarily apply to each lexical item. The stops /t d/ were restricted, 99% of the time, to a pair: [Cju] and [Ču]. An important aspect was the existence of subenvironments, some of which were categorical in their occurrence of a variant. Other subenvironments may be construed as micro variables. How these are treated will be seen in the analysis, in chapter five, of the Liverpool tests.

t h e m e

CHAPTER 4

METHODOLOGY:

PREPARATIONS

PROPOSALS

PROCEDURES

AND PROBLEMS

4000 Approaches to the empirical enquiry

Chapter four deals with the preparations for the empirical investigation. This involved the collation of explanation on the production of variants. It was partly based on intuition and observation, but mostly on pronouncing dictionaries and references in the literature. In addition, theoretical frameworks of 2 kinds were investigated. The first is the Chomsky & Halle 1968 rule system; the second is the implicational hierarchy of PCs of Bailey 1977. The empirical surveys of subsets of the 17 PCs are considered. They comprise the American studies by Phillips 1981 and Pitts 1986 on the alveolars /t d n/; the Australian investigation by Horvath 1985 on the coalescents /t d s z/; and the Norwich survey by Trudgill 1974. These sources covered the linguistic features which operate on the selection of variants. The parameters are examined as possible explanatory variables. After this, the proposals for the testing are put forward, together with the scoring system for effecting comparisons. In this way the chapter looks forward to the obtained results.

4100 Preparations: previous research

Previous research into the distribution and use of the glide and its variants are examined. I begin with the distribution of variants in RP (since this provides a framework and benchmark) and in the USA (since this provides a background to the American studies).

4101 Received pronunciation and the distribution of variants

The supplements to the *Oxford English Dictionary* (Burchfield 1972-1986), as well as the second edition, define the Received Standard as the educated speech of southern England. The superiority of this variety is further illustrated in its guide to pronunciation, where after exemplifying the usual consonants of English, the less standard sounds are discussed but not quite dismissed under the heading *Foreign and non southern*. It is subject to variation and change according to the level of formality, age, sex, and the social attitude of its speakers. (Leith 1983). It has been estimated that only about 3% of the English speaking population uses RP (Hughes & Trudgill 1979:3). Recently the distinctions within RP have been described by Gimson 1980 and Wells 1982, among others. Bauer 1985 wonders if RP is becoming demoticized. He suggests (*op cit*:76) that these changes are accelerated, if not actually initiated, by the broader base that RP is acquiring within certain parts of the community. This was evident in some participants in the upper suburban school. Nowhere do Wells, Bauer (or Gimson) refer to the palatal glide as a differentiating feature. Thus we can speak of RP generally. Using as sources, Barber 1964; Wijk 1966; Jones 1945 1956; Rockey 1973; Roach (1983:60); Gimson 1980; Trudgill & Hannah 1985; and pronouncing dictionaries like Jones & Gimson 1977 with the addition of Chambers (Geddie

1959), the following distribution based on unclustered preceding consonants is likely in all varieties of RP. The division is into four groups with either categorical or non categorical glide use.

G1 The glide is always produced after

the labials /p b f v m/	*pupil, beauty, feudal, view, mute*
the alveolar /n/	*news*
the velars /k g/	*cute, ague*
the fricative /h/	*huge*
and when word initial	*european*

G2 The glide is effectively absent after

the approximant /r/	*rule*

G3 There exists a pair of variable non coalescing consonants.

the *inter*dental /θ/	*thews*
the lateral /l/	*lurid*

G4 The group of consonants /t d s z/ has three variants. (The glide is not customarily produced where coalescence already occurs, except rarely in /s z/.)

/š ž č j/	*suit, resume, nature, verdure*

I have represented the set of 17 PCs in a venn diagram. Three subsets reflect the basic variants.

A = {PCs capable of [+ glide]} enclosed by ++++
B = {PCs capable of [- glide]} enclosed by ####
C = {PCs capable of phonemic coalescence} enclosed by oooo

Diagram 41-01
Distribution of PCs in RP across the three basic variants

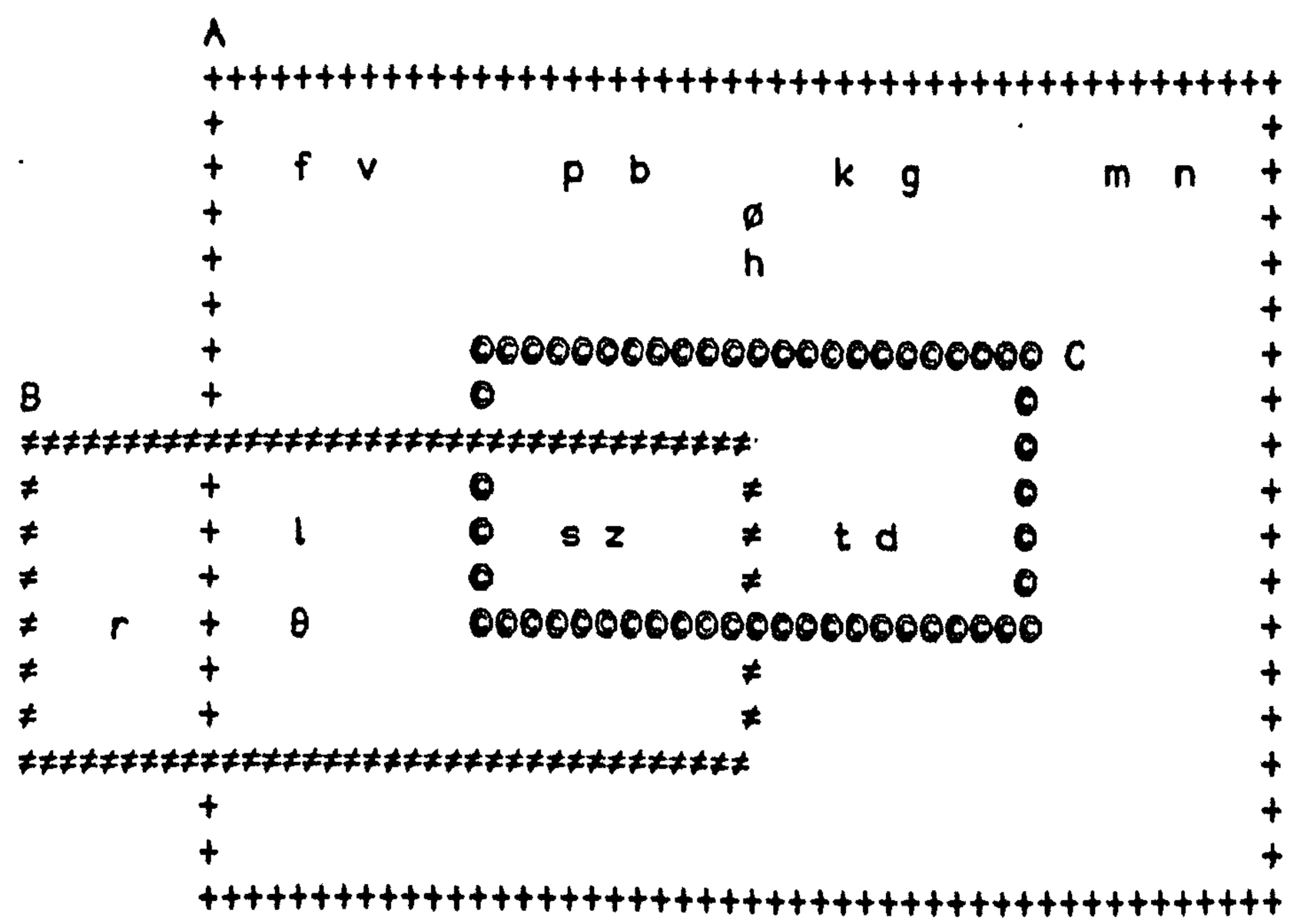


Diagram 41-01 isolates the eleven PCs which are categorical from those which have a range of variants. The latter are in the intersections of the subsets. In A ∩ B, /θ/ and /l/ have both glided and unglided forms; the fricatives /s z/, being in A ∩ B ∩ C have access to all three. The diagram does not show the rare combined variant, nor clusters.

It can be seen that the variation occurs in 6 main PCs. Fowler 1965 and Jones 1956 offer some useful guidelines for this variation, based on the allocation of stress. Jones has analyzed the effects, which I have arranged

into a tripartite scheme (J1-J2β below) which covers three consonants, /l s z/, contrasting glide presence with absence. Coalescence was not specified. In the rules stress for the relevant syllable is in square brackets.

J1 [+ stress] → [α glide]

If /u/ is stressed, the glide is variable but largely absent in /l/. The position of the stressed syllable in the word does not appear to have an effect.

(α)	syllable 1 stress	
(1a)	'lurid	'lubricate
(1b)	'pseudo	'suzerain
(1c)	'zeugma	'Zurich
(β)	syllable 2 stress	
(1d)	vo'luminous	al'luvial
(1e)	en'sue	flex'ura
(1f)	re'sume	cae'sura
(γ)	syllable 3, 4 stress	
(1g)	anaco'luthon	antedl'luvian

When the consonants are immediately preceded by a stressed syllable, the glide is general. This occurs when the stressed vowel is word initial, or is internal as the result of affixation. The reference to shared morphemes needs to be empirically investigated, as well as the scope for coalescence after /s z/ in 2b and 2c.

J2α (+ str)[- stress] → [+ glide]

(2a)	'volume	indis'soluble
(2b)	'capsule	com'mensurate
(2c)	'visual	

If /u/ is followed, (not necessarily immediately), by a stressed syllable, the glide is variable.

J2β [- stress](+ str) → [~ glide]

(2d)	lubri'cation	
(2e)	su'preme	mensur'ation

What remains to be explained is category J2β (and J1) where the glide is variable. In J2β the variability in the examples given in (2d), may be explained by reference to the gliding status of the root words. But combining /l/ with /s z/ in a single treatment causes problems. The incidence of coalescence for /s z/ in J2α needs to be incorporated. Where variation still persists, other factors linguistic and nonlinguistic are involved.

Because of the glide erosion within /l/ (in RP) since Jones 1956, I shall restrict my comments to the alveolar fricatives /s z/. My own analysis of /s z/ is more detailed. While related to stress, it also incorporates the influence of morpheme addition alluded to above, as well as distinguishing between initial (I) and medial (M) positions. Within the latter, morpheme (m) and non morpheme (n) based items are separated. Finally stress is used to distinguish subsets.

I In word initial position, the choice of variant is basically [+glide] or [-glide], with an increasing use of [- glide]. Thus

superior	zeugma
suitable	zeuxis

The coalesced form is generally preferred in *sugar, sure*. In its entry for the former, the *OED*, while admitting that the phonological history of its forms is in several points obscure, does attest the variability in the quality of the first vowel. It is suggested that the development with [š] makes it probable that long /u:/ prevailed (as with *sure*), and that shortening took place afterwards.

M Medial syllables divide into morpheme and non morpheme based.

Mm The initial phoneme of a suffix regulates the range of variants. Both *-sume* and *-sue* for example can take the 3 main variants [š sj s]. If

the prefix does not end in /s/, (as in *ent+'sue*), [+ glide] and [- glide] are used. But if it does end with /s/, (as in *'is+sue*), [- glide] is not an option. It is possible that these variants may be reinforced by stress, as will be seen in Mn below. Words formed with the suffix *-ure* (where the relevant vowel is morpheme initial), are restricted to the coalesced or glided forms.

press+	erase+
tonse+	seize+

In items like *mensuration*, the coalesced form is rarer, probably due to the influence of [-š-] in the final suffix *-tion*.

Mn If a morpheme addition is not involved, the choice of variants is allied to stress. If the relevant syllable is unstressed (and following tonic stress) [š sj; ž zj] are used, with the possibility of the combined form [šj].

peninsula	usury
sensuous	casuist

If the relevant vowel is stressed, a distinction between the voiced and unvoiced alveolar fricatives occurs.

/s/ tends to use [+glide] and [-glide]

pharmaceutical

marsupial

/z/ accesses (in RP) both the above forms, as well as [ž].

exuberant

luxurious

This analysis effectively describes the range of variants for each subenvironment using linguistic variables, but it does not set out to resolve which variant(s) an individual speaker will use. This involves the idiolectal dimension. The results of my empirical testing for /s z/ are given in §5203 and §5204.

Much of the theoretical and empirical work on the /Cju/ sequence has been based on eastern varieties of American English. These also provide a large scale illustration of what Wells (1982:247) called **Later Yod Dropping** (LYD). The general opinion of historians is that the language spoken in those states resulting from the original settlements, took many of its characteristics from the speech of the south eastern counties of England. It has been calculated that of the early settlers in New England, ⅝ came from East Anglia and London, with 1/6 from the south west (Devon, Dorset, Somerset). The East Anglian preponderance may contribute towards the greater loss of the glide than is current in Britain.

In the 18c Webster had a considerable regard for the New England pronunciation of his day. American speech was largely influenced by his *Spelling book* which, from its first publication in 1783 to the beginning of the 20c, was the most circulated book in the country. (Mencken 1963:402).

> "It had no traffic with slurring, but insisted that all words be pronounced as Jahveh had spelled them out to Adam and Eve in the Garden of Eden, or to the sons of Noah after the Flood."

Webster dismissed */j/* before */u/* as a peculiarity of Virginia speech, and hence barbaric. His 1828 *Dictionary* ordained the omission of the glide in words like *figure, value, volume, mute, literature. Gesture* and *jester* were homophones. Pyles 1971 confirms that Webster preferred plain [t] in *fortune, virtue,* and was opposed to coalesced [č], but he did recognize that in the north it was customary to have a glide in the suffix *-ture,* which was an unusual development. But his influence did not last. Glideless pronunciations were considered rustic and old fashioned by his more elegant contemporaries. After his death in 1843, succeeding editions reintroduced the glide. The westward spread of occupation across the continent means that the 20c

dialectal distribution of the glide may be considered in very broad terms using the tripartite division of American speech by Krapp 1925. In the east plain [u] is preponderant, but not uniform. The south has predominantly [ju]. In western American, both coexist. In general the glide tends to be absent after all coronal consonants, but it remains after labials and velars. Wells has specified the environments in which Later Yod Dropping has eliminated /j/ from the historical /ju/. The glide does not appear after /t d n θ s z l/, in strong syllables. These are either stressed syllables or those where there is no possibility of vowel reduction. In the case of weak syllables, general American shows a marked tendency towards Yod Coalescence. This has happened with /t d s z/. Wells suggests that something similar may take place with /nj/ and /lj/ (*op cit*:248).

Narrowing down the coverage to New England and the middle Atlantic states, Kurath & McDavid 1961 identified three kinds of pronunciation.

(1) The diphthong /lu/ with decreasing stress, was confined to the New England settlement area. It was most common in rural northern New England and upstate New York, with extensions in Pennsylvania, western Massachusetts and Connecticut. It was rare in southeastern New England. In urban areas and among better educated speakers, it was largely avoided. Any change depended on the previous consonant - labials and velars producing a different effect from alveolars. Kurath & McDavid drew attention to the lexical diffusion of changes in the alveolar environments.

> "the pronunciation /mluzɪk/ is being replaced by /mjuzɪk/, and /dluz, tluzde, nlu/ are giving way to /duz, tuzde, nu/ or, less commonly, to /djuz, tjuzde, nju/. The pace of the replacement varies from word to word ". (*op cit*:113)

The movement from diphthong to unglided variant without an intermediate

glided form is interesting. Was this the original development in East Anglia, with echoes of morphic resonance as propounded by the New Zealand biologist Sheldrake?

(2) The variant without the glide was current in the north and middle of the area. It is universal after alveolars in Pennsylvania, New Jersey and metropolitan New York; in New England it is predominant. A transitional band across West Virginia, Maryland and Delaware existed where both variants are used. There is no reference to coalescence.

(3) In the Atlantic states the glide is found in the more southern area. There is a sporadic [lu] phone, which Kurath & McDavid consider may be a prosodic variant of /ju/. Among less cultured speakers, the sequences /dju tju/ are partly replaced by the coalesced forms /ju ču/. This is attributed to the English folk speech of the western counties (*op cit*:174). Pronunciation with the glide is infrequent in the northern parts, but is sometimes the preferred form among more educated speakers. It is this region which has been subject to more recent empirical investigation

4110 A theoretical account: Chomsky & Halle 1968

Chomsky & Halle (1968:230-232) develop three rules for their own variety of AmE, to generate the surface forms for the range of consonants. They stated in their preface (*op cit*: vii) that what they were presenting was not "a definitive and exhaustive study". It was "an interim report" issued in the hope of stimulating criticism. Further on they specifically mention that

> "The dialect of English that we study is essentially that described by Kenyon and Knott (1944). ... Their transcriptions are very close to our own speech." (*op cit*:ix)

Despite basing their conclusions on their own dialect, they claim that

> "It seems to us that the rules we propose carry over, without major modification, to many other dialects of English." (*ibid*)

I shall retain both their rule numbering, (prefixing them with CH), and their phonetic notation.

4111 The rule for glide insertion

Chomsky & Halle (*op cit*:194) had noted differences in the effects of the stem forming augments [+l] and [+u]. When the former is unstressed the vowel is tensed and appears as phonetic [Ty], as in *proverbial*. If the vowel appears in a stressed position, it is tensed and it then undergoes vowel shift to appear as phonetic [āy] eg *sobriety*. However [+u] does not behave like its front counterpart. Whether stressed or unstressed, it appears as [yūw], as in *ambiguous* and *ambiguity*. So there are 2 differences between [+l] and [+u]. The back vowel

(a) has an initial glide

(b) does not undergo vowel shift.

They suggest there must be a segmental feature which is automatically

assigned to stem forming [+u] which exempts it from vowel shift. They propose the addition of a rule (CH50) to the grammar, which inserts the [y] glide of [yūw].

$$\text{(CH50)} \qquad \emptyset \rightarrow y \;/\; \_\_\_ \; \begin{bmatrix} \alpha & \psi \\ +hi & \\ +back & \\ & V \end{bmatrix}$$

They posit ψ as the feature [round] which distinguishes those vowels before which the glide is inserted, from those before which it is not. So they begin their system of rules with the proposition that the glide [y] is inserted before the back vowel. They maintain there was strong motivation for regarding [yūw] as phonologically unitary. If [y] was not introduced by some phonological rule, then the underlying representation of words like *cube* must be of the form CGVC, leading to the withdrawal of otherwise valid generalizations regarding CGV sequences. This implies that the glide is not in the underlying representation. Having established the insertion, they enunciate a triad of optional glide deletion rules (CH121-123) in different phonetic environments determined by the preceding consonant, which operate in their kind of American English, while making reference to other dialects.

4112 The three rules for glide deletion

A common rule in American English is that a glide after an alveolar obstruent may produce alternations (Hyman 1975:13), as in

we miss you	→	[wi miš(j)u]
we please you	→	[wi pliž(j)u]
we bet you	→	[wi bɛč(j)u]
we fed you	→	[wi fɛj(j)u]

The change is affected by stress, as it does not as readily take place if the following syllable is stressed. This (optional) rule may be expressed by

$$\begin{matrix} \text{alveolar} \\ C \end{matrix} \rightarrow \begin{matrix} \text{alveopalatal / j} \\ C \end{matrix}$$

To capture the phonetic motivation the rule can be reformulated

$$\underset{C}{\text{alveolar}} \rightarrow \underset{C}{\text{alveopalatal}} \;/\; \underset{G}{\text{palatal}} \quad .$$

The application of the rule also depends on carefulness and speed of speech.

It is fundamentally the first rule of Chomsky & Halle, which aims at generating words like *'actual, 'gradual, 'sensual, 'visual.*

$$\text{(CH121)} \quad \begin{bmatrix} -\text{son} \\ +\text{cor} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{ant} \\ +\text{strid} \end{bmatrix} / \_\_ \begin{bmatrix} -\text{back} \\ -\text{voc} \\ -\text{cons} \end{bmatrix} \begin{bmatrix} -\text{cons} \\ -\text{stress} \end{bmatrix}$$

As a result the alveolars [t d s z] become alveopalatal [č ǰ š ž] before an unstressed [u]. There is no palatalization when the vowel is stressed as in *for'tuitous, en'dure, en'sue, re'sume*: these are [- glide]. This rule accounts for the difference in American pronunciations between related words like *per'petual* and *perpe'tulty.*

A related rule deletes the glide after the alveopalatals.

$$\text{(CH122)} \quad \begin{bmatrix} -\text{cons} \\ -\text{voc} \end{bmatrix} \rightarrow \emptyset \;/\; \begin{bmatrix} +\text{cor} \\ -\text{ant} \\ -\text{son} \end{bmatrix} \_\_$$

This rule is restricted to the position following obstruents. So *tissue* becomes ['tɪšu], and not ['tɪšju] as it can be in RP, (see §0100).

They point out that in some dialects the glide is dropped after dentals and palato alveolars in other positions, leading to a different pair of contrasts like *residue, constitute* having [- glide], with *residual, constitutive* being coalesced. If it were only dental obstruents which were involved, the rule is simple. But additional information is needed for dental and palatal sonorants.

> "The relevant fact is the stress on the following vowel. Where the stress is other than minus, the glide drops." (1968: 222)

They cite *'annual, 'valuable* and *'virulent* as examples where the glide is maintained, as the syllable is unstressed.

The final rule operates before a stressed syllable. It deletes the glide after dentals and alveolars /θ n/ and liquids /l r/; but not after the labials /p b m/, labiodentals /f v/ and velars /k g/.

(CH123) $$y \rightarrow \emptyset \; / \; \begin{bmatrix} +cor \\ +cons \end{bmatrix} \; \underline{\quad} \; [+stress]$$

It will be seen from rules 121 and 123 that stress has different effects on the resulting variants. By CH121 unstressed syllables produce palatalization. By CH123, if the relevant syllable is unstressed and followed by a stressed syllable, then [- glide] ensues, since there is no scope for coalescence.

These rules can not apply unmodified to British English. They do not fully reflect the allocation of variants to given PCs. In particular this concerns degliding after alveolars. They do not capture the greater range of variants within environments like /s z/. The fundamental approach necessitates positing the rule of glide insertion. This implies that at some level the glide is absent, which may not be in accordance with the psychological reality of glide usage in British English, since gliding may be regarded as the dominant variant for some PCs. It is also interesting that Chomsky & Halle go counter to diachrony, as usually their rules recapitulate historical change.

Horvath 1985 has criticized the rules, specifically and generally.

> "There are many exceptions to each of these rules, even if their applications were limited to the sound patterns of American English, and not as they purport to be, the sound patterns of English. The third rule, [y] deletion in stressed position, is certainly not the case with British English and Australian English .... Even in Webster's dictionary, almost all the example words used by Chomsky and Halle are given alternate pronunciations - most including the [y] glide." (1985:111)

That there were exceptions to the rules within their own idiolect, and the fact that they are not totally satisfactory is recognized by the authors

themselves. With specific reference to the rule for palatalization, they mention that it is sometimes contradicted by words like *mature* or *luxurious*. Their response to this is that

> "Since these variants seem to coexist or to be distributed in various ways in many styles of speech, we must assume a considerable degree of arbitrary lexical categorization or of dialect mixture." (*op cit*:230)

Horvath does relent (*op cit*:112) by admitting that

> "In spite of the shortcomings of the Chomsky and Halle formulation of the complex processes involved with this particular 'CV' syllable in English, that these three rules capture the fundamental patterns of both palatalization and [y] deletion must be granted."

The rules provide a point of departure for the present survey. As with most other sources, the basis for establishing the selection of variants is the position of stress in a word. But as with Jones, this does not resolve the exceptions.

4120 A theoretical account: Bailey 1977

Bailey also bases his account on observation and intuition rather than on any detailed empirical examination. He describes the process as diphthongization or glide insertion rather than deletion, and establishes a complex rule for this. His notations incorporate the following.

(1) Markedness values:

u unmarked; universally most expected

m more marked; more unexpected

M over marked; most unexpected

(2) Parentheses:

in items 2 and 5 (or 4 and 5), they denote optionality. I have placed them around the item numbers in the rule below.

(3) Sequence of absolute values:

ɔ denotes the order [+ × (mid) −]

c denotes the order [− × (mid) +]

¯ bar over a symbol denotes negation

(4) // // indicate his underlying panlectal phonetemes.

4121 The implicational hierarchy: the items and conditions

The items in the structural index are numbered 1 to 6. Features are three valued, as indicated above.

1	(2)	3	(4	(5))	6
[α seg]	[u trb] v [m nas] [ɔ grv] [u lin] [c cnt] [(M̃ llq)]	[u nuc] [c acc] [m grv] [m low] [β ph w]	[M̃ trb] [γ cnt]	[M trb] [u nas] [M̃ llq]	[u nuc]

The change: Item 3 → [u grv, m ph w] ie /ü/

There are three conditions (C1-C3) which are attached to the non variable formulations of the rule. I introduce them at the appropriate items.

Item 1 This may be a segment, a syllabic boundary or a word boundary.

Item 2 The top line states that this must be either an obstruent or a nasal. Both are equally preferred.

Line 2 says the rule is more operative in the order [+ × − grave]. Thus [× grave], a labial or velar consonant is more likely than an alveolar [− grave]. Bailey gives as an example in American English, that some lects

the change in *cute, mute*, but not in *tune, news*.

Line 3 states that when item 2 is [u lln] = [x lingual], then the order of the values of [continuant] are [- x +]. Occlusive and nasal apicals cause the rule to operate in lects in which it may not yet operate when a [+ continuant] apical, that is //s z θ l//, occurs.

The least effective feature (at the bottom) is ($\bar{M}$ liquid). The apical here is ordinarily not overmarked. In the context of the rule it means a non mid [liquid] - that is not //r//. It may be a non liquid or a lateral. Since any //l r// in item 2 must be syllable initial (as required by condition 2), the variability of the markedness values of [liquid] in the antevocalic environment is irrelevant.

(C2) (1 = [α seg], not syllabic boundary) ⊃ (2 = [α liq], not liquid)

C2 says that when item 1 is not at least a syllable boundary, then 2 may not be a lateral. This is intended to ensure that only liquids not clustered with a PC can trigger the rule, that is for those which allow it to operate on stressed and unstressed *//u//* following liquids. For such speakers, the glide may be heard in *lute* but not in *flute*. The optionality parentheses enclosing [$\bar{M}$ liq] indicate that while an apical here must ordinarily be a non ŏvermarked [liquid] segment, it may (as a rarer option) have any value of [liquid], (that is it may be [δ liquid]), so that *//r//* is then allowed. Thus the operation of the rule is rare on unaccented inputs when item 2 is *//r//*, and rarer still on accented inputs when item 2 is *//r//*.

Item 3 This is a [+ nuclear] segment, a vowel, which is marked for [grave] and [low]. The vowel is *//u//*. It may be a segment with a normal or widened

pharynx, using the feature [pharyngeal width]. It may be lax or tense. However stress complicates the conditions. The feature [c accent] means that the rule is more operative on unaccented than on accented input vowels. Here condition 3 (with 2 stipulations), comes into play.

(C3) $\begin{bmatrix}(2 = \emptyset) \supset (1 = \text{[M seg] or \#})\end{bmatrix}$ &
$\begin{bmatrix}(2 \neq \emptyset) \supset \{(1 = \text{[M seg] or \#}) > (3 = \text{[u acc], unaccented})\}\end{bmatrix}$

If item 2 is absent (because of optionality), then item 1 must be a word boundary. If item 2 is present, and the rule operates when item 1 is #, then item 3 which is the input vowel, is less likely to be accented. On the other hand in condition 3, $\supset$ may be substituted for $>$ with the stipulation that a few speakers drop the entire second half of condition 3. This means that they have a more general form of the rule.

The third condition allows for the fact that lects permitting unaccented inputs to change after //s z θ l t d n// as in *pressure, seizure, Matthew, value, nature, procedure, tenure* - often do not permit the same change after these consonants if they are tautosyllabic, and therefore not when they stand at the beginning of a word, as in *superb, Lucinda, tumultuous, duplicity, neurotic.* A modification of the above is that some lects may not permit the change after some or all of the 7 PCs above, in the case where the input vowel is accented. Thus it is possible for a lect to have a glide in *tenure* but not in *manure.* Bailey points out that the consonant before the input vowel is heterosyllabic in *pressure, seizure, Matthew, nature, procedure, tenure.* He admits that *value* is a special case since he claims its syllabization varies from lect to lect. He does not explain how this is determined. It is questionable whether all lects make the PC heterosyllabic in the six words that Bailey uses. Bailey also claims that in lects where the rule operates on unaccented //u// following //r//, the /j/

of the output forces this consonant into the preceding syllable, as in *erudite, virulent, cherubim.* He claims this is true despite the fact that //r// is usually syllabified with a following vowel in many of these lects. More important is the recognition that there can be lectal variation in syllabification. This suggestion proved to be of interest later in this study, particularly when a speaker encounters a word for the first time in print.

Item 4 This represents a turbulent (obstruent) or semi turbulent (sonorant) segment. C1 states the relationship between the optional items 4 and 5, with 2 stipulations.

(C1) $(5 \neq \emptyset) \supset 4 = [M\ cnt]$ le stop

If 5 is present, item 4 must be [- continuant] that is, a stop. If 5 is absent, 4 may be - × or + [continuant].

Item 5 The optional item 5 is over marked or mid [turbulent], le a sonorant. It must be unmarked for [nasal] which has a minus value in this environment. Also it must not be over marked for [liquid] which in the environment under examination is not [+ liquid], that is not a lateral.

Item 6 The final item must be [+ nuclear]. This vowel can even be a word final //e// that later gets deleted.

In the rule, the ordered values in item 2 guarantee the correct ordering of the outputs. This means that more lects have the change following [× grave] = labial, velar consonants than following [- grave]

consonants. But when the environment is unmarked or mid [lingual] = an apical consonant, then the rule operates in more lects following [- continuant] and [x continuant] = nasal apicals, than after the continuants //s z θ l//. The hierarchy operates first on accented syllables and then on unaccented, so that glide insertion takes place more often when followed by an unstressed /u/. ($ is a syllabic boundary).

$ r ɔ

$ l θ z s ɔ

n d t ɔ

velars, labials

The most variable PCs are those specified invidually. It is to be noted that Bailey divides the coalescents into stops and continuants, implying that the stops have a greater association with the glide (on a par with /n/). The complexities of these environments will be examined in the analysis of my empirical results.

4130 Previous empirical work

As indicated in the opening chapter (§0110), the amount of empirical work on variants and variability in the palatal glide is limited. The depth of the surveys has ranged from the relatively superficial to the more elaborate and analytical. The five studies are by Stephenson 1970, Phillips 1981 and Pitts 1986 (all carried out in the south eastern states of the USA); Trudgill 1974 in eastern England; and Horvath 1985 in eastern Australia. I shall compare and contrast them under the following headings:

(1) stimulus for the research

(2) number and selection of participants

(3) elicitation of lexical items and range of PCs used

(4) explanatory variables tested

(5) problems encountered

(6) results and conclusions.

4131 Stimuli for the research

The stimuli were varied. Stephenson 1970 initiated the inquiries with the premise that given the existence of variant forms and the discernment of a trend "we can project this trend into the future, and predict with a reasonably good level of confidence, what will happen to the variants." (*op cit*:297). He did not specify a numerical level of confidence, stating simply that absolute certainty is impossible because of nonlinguistic factors. This statement was made when some linguists were still unaware of the power of statistics both to inform and to deform the interpretation of data. His observation arose as a result of the difference between the southern Atlantic states retention of the glide and the northern loss (§4102). Stephenson had noted that variation appeared to be on the increase in the south, and he wished to test whether the younger age groups were promoting the change. Phillips 1981 broadened the inquiry to examine the relation between glide loss and word frequency. Pitts 1986 had noted that both American television and radio maintained a conservative standard with regard to pronunciation. She questioned the simplicity of the previous studies since she suspected that the situation was more complex.

In contrast, the remaining studies formed parts of larger investigations. Horvath examining variation in Sydney, restricted herself to

the coalescing consonants /t d s z/. In England Trudgill 1974 used 16 phonological variables, among them (yu). The main thrust of his research was to demonstrate degrees of social differentiation with respect to these LVs.

The stimulus for the present investigation came from a lecture to MA students given by my supervisor [PJS], in which he presented his specially composed rime involving lexical items in the /l/ environment, opening up for some of those students vistas and prospects hitherto unconsidered.

4132 *Number and selection of participants*

Kurath & McDavid 1961 had used information collected in New England and the middle Atlantic states in the 1930s and 1940s. The 157 informants represented a 'social and cultural elite and the upper middle class' (*op cit*:11), and were mostly between the ages of 45 and 65 (only ten were under 40). Selection procedures in the recent American studies were different. Stephenson had 44 students at the University of Georgia, divided into southerners (n = 36) or nonsoutherners (n = 8). The southerners were either undergraduates (average age 21 years) or graduates (average 40). He appears to have simply used the pair of classes that he was teaching linguistics to. The older students were all teachers: the younger students were preparing to become teachers. "There was a small difference in educational level of course" (*op cit*:298). In which direction he does not divulge. But in no way can they be said to be representative of the wider spectrum of southern life and mores. With Phillips, younger students from the University of Georgia again took part (n = 60, aged between 18 and 21). All were natives of the state. Her aim was "to obtain a statistically adequate population." (*op cit*:73). Pitts necessarily used a different approach. Her informants were announcers and news readers transmitting from Detroit (Michigan) in the

north, Birmingham and Montgomery (Alabama), and Columbus (Georgia) in the south. She does not disclose how many were involved.

Horvath used 177 interviewees. She drew on adults aged between 31 and 64 years with a mean age of 44; and on teenagers with a mean age of 15. She did express the fear that the sample of the latter may be biased since they were all still at school, and that if they were working class they may be aspiring to middle class status. This fear is not necessarily reproduced in my investigation since some of the older pupils remain at school because jobs are not available.

4133 *Elicitation of lexical items and range of PCs used*

The three American investigations use the trio of alveolars /t d n/. Horvath examined those PCs capable of palatalization /t d s z/. Trudgill used a broader range. Stephenson had initiated the 'Georgia' paradigm of *tune, duke news*. Phillips used a list of 100 items, in which were embedded 30 relevant words, ten each of initial /t d n/, both mono and polysyllabic. Pitts on the other hand kept records over a period of 3 years of every word in the paradigm that she heard on television or radio (including the /st/ cluster). She claims (*op cit*:132) to have covered 108 separate words, producing 3704 tokens. But her table only lists 97 types including plurals (even with *news* and *News* distinct). Of these, 5 are compounds of *new*, 12 use *New* as part of a place name and seven were compounds of *news*. As a result /nju(z)/ accounts for ½ of types and about ⅝ of tokens, reflecting the sources. If we exclude plurals and repetitions of morphemic items like *-duce, -tute, -tude* we are down to under 50 types. But there were enormous fluctuations in the frequencies of tokens. Three items *news, News, new* were noted a total of 2160 times. The 19 commonest types covered 3323 tokens.

This only leaves 381 tokens for the remaining 89 types (using her total of 108), an arithmetic mean of four tokens per type. If the three years mentioned for the duration of the survey implies a period of about 150 weeks, then the number of tokens averages 25 a week, or about 4 a day. I have to express my admiration for the determination of the researcher in persevering so long. Difficulties arise in trying to note them unequivocally when a word occurs unexpectedly, and with no possibility of token repetition.

Horvath (*op cit*:113) used a list of nine words (5 stressed).

> "the set of words was chosen for Australian English just because these consonants are variously palatalized when followed by both stressed and unstressed [u] in the speech of Sydneysiders."

	[+str]	[-str]
/t/	tune	attitude fortune
/d/	due	educate
/s/	assume consume	insulate
/z/	presume	

McCallum 1959 (cited in Horvath 1985) had noted the following Australian variants for *tuesday*. Educated speech used the glided form. Broad, illiterate and uneducated Australian were coalesced. Bernard (1981:25-26) had commented on the regular palatalization of /t d/ before /u/, mainly in weakly stressed syllables. The palatalized forms were the commonest, except for the most careful of speakers. He was referring to those words where glided and palatalized forms were in use, as in *tune, due, educate*. Words like *gradual, actual* were excluded, since these categorically have the palatalized versions. Why they are categorical is not explained. Explanation in these surveys varies from the nonexistent to the complex.

4134 Explanatory variables tested

Stephenson did not delve into linguistic constraints. He only referred to region and age. Phillips, while accepting the principles of inconsistency and variation in the speech of individuals, (a feature which turned out to be minimal in my Liverpool investigation), was concerned to test the opinion of Schuchardt that the more frequently used a word was, the more likely it was susceptible to sound change, unlike analogic change. She cited as examples of testing this idea, work by Leslau 1969 on assimilations in Ethiopian languages; Phillips 1980 on the assimilations involved in the raising of OE /a/ before nasals; Fidelholz 1975 on vowel reduction in initial unstressed syllables; and a shwa deletion before <-ry> which did not affect the phonotactic structure of the language (Hooper 1976). Yet none of these investigations had examined a change like the loss of the glide in the alveolars, which did affect structure in that it resulted in the loss of the clusters /tj dj nj/ for a section of the population. Pitts went into greater explanatory detail. She included 6 social and 2 linguistic parameters. The race, sex, age and origin of the speaker were ascertained; the location and type of broadcast were noted. But linguistically only the preceding consonantal environment and the stress pattern of the word were taken into consideration. She classified her data into nine patterns. Monosyllables with full stress are the first group. If a place name contained an unstressed *New* (as in *New Mexico*) it was put in group 7. If *New* was stressed as in *Newport* (and as a single word), it became pattern 2. This pattern purported to represent the trochaic foot, a bisyllabic word with a stressed syllable followed by an unstressed. Yet of the 34 items which Pitts includes in this pattern, 7 (eg *newspaper*) are trisyllabic, and are all properly dactylic (stressed followed by 2 unstressed). The group designated dactylic, pattern

6, only includes unstressed /u/ as a final syllable (eg *magnitude*). The iambic foot of 2 syllables, pattern three - an unstressed syllable followed by a stressed syllable (eg *induce*) - contains a pair of three syllable words. The fourth group covers fully stressed syllables, like *constitution*, where stress is on the penultimate or antipenultimate syllable. The anapestic foot, pattern 5, [- str -str +str] contains 2 items. Both are allocated correctly. An important grouping, particularly in view of the experience of incipient glide loss in Liverpool is that of pattern 8. These are initial unstressed syllables, such as *nutrition*. The last group of the nine, with a final unstressed syllable eg *statue*, has 2 members. For all its apparent specificity, this categorization of nine patterns contains groupings and inconsistencies which undermine its value. Yet each occurrence was coded for all of the 8 parameters examined. Because of the complexity of the calculations, a special variable rule computer program was used to evaluate the relative influence of the constraints, and to predict the probability of loss of the glide.

Horvath coded her words according to seven factor groups. Four of these were for social characteristics (age, gender, socioeconomic class, and ethnicity). The three linguistic groups were stress, manner of articulation (stop or continuant), and voicing. Whether or not the relevant consonant was palatalized constituted the dependent variable. Levels of formality were not a factor as the items were elicited only by a list. The novel technique, (in linguistics at least) of principal components analysis was used.

4135 *Problems encountered*

There do not appear to have been many problems in recording and interpreting the data. Phillips discloses that of her 30 items a single word

- *tumult* - was eventually disregarded, as 80% of the students appeared to be unfamiliar with it. (Any pedagogical or epistemic interpretation is better left to others more qualified.) Despite a trio of Georgia linguists (including herself and Stephenson) listening to the taped responses, she admits that "It was not always easy to tell whether a glide was present or not." (1981: 75). There were in between sounds such as 'a palatal /t/' as in [ʈun] or 'a fronted /u/' as in [nüd]. If a majority decision by the troika was not reached, the response was excluded. Other exclusions were for a subject missing out a word; or mispronunciation, as in [djutɪ] for *duly* or [dʌn] for *dune*. Just under 3% of responses were rejected. Affricates were not a problem. There was only a single instance. "That response was ... rejected since it represents a different direction of sound change." (*loc cit*). However in the present investigation such variants bulked large in the alveolars.

4140 *Results and conclusions of previous empirical work*

The conclusions of both Stephenson 1970 and Phillips 1981, despite the small scale on which they were conducted, appeared to lend support to the belief that in the American south, the glide was in decline. More detailed examination by Pitts revealed that the situation was not so simple.

> "What makes this particular sound change unusual is that it appears to be reversing itself among some groups of speakers even while others are adopting it". (1986:131)

The solution seemed to lie in the realm of prestige. In a different setting results with a more linguistic interpretation were arrived at by both Horvath and Trudgill, as well as in the context of social correlates.

4141 *Stephenson 1970*

The results of Stephenson which relate variants to origin and age, are given in table 41-06.

Table 41-06
Stephenson 1970 Results: tokens and percentages

	+ glide		- glide	
southern: 16 older	36	(75%)	12	(25%)
southern: 20 young	33	(55%)	27	(45%)
non southern: 8	1	(7%)	23	(93%)

(1) southerners in the USA retained the glide more than northeners.

(2) older students used the glide more than younger students. There were urban influences on those older speakers using unglided forms.

This led Stephenson to conclude that southern [ju] was on the wane.

> "On the basis of this evidence I venture to predict that within 2 generations, or about 50 years, pronunciations like [tjun] will be virtually nonexistent". (*op cit*:300).

For a relatively small sample size (n = 44) and an absolutely small number of types (k = 3), conclusions must be tentative. I carried out a χ^2 test just on southerners, which produced a value of 4.462. For v = 1 this is significant at the 5% level, and supports his conclusion about gliding and age. Since the linguistic contexts were limited, any differences must be attributed to non linguistic factors.

4142 Phillips 1981

Phillips concluded that the loss of the glide is similar to other sound changes which have been investigated with relation to word frequency in that it has spread by phonetic analogy and it occurs "where memory fails" (citing Anttila 1972:101). This applies when the glideless form becomes the default form [PJS]. Following Cooley 1978, Phillips supports the view that the deletion of [j] after coronal nasals and liquids was an attempt at stabilizing the phonotactic system, disrupted by the conversion of [lu] to [ju]. It is this effect on surface phonetic constraints and surface phonemic contrasts that distinguishes the loss of the glide from some other sound changes. There is a surface phonemic distinction between pronunciations with and without the glide. Phillips suggests that the average southern speaker is conscious of 2 alternatives. Some words have the choice, others must only be pronounced without the glide. It is the first kind, where an alternative exists which is relevant here. If the word is very familiar, a speaker is more sure of himself, and is therefore more likely to produce a glided pronunciation (being a southerner). If the word is less frequent, he is likely to be less certain. At this stage Phillips indicates the possibility of the

inter individual variation of underlying representations. If a speaker takes the underlying representation of a less familiar word to have [- glide], it will be pronounced unglided. Conversely, if the underlying representation is taken to be [+ glide] then a choice is possible. With words used infrequently by a given individual, he is more likely to forget which underlying representation is 'correct'. There is also the possibility of an incomplete phonological lexical entry [PJS]. 'Correct' here means the representation which is most likely to exist in his lexicon. As a consequence, "the safest course is obviously to pronounce the word without the glide." (Phillips 1981:77). This is because the unglided pronunciation can be recognized as a form of the word, no matter what the underlying representation may be.

This exposition raises some questions. What is an 'average' southern speaker? Why, if the lexical category [+ glide] tolerates both variants, does [- glide] only permit the unglided form? What are the factors which distinguish the lexical categories? Are the factors simply lexical, to the exclusion of other linguistic factors. These questions are not resolved by Phillips. Instead she concentrates on the role of communication in sound change.

She maintains that this, and the significance of surface phonemic distinctions, clarifies why [j] is lost first in the least frequently used words. Her method of demonstrating the proposition was to divide the words into frequency groups (which seem to be based on a logarithmic scale of powers of ten). The words which fell into each group had their tokens for glidelessness added and then averaged to provide the group frequency in column three in table 41-07. Note that all her words involve initial syllables. Column 3 indicates that the lower the frequency, the greater is the level of glide deletion. There is no calculation of correlation between

frequency and glidelessness for individual words. In addition as PJS has noted, the percentage of monosyllabic words in each set also increases fairly systematically.

Table 41-07
Glide deletion and word frequency (after Phillips 1981)

Frequency per million tokens	Words in the group	Group average	Group range
0 - < 1	nude, Tudor, tuber, tunic, dues neutron, duly, tuba, dude	74.4	61-95
1 - < 10	nutrient, tutor, duel, duke, dune durable, tulip, nuisance, neutral, nucleus	71.8	61-88
10 - < 100	Tuesday, numerous, tune, duty, numeral, due, tube	60.1	51-68
101 - 500	knew, during	54.5	46-63
> 500	new	43.0	43

Some comments on the construction of the corpus she used as a basis, are necessary. The American Heritage *Word frequency book* (Carroll, Davies & Richman 1971) was based on samples of school texts used in grades 3 to 9. For this reason it was considered more relevant for comparisons involving the school based participants used in the present study. A total of 86,741 word types was found in the 5,088,721 tokens sampled by the American Heritage (AH) researchers. After excluding 35,079 hapaxes, numerals and numeric fractions, this leaves about 50,000 types with more than a single occurrence. Carroll *et al (op cit*:xxxix) explain that the definition of a type employed in their corpus is a string of graphic characters bounded at each end by space. This definition has the effect of considerably increasing the

number of types compared with those classifled as dictionary entries. A word occurring at the beginning of a sentence (and consequently capitalized) is counted separately from the same word without an upper case initial. Plurals, possessives and compounds are treated in the same manner. The authors defend this approach (*loc cit*:fn 4) by claiming that

> "there is good reason to believe that the lognormal model, is applicable, in principle, *no matter how* word types are defined."

Conversely what the AH frequencies do not do, is to distinguish between parts of speech. A word like *tune* is not counted separately for its nominal and verbal functions. Both these points are of importance. Inspection shows that Phillips used only the AH statistics relevant to the basic word form, eg *duke*. She ignored any contribution from *dukes, duke's; Duke, Dukes, Duke's;* or even *dukedom*. Her data were not based on the raw frequencies of the words. She used the statistic for the estimated frequency per million tokens (U), which is derived from the raw frequency with an adjustment for dispersion over the 17 subject categories which the AH corpus used. It is claimed by the authors of the word count that U better reflects the true frequency that may exist in a corpus of indefinitely large size.

As mentioned above, Phillips did not carry out an individual lexical calculation of correlation. But using her order of frequency, and the individual word percentages of glide deletion, I calculated the Spearman rank correlation coefficient (r_s) for the 29 valid words, (out of 30). r_s came to 0.60. By combining the tokens for plurals, possessives and upper case initials, I suspected that a better indication of frequency may be established. I therefore combined the frequencies for the words Phillips tested (with the exception of *nuclei* on the grounds that it is an irregular plural), and recalculated the Spearman statistic for the 29 items. It came to

0.60, exactly the same as before. When this value was tested using the 2 tail version of the Student *t* test (Clarke & Cooke 1978), there is significant evidence against the null hypothesis that there is no relation between the rankings. This is corroborated by use of the D^2 + T table (Langley 1968). The conclusion of Phillips with respect to frequency appears to be confirmed.

In addition I examined the rank correlation for the three alveolars separately. The results were

$$r_{sn} = 0.66$$

$$r_{st} = 0.46$$

$$r_{sd} = 0.30$$

While the individual coefficients are necessarily not as significant as those for the complete word list, due to the smaller number of items, the differences suggest that each PC will benefit from separate analysis.

4143 Pitts 1986

Phillips had concluded that "The unmistakeable pattern is that the least frequently used words have been the most susceptible to change." (*op cit*:75). This conclusion was not to go unchallenged. Pitts was unable to confirm the findings of Phillips 1981 with regard to frequency. Nor was she able to establish a coherent pattern of glide dropping in her 19 most frequently occurring items. The proper noun *News* and the common noun *news* were unglided just under 40% of the time, the adjective *new* was glideless 59% (cf Phillips 43%), and in the name *New York* this reached 80%. Pitts admits that her figures may be biased by the greater frequency of the words *new, news*, since they comprise almost 3/5 of the entire sample. Their glided versions alone amount to 1/3 of the sample. While she found no coherent

pattern of lexical diffusion, the glide may be associated with those particular words which serve as a symbol of the self image of the media, to which the glided pronunciation lends a respectable formality.

Native southern announcers had a glideless probability factor of 0.30; the figure for northerners was 0.70. The trend towards glidelessness in the south was being accelerated by younger speakers (Stephenson 1970 and Phillips 1981). When the announcers are broken down by sex, females are more ready to drop it. Their figure is 0.56 as opposed to 0.44 for males. The difference between black and white speakers was not statistically significant.

Pitts maintained that the PCs did not play a distinguishing role. She does not provide a breakdown of the distribution of tokens. But her conclusion may be treated with some degree of circumspection in view of the differences between the numbers recorded for each environment. I have calculated (§4133) that the 19 most frequent types represent 3323/3704 tokens (ie 90% of all recorded occurrences). The data for /n/ cover 80% of these frequent tokens; /t/ 10%; /d/ 8%; and /st/ 3%. The remaining 78 (or 87 depending on how they are counted) types recorded only 381 occurrences between them.

The elabaorate system of stress patterns did reveal some structure. Monosyllabic, iambic and anapestic words (where the stress falls on the final or only syllable), have a greater tendency to preserve the glide when the final syllable contains the [u]. Conversely the glide was most likely to be lost from an unstressed syllable followed by a stressed syllable, as in *nutrition*. What may be as important here is the position of the syllable in the word. In any case the value of her conclusions is diminished by the inconsistencies in the allocation of items to groupings.

The expected effects of word frequency were being disturbed in broadcast speech by something else. In the constraint designated register, there were six categories which distinguished between national and local versions of news, advertisements and interviews. The seventh was for public broadcasting. The figures for news and advertising demonstrated a surprising discrepancy (*op cit*:135). The local southern stations appeared to be promoting the loss of the glide. On the other hand the probabilities for interviews showed little difference between national (0.67) and local (0.70). Pitts concluded that speakers with less social power or prestige appeared to be more inclined to glide loss. She suggested that women and local southern stations interpreted the glideless forms as being progressive, simply because they were not typical of southern speech, which had the aura of being oldfashioned.

What was more difficult to account for was the adoption of the glide by the more prestigious groups. Both northern and national broadcasters were either retentive or innovative in the use of the glide. This was attributed to a different kind of prestige. Northerners, Pitts suggested, may perceive use of the glide, not simply as a southern feature, but primarily as an elegant variant which is appropriate to the formal medium of broadcasting. (It is apparently favoured by elocution teachers in both north and south, but even this can not dissuade people from using it). The sentiment is sufficiently strong to offset the official preference for the glideless forms, evident in the handbook of pronunciation used by the National Broadcasting Corporation. Unlike Trudgill 1974, Pitts did not carry out a survey of attitudes toward the use and perception of the glide. The idea of elegance may also be associated with what Pitts calls 'the prestigious British accent' (*op cit*:137). As she identifies this with gliding

after /s/ and occasionally /l/, she is presumably referring to RP. She exemplifies with a pair of (unrelated) advertisements: for a set of leather bound volumes on the American [rɛvo'ljušən], and analgesic ['kæpsju:lz].

The regional flip flop whereby many southerners are degliding while some northerners are beginning to glide, is attributed to the fact that both variants are prestigious, but to different groups of speakers for different reasons. The omission of the glide is valued by those only recently gaining a place in broadcasting - women, blacks and local southern announcers. The glide itself is being propagated by the better and longer established white nonsouthern male announcers. It must be emphasized that this obtains in a limited set of words only. It is here that the sound change is being reversed: but the frequency of those items gives them a disproportionate stylistic impact. A broader spectrum of words and preceding consonants was examined in England.

4144 Trudgill 1974

In addition to class differentiation, what was of interest to Trudgill was the minor nature of the stylistic variation, a finding corroborated in my investigation. [j] did not depend for its frequency of occurrence simply on social class or social context. It also depended on the initial consonant (since in the items he used, the PC was always word initial), and to some extent on the lexical item itself. A feature of his enquiry was the self evaluation test. The 30 subjects were presented with a list of 12 items. They first read them aloud as a word list. Then they were asked to indicate on a chart which pronunciation - with or without the glide - most closely resembled the way in which they normally said the word. Trudgill divided the informants into 2 groups. Those using 50% or more [j]

were considered to be glide users: those with less than 50% were called non users. His figures are in table 41-08 showing that most informants were accurate. But while Trudgill had expected a degree of over reporting, 40% of glide users claimed to use what he saw as the lower status, non prestige, unglided variant.

Table 41-08
Self evaluation of *tune* in Norwich (Trudgill 1974)

	% of informants and glide use	
	claimed	not claimed
actual glide users	60	40
actual non users	16	84

When the subjects are classified by sex, males are much more accurate than females (Table 41-09). The other difference between the sexes lies in the fact that if inaccurate, males under report, while females over report.

Table 41-09
Reporting of *tune* in Norwich (Trudgill 1974)

	percentage of informants		
	total	male	female
over reporting	13	0	29
accurate	80	94	64
under reporting	7	6	7

Trudgill concluded that at a subconsclous or private level, males were disposed to use non standard forms. If it is true that informants perceive speech in terms of the norms they are aiming at, then for Norwich males the

feeling of group solidarity takes precedence over social status, (unless group solidarity implies and includes social status). The reason why females over report, according to Trudgill, is that they wish they did use the more statusful variant, or feel they are expected to, and therefore believe they do. When age was examined, younger speakers were more accurate than older.

The conclusions may be less useful than stated, since the use of the more formal pronunciation normally associated with word lists, may not reflect usage in casual or normal style, which is what the subjects were asked to compare. The cutoff proportion of 50% to divide the informants into 2 groups provides a clear cut division. But if there had been three groupings, say 2 extremes at 25% or below and 75% or above, with a middle group of more variable users, more specific information may have been ascertained.

4145 Horvath 1985

Horvath shows that of the three linguistic factors she examined, stress is the most important; a consonant in an unstressed syllable is more likely to be palatalized. Of the others, stops are palatalized more than continuants (and not *consonants* as her page 115 states); and that voicing favours palatalization. The first conclusion needs to be interpreted with circumspection. The stops included word initial types, and these are more prone to coalescence. Her results are in table 41-10. (The original result percentages have not been given correct to significant figures. Only the first pair of digits of a percentage have been stated, with no allowance made for rounding upwards. Thus for coalescence in stressed syllables, 107/548 = 20% (2sf) and not 19%. I have indicated these small discrepancies

in both tables by quoting the original figures followed by +. No substantial differences are involved.)

Table 41-10
Horvath - analysis of coalescence: linguistic factors

Factor and contribution		Coalesced Total		Percent
stress				
stressed	0.34	107	548	19+
unstressed	0.66	203	427	47+
manner				
continuant	0.41	79	429	18
stop	0.59	231	546	42
voicing				
voiced	0.57	123	327	37+
voiceless	0.43	187	648	28+
Totals		310	975	32

Based on Horvath (1985:116)

Horvath says she is in a position to modify rule C&H 121 (given in §4112) by adding a reference to articulation and voicing, making the variable rule H1.

(H1) Palatalization of /t d s z/: the Horvath modification

$$\begin{bmatrix}-son\\+cor\end{bmatrix} \rightarrow \begin{bmatrix}-ant\\+strid\end{bmatrix} \Big/ \left(\begin{matrix}-cont\\+voice\end{matrix}\right) \begin{bmatrix}-back\\-voc\\-cons\end{bmatrix} \begin{bmatrix}-cons\\(-stress)\end{bmatrix}$$

Horvath also tested social factors. Table 41-11 gives her results. All the social factors are significant except perhaps for socio economic class. However age produces a lower χ^2 statistic than class. (χ^2_{age} = 3.486 compared with χ^2_{class} = 9.415). She interprets her results socially to indicate that palatalization is more frequent among males, Anglos and teenagers, and disfavoured by the middle class. For comparisons with the present survey, the

Horvath data has to be converted in line with the more restricted social correlates examined here. (§5212).

Table 41-11
Horvath - analysis of coalescence: social factors

Factor and contribution		Coalesced	Total	Percent
sex				
male	0.64	197	460	42+
female	0.36	113	515	21+
age				
adult	0.39	59	223	26
teenager	0.61	251	752	33
ethnicity				
Anglo	0.64	166	465	35+
Italian	0.38	58	243	23+
Greek	0.48	86	267	32
class				
middle	0.40	90	348	25+
working up	0.53	108	321	33+
working lo	0.57	112	306	36+
Totals		310	975	32

Based on Horvath (1985:116)

4146 London

London, as Wells (1982:301) reminds us, is the linguistic centre of gravity of England. He maintains that its working class accent is nowadays the most influential source of phonological innovation in the country. (Compare the opinion of Strang 1970 on the position of Liverpool in the 1960s). Cockney (like Scouse) constitutes the basilectal end of the metropolitan accent continuum. Wells describes the most striking phonetic characteristics of Cockney as the shifted diphthongs and the extensive use

of the glottal stop. There are phenomena relating to the palatal glide, but they are not as salient as those just mentioned. The glide is retained everywhere in London after /p b v g/, and is extremely common after /m f k/, with Sivertsen 1960 in her study of elderly Cockney women reporting sporadic dropping in this trio. Where RP has an alveolar plus glide, as with /t d n/, Cockney traditionally exhibits yod dropping. Wells reports that comments on the prevalence of this type of pronunciation in London are to be found from the 18c onwards, and cites Matthews 1938 and Sivertsen 1960 as accepting glide loss here as the contemporary Cockney norm. Since then a development appears to have taken place with /t d/. There seems to have been a switch in popular London speech towards yod coalescence. Evidence comes from the work of Beaken 1971 and Bowyer 1973. They found no cases of yod dropping after /t/ or /d/. In the case of Beaken, his investigation of primary school children was based on a school close to Bethnal Green, where Sivertsen had carried out her survey. Beaken reported that the typical pronunciation of words such as *tune, due,* was with [č- J-], both word initial. The only variant was the alternative with yod. This was seen as being elegant. Gimson 1980 also regards the variant with /J/ as being more careful, deliberate and formal. It has been observed by Wells that people are aware of the fact that yod coalescence is stigmatized to some extent. This has led to the use of the hypercorrected forms [tJ dJ] in *chew, June.* The hint of a non linguistic correlative is taken further in Bowyer. Here adults in a prosperous south London suburb were allocated to four social groups. It was reported that *tune* commonly had [č-] for the lower social groups, and varied between [č-] and [tj-] for the upper groups, with no cases of glide dropping. In a study of a single family of east Londoners over three generations, Hurford 1967 referred only to the variation between the coalesced [č] and bare [t] in *tune*

etc. This variation may have been related to age in view of the previous remarks, but Hurford suspected that it was lexically conditioned, a useful indicator for the present study. For the nasal, Bowyer reported that for *new*, the unglided form was restricted to the lower groups, and even with them was not the dominant variant, which was still [nj-].

Wells was not sure why yod coalescence was displacing yod dropping as the broad Cockney norm. He considers it to have been an unusually abrupt switch. But the size of the capital may provide a clue. The coalesced forms have been attested in south London from at least the beginning of the 20c. They may have spread from there, for whatever reason, by whatever process, to displace the typically east Anglian forms with bare [t- d-].

4150 Conclusion

It can be seen from the theoretical and the empirical investigations of the palatal glide or its concomitant variants that a variety of features (linguistic and nonlinguistic) have been monitored and examined to see if they were able to explain why certain variants prevailed. Some of these features were to prove useful and necessary in the present enquiry. How these previous studies affected the choice of explanatory variables and comparison with them, will be discussed in the next section.

4200 Proposals: potential explanatory variables

Following the presentation of the conclusions of other researchers into the /Cju/ sequence, I shall now coordinate their constraints, and establish the explanatory variables to be investigated in this enquiry.

Table 42-01
Possible factors affecting production of variants

	PHONOLOGICAL AND PHONETIC	
1	preceding consonants	Tr Ho Ba
2	consonant clusters	Pi Jo Ba Co Fo
3	position & number of syllables	Ba Jo
4	stress of relevant syllable	Be Ba Pi Ho Fo Jo C&H
5	stress pattern in word	Jo Pi
6	syllabification	Ba
7	manner of articulation	Ho We Ba
8	voicing	Ho
	LEXICAL	
1	word frequency	Ph Pi
2	lexical conditioning	Hu C&H K&M
3	shared morpheme	Jo
	STYLISTIC	
1	register or formality	Tr Pi
2	cultured voice	Pi Be Gi
	NONLINGUISTIC	
1	class or social status	Tr Ho Be Bo
2	prestige or solidarity	Pi Tr
3	chronological age	St Ph Pi Tr Ho
4	sex	Pi Tr Ho
5	ethnicity	Pi Ho
6	geographical origin	McD St Pi
7	educational level	McC

Four groups of variables may be distinguished. They are listed in table 42-01 together with a code for the researchers, as follows.

Ba	Bailey	Fo	Fowler	Jo	Jones	Pl	Pitts
Be	Beaken	Gi	Gimson	McC	McCallum	St	Stephenson
Bo	Bowyer	Ho	Horvath	McD	McDavid	Tr	Trudgill
Co	Cooley	Hu	Hurford	Ph	Phillips	We	Wells
C&H	Chomsky & Halle	K&M	Kurath & McDavid				

Kaplan 1965 has compiled a taxonomy of types of noncausal explanation. Among them are what he refers to as mathematical generalizations (*op cit*:148), in which a quantity is formulated as a mathematical function of some other. These may be predictive, but according to Lass 1980, are not 'classically' causal. Lass suggests that the studies associated with sociolinguistic variationists come into this category of mathematical generalizations. While they provide significant additions to our awareness and understanding of the social functioning of language, the connections they reveal are not strictly explanatory. Lass argues that none establishes a causal nexus between any social factor and the actuation of change or the selection of any particular variant. What they do is to describe the particular social uses that existing variants may be put to; how they come to serve some indexical function within a speech community; and how they create mathematical formulations of rules which may be said to govern the distribution and deployment of variants. They are descriptive rather than explanatory. Lass has concentrated here on sociolinguistic variables, but he had also included intralinguistic covariation in this scheme. Clearly Lass propounds a more rigorous idea of explanation than is accepted by others. Pateman 1987 for example, argues for the attractions of a realist view of the nature of linguistics as opposed to a positivist or

idealist standpoint, basing his contentions on the work of Bhaskar 1975, 1979. A less rigid concept of cause and explanation will permit a distinction between internal and external variables, on the grounds that there is a more intimate connection between variants and the former, even if this connection is not necessarily causal.

In this thesis the explanatory variables influencing choice of variant, are linguistic. This is not to deny the place of non linguistic factors, but I feel that more extraneous factors while being capable of being correlated with change and choice, and as such providing a non causal explanation, are not causal in the sense of the word used by Lass 1980. Linguistic factors operate more transparently on actuation of change and selection of variant (except perhaps in the case of /s z/). For my purposes, the variables in the table were pruned since some were not relevant or had been found wanting.

4210 All preceding consonants

The preceding consonant has been the most convenient feature to use to make an initial distinction between (near) categorical and variable usage of a variant. It can serve to identify my minivariables. The first area in the empirical testing is to ascertain (or confirm) the gliding status of each of the 17 PCs. Then to see how Liverpool compares with RP, and following Bailey 1977, to compare any hierarchy of preceding consonants with his. Previous research had focused on those PCs where there is generally a binary choice of variants. Since this does not always apply to British English, I shall make a 4 part distinction (§5.10).

A consonant cluster usually operates phonotactic constraints which

preclude the use of a glide. Cooley 1978, Fowler 1926. Rockey 1973 and Roach 1980 have listed some phonetic subenvironments, and Jones was aware of /Cl/, but only Pitts 1986 has specifically looked at the place of /st/ within the /t/ environment. I shall report on the effects of such clusters, and how they affect the status of a PC.

Having established the main areas of variability in the PCs, we then need to investigate the reasons for that variability. The following points were designed with the 4 coalescents /t d s z/, and /l/ in mind. Suspecting that the distribution of the glide is not influenced by phonetic or phonological factors alone, attention will also be directed towards sets of lexical items.

4221 Manner of articulation and voicing

For the coalescents, I shall look at the conclusions of Bailey 1977, together with the findings of Horvath 1985 that the stops /t d/ promote coalescence more than the continuants /s z/; similarly with voiced rather than voiceless consonants. In addition the lexical distribution of the three variants needs to be investigated.

4222 Syllables and words of similar phonological shape

The suggestion of Bailey 1977, that polysyllabic words are more disposed to glide production than monosyllabic words will be scrutinized. Increasing the number of syllables raises the possibility of interactions between stress and vowel quality and quantity. Bailey also noted the

importance of word initial position for glide loss, and this will be pursued here as well, in conjunction with syllabification. Specific words of a similar phonological shape like *dilute* and *delude*, (which are both bisyllabic, with the relevant syllable second and stressed), will be examined for differences in the proportions of glide use between words, groups and individuals.

4223 Words of similar morphological shape

As with the corresponding phonological category, words of the same morphological shape (eg *dilution, solution*) will be tested to see if the level of gliding is much the same, or if the proportions of glide use are significantly different. This had been alluded to by Jones 1956. Given the level of gliding in the base form *-lude* or *-lute*, it may carry over to derivatives like *-luted* or *-lution*. An extension of this idea was that similar morphemes may produce similar results. Some morphemes undergo internal change when derivatives are formed eg *-lusion*. There is the possibility that particular morphemes may have their own patterns of behaviour, as indeed individual speakers may.

4224 Frequency

The relationship with word frequency in connection with /l/ was alluded to by Fowler 1965. Common words were more susceptible to glide loss than less used words: *salute* with /lu/, and *volute* /lju/. The degrees of correlation between glide loss and word frequency will be calculated for PCs using the Spearman ρ measure of rank order correlation. They can be compared with the conclusions of Phillips 1981 and Pitts 1986. But in view of the drawbacks associated with counts and their application, trying to relate glide loss to word frequency alone is akin to chasing a chimera (§2324).

4225 Stylistic considerations

Many variables in other studies have been found to be affected over the range of styles from formal to informal. Here in the /l/ environment, three types of elicitation will be used: more gliding being tentatively associated with greater formality. But given the low profile of glide awareness, there are not expected to be the significant differences like those recorded in some other linguistic variables.

4226 Stress

The single linguistic feature which has occupied most researchers is stress. I shall adhere to my distinction between coalescing and plain PCs, since the range and choice of variants necessitates separate analysis. In the case of the coalescents, the consensus of opinion shared by Chomsky & Halle 1968, Bailey 1977, Fowler 1926 and 1965, Jones 1956 and Pitts 1986 is that stress on the relevant syllable promotes glide deletion, while unstressed /u/ is variable. For plain consonants, unstressed syllables fluctuate between [+ glide] and [- glide]. There is the influence of stress in contiguous syllables to be clarified. But other factors may be related. Among them, syllabification has not previously been subject to empirical investigation.

4227 Syllabification

Bailey 1977 had drawn attention to this aspect, but his examples of tautosyllabic consonants were all word initial, and this may be an explanatory variable in itself (§4222). I propose to include cases where the tautosyllabic consonants are also word medial. What will be tested in a pair of conjectures (C1 & C2) is the broad distinction that for variable PCs, heterosyllabicity is more favourable to gliding than tautosyllabicity.

C1 If the preceding syllable (within the word) is open, or if the PC is tautosyllabic (including word initial), then there is less likelihood of a glide occurring.

eg *inter$lude* *post$lude* *#luminous*

C2 If the preceding syllable (within the word) is closed, then there is more scope for a glide.

eg *aven$ue* *prel$ude*
jan$uary *sol$uble*
gen$uine

There is the danger of a circular argument, since the division between syllables can be difficult to distinguish (§2110). I shall rely on those tokens with a slow or hesitant pronunciation, where the division is clearcut.

4228 The informants

So far, my proposals directly concern linguistic features. With regard to the speakers themselves, differences between the four groups over all environments will be analyzed to establish if any are significant. More glide dropping or coalescence, is expected in the city centre school than in the suburbs. Older pupils are expected to be more conservative than younger.

4300 Procedures and methods

In describing the procedures and methods adopted before, during and after the interviews, I have used the checklist in Scholfield (in preparation: 292-294, app 1). They will be considered under the following headings: participants (§4310); materials used (§4320); conduct of interviews (§4330); and scoring and quantitative techniques (§4340).

4310 Participants

4311 Choice of subjects for pilot test

The subjects for which the main research was intended were from secondary schools in Liverpool. It was not possible to arrange a pilot study in the city and it had to be carried out in and around Bangor. Those asked to take part (n = 4) were acquaintances, aware of my connection with UCNW, that the research was something to do with pronunciation, and that payment was not involved (in either direction). As it was of some inherent interest to have a comparison with speakers of dialects which are unalike in their overall use of the glide, the subjects in the pilot test (while all living in the vicinity of Bangor), originated in different parts of the British Isles, viz a pair of volunteers from Suffolk, both male and attached to the university; Lancashire (historic county of), but with no specific palatine glide, and Scotland (via Bath), both female. Ages ranged from the mid twenties to a figure approaching twice this.

4312 Choice of main participants

The main study took place in Liverpool, where familiarity with the range of accents was useful, and where the cooperation of teachers in the schools proved to be invaluable in selecting participants. The instructions from the researcher to the organizing teacher emphasized the need to cover a wide range of abilities and attainments. In the sixth forms, the responsible teachers were asked to select on the basis of geographical distribution across Liverpool. Participants were to be restricted to pupils in their first year, or in the sixth form, covering the age ranges 11-12 and 17-19 years. The need to cause as little interruption or disturbance as possible to the schedules of each establishment was important. Those pupils in the first year were from the catchment area surrounding each school. The sixth forms, being the remnants of the pre reorganization intakes, had a more widespread distribution. The schools were socially contrastive. The city centre school had a working class preponderance, while the suburban school drew on a wider base. Subjects were not however chosen on the basis of socio economic class. Within each school, the selection of pupils proceded on similar lines. The participants did not represent a random selection of the population, in the sense that each pupil in the relevant year had an equal chance of being chosen. This may have been the case initially, but towards the end of the selection procedure, it was necessary to redress any imbalance that may have occurred with respect to the criteria mentioned above. The city centre school first year (C1) provided 20 subjects; in the corresponding sixth form (C6), n = 20. In the suburban school 21 were selected in the first year (S1), with 16 taken from the sixth form (S6). This makes a grand total of 77 subjects.

4320 Materials used

Of all the possible PCs, it had been decided to investigate the /l/ environment in most detail, since it appeared to be the most likely candidate for variation, linguistically and nonlinguistically, lexically and socially. So the interview was designed to concentrate on and revolve around this covering 37 types. All the materials used in the interview were originated by the researcher. They took the form of a reading passage together with a related set of 'comprehension' questions, and 2 word lists. These relatively formal levels were employed, as both types and tokens were not sufficiently common in casual speech.

4321 The word list for all PCs (WL2)

For the general distribution of the glide all 17 PCs were represented. The number of lexical items for each was worked out in approximate accordance with the frequencies of occurrence of RP consonants calculated by Fry 1947, and cited in Gimson (1980:217-218) and Crystal (1987:165). Having reconverted the relative frequencies of the consonants being studied to percentages, the number of items to be allocated to each PC was then established. A total of k = 65 words was used. Each was given a number between 01 and 65, and a table of random numbers was used to determine the place of each word in the list. As an introduction, the list started with the names of the first 8 months. Further distractors were scattered in the list to make a total of 80 items (app 7122).

4322 The reading passage and WL1

The reading passage concentrated on the elicitation of words for

/l/. More frequently occurring items were the first choice. Then words with similar morphological and phonological shapes were added. They were woven into the reading passage, entitled *The evils of drink*, (not based on Jeremiah 25:27 'Drink ye, and be drunken, and spue'). It was presented to the participants in printed form on 2 sheets of A4 paper (app 7110). The 31 items were reelicited as word list 1 (app 7121).

4323 The comprehension questions

To divert attention from the experimental content, in the pilot test, a distractor was contrived. It took the form of a number printed at the end of each line (n ≤ 4). This was pointed out to the subjects, and they were told that they were expected to look ahead and pause in their reading before the end of the line at the word indicated by the number. The subjects were told that this was to see how far ahead they looked while reading, and how accurately they responded to the number stimulus. It served as a very efficient diversion, too efficient in fact, since it threatened to destroy any attempt at natural reading. Consequently changes were made. First, the numbers at the end of each line were altered to coincide with more natural pauses in the passage. This was better in producing more connected reading, and the coincidence was commented on. Second, the idea was abandoned. It was felt that while adults may cope reasonably adequately with understanding and carrying out the instructions, the younger pupils may well experience difficulties. A different attempt to distract was introduced. This took the form of a series of questions. They were ostensibly to test the comprehension abilities of the subject, but intended to elicit in a different manner, most of the /l/ words in the reading passage.

4330 Conduct of interviews

It was planned to conduct each interview on identical lines, with identical instructions, identical procedures, identical tasks and in identical conditions. This implies a completely neutral interviewer. But because subjects were not identical, some deviations from the standard plan occurred. They will be explained in the appropriate sections below. In any case, social formality may be impossible to measure (Reid 1978).

4331 Locations for interviews

All the interviews took place during standard school hours. Work began in the city centre school with the younger group, then those in the older group were interviewed. Later the suburban school was visited. The younger pupils were seen in the lower buildings in Childwall, and the sixth formers were recorded in the upper school in Woolton. It had been hoped to use the same room in each building for all members of a group. This was impossible. Rooms varied in size and suitability. Their sizes ranged from small offices to classrooms, to libraries, to assembly halls. Nor was it always possible to ensure insulation from the everyday activities of school life. The sounds of modern interactive teaching techniques occasionally impinged on the recordings, as did the more erratic sounds of playground noise. Rather more distracting were the sound of a lawn mower cutting the grass immediately outside the classroom in the city centre school; or in the suburban lower school, interviewing in the hall extension while a singing lesson was in progress in the main part. There was an inevitable reduction in the quality of the recordings and subsequent impediments in interpretation. But they did provide a source of amusement for interviewer

and interviewee. While this helped to make the occasion seem less formidable for some, it did mean that not all levels of formality were as controlled as anticipated.

The standard procedure was for each subject to be recorded singly with no onlookers. This was adhered to rigidly with the exception of the occasion when a subject was interviewed in the presence of the 2 next candidates. (It occurred just before a changeover of lessons, from which the subjects had been abstracted, and was intended to reduce disruption). I also suspect that in group S6, some discussion of the interviews took place between participants, resulting in possible collusion.

4332 Recording equipment

The tape recorder used in the interviews was a Marantz superscope CD 320, from the phonetics laboratory of the Department of Linguistics in UCNW Bangor. It was used in conjunction with a separate microphone, which was usually attached to the jacket or tie of the subject. The interviews were recorded using Agfa LNX 90 tapes; these permitted up to 45 minutes recording, sufficient for 3 interviews, each side.

4333 Plan of interview

All the interviews were conducted by the researcher. The reason for his presence was given to prospective participants as his interest in recording samples of their reading. Subjects were not told the specific purpose of the research, nor indeed that this was involved. Some subjects had to be reassured that it was not a test of reading ability. In a few cases it was necessary to explain that nobody else was going to listen to their recording.

When each subject came into the room they were asked to sit down and put their name on a list. At the end of the interview, I entered opposite the name, from the tape counter, the pair of three digit numbers indicating where each interview began and finished. This was misinterpreted by a subject in the suburban upper school. He added after his name his telephone number and then his address. Isaiah (53:6) begins 'All we like sheep...'. Most of the rest followed his example.

After putting on the microphone, subjects were presented with the reading passage. They did not see the material prior to this. Before they were asked to read it in their usual voice, they were told that after they finished reading, they were going to be asked some questions on its content. The cassette recorder was then switched on. Each subject was asked to say his name. After the recording levels had been checked, they were told to begin. This procedure progressed according to plan in most cases.

After the reading, the comprehension questions were given orally. The order of the 21 questions was arranged to elicit the items sequentially. This strict format was not always adhered to. The reasons for it being thwarted were that firstly, some subjects extended their replies so that they anticipated items to be elicited by subsequent questions. In such a case those questions were omitted. Secondly, subjects over all 4 groups, were unable to remember some of the items required. At first they were prompted by ancillary questions, or directed to look at the relevant paragraphs. Since the hesitations appeared to make some of the younger pupils in the first school apprehensive, it was decided to tell subsequent subjects that they were allowed to look at the sheets for the words. This became counter productive in that the responses consisted in a reading of the relevant sentence, as opposed to a more spontaneous elicitation.

When the questions were finished, informants were asked if they noticed anything about the kind of words they used in their rusponses. This was to see if they had spotted the real purpose of the task. They were then presented with the /l/ word list (WL1). After this they were given the passage again and encouraged to read it in what they considered to be their poshest or broadcasting voice. The final item was the longer panconsonantal word list (WL2). At the end they were thanked for their cooperation, and the tape recorder was switched off.

4340 Quantitative techniques

The quantitative analysis of language this century may be divided into four phases. First there was the use of numerical methods in word counts and in quantifying relations between words. Such were the approaches used by Zipf 1932 in connection with word frequency; Swadesh, and Gudschinsky 1956 with glottochronology to measure the extent to which languages have diverged from a common source, using the technique of lexicostatistics; or the techniques which Fucks 1956 offered for measuring word formation. The use of statisical techniques for hypothesis testing was often coupled with a more informed awareness of the different methods of selecting population samples. When these samples were of people they were selected with a view to using socioeconomic features to account for linguistic variants (in the strong version), or to correlate with them (in the weaker form). More sophisticated approaches were developed. As Naro (1980:159) observed "The central empirical problem for variation theory is how to disentangle the data." So computer programs were devised to cope with the increasingly complex interrelationships between increasing numbers of

explanatory parameters. In particular the varbrul programs (Sankoff 1978) were initiated and extended. In the 1980s, models and methods from other disciplines were borrowed. The mathematical technique of principal components analysis used by Horvath 1985 (and further explained in Horvath & Sankoff 1987), removes a defect of earlier attempts to link variation to predetermined extra linguistic correlates. With this newer approach, speakers are grouped primarily on their linguistic behaviour. Only after this has been done are nonlinguistic parameters included. A similar technique is that of cluster analysis (See Scholfield 1987).

There has been a reaction against the excessive emphasis on quantitative models and methods, and the development of computer assisted analysis (to the exclusion of all else). Among others Romaine 1982a does not accept that there is anything in the nature of language which entails a description of it in terms of a variable rule or other such formal expression of quantitative relations. There was an increasing likelihood in the development of these technically more ingenious statistical devices, that some practitioners were in danger of going out of their depth in, for them, the uncharted waters of advanced statistical analysis. A similar comment may be applied to relatively unadvanced techniques of presentation of results and testing of hypotheses. In order to provide some assistance for linguists, textbooks such as Butler 1985, Woods *et al* 1986, and L Milroy 1987 have appeared, with Scholfield (In preparation).

4341 Scoring and testing

The quantitative methods used in this investigation are comparatively simple. This is partly to avoid falling into the traps outlined above, but largely because the nature of the data and its manner of

collection did not necessitate complex methods. The participants were not chosen on a rigid sampling basis; they were not intended to be deliberately representative of their age groups. Consequently descriptive rather than predictive or inferential statistics are used.

Some researchers have had no problems with scoring for phonological variables and their phonetic variants. Problems can emerge in 2 main areas: social significance and in the effect of direction on the phonetic criteria. I shall consider these separately. First, social significance. Many of the LVs chosen for early work in the field of variation were selected largely on the basis of an a priori connection with social stratification, so that the data gathered neatly provided empirical evidence of the relationship between a specific variant and a given level of class. Even when Romaine 1975 interprets 'social reality' as referring to the way in which people make judgements about social classification and the prestige of particular variants, the resolution of the problem still exists as far as the glide is concerned. Since Romaine was investigating LVs which were selected because of their social significance, such as the glottal stop, (ing), (au) and (r), she was able to incorporate the cline of approval into her scoring system. A linear scale for both components (variants and class) with a direct relationship between each, was convenient to calculate and impressive to display graphically. This was all the more so when social class particularly, and linguistic variants sometimes, were treated as being discrete. I did not attempt a socially based scale for scoring.

The other problem, that of phonetic interpretation, has a dual aspect. The first concerns the phonological status of the glide; the second involves palatalization. The distinction between discrete and continuous variants is generally made on the basis of the consonantal or vocalic quality

of a phone. Consonantal variants are more readily interpreted as discrete. Vocalic variants, as for instance Trudgill 1974 and Norwich (a), may be divided into arbitrary stages, providing a compact set of variants. Given a large degree of consistency in transcription on the part of the researcher, this allocation of variants may be considered acceptable for the purposes of scoring. Glides are usually taken as having an intermediate (if variable) status between consonants and vowels. But when considered in conjunction with categorical PCs such as /f v r/, the implication of discreteness is reflected in the clearcut distinction which exists on an aural level, between presence and absence of the glide. When it comes to other PCs, the distinction is not as dichotomous. This second aspect revolves around palatalization, and the implications for the direction of the scale. The variants are less discrete. /t d s z/ have phonemic coalescing variants. Other consonants like /h n/ have nonphonemic palatalized versions in [ç] and [ñ]. While [+ glide] and [- glide] can be seen (and heard) as belonging to the same dimension, palatalization complicates the issue.

4342 Quantifying the variants to incorporate coalescence

In this work coalescence was first interpreted as an extension beyond consonant plus glide. A three part system of scoring was originally considered.

points	variants
0	[- glide]
1	[+ glide]
2	coalesced

The allocation of 2 points for a coalesced consonant simply obscured the effect of the glided variant. Groups in the city centre scored more than the suburban groups, despite the fact that their levels of gliding were less.

From a phonetic standpoint, coalescence may be regarded as lying beyond [+ glide]. It can also be argued that palatalization does not incorporate a phonetic glide [j]. Consequently a linear scale from [- glide] to [+ glide] on to coalesced, puts lack of glide at different ends of the spectrum. The second approach concentrated on the presence of the glide or otherwise, (ie glide drop or coalescence), with 2 points used on the scale.

points	variants
0	[- glide] or coalesced
1	[+ glide]

This approach captures the essential emphasis on glide presence serving to evaluate the variable amounts of gliding between groups and individuals. It was also useful in those cases affecting (nyu) particularly. where a tendency in a few individuals towards a palatalized [ñ] was possibly indicative of incipient glide drop.

4233 The indices

The idea of an overall index of variation was conceived of, as a way of identifying extreme individual speakers, and of providing a quantitative measure of gliding. At first the data for all PCs were combined into a single index. While this had the advantage of being representative, due to the near categorical nature of most PCs it had the disadvantages of failing to discriminate satisfactorily between most participants, and of identifying individuals at either ends of the gliding spectrum. So it was decided to create an index for the variable PCs. Because of the different range of variants for coalescing and plain PCs, these groupings were considered separately. The first plain index was based on both /l/ and /n/. But even this smaller combined index obscured important differences in the levels of

gliding for the component PCs, as they are at opposite ends of the spectrum of glide loss. Finally a decision was made to create a separate index for each of the plain mini variables. This separation had the advantage of facilitating a quantitative comparison of group and individual levels of gliding. In addition the lexical basis of the indices was modified so as to focus attention on the most discriminating or variable items.

4344 Use of variable words only

In order to delete less variable words from the index the following approach was adopted. The 4 coalescing consonants potentially occurred in a total of 18 items. Some of these exhibited more variation than others: some none. Using the overall figures, the predominant of the variants was selected. A percentage figure of 90% was chosen as the cutoff point. All words with a predominant variant below this percentage were considered as eligible for the index. This reduction raises the question of the minimum number of tokens of a variable needed for reliable statistical analysis. Since the number is less than ten, there is a strong likelihood of random fluctuation. Consequently analytical conclusions are to be treated with caution.

By excluding all categorical and near categorical items, it was believed that a better measure of variability was capable of being achieved. There was however a difference in the range of types of elicitation used for each mini variable. The (lyu) words were taken from the reading passage (twice), the responses to the questions, and the word list; that is four occasions of elicitation. All the glided variants for a given individual were counted. These were then expressed as a percentage of the total valid tokens for each speaker (excluding mispronunciations and misreadings). A

proportional figure better reflects the incidence of gliding rather than a simple score. Thus the index ranged from 0 to 100, with results given to 2 significant figures. A similar approach was adopted for (nyu). The difference here is that the data were based on the single elicitation in the panconsonantal word list. The indices were calculated for each of the 77 participants, for each of the 4 groups and for the global total of subjects.

4345 Use of components of χ^2 values

For testing significance, use was made of the χ^2 test. While this is a common approach, there is an extension of its use here. Since the calculations were done by hand, it was possible to note the size of the contributory components to the final statistic, derived from the cells for the O - E values. Some of these components were more critical in their effects than others. Any which contributed approximately a third (or more) to the final statistic were noted and used to pinpoint the variant and/or group, primarily responsible for any significant difference. Without this, the final statistic only gives an indication of the significance of the set of results, and not wherein that significance may be found.

4400 Problems in interpreting the data

In most cases the translation from sounds on tape to marks and scores on paper proved to be relatively uncomplicated. However the course of true Linguistically Orientated Vocabulary Experiments never did run smooth.

4410 Aberrant pronunciations

There were occasions when certain pronunciations suggested that the word was unfamiliar and a variety of aberrant pronunciations emerged from the tapes. My first classification led to difficulties in allocation. At the suggestion of my supervisor [PJS], a more specific classification was undertaken. In this, a token is allocated objectively to a given group. Occasionally a subjective decision had to be made. This classification has 4 categories.

4411 Use of a regular local variant

The most prominent example involved the word *aluminium*. For many people in Liverpool this ends with the alveolar nasal [-n] as opposed to the standard bilabial [-m]. Other individual lexical items had regular variant pronunciations, (which are used elsewhere); both *genuine* and *tribunal* had orthographic <i> pronounced as [aɪ] and [ɪ]. For most subjects, as indeed for many RP speakers, *february* has lost the first /r/ and is now [febjʊerɪ]. But participants #41 and #84 used a [w] glide. In addition *communal* had an epenthetic [ɪ] before the final syllable, but only in those cases where the stress was shifted forward. The shifting of stress in a word, to the syllable after the standard position, is a feature of Scouse. In the interviews,

forward shifting of stress occurred in *impudent, prelude, salutary, deluge, communal*. Examples not in the corpus are the use of *adver'tisement* and *main'tainance*, both influenced by the verb, as they retain the verbal diphthong. A more classical example collected by the author was the use, when stopped by a traffic policeman, of the form [pɑ'θin n] for *'parthenon*.

4412 Errors due to ignorance of word

It was clear from the readings of the passage and the lists, that in both schools and even at both age levels, some words were quite unfamiliar (as subject #7 commented), some were unusual, and many were unlikely to be part of an active vocabulary (#42). This led to guesses being made for some words, with a consequent unreliability and lack of comparability. Typical comments were that the items were "big words" (passim); "long words" (#08, #41, #47); or from some first year pupils, "hard to read" (#13, #18).

The clearest example of ignorance concerned *perusa*. This was scarcely recognizable or indeed recognized. It was often seen as a compound of the verb *to use*, and acquired a glide. A similar strategy was used with *pleurisy*. ⟨ple⟩ was interpreted as a prefix pronounced [plɪ]. A trio of seemingly similar sounding items in the word list - *sues, suet, suit* - caused considerable confusion. The first became bisyllabic; and the second became homophonous with the third. In C1 seven tokens were recorded for *tribunal* with stress on the first syllable and shwa in the second. Of the seven, four were given a glide. None was accepted as valid. A final example of word ignorance was *hallucinate*. Common renderings involved analogy with the monosyllable *hall*, and/or the changing of medial [s] to [k].

4413 Misreading of a familiar item

In this category were placed words which were felt to be intuitively familiar to most subjects. The almost ubiquitous forward shifting of stress occurred in *ri'dicule, tru'ant, a'venue*. Slips of the tongue had *lupins* occasionally metathesized to *lunips*.

4414 Lack of phoneme

Problems also arise when individuals do not have specific sounds in their repertory, in this case /θ/. For analysis a choice of alternatives is available. We can either regard the subject as having an underlying phonological /θ/, or we can accept the phonetic realization as an instance of [f]. Because of the paucity of examples, both instances were scored as /θ/.

4415 Indistinct sounds and the realization of /u/

Even after repeated playing of the tapes, a small proportion of still indistinct sounds had to be excluded from the analysis. This was the result of a variety and mixture of factors - unclear enunciation on the part of a subject; the tendency for some subjects to centralize /u/ in certain items, or not to use lip rounding; and the imperfections of the researchers auditory apparatus. With the assistance of staff members, Dr Frank Gooding and Mr Emlyn Parry the laboratory technician, use was made of some of the recording and playback techniques available in the Linguistics department of UCNW. The slow scan helped to resolve some cases. It was hoped that spectrographic analyses may have resolved the more problematic instances, but it was frequently difficult to distinguish a putative /ʃ/ especially when a centralized [ʉ] was present. The change in the nature of the vowel from back to front causes problems such as those identified by Painter (1979:21).

> "The nonsyllabic vocoids are very easy to identify when they are followed by vowels with a tongue position different from themselves, since F_1 and/or F_2 change frequency slowly."

As he demonstrated, in combinations like [wi], [ju], F_1 changes only a little from the first component to the second; while F_2 sweeps dramatically up and down in frequency. In the case of [ju], there is a change in frequency of 170 down. On the other hand, in combinations like [wu], [ji], there is little change to be observed in the syllable. In connection with this, Ladefoged (*op cit*:205) mentions that adding lip rounding to front vowels lowers the upper formants.

4420 Features accepted or excluded

The kind of features which were accepted included the following. Words which have variable voicing depending on whether they are being used nominally or verbally, (like *excuse, abuse*), did not have these functions distinguished. Allophones of */u/* were tolerated. These comprised what Wells (1982:291) referred to as "low level phonetic (realizational) variability. The centralized version used in Scouse, forms of the reduced vowel including shwa; and for words with a following <-r>, vowels which illustrate what Wells (1982: 237) calls the second FORCE merger (= CURE lowering).

Variants like [-ž] in *deluge*, what appeared to be slips of the tongue like the omission of the nasal [n] in *insoluble* (#37, #50), where the relevant syllable was not affected, or the introduction of an epenthetic vowel in words like *lewd* (#05, #07), were also accepted. In addition if an informant gave both a glided and unglided form in the same reply, both were counted. Thus #36 changed from a glided to an unglided version of *salute*.

Features which were rejected mainly reflected what was felt to be

unfamiliarity with a word. Thus a nonstandard stress pattern such as *pre'lude* was excluded. Augmented vowels such as [I] and [eɪ] also in *prelude*, [aɪ] in *deluge* were not admitted. If a different word altogether occurred (like *insolvable* for *insoluble* #64, #65), this was automatically rejected. The decisions were not always as clearcut as the last examples may suggest. The word *salutary* sometimes came out as *solitary* and as such was not counted. But on occasions the distinction was tenuous; if there appeared to be any uncertainty, rejection ensued. Inevitably a certain arbitrariness was involved. For some words the low totals for valid tokens indicates the lack of familiarity. But many excluded tokens were not lost forever. In /l/ they proved to be useful in the analysis of stress and syllabification to be made in section 54 of chapter 5 which follows.

development

CHAPTER 5

ANALYSIS OF RESULTS

5000 *Introduction to analysis of results*

Rossini is reported to have said of the music of Wagner that while it had its moments, it also had its quarter of an hours. Chapter five is the longest of all. It presents the results of the interviews, together with analyses of the linguistic explanatory variables for variants, and also some nonlinguistic aspects of glide usage.

5010 *Divisions of preceding consonants by gliding status*

In terms of frequency of gliding, taken over the global data for all informants, four divisions of preceding consonants can be discerned.

Division 1 **Categorical** environments are those which show 100% presence or absence of the glide. Three involved total gliding. They were the labio dental fricatives /f v/; and word initial /ø/. A glide was absent for /r/. The results are given in 8511 0.

Division 2 Some environments were not completely glided, but elicited only a few unglided variants. Because they may represent incipient glide loss, they are given a separate examination, I have therefore introduced a **quasi categorical (QC)** division where gliding percentages go from an arbitrary cutoff of about 90% to just below 100%. These PCs are covered in §5120 - §5150. The quasi categorical consonants include the bilabial stops /b p/, the velar stops /k g/. In addition, the labial nasal /m/ and the dental fricative /θ/ fall into this division. The glottal fricative /h/ is covered here for the reasons given in §5150. (The bracketed figures for /h/ in table 50-01 include the palatal variant [ç]).

Division 3 The third division consists of those basically plain consonants with a gliding figure of much less than 90%. Thus /n/ and /l/ are referred to as **probabilistic**. Their analysis is more extensive. Since they exhibit more variation than the other plain consonants, both lexically and by groups and individual speakers, they are designated mini variables.

Division 4 A separate division of **coalescents** is made for those environments where there is a three (or possibly four) way set of phonemic variants. They are /t d s z/, presented in §5200.

The total potential tokens in the complete corpus is 11858. This is made up of

categorical	770
quasi categorical	2233
probabilistic	7469
coalescing	1386.

Data for the plain consonants are given in table 50-01. In essence the split is between coronals and non coronals. If we look back to diagram 41-01 we can see that my results are not exactly as illustrated there. The Liverpool results show a small presence of [- glide] in the stops /p b k g/.

But more importantly, there is the unexpectedly large amount of degliding in the nasal /n/.

Table 50-01
Summary of results for all plain consonants

PC	tokens +g	tokens -g	percent +g	percent -g
/ɐ	202	0	100	0
f	226	0	100	0
v	77	0	100	0
b	261	3	99	1
p	280	7	98	2
m	285	6	98	2
k	503	9	98	2
h	(192)	13	(94)	6
θ	67	6	92	8
g	68	8	89	11
n	396	125	75	24
l	134	459	23	77
r/	0	264	0	100

5011 Some caveats

Before presenting the analysis and conclusions, the following points are made. Because of the composition of the groups of participants and the range of idiolects, conclusions based on global figures do not necessarily apply to all of the groups. In turn, conclusions based on group figures do not necessarily apply to all of the individual participants within that group. A similar caveat applies to some words. Conclusions need to be interpreted with reference to the possibility of categorical subenvironments within a PC. These cautions apply especially to divisions 3 and 4.

5012 The structure of the tables

When the experimental results are presented, the distribution of tokens for each word across the four groups of participants is given. The left hand corner of the top row shows the total of valid tokens. This is followed by the abbreviations for the four groups of participants. The schools are distinguished by *C* for the city centre, and *S* for the suburbs. The age groups are shown by *1* for the first year pupils and *6* for the older sixth form pupils. The headings in the second row, +g and -g, indicate presence and absence of the glide. For /t d s z/, the headings are preceded by *co* for coalescence. /h n/ have *pa* for the palatalized variant.

The lexical items and their reference number are given together with their group figures. At the end of each row are the corpus totals for the word. The bottom lines show the totals and percentages of variant tokens for each group. At the end of this line, the figures represent the combined totals for all groups for a given PC. These figures add up to the number in the top left hand corner, ie the grand total of tokens used in this part of the analysis.

5013 Tentative pointers

Beginning with the non probabilistic plain consonants, pointers towards the speakers involved in glide loss began to emerge. They were most indicative in the coalescents. The same group of speakers turned out to be in the forefront of incipient loss for the /n/ environment. The picture regarding the purely linguistic constraints on glide production was not as clearcut due to the existence of subenvironments (and micro variables). But eventually the focus was sharpened on specific areas and some useful conclusions were able to be made.

5100 The non probabilistic plain consonants

Section 51 looks at the main group of plain consonants. Some show no variation; others recorded small areas. With the exception of /r/, all are predominantly glided. The bulk of the words tested come from the pan consonantal word list (WL2, app 7122), given as the final part of the interview. They are identified in the tables by PC and number. A few items from the reading passage are also included.

5110 Categorical environments

Four preceding consonants were found to be categorical. Unlike the other PCs where the data from the investigation are incorporated in the text, individual data for the categorical PCs are not. They appear in app 7211.

5111 Post alveolar approximant /r/

The post alveolar approximant /r/, as Jones (1960:195) has pointed out, had largely relinquished its association, however brief, with the glide.+/ʉ/ But as late as the seventh edition of his pronouncing dictionary (1945:479), Jones gave as an example of /r/ + glide, the biblical name *Zeruiah*, with the glideless variant as an option. His preface (*op cit: vi*) says that the book was in the main a reprint of the fourth edition of 1937, so it reflected an earlier pronunciation of a word which was restricted in usage. Yet an optional glide for this name was also indicated in Chambers 1959, and for *toreutic*. Of the items tested, three had initial consonant clusters. Given the phonotactic constraints of modE it is difficult to imagine a combination more

unlikely to involve a glide than a clustered /r/. The remaining item *peruse* was unfamiliar to many participants.

5112 Word initial

When the environment is word initial, a glide is always present. This applies both to native words and to borrowings considered to be sufficiently anglicized. In the case of the Italian car, the *Fiat uno*, printed advertisements have used the *an* form of the indefinite article. (See the comment by Philip Howard in *The Times* 890314). Presumably this implies we are to pronounce the noun glideless. I have included in this section those tokens of *peruse*, which were clearly interpreted as compounds of *use*. This distinction was made on the basis of the pause between the 2 syllables, and on the lack of any suggestion of /r/. I have also included those words with initial orthographic <h> where [h] is dropped. They amount to 21 tokens, 10% of those for /h/. Age appears to be important: the glide being dropped 12 out of 13 times in the younger groups. Most [h] dropping occurs in the city centre school (27/36).

5112 Labiodental /f v/

In terms of range of lexical items, the labiodentals cover a number of words which sharply divide into the ordinary and the arcane (app 7311-12). All participants exhibited no hesitation in gliding the words selected, which are of the former kind. There are in English (as opposed to the selection of words used in these tests), about six dozen lexical items covered by the /f/ environment: 2 dozen are compounds of *fuse*, *fusion*. Many of the remainder are infrequent items like *euphuism*, *fumarole*, *vermifuge*. Variation in the relevant vowel in *furious*, which produced 10 tokens of /u/

and 66 of /ɔ:/, had no effect on gliding. The /f/ environment is not as monolithic as this suggests, particularly where unusual words are involved. An example (which did not occur during the interviews) concerns the name of a road in a new small housing development in West Derby, Liverpool. There the given name was *Trefula* Park, which I have only heard unglided, stressed on the second syllable and with the first open. This author glides it, with the first syllable stressed and closed, perhaps on the analogy of *scrofula*, which is probably not what the developers intended. This example does raise the issue of how the individual speaker approaches an unfamiliar item. In this case, gliding may not have been considered by the nongliders. The variation illustrates the concomitant effects on the selection of a variant, of an open or closed syllable and stress.

5120 The labials

The three labial PCs form a subgroup of virtually consistently glided environments. When loss did occur, it was concentrated in C1 (8/16 tokens), and in the item *impudent* (6 tokens).

5121 The voiced bilabial stop /b/

For /b/, whether the syllable was stressed or not, the results show near categorical gliding. In the reading passage *beautiful* was always with a glide. (#07 did change from an unglided form to a glided version). The deviations are easily accounted for. In C1, a single token from subject #11 for the word *bureau* prevented this word being totally glided. But the item proved problematical to many subjects in this group, being unaccustomed to the printed form of the word. Subject #15 after attempting *burrow*, *beret*,

was prompted with the phrase *citizens advice* and immediately responded with a glided pronunciation of the appropriate word. #19 was possibly under the influence of the contents of the reading passage *The evils of drink*. His response was *brewery*. The distribution of vowels for *bureau* was almost even at 32 for /u/ and 31 for /ɔ:/. While in C1, C6 and S1, /ɔ:/ was used about a half more than /u/, the position was totally reversed in S6, where /u/ was recorded in 14 of the 16 tokens, confirming that in words with <-r> the vowel does not affect gliding.

Table 51-01
Variants for /b/

264		C1		C6		S1		S6		/b/	
		+g	-g	+g	-g	+g	-g	+g	-g	+g	-g
b1	bureau	10	1	20	0	16	0	16	0	62	1
b2	tribunal	12	0	19	0	17	0	16	0	64	0
b3	abuse	19	0	20	0	21	0	16	0	76	0
b4	february	18	0	12	1	18	0	11	1	59	2
	∑	59	1	71	1	72	0	59	1	261	3
	%	98	2	99	1	100	0	98	2	99	1

5122 The unvoiced bilabial stop /p/

Of the items representing /p/, *spew*, has a preceding tautosyllabic /s/; the others *pupil*, *computer*, *impudent* contain the relevant syllable with and without stress. Only 3% were mispronounced or misread. Sometimes *impudent* was stressed on the second syllable. Most glideless versions affected this item, with stress on the first syllable and a reduced vowel. The lower returns for item p2 *pupil*, reflect a serious difficulty in the auditory perception of the glide. It was most noticeable in C1. With the extremer Scouse speakers, (using a centralized unrounded vowel), the word

appeared to sound as if it had been misread for *people*. This seems very unlikely. It is difficult to tell if this vowel is masking glide loss. The nine instances have been omitted from the data.

Table 51-02
Variants for /p/

287		C1		C6		S1		S6		/p/	
		+g	-g	+g	-g	+g	-g	+g	-g	+g	-g
p1	spew	19	1	20	0	20	0	16	0	75	1
p2	pupil	12	0	15	0	19	0	16	0	62	0
p3	computer	20	0	20	0	21	0	15	0	76	0
p4	impudent	17	2	18	1	17	2	15	1	67	6
	∑	68	3	73	1	77	2	62	1	280	7
	%	96	4	99	1	97	3	98	2	98	2

Use of this vowel became less prominent as we move both upwards in age and outwards in location. Six examples were recorded in C6, 2 in S1 and none in S6. The pronunciation of this word, along with *book* is almost an archetypal indicator of Scouseness. I have in the city centre school heard *book* pronounced as a hypercorrect form with the centralized vowel and with a glide.

5̈123 *The bilabial nasal /m/*

The bilablal nasal /m/ was overwhelmingly glided as expected. 4 out of the 6 occasions where the glide was omitted, occurred in C1, half of these originating with subject #15. Informant #16 attempted *formula* with a glide but changed this to a glideless version. Item m4 *communal* was stressed on the second syllable in 15 out of the 16 valid tokens in C1. Alteration of stress did not affect gliding.

Table 51-03
Variants for /m/

291		C1		C6		S1		S6		/m/	
		+g	-g	+g	-g	+g	-g	+g	-g	+g	-g
m1	amusing	17	2	17	1	20	0	16	0	70	3
m2	emu	20	0	19	0	20	0	16	0	75	0
m3	formula	18	1	20	0	19	0	16	0	73	1
m4	communal	15	1	19	0	17	1	16	0	67	2
	∑	70	4	75	1	76	1	64	0	285	6
	%	95	5	99	1	99	1	100	0	98	2

In the list, <mu> was word medial or final. Word initial position was tested in the reading passage. *Musician* was notable for glide loss, with an overall percentage of 22%. The differences between groups of informants, both in range of subjects and in amount of glide loss are important. The city school while providing a half of all the subjects, has nearly 4/5 of the unglided participants and 3/4 of the unglided tokens. I am not sure why the largest percentage was recorded in C6. Phonologically what is important is that the relevant syllable is word initial. This again indicates a weak point.

Table 51-04
Glide loss in *musician*

Group	Informants	Tokens	%
C1	7	10/ 44	23
C6	9	16/ 41	39
S1	2	3/ 42	7
S6	3	6/ 32	19
Σ	21	35/159	22

5130 The velars

The velars form another secure gliding subgroup like the labials. The reason they are placed after them is the lower level of palatal gliding recorded for /g/. But a single item only was tested. It may be added that a word like *figure* is now more likely to be unglided by many British speakers, but not necessarily its derivatives, where shwa is less common.

Bailey (1977:45) recounts the observation that as an American southerner, when he moved to the northern states, he found that speakers may drop the glide after a velar even if it is word initial, as in *gubernatorial, culinary* or in *recuperate*. He recalls hearing an announcer on the BBC saying ['rɪdɪkul] for *ridicule*. Nothing is sacred. And inclusion of the word *culinary* emphasizes the demise of sacrosanctity. In Britain it is now generally glideless and with a stressed [ʌ]. Jones (1945:102), while giving this as standard, also cites the pronunciation with a glide, which he says is old fashioned. Word initial position again demonstrating its place as a weak point in glide loss.

5131 The unvoiced velar stop /k/

Of the seven items for /k/, five had first syllable stress, five had the relevant syllable in word final position, and in six it was unstressed. The choice of words may have affected the large level of gliding. Unstressed syllables with vowel reduction to shwa, and where main stress was on the syllable immediately preceding, as in *particularly* are prone to glide loss. It is again important to note that seven out of the 9 unglided forms were recorded in C1. Overall, in terms of lexical items, *ridiculous* collected 6 out of the 9 drops. This was accompanied by shwa. It followed an unstressed

syllable, and was the longest word of the set, so that post tonic stress was minimal. Of the four instances in C1, glide loss followed an aspirated [k^h] in 2 cases. Also in this group, the item *ridicule* was quite unfamiliar.

Table 51-09
Variants for /k/

512		C1		C6		S1		S6		/k/	
		+g	-g	+g	-g	+g	-g	+g	-g	+g	-g
k1	excuse	18	0	19	0	20	0	16	0	73	0
k2	rescue	20	0	20	0	21	0	16	0	77	0
k3	barbecue	19	1	20	0	21	0	16	0	76	1
k4	ridicule	4	1	16	0	20	0	16	0	56	1
k5	prosecute	20	0	20	0	21	0	16	0	77	0
k6	accurate	19	1	20	0	21	0	16	0	76	1
k7	ridiculous	15	4	19	1	19	0	15	1	68	6
	∑	115	7	134	1	143	0	111	1	503	9
	%	94	6	99	1	100	0	99	1	98	2

5132 The voiced velar stop /g/

In contrast to the seven items for /k/, the /g/ environment was tested using a single item, due to its low functional load (app 7362). There was consequently a small number of tokens, which fall marginally below the 90% cutoff for glides. Because it is separated from the PCs in the probabilistic group by more percentage points than those in the QC group, it is more convenient to treat it as the latter. *A better item is regular.*

In S6 the gliding percentages for /g/ were lower than any of the other groups. This was due to the use of the labiovelar [w] in place of the palatal glide. Regarding the /g/ environment, I mention in passing, the comment of a friend concerning his aunt. He reports that she always referred to her car as a Ford *Angular*. She had no connections with east Anglia.

Table 51-10
Variants for /g/

76	C1		C6		S1		S6		/g/	
	+g	-g	+g	-g	+g	-g	+g	-g	+g	-g
g1 jaguar	17	2	18	2	20	1	13	3	68	8
∑	17	2	18	2	20	1	13	3	68	8
%	89	11	90	10	95	5	81	19	89	11

5140 *The dental fricative /θ/*

The rarity of /θ/ + /ju/ is emphasized by such words as *Thucydides, Thule, Thuringia*; and *thurible, thurifer* with the related word for incense *thus* [θ(j)us]. Because of this rarity, a single word only was used. Hughes & Trudgill (1979:35) were of the opinion that glide use with this PC had disappeared in much of the north of England, (without being more specific). Yet the evidence from these recordings shows that it has a dominant presence in Liverpool, with a glide in 92% of tokens. The response to untested words is difficult to assess, but it is worth noting that over half of the items for this PC have the relevant syllable word initially. (App 7321). This may predispose an unglided pronunciation especially if the word is unfamiliar.

The variable (th) sometimes raises problems, since the labio dental fricative [f] can be substituted for [θ]. Romaine 1975 excluded such speakers from a group index. I include here, those using [f] for /θ/. Both instances of glide loss in S1 were by [f] users, which is categorical for them elsewhere. It may have a bearing on their perception of /θ/.

Table 51-07
Variants for /θ/

73	C1		C6		S1		S6		/θ/	
	+g	-g	+g	-g	+g	-g	+g	-g	+g	-g
81 enthusiastic	17	0	18	2	18	2	14	2	67	6
∑	17	0	18	2	18	2	14	2	67	6
%	100	0	90	10	90	10	88	13	92	8

5150 *The glottal fricative /h/*

/h/ has a more complex patterning than the other PCs in this section. If it appears as a fricative it may be regarded as a strong voiceless onset of the following vowel. Alternatively it may be omitted, or it may be palatalized. Here, /h/ was glided 78% with a glottal form, and 16% with the palatalized version [ç͡j]. This leaves 6% for the unglided variant. In C1 /h/ was pronounced in most tokens, suggesting a level of formality greater than natural speech, where it is more likely to be omitted. In fact only #19 omitted /h/ in each of the three words. In C1 of the five unglided tokens, three were provided by subject #14 (and all with [h]). They were accompanied by a fronted vowel, which can mask or eliminate a glide.

/h/ is treated separately from the four main coalescing consonants for the following reasons. First its palatalized form is not phonemic. In the context /h/ + /j/ + /u/, as in *hue*, the phonetic realization (in RP) is often the voiceless palatal fricative [ç], giving rise to oppositions between /j/, /h/ and [ç]. Gimson (1980:212) has raised the possibility of phonemic status

for [ç], exemplifying this with the trio *you, who, hue*. But the number of words involved is quite small, and as alternative pronunciations are available, [ç] is treated as a realization of /h/ + /j/. (Gimson 1980; Roach 1983). The second reason for separate treatment involves the omission of [h]. In the words used here, it promotes the vowel to segment initial position, and this induces automatic gliding. Third, it is easier to make comparisons with Horvath 1985 since she used only the four phonemic coalescents. Lastly, Chomsky & Halle 1968 have rule 121 specifically for that group (84112).

Table 51-08
Variants for /h/

		C1			C6		
		pa	+g	-g	pa	+g	-g
h1	huge	5	9	3	0	16	0
h2	human	3	12	1	0	17	0
h3	humorous	1	15	1	0	16	1
∑		9	36	5	0	49	1
%		18	72	10	0	98	2
		S1			S6		
		pa	+g	-g	pa	+g	-g
h1	huge	3	15	2	1	14	0
h2	human	10	9	1	9	6	0
h3	humorous	1	15	4	0	15	0
∑		14	39	7	10	35	0
%		23	65	12	22	78	0
205		/h/			%		
		pa	+g	-g	pa	+g	-g
h1	huge	9	54	5	13	79	7
h2	human	22	44	2	32	65	3
h3	humorous	2	61	6	3	88	9
∑		33	159	13	16	78	6

5160 *Some comments on the plain consonants*

5161 *Evidence from slips of the tongue*

During the course of the interviews, a number of slips in pronunciation occurred. Some were genuine slips of the tongue: others were due to unfamiliarity with a word, either spoken or printed. Rather than discard them, those relevant to the present research were collected. They do at least provide an example of a different kind of elicitation. Their distribution was uneven and incomplete. Only 10 out of the 17 preceding environments were covered. Often only a single lexical item within each PC gave rise to the slips. And the older suburban group S6, were less prone than those in the other three groups. Within the groups concerned, not all individual speakers were affected. But despite the evidence being erratic and incomplete, some useful confirmations do emerge. I shall examine the coalescing environments separately from the basically plain consonants.

The slips which affected the plain consonants, confirmed the status of most of the near categorically glided PCs. For three speakers, *hallucinate* produced [-kju-] as a result of the transfer of <c> to before the vowel */u/*. The same word for another led to [-hju-]. For six speakers, *pleurisy* had initial ['pj-]; while the voiced counterpart was noticeable in three slips involving *blue* [bju], a version of *soluble* ['sɒlɪbjʊl], and the progressive assimilation by #54 in *lure birds* [ljɔ: bjɔ:dz] - the latter not a strict example of the /Cju/ sequence. In C1, #07 caused himself some amusement by degliding the start of *beautiful*. It was rapidly corrected. *Voluminous* with metatheses produced [-mju-]. The use of gliding word medially for */m/*,

corroborates the distinction between this and the initial position, where glide loss seems to be making inroads.

5162 The plain nonprobabilistic PCs in general

For most of the plain nonprobabilistic PCs, and for most lexical items within them, the glide is retained. But they are not completely monolithic. Occasionally gliding is lost. The results from the QC consonants emphasize the categorical rather than the quasi. Appendix 7212 which records individual responses, shows an overwhelming sea of pluses with only the occasional islands of minuses and outcrops of mispronunciations. Out of 2233 tokens collected, only 52 were unglided. A few minor differences exist between the four groups of participants. Of these, the younger group in the suburban school stands out by its adhesion to gliding. This is in contrast to their coevals in the city centre. Of the 52 unglided tokens almost a half (22) came from C1, the remainder being almost equally divided between the other three groups. Of the 52, thirty were shared almost equally between four lexical items *impudent, ridiculous, enthusiastic, jaguar*, the first pair illustrating weak points for glide loss, particularly the effects of post tonic stress and the reduction of the /u/ vowel to shwa. This is a factor noted by Wells 1982:386, especially after non coronal consonants. In the case of *musician*, the confusion of following palatalizable consonants may have caused slips of the tongue in the first syllable, but it is this which is the most likely weak point (cf *culinary, gubernatorial*). How far they spread is another question. If these deviations are the first steps in the process of glide loss, then their greater number in C1 suggests that members of this group are (or were) in the forefront of change. Less than a half (31) of the total of participants (77), were affected by unglided variants. The greatest

number within a group was 12 in C1, with the rest evenly divided between the other three groups. Most individuals were affected by glide loss in a single environment: only 5 individuals covered another PC.

Glide loss progresses from word to word, or by subenvironment, rather than from PC to PC. But in the plain PCs there is (with the possible exception of /h/) only a pair of alternatives - to glide or not to glide. With the coalescing consonants in the next section, there is the extra dimension of phonemic palatalization.

5200 The coalescing consonants /t d s z/

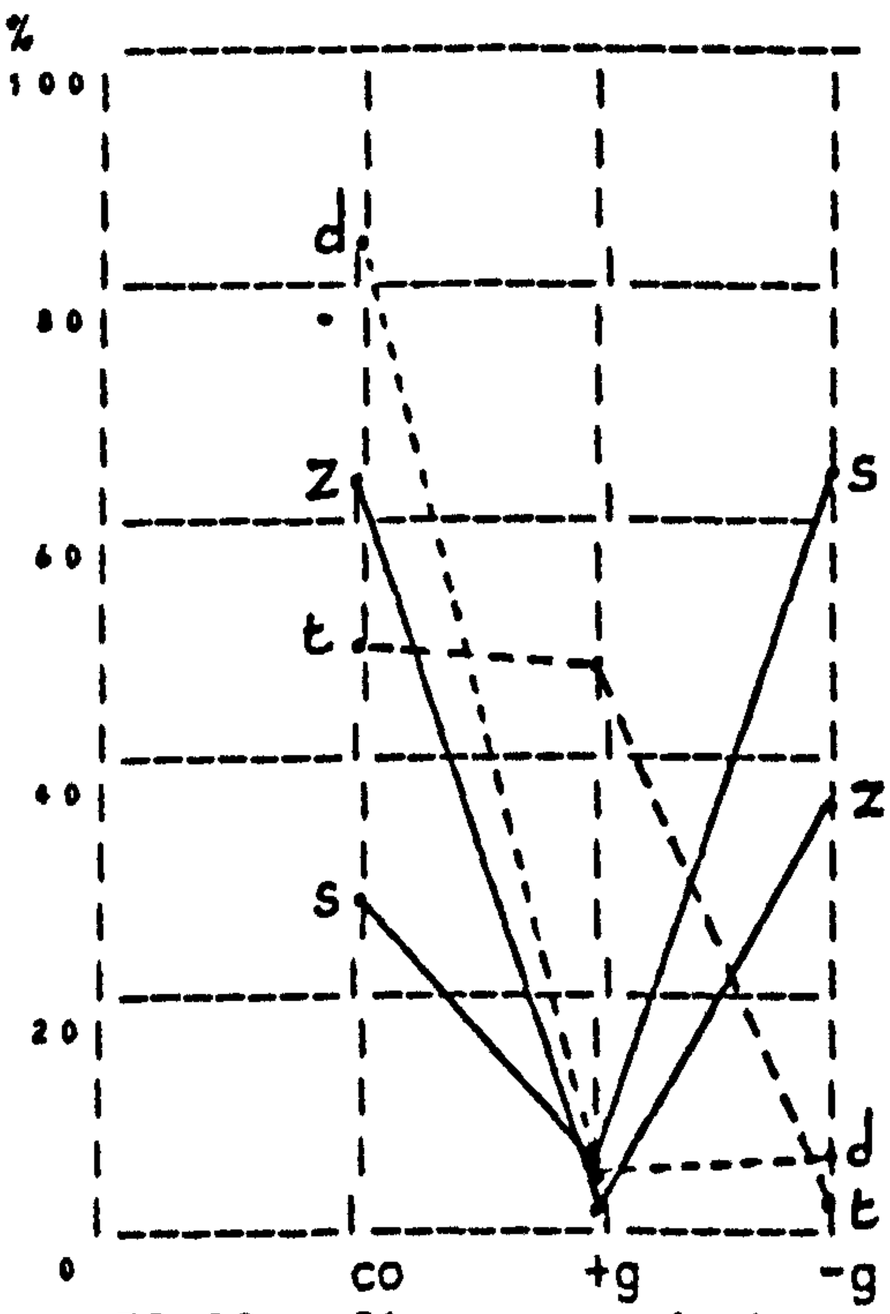
The key and distinguishing feature of the coalescing series is that in British English 3 main variants exist - glide retention (including earlier restoration), glide loss, and phonemic coalescence. In this investigation the coalescing consonants provided a total of 1300 valid tokens out of 1386 possible. Of these 560 (43%) were coalesced, 378 (29%) were glided; and 362 (28%) were unglided. At first glance this indicates an overall preference for coalescence. Table 52-01 which gives the results for each PC, shows that only the voiced consonants /d z/ appear to have coalescence as the dominant variant. /s/ is predominantly unglided, while /t/ is almost evenly split between coalescence and gliding. There is also a distinction between the stops and the continuants. The use of [- glide] in the latter is particularly outstanding, and to a lesser extent, the degree of coalescence in the former.

Table 52-01
Corpus results for the four coalescing consonants

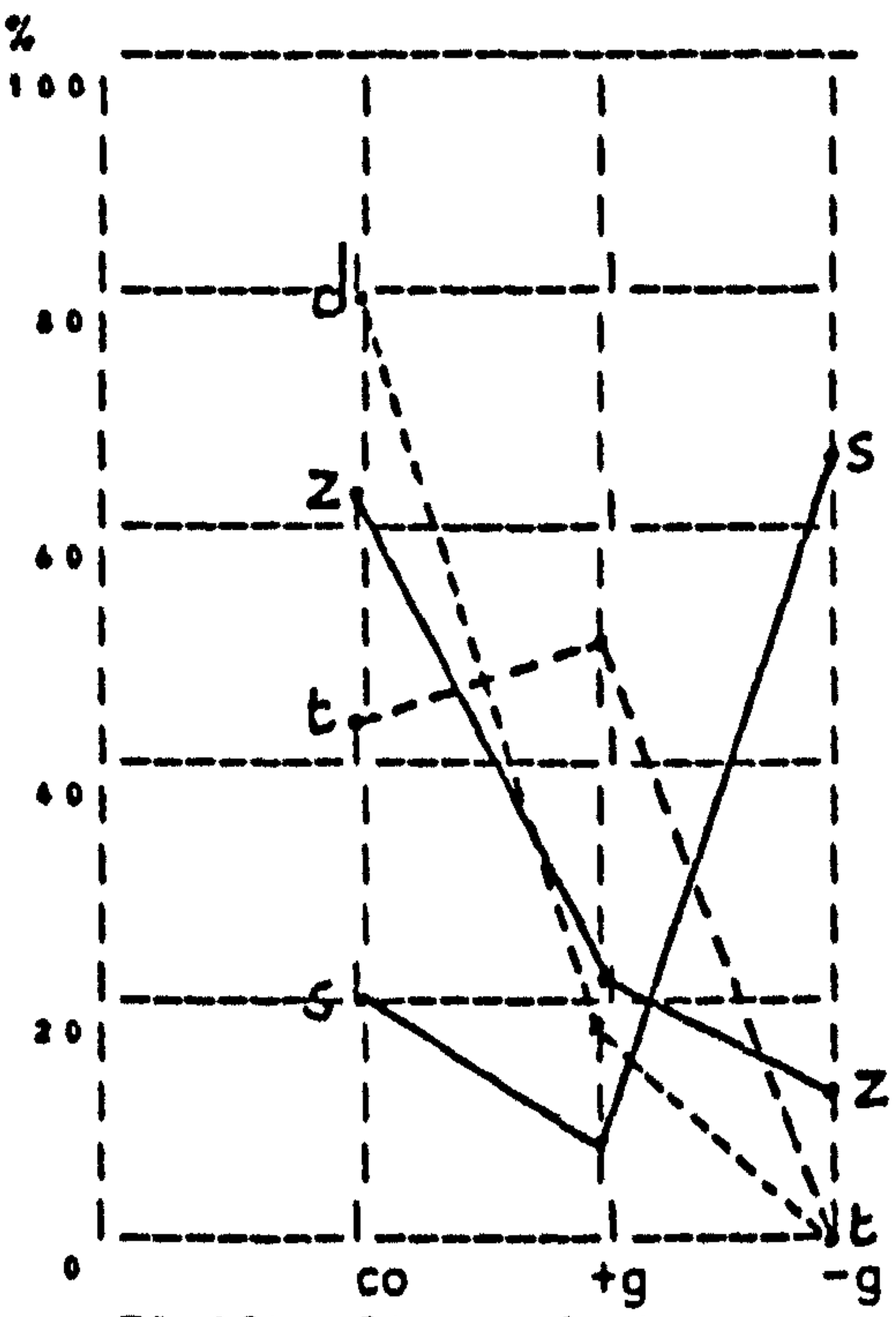
1300	tokens			percents		
PC	co	+g	-g	co	+g	-g
/t/	210	231	5	48	51	1
/d/	218	70	11	73	23	4
/s/	104	57	330	21	12	67
/z/	28	20	16	44	31	25
∑	560	378	362	43	29	28

If the raw data are broken down by groups of participants, further observations can be made, based on the table and the graphs in 52-02.

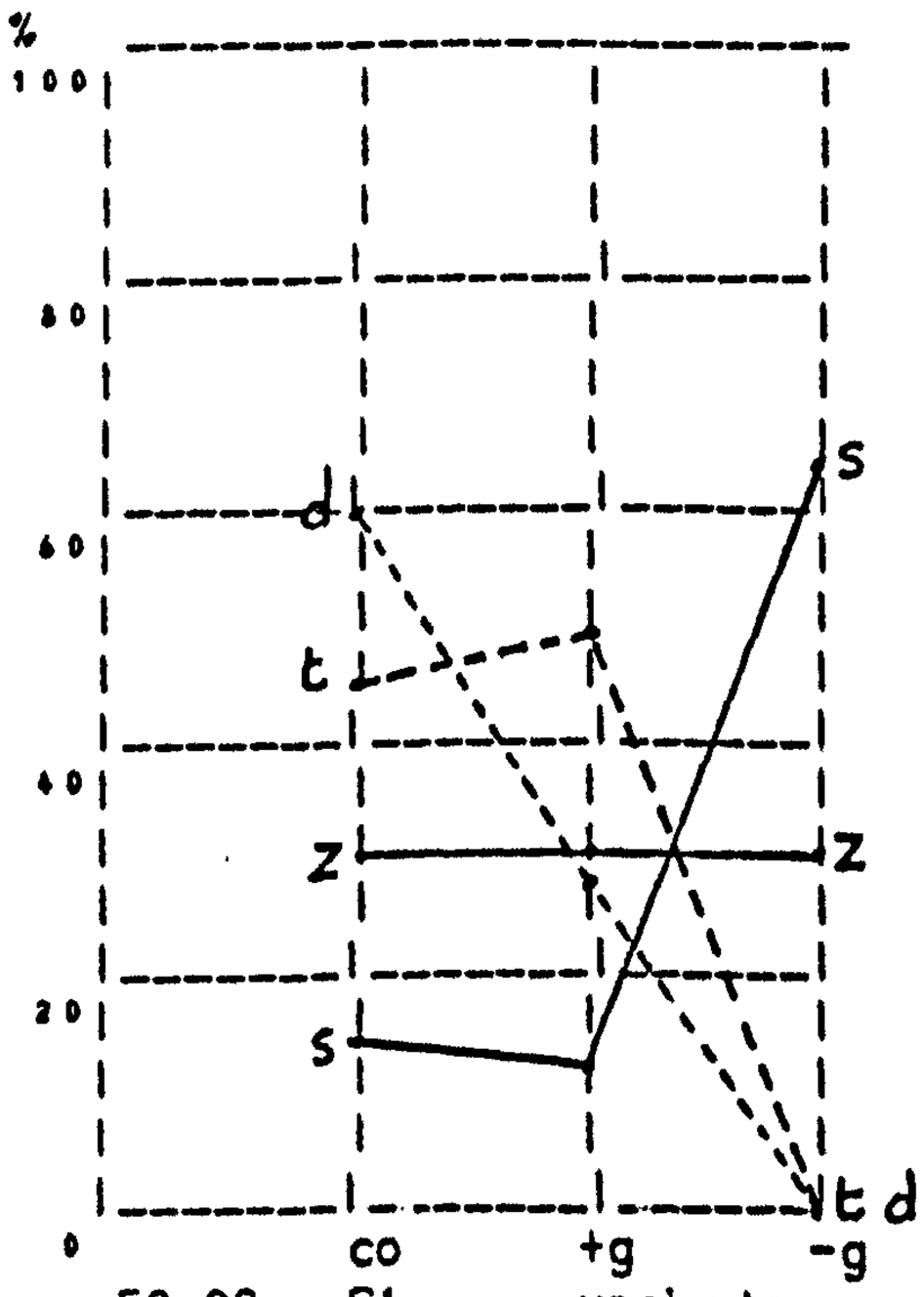
Figure 52-02
% variants for the 4 separate coalescing consonants: complete data



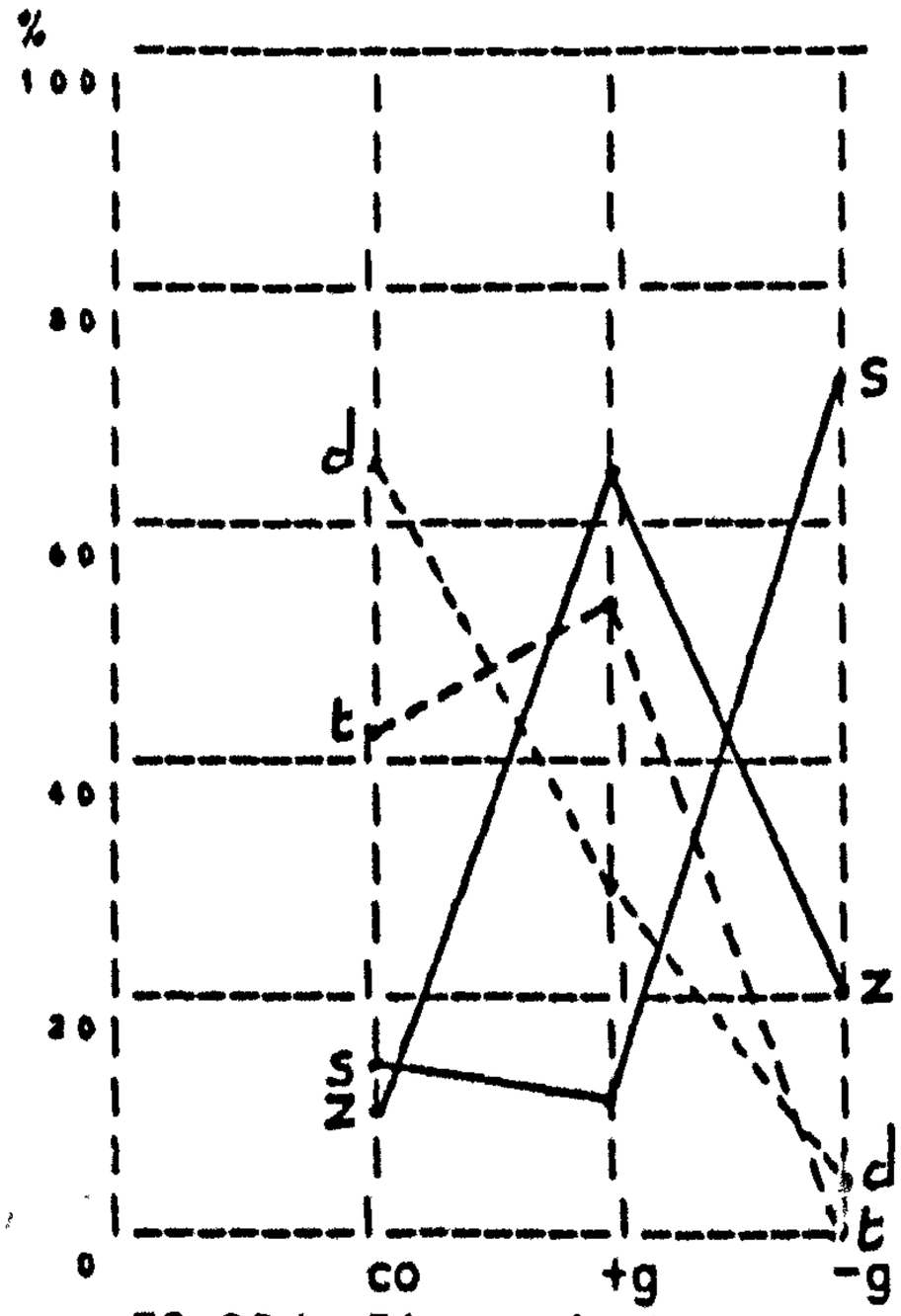
52-02a C1 variants



52-02b C6 variants



52-02c S1 variants



52-02d S6 variants

1 The same order for [- glide] in decreasing levels for each of the groups: ie /s > z > d > t/

2 The overall similarity of each of the groups for /t/ and for /d/.

3 The similarity in the overall results for both groups in the suburban school, and to a lesser extent for the city centre school.

4 The distinction between schools for the voiced consonants in coalescence and gliding.

5 An increase in gliding at the expense of coalescence for older pupils compared with younger.

6 C1 always has the lowest proportion of [+ glide]; almost the greatest of [- glide]; and always the greatest for coalescence for each PC.

More coalescence in the city centre and low gliding for C1 characterize their position as leaders in glide loss. This is contrasted with the suburban school, where despite the more heterogeneous nature of the informants, gliding is still dominant.

But these conclusions need to be interpreted with caution and circumspection. I shall show that most importantly, any results will be dependent on the items used for testing. This is due to the existence of identifiable subenvironments within a PC, which can colour the characteristics of each. Some of these have their own dominant variant, which may be categorical. Not all are categorical in the use of a single variant: those with more balance may be described as micro variables. How extensive these subenvironments are in the present enquiry, will emerge from the details of the raw results below, (ie before removing the categorical chunks).

5201 The unvoiced alveolar stop /t/

The overall results of the 446 tokens for this PC suggest a near equal split between coalescence and gliding, with a minimal fragment of 1% for unglided tokens, and none for [čju]. But what this conclusion obscures is the existence of subenvironments and their QC nature.

Table 52-03
Variants for raw /t/

446		C1			C6			S1			S6			/t/			%		
		co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g
t1	tune	20	0	0	17	3	0	16	3	0	11	5	0	64	11	0	85	15	0
t2	costume	0	19	1	1	19	0	0	21	0	0	16	0	1	75	1	0	99	1
t3	stew	0	19	1	0	19	1	0	19	2	0	16	0	0	73	4	0	95	5
t4	stupid	3	17	0	2	18	0	1	20	0	0	16	0	6	71	0	9	92	0
t5	literature	18	0	0	16	1	0	17	0	0	16	0	0	67	1	0	99	1	0
t6	miniature	16	0	0	19	0	0	21	0	0	16	0	0	72	0	0	100	0	0
∑		57	55	2	55	60	1	55	63	2	43	53	0	210	231	5			
%		50	48	2	47	52	1	46	53	2	45	55	0				48	51	1

The distribution of variants for all six words lumped together over the four participant groups was tested for significant differences. Since the number of tokens for the unglided variant was low, they were added to the figures for coalescence, and listed as not glide (~g). The 4 x 2 contingency table is given in 52-04. Testing showed that for $v = 3$, $\chi^2 = 1.047$ which is not significant at 10%. From this we can conclude that the four groups of subjects are not definitely different, with respect to the words tested.

Table 52-04
4 x 2 contingency table for χ^2 analysis of raw /t/

	-g	+g	Σ
C1	59	55	114
C6	56	60	116
S1	57	63	120
S6	43	53	96
Σ	215	231	446

In connection with this analysis, PJS has suggested that by lumping the data for all words together, it was possibly bending the rules regarding the independence requirement for χ^2. He therefore proposed a separate χ^2 test for the responses on each word. When this was carried out (with the exception of *miniature* which was 100% coalesced), the values obtained were

tune	χ^2	=	6.974	significant at 5%
costume	χ^2	=	1.899	not significant at 10%
stew	χ^2	=	1.679	not significant at 10%
stupid	χ^2	=	3.202	not significant at 10%
literature	χ^2	=	3.045	not significant at 10%.

The test results indicate 3 distinct subenvironments. Of these 2 are categorical: the suffix <-ture> which coalesces, and the cluster /st/ which is glided. It is only when the syllable is in word initial position that any significant differences occur. For *tune* while the overall figures showed 85% coalescence and 15% gliding, and while these figures were matched almost identically by C6 and S1, the percentages for the remaining groups were

quite disparate. The younger pupils in the city centre were all coalescers. At the other extreme for the older suburbanites, coalescence occurred only twice as often as gliding, with percentages of 69 and 31 respectively. As we move across the four groups of pupils in the order C1, C6, S1 and S6, there is a marginal increase in gliding. In return there is a small decrease in coalescence. This represents an example of a pattern in this investigation indicating the locus of divergence from RP, which is to recur in other PCs. The components of the χ^2 analysis for *tune* show that the differences are due to the greater level of gliding in S6, and the nil level in C1.

To evaluate the importance of these subenvironments in the totality of the /t/ PC, I carried out a scan of dictionaries for relevant words (app 7331). While this makes no claims to be exhaustive, it did identify about 200 lexical items. Between 20 and 25 per cent fall into the <-ture> class. Most of the <-ture> items which exist are unstressed on the relevant syllable. The exceptions are *mature* and its compounds, and *barbituric*, which do not have <-ture> as a morpheme suffix. These words are glided in RP, but coalescence is also prevalent. Jones 1945 gave the glided form as an alternative for *literature*, and only the coalesced form for *miniature*. Both types used here were invariably pronounced with the coalesced consonant [č] and the shwa vowel (or the Scouse fronted [ɛ]).

The other subenvironment involves the cluster /st/ which Pitts 1986 did not find distinctive (being generally unglided). Surprisingly, Jones 1945 gives as a rare variant of *stupid*, the unglided form. In this survey, whether the cluster was tautosyllabic or not, the results show an overwhelming preference (94%) for gliding. PJS has suggested that an explanation why the cluster /st/ resists coalescence may involve three factors.

(f1) Normally after plain /t/ there is friction. In standard English this is aspiration [tʰ]. In Scouse it can be affrication [tˢ]. No friction occurs for /st/.

(f2) Coalescence also results in friction after /t/, as [tˢ].

(f3) Coalescence is therefore less popular after /st/ because it will introduce friction, rather than (as in the cases of *tune, literature*), replacing the kind of friction in factor 1, with that of factor 2.

PJS concludes that in the case of /st/, the appearance of coalescence will be very prominent. His argument is borne out by a tendency, (most noticeable in the city centre school where the participants are mainly Scouse speakers), to an affricated version in *stupid* used by 12½%. This variant was most obvious if there was a momentary pause after the initial [s], (as with #02). The momentary pause turns /st/ into /s/ + /t/. This sequence can more readily receive affrication than the cluster.

10% of items found in the dictionary scan had /st/. When we include <-ture>, a third of the lexical items in /t/ will show little or no variation both in Scouse and in RP. The remaining 65 per cent or so have the syllable either word initial (just under 10% of the overall total), or word medial. Of the latter group, a sizeable number, (about 20% overall), incorporate the suffix <-tude>. In most forms of RP this is more likely to be glided rather than coalesced. However the results for <-ture>, suggest the converse is more likely in Scouse and perhaps in Liverpool in general. Together, these subenvironments leave only about ⅛ of /t/ potentially variable.

5202 *The voiced alveolar stop /d/*

In three words of the reading list, /d/ occurred initially (and stressed). In the case of *introduce* it was morpheme initial (and subject to either first or third syllable stress). Table 52-05 shows the distribution of variants recorded for each item. Degliding occurs only 4% of the time. Jones (1945:133) had referred to a deglided variant for *duke*, but classed this as facetious.

Table 52-05
Variants for raw /d/

299		C1			C6			S1			S6			/d/			%		
		co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g
d1	duke	20	0	0	15	5	0	9	12	0	8	7	1	52	24	1	68	31	1
d2	dual	16	1	0	17	3	0	18	1	1	10	6	0	61	11	1	84	15	1
d3	during	20	0	0	20	0	0	18	3	0	15	1	0	73	4	0	95	5	0
d4	introduce	8	5	5	12	7	1	3	12	2	9	7	0	32	31	9	44	43	13
∑		64	6	6	64	15	1	48	28	3	42	21	1	218	70	11			
%		84	8	8	80	19	1	61	35	4	66	33	2				73	23	4

The pattern of increased gliding and reduced coalescence as we move outwards and upwards in age is almost broken in the suburban school. When we conflate the results for [- glide] and coalescence, the χ^2 value for $v = 3$ is 20.71 which is significant at 0.1%. The greatest contribution to this analysis of groups came from the low amount of gliding in C1, which attained only 8%. Coalescence appears to be more widespread for /d/ than for /t/. This may be attributed in part to the inhibiting factors associated with the /st/ subenvironment. But the extent of subenvironments is different. Appendix 733 shows that out of 100 /d/ items, 40% are word initial. In this position /d/ was predominantly realized as the coalesced form [J], with a range from

68% to 95% in the three words tested. But besides lexical differences, there were differences in the proportions used by each of the four participant groups. These are shown in table 52-06.

Table 52-06
% variants for word initial /d/

	co	+g	-g
C1	98	2	0
C6	87	13	0
S1	73	26	2
S6	69	29	2

The schools are differentiated by the use made of the coalesced and glided forms. The city school (especially the younger participants) has a marked preference for the former. But in the suburban, the ratios between coalescence and [+ glide] are closer. Among S6 the glided forms approach a half of the palatalized forms.

In the case of *introduce*, (representing about 10% of the total lexical stock for /d/), the overall percentages of [+ glide] and coalescence were more evenly divided. The younger pupils in the city school provided a source of greater interest in that a third of their tokens were unglided. Given the innovative role of C1, this suggests another incursion of [- glide] in Liverpool, in a position which is not as prominent as word initial. At the other end of the scale in S1, 70% of tokens were glided. This may reveal a less spontaneous approach to the interview than that of the younger pupils in the city school, or it may reflect a more careful enunciation.

5203 The voiced alveolar continuant /z/

The figures for /z/ rely on a single type *presume*. To further reduce the number of tokens, there was variable voicing across individuals. The unvoiced variants are given under /s/. Gimson (1980:213) had noted the increasing use of the unglided variant for this word, and he regarded the coalesced form [ž] as old fashioned. All three forms were recorded here (see table 55-02), with considerable variation across the four groups of participants.

Table 52-07
Variants for raw /z/

64		C1			C6			S1			S6			/z/		
		co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g
z1	presume	8	0	4	12	4	3	6	6	6	2	10	3	28	20	16
%		67	0	33	63	21	16	33	33	33	13	67	20	.44	31	25

The most striking feature is the change in level of gliding from the nil recorded in C1 to the 67% in S6. The increase in gliding and decrease in coalescence (already been observed for /t/, as we go from inner to outer and from younger to older), obtains here as well. Despite the expected value for [+ glide] in C1 being less than 5, a χ^2 test was carried out. For $v = 6$, the value was 18.75. In proper circumstances this is significant at 0.5%. This value was attributable to the large number of glided tokens in S6. The results are less reliable being based on only 64 tokens.

5204 The unvoiced alveolar continuant /s/

For /s/ the seven words tested include three monosyllablus, a pair of unstressed word initials, and an unstressed word final. The medial example *consumer*, has the syllable stressed. In addition, those tokens for *presume* with unvoiced sibilants are counted here. The total of tokens recorded for all words shows a preponderance of [- glide]. Again these overall figures obscure the subenvironments. As with /t d/ the effects of word initial position are notable. In the five types where <su> was word initial, 94% of the tokens were unglided, with only 6% glided and none coalesced. For s1 and s2 *sues* and *suit*, this may be because of possible homophonic confusion with *shoes*, *shoos*, and *shoot*. But word initial <su> does not always have this preference as may be seen from words like *sugar*, *sure*, where in RP the palatalized forms predominate over glided. In the case of *sugar*, this is attested in spellings like <shugar> as far back as the 16c. Indeed in the 17c and 18c several words at present with /sju/ were pronounced with /š/. Gimson (1980:190) gives as examples *sult*, *supreme*, *assume*. Whichever direction an individual word or speaker goes in, word initial <su> is most susceptible to glide loss. He points out that in many other words the deglided variant has become increasingly common, especially with the prefix *super-*. That this is widespread is confirmed by Petyt 1985. Traditional dialect forms in west Yorkshire were glided, 13 out of his 18 informants using a glide after /s/ were aged over 60. But in the towns [- glide] is most common.

Gimson also notes the difference between *assume* with /sj/ and *assure* with /š/. The latter pronunciation may be due to the influence of *sure* with /š/ (but see my analysis in §4101). The coalesced form for *assume* Gimson regards as old fashioned. Even when <su> is word medial, glide

presence is not particularly strong. In the tests *tissue* was never unglided, but there were seven times as many palatalized tokens as glided with a ratio of 88:12. Again the suburban school exhibited a preference for gliding in that it recorded 8 out of the 9 glides for *tissue*.

Table 52-08
Variants for raw /s/

491		C1			C6			S1			S6			/s/			%		
		co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g	co	+g	-g
s1	sues	0	0	15	0	1	16	0	1	15	0	1	15	0	3	61	0	5	95
s2	suit	0	1	16	0	2	18	0	1	15	0	3	13	0	7	62	0	10	90
s3	suet	1	0	2	0	0	14	0	2	7	0	0	15	1	2	38	2	5	93
s4	consumer	10	2	7	8	8	4	6	12	2	5	8	3	29	30	16	39	40	21
s5	superb	0	0	20	0	1	19	0	1	20	0	1	15	0	3	74	0	4	96
s6	supreme	0	0	20	0	1	19	0	0	20	0	1	15	0	2	74	0	3	97
s7	tissue	20	0	0	19	1	0	16	5	0	13	3	0	69	9	0	88	12	0
z1	presume	5	0	2	0	1	0	1	0	2	0	0	1	6	1	5	50	8	42
∑		36	3	82	27	15	90	23	22	81	18	17	77	104	57	330			
%		30	2	68	20	11	68	18	17	64	16	15	69	21	12	67			

While the other words tested appear to be largely following a single specific variant of the competing sound change directions, only *consumer* produced a more balanced distribution. The younger group in the city school (C1) had a preponderance of coalesced forms, with half the tokens coalesced and ⅓ unglided. Only 2 tokens were glided. The inclusion of the results for *presume* (with /s/) show far less [+ glide] than with /z/). They are not as evenly spread as for *consumer*, suggesting that the role of the morpheme may not be strong in the choice of variants. But tokens are few.

Levels of [- glide] are almost identical for each of the four groups of participants. In the suburban school [+ glide] and coalescence are on an equal footing, but in the city centre there is more coalescence. A χ^2 test

produced a value of 19.98 for v = 6. This value is significant at 0.5%. The main contribution comes from the low number of tokens for the glided variant recorded in C1.

5205 *Some explanatory variables tested*

For word frequency I used the same source as Phillips 1981, and both methods of applying the data therein: lower case only, and the combined entries (upper and lower, plurals etc). The Spearman rank correlation coefficients were calculated for each PC (52-09).

Table 52-09
Rank correlation coefficients for the coalescents

	single entry	combined entries
all	r = -0.01	r = +0.19
/t/	r = +0.09	r = +0.31
/d/	r = -0.20	r = -0.20
/s/	r = -0.44	r = +0.09

None of the coefficients can be regarded as sufficiently large as to register any convincing correlation. Like Pitts 1986 I conclude that no obvious patterning or relationship exists between glide retention and word frequency for the 4 coalescents. I then examined the 18 items for stress and selection of variant. 11 were stressed, (including 6 monosyllables). There were small areas of variation: the morphemes *-sume* and *-duce*. (With regard to the latter, item d4 received stress on the first or third syllables). Table 52-10 summarizes the environments found. It suggests that stress plays a less prominent role in determining the choice of variants whether taken over the four coalescents considered together or separately.

Table 52-10
Stress and the coalescent variants

PC	+ stress		- stress	
	subenv	variant	subenv	variant
/t/ •	initial /st/	coalesce + glide	-ture /st/	coalesce + glide
/d/	initial -duce	coalesce variable	-duce	variable
/s/	initial	- glide	initial	- glide
/z/	-sume	variable		

However Horvath (1985:112) came to the conclusion that [- stress] favoured palatalization. "A variable rule analysis of palatalization... will show that following stress does not block the process categorically but it is certainly the case that an unstressed vowel position promotes palatalization." Her results show stressed syllables registering 20% palatalization, and unstressed 48%. If we make allowances for the lesser extent of female coalescence, this conclusion is reinforced. I estimate that for males only, stressed syllables reach 26%, but unstressed attain 64%. This gives a ratio of 2½: 1 in favour of [- stress]. The Liverpool results are not as dramatic. Palatalization rises, but only from 41% to 46% for [+ stress] versus [- stress].

In the coalescents, the sequence of C + /J/ either becomes merged to Č in the intermediate alveopalatal area as a sort of assimilation, or it develops to bare C as a kind of dissimilation. Wells is not sure why the stops coalesce rather than deglide. There may be an element of stigma associated with the latter. What basically motivates (and possibly dictates)

the dominant variant in the items tested, is the nature of the subenvironments. While three main variants exist in theory, in practice there are extensive subenvironments which can be categorical in their use of a particular variant, leaving a residue of micro variables. These subenvironments are defined by linguistic features such as word position (particularly initial), or may be morpheme based. A more probing analysis of stress and the subenvironments is carried out in §5504.

5206 The subenvironments

It was seen earlier (in §3033) that some phonological variables in Scouse (and in Liverpool in general) can be complex, or at least different. The situation with the coalescents brings its own attendant problems. These concern the categorical subenvironments and their implications regarding the status of the PC as a minivariable. Similar issues have been raised by Hudson 1980b. He suggests that too much emphasis has been placed on the phoneme *per se*, and prefers to regard the true phonological variable as a phoneme in a context. His remarks are based on the concept of the variable within the standard Labovian paradigm, and while this does not necessarily apply in this work, his comments are pertinent to the coalescents. As an example he gives (t), which can appear as [t] or as [ʔ] (or even a combination). If /t/ appears before a consonant there is no variability, but when prevocalic, there is. Hudson claims that these cases must not be treated as instances of the same variable. In the case of /t/ as a PC for the palatal glide, I have shown that (in Liverpool at least), over ½ of the items constituting the lexical range of this PC exhibit little or no variation. In the case of /s/, word initial position commands about ⅓ of the items, but if we extend *super-* to include those words where it is a prefix, this

proportion is doubled. Taken with *-sure* (which is mainly coalesced), about ¾ of /s/ can have a categorical variant. What is left, can vary. I have referred to this as the micro variable.

In the plain consonants, word initial position was shown to be favourable to glide loss. In the coalescents, the loss is largely represented by coalescence in the stops and by [- glide] in the continuants. Most importantly we must establish the incidence of the individual lexical items of a given PC (as I have tried to do in the appendices), and their categorality or otherwise, in order to get an idea of the distribution and contribution of such items. The repercussions of the (near) categorical subenvironments must be taken into account when assessing the gliding status of any coalescing consonant as a mini variable. The findings of other researchers need to be subjected to greater scrutiny than the figures in their pooled results appear to indicate. Experimental results can be influenced by the unwitting selection of categorical classes. Different distributions of lexical items and subenvironments may lead to correspondingly determined distributions of variants.

5207 Slips of the tongue

With regard to evidence from slips of the tongue, what there is for the continuants /s z/ is based on 2 participants only. In C1, #07 in his pronunciations of *musician* was so affected by the anticipatory assimilation of the palatalized [š] in the third syllable as to palatalize the expected voiced sibilant /z/ in the second. His three attempts were

mju['žɪs]an
mju['žɪš]an
mju['zɪsj]an

Apart from the range of the three main realizations of /š/, (bare [s], coalesced [š] and glided [sj]), it is to be observed that the glided form occurred in the third attempt, which was the most carefully enunciated of all. This may reinforce the observation that the glided variant tends to be associated with careful speech. (This instance is not a strict example of the sequence being studied here, since it does not involve the back vowel /u/). The evidence relating to /z/ is restricted to a single participant with a single word *pleurisy*. In each of the four elicitations, #33 (in C6) pronounced this as [plɛ'žwresI] reflecting the overall predominance for the coalesced variant, and indeed echoing his own pronunciation of *presume*.

For the stops, the coalesced form [č] was supreme in /t/, whether used word initially or medially. On four occasions, *lupins* was perceived as *tulips* with [č]. In *salutary* (for #14 and #55), /t/ was transferred before the /u/, and realized as [č]. Mispronunciations of *glutinous* also involved [č] for #02 and #16. When /d/ became medial, as in the metathesis by #09 in *prelude* producing [-dj-], and a misreading of *salutary* by #12 gave ['sandjutI], it was glided. But these are hardly substantial examples and may be due to hesitation. The use of [+glide] in the metathesized *prelude* rather than a coalesced form is especially interesting since the standard pronunciation of the word is always glided with /l/.

I now propose to leave the (categorical) subenvironments and concentrate on the micro variable parts of the coalescents. This means looking at the main variable subenvironments or words.

5210 *The coalescent reduced set of 5: the «micro variables»*

The immediate consequence of excluding (near) categorical items was that only seven remained. While not intended to be equable, any imbalance between PCs was reduced by eliminating the 2 least variable, *dual* 84%, *tissue* 88%. Five items represent only 375 tokens. But they do include the most variable words, bringing into greater relief any distinguishing characteristics. The set of five is used to test age, school and group differences, the linguistic features of voicing and manner of articulation; and to construct an index of gliding. The set of 5 comprises *tune, duke, introduce, presume, consumer.* Group means and standard deviations were calculated (table 52-11). Scoring is 1 for [+ glide] with 0 for coalescence or [- glide]. As the scores were based on five items, the bulk are represented by 0%, 20%, 40%, 60% or 100%. S1 recorded mispronunciations which resulted in other percentages.

Table 52-11
Group gliding scores: coalescing PCs: the set of 5

group		arithmetic mean	standard deviation
C1	centre younger	$\bar{x}$ = 7	σ = 9.5
C6	centre older	$\bar{x}$ = 27	σ = 28.5
S1	suburb younger	$\bar{x}$ = 45	σ = 22.3
S6	suburb older	$\bar{x}$ = 46	σ = 37.2

The disparity in extent of gliding between C1 and the three other groups, is noticeable from the mean scores. Similarly the distinction between the schools. The standard deviations show the greater homogeneity of the younger city centre group, and the more heterogeneous nature of the older

groups. This is attributed to the fact that while each secondary school in Liverpool had a restricted catchment area when the research was carried out, the sixth forms represented the final year of a citywide intake. In any case the suburban school drew on a wider background both numerically and socially. The distributions of the individual scores for these groups are given in fig 52-12, where each symbol represents a participant.

The charts in 52-12 bring into better focus the differences in the composition of the groups. While the other groups extend across the spectrum, there is a concentration of low scoring participants in C1, confirming the internal homogeneity. It also serves to indicate the internal consistency with respect to gliding (in this case, of non use) over the four PCs tested, using the set of 5. The distribution for C6 has twin peaks below the mean at 0% and 20%, but these older participants extend the range as far as the maximum. With S1, the modes are at 40% and 60%, emphasizing the more extensive use of a glide. The 2 modal values for S6 are at opposite ends of the range, 0% and 100%, making it the most heterogeneous group. This reflects the intake from a broader band of social backgrounds.

I shall now test the observed differences based on the combined data for the four coalescents in table 52-13. Globally the differences between the variants used are very significant. In a contingency table for 3 variants across 4 participant groups, $\chi^2 = 48.59$, $p > 0.01$ for $v = 6$. The component $(O - E)^2/E$ values indicate that the differences are least with respect to the levels of [- glide]. The most substantial part of the χ^2 value derives from the [+ glide] figures. C6 adheres most closely to the norm as designated by the expected frequencies, followed by S6. The group which again stands out most is C1.

Figure 52-12
Individual scores on the coalescent set of 5 by groups

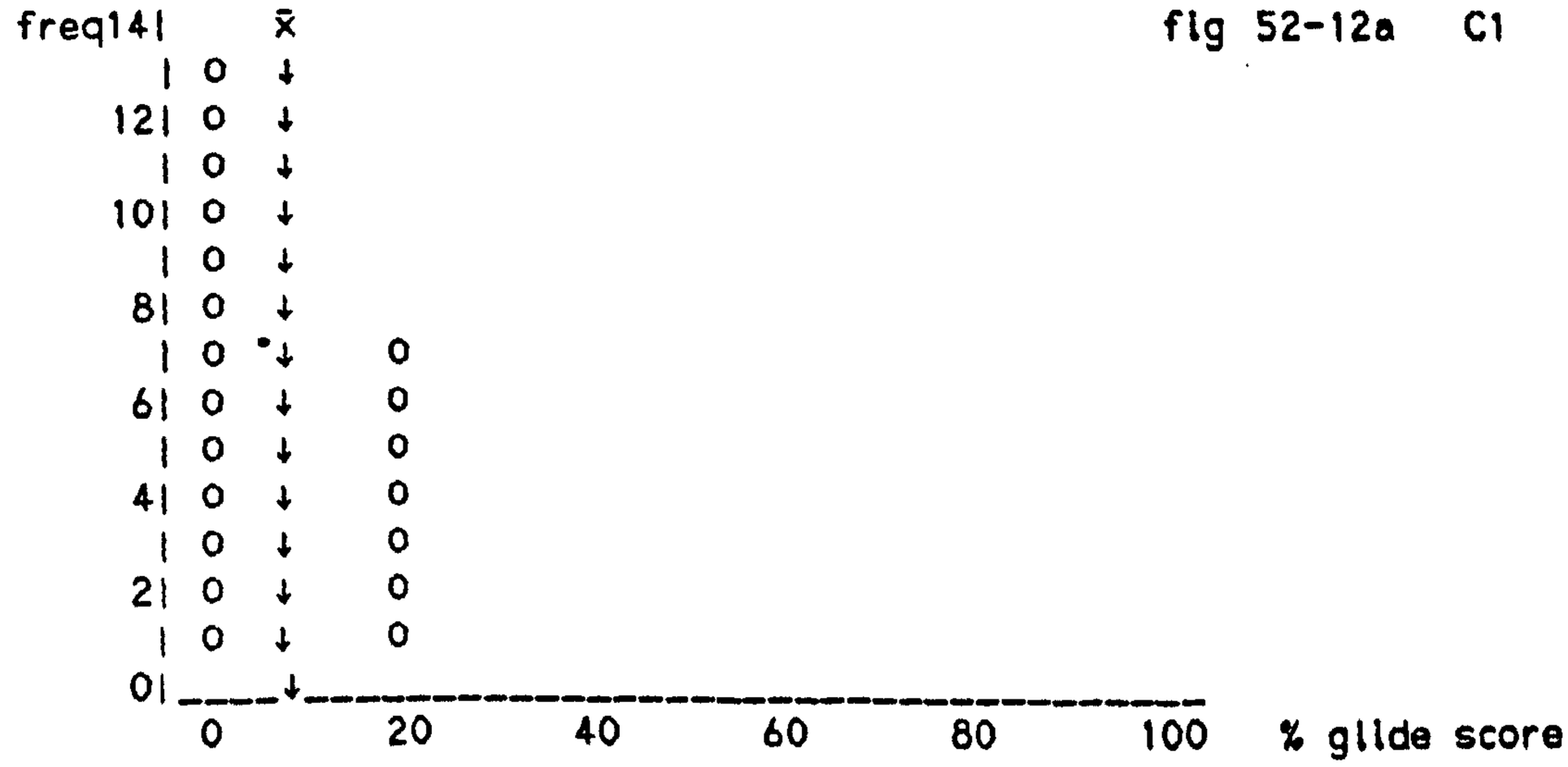


fig 52-12a C1

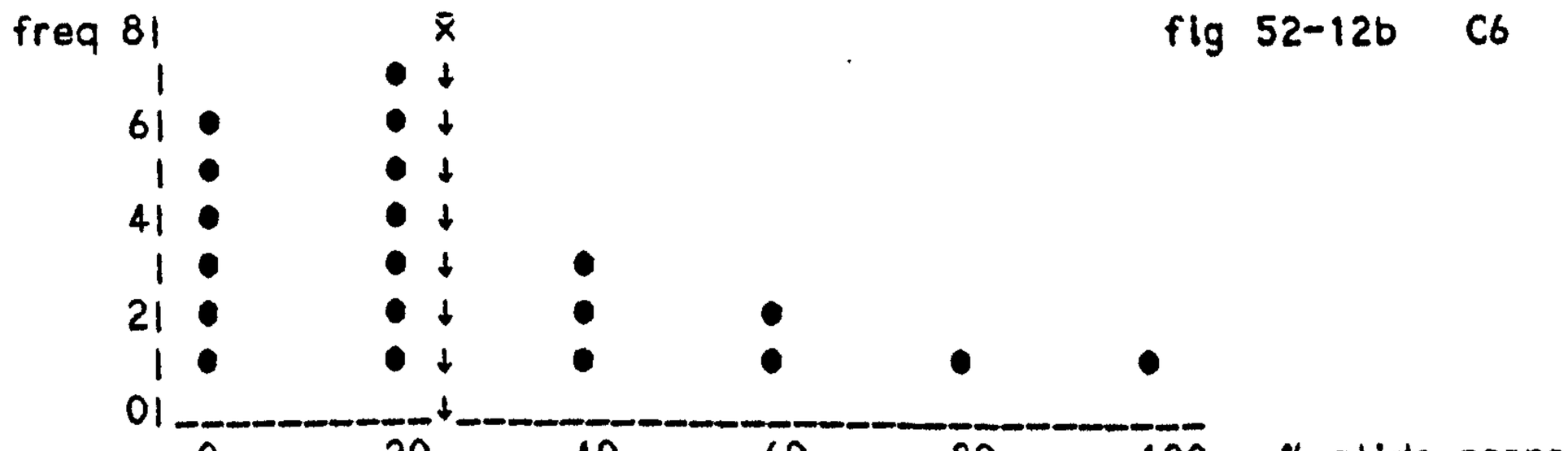


fig 52-12b C6

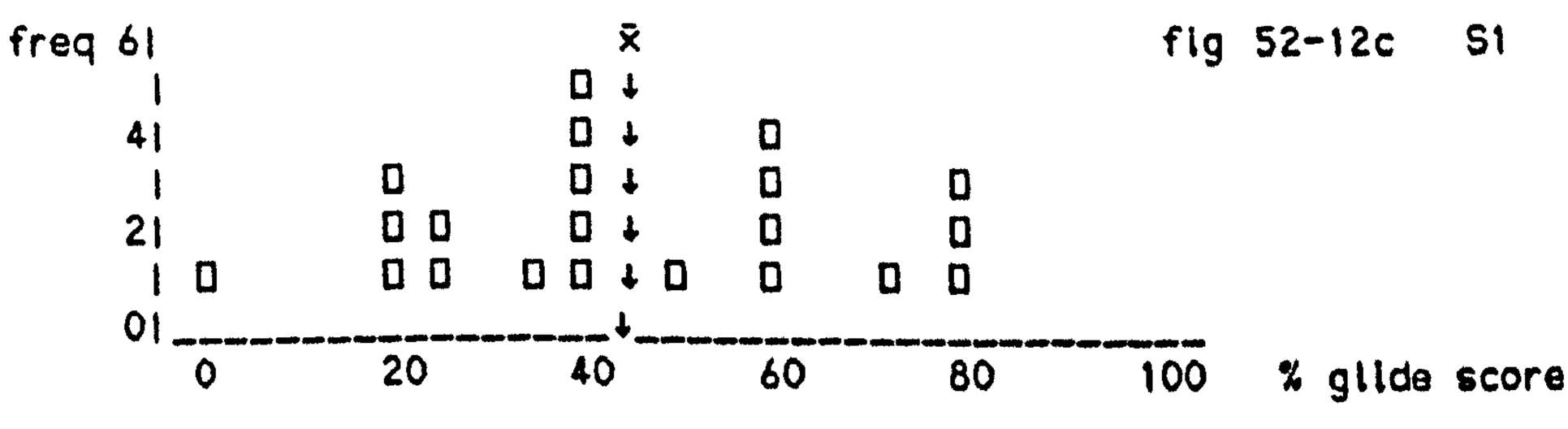


fig 52-12c S1

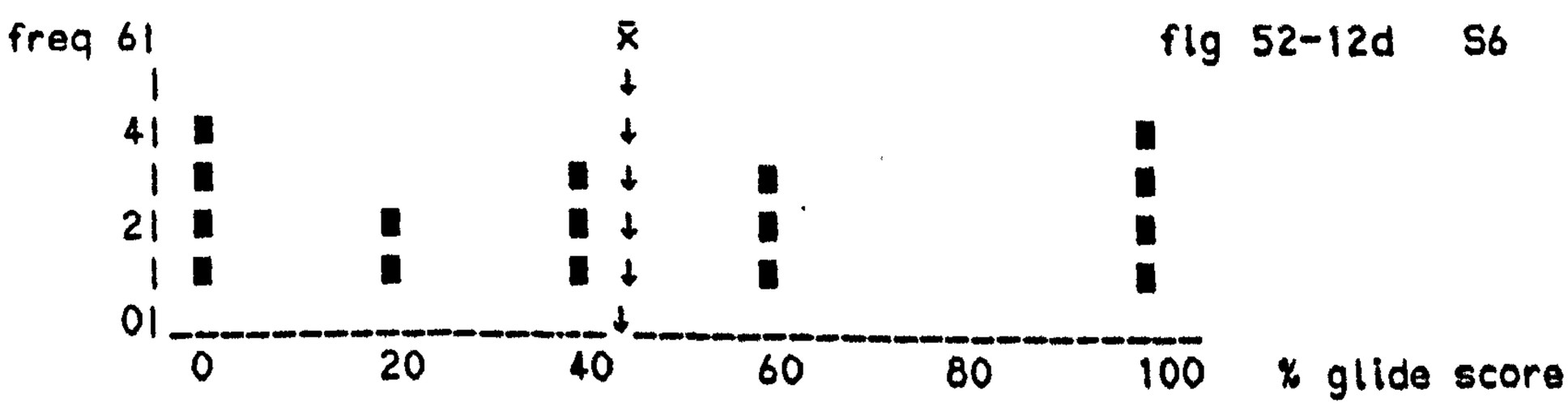


fig 52-12d S6

Table 52-13
Group data for 4 combined coalescents: set of 5

S1			S1 + C1			C1		
co	+g	-g	co	+g	-g	co	+g	-g
41	45	12	112	52	31	71	7	19
42	46	12	57	27	16	73	7	20

S1 + S6			◂ groups ▸			C1 + C6		
co	+g	-g	◂ variants ▸			co	+g	-g
76	82	20	◂ tokens ▸			135	35	27
43	46	11	◂ percents ▸			69	18	14

S6			S6 + C6			C6		
co	+g	-g	co	+g	-g	co	+g	-g
35	37	8	99	65	16	64	28	8
44	46	10	55	36	9	64	28	8

5211 Age and school differences

The results for both age groups in graph 52-14 show an almost equal use of the coalesced variant (57% and 55%). There was a third more use of the glide (up from 27% to 36%) among the older pupils, accompanied by a reduction of a half (from 16% to 9%) for glide loss. The changes in the percentages must not be allowed to mislead. This was confirmed by the χ^2 test. ($\chi^2 = 6.44$, $p < 0.05$). When the data for each PC were tested separately, no significant differences emerged.

$$\chi^2_t = 2.10, \quad p > 0.1$$
$$\chi^2_d = 0.0007, \quad p > 0.1$$
$$\chi^2_e = 2.44, \quad p > 0.1$$
$$\chi^2_z = 3.97, \quad p > 0.1$$

The age data were obtained by combining the similar age groups from each school. This may have led to differences between schools being cancelled out. While the dominant variant in the city centre (C1 + C6) is coalescence (which outnumbers the other variants combined), in the suburbs (S1 + S6), the glided form is the main variant. That the differences are very significant is confirmed by testing. $\chi^2 = 35.55$, $p < 0.01$. The distinction with the age factor can be seen in graph 52-15.

Figure 52-14
Coalescents set of 5
Young v old

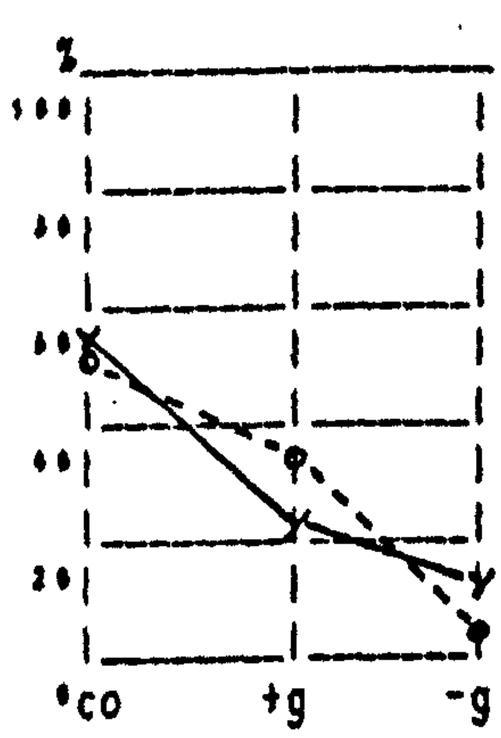
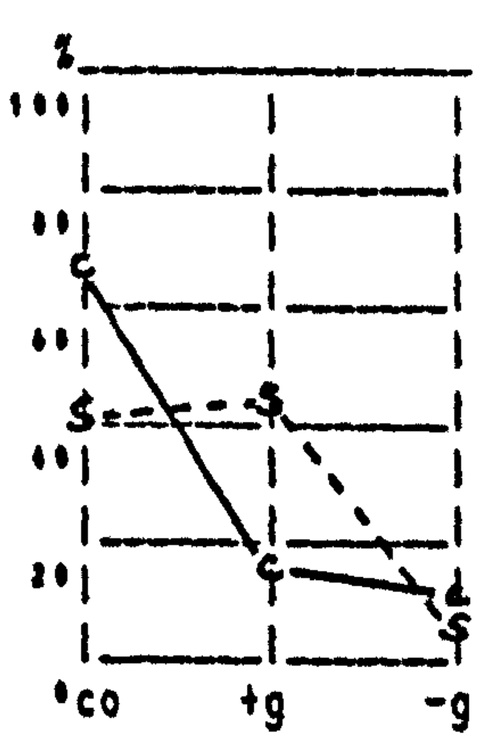


Figure 52-15
Coalescents set of 5
Centre v suburbs



5212 *Comparisons with other research: social aspects*

In order to effectively compare the Liverpool results with those from Sydney, some arithmetical modifications are necessary to bring those results more into line with the social parameters in the present survey. Horvath does not give individual figures for palatalization or gliding for any of her nine words, only combined percentages for various factors. Since

the observed frequencies were not provided in her book, I have attempted to excise the contributions of sex and ethnicity. I was able to produce an estimate of frequencies for males only (and later for Anglo males only). The reliability of my approach is vouchsafed by the fact that it does preserve the fundamental ratios of distinction between the results of the binary groupings (both linguistic and social) which Horvath used. For example, my calculations preserve the fundamental (approximate) ratio of 2:1 for palatalization, which Horvath obtained for her male: female grouping.

For Horvath, males palatalized 43% of the time: females 22%. The former percentage is identical with the result for coalescence in Liverpool, (using the raw results), where all the informants were male. The coincidence is more fortuitous than significant. If the figures of Horvath are modified to include only Anglo males (so as to match better the Liverpool groups), then the Sydney level of coalescence rises to 48%. If the present figures include only the set of 5, (to match better the variable words of the Horvath survey), then the Liverpool level rises to 56%.

Horvath included adults as well as teenagers, and found that teenagers coalesced their consonants marginally more than adults, (all Anglos), by 33% to 26%. Among the teenagers there was a tripartite ethnic division into Anglos, Greeks and Italians, with levels of palatalization of 36%, 32% and 24% respectively. In the Sydney survey, teenagers used the palatalized variant a third of the time. This fell to a quarter for adults. If an allowance is made for the implicit lowering of the overall scores, then the percentages for Anglo only teenagers will be correspondingly greater, thus reducing the gap between them and the (Anglo only) adults. In the present survey, for the set of five, increase in age was accompanied by a

minimal decrease in coalescence, from 57% to 55%.

> For the results of her Sydney survey, Horvath claims that
>
> "All of the social factors are significant except perhaps for socioeconomic class. The results indicate that palatalization is more frequent among males, Anglos, and teenagers. It is disfavoured by the middle class." *(op cit:117)*

The three socioeconomic groupings that Horvath used did show a consistent pattern in their use of coalescence. Those speakers characterized as lower working class used the palatalized forms for 36% of the tokens. This fell marginally to 33% for the upper working class, and fell again to 25% for the middle class. These results are repeated with emphasis in the present enquiry. If we regard the city centre school as being almost exclusively working class in income and outlook, and the suburban school as a mixture of middle class and working class, then my data reveal a decrease from 69% for the city school to 43% for the suburban school in the use of coalescence, based on the more variable items.

In the American studies, what had been reported by Stephenson 1970 was the increasing glidelessness of southern speakers, with the young in the forefront of change. Age difference was most marked when the subgroups of oldest and youngest were considered: glide use fell from 90% to 40%. While the age range of 40 to 20 years was not mirrored in the present survey, there was a tendency towards greater glide loss among the younger subjects, but only in the city centre. It did not occur in the suburban school where the results over the four PCs were similar for both age groups, and where gliding was the dominant variant, since speech in interviews is likely to be more carefully monitored.

The data for the four individual micro variable coalescents are collected in table 52-16, with the combinations for voice and articulation.

Table 52-16
PC data for 4 coalescents: set of 5

t			t + d			d		
co	+g	-g	co	+g	-g	co	+g	-g
64	11	0	148	66	10	84	55	10
85	15	0	66	29	4	56	37	7

t + s			◂ PCs ▸			d + z		
co	+g	-g	◂ variants ▸			co	+g	-g
99	42	21	◂ tokens ▸			112	75	26
61	26	13	◂ percents ▸			53	35	12

s			s + z			z		
co	+g	-g	co	+g	-g	co	+g	-g
35	31	21	63	51	37	28	20	16
40	36	24	42	34	25	44	31	25

It suggests that, when there is scope for variation, the stops are again more likely to palatalize than the continuants (cp table 52-01). But the stops are word initial, which is not conducive to gliding. A mini hierarchy is as follows: /t d z s/.

5221 The effect of voice

Horvath showed that the voiced coalescents /d z/ attract a greater level of palatalization than voiceless /t s/. The difference was not substantial, being of the order of 38% to 29%. If males only are considered, their greater propensity to palatalize has the effect of increasing the ratio to 51% and 39%. Horvath used twice as many unvoiced (6) as voiced (3) items (§4133). Only a single instance of each was word initial. In the voiced PCs this potentially provides a greater proportion of coalescing variants. When the five variable words here are used, the voiced PCs register 53% palatalization, with the voiceless counterparts on 61%, thus contrasting with the Sydney figures.

Figure 52-17a
Coalescents set of 5
(- voice) young v old

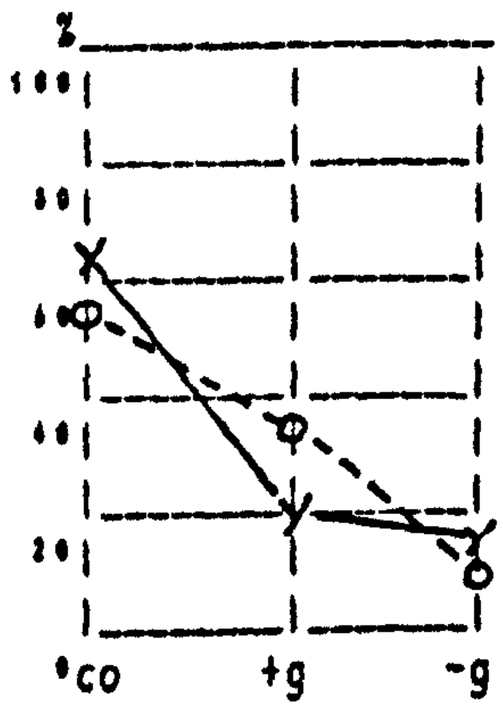
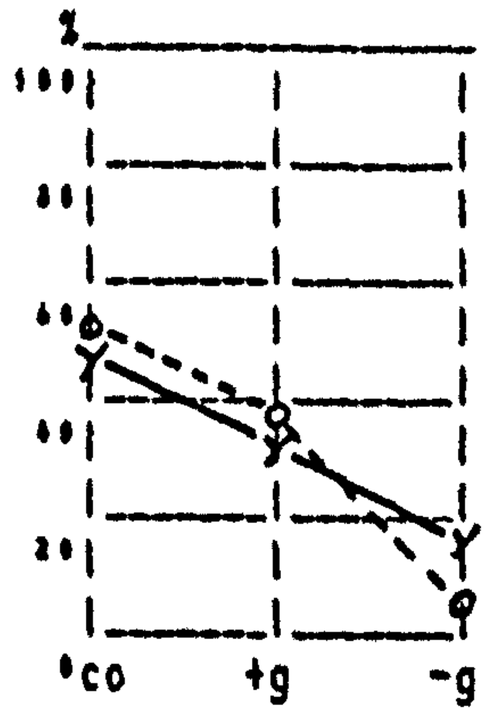


Figure 52-17b
Coalescents set of 5
(+ voice) young v old



In Liverpool a decrease in coalescence, accompanied by an increase in gliding as we pass from younger to older, is preserved for the voiceless environments /t s/. The voiced PCs /d z/ go marginally against this trend, with a small increase in coalescence as well as in gliding, for older pupils. Testing revealed that the differences in both instances were not significant.

χ^2_{tm} = 4.46, p < 0.1; χ^2_{dm} = 4.32, p < 0.1. The graphs in 52-17 show this by the similar slopes of the lines.

On the other hand there is a noticeable difference between the schools best seen in graph 52-18.

Figure 52-18a
Coalescents set of 5
[- voice] centre v suburbs

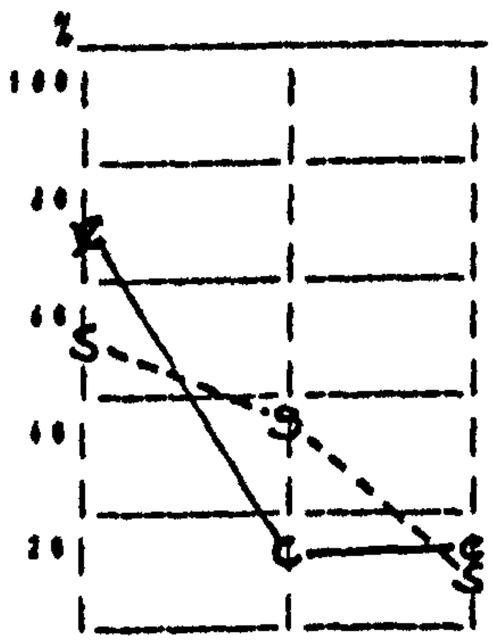
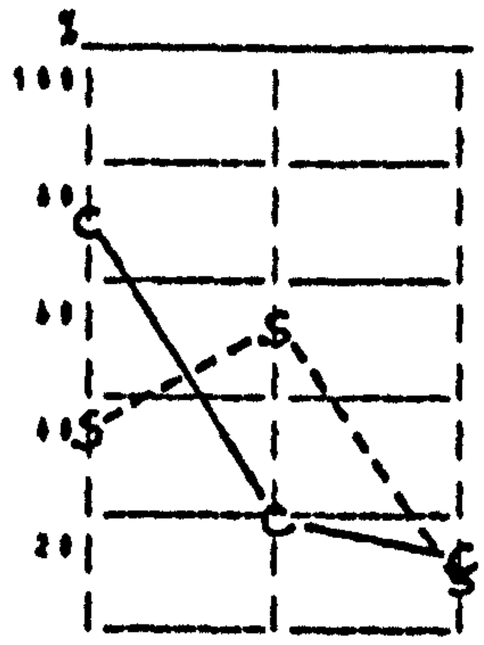


Figure 52-18b
Coalescents set of 5
[+ voice] centre v subs

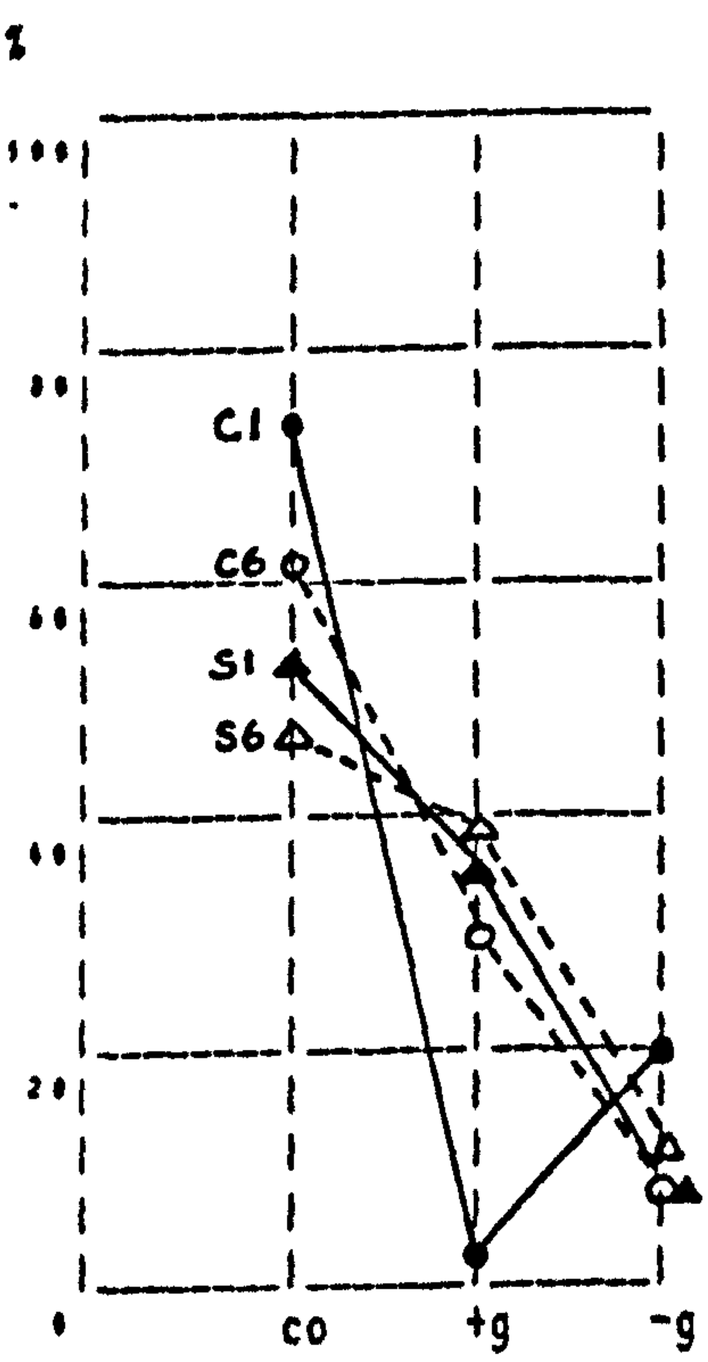


The centre maintains an almost equal distribution of variants for [+ voice] and [- voice], with coalescence being dominant. In the suburbs, as [- glide] is kept constant, there is a reversal of the roles of the other variants. Gliding is associated with the voiced consonants, coalescence with the unvoiced. The differences between the schools are very significant. When tested for both aspects of voice, [+voice] gives a χ^2 value of 27.37, p < 0.01. [-voice] produces χ^2 = 9.47, p < 0.1. The variant mainly contributing to the difference is the low level of [+ glide] in the city centre, and the above average figure in the suburbs.

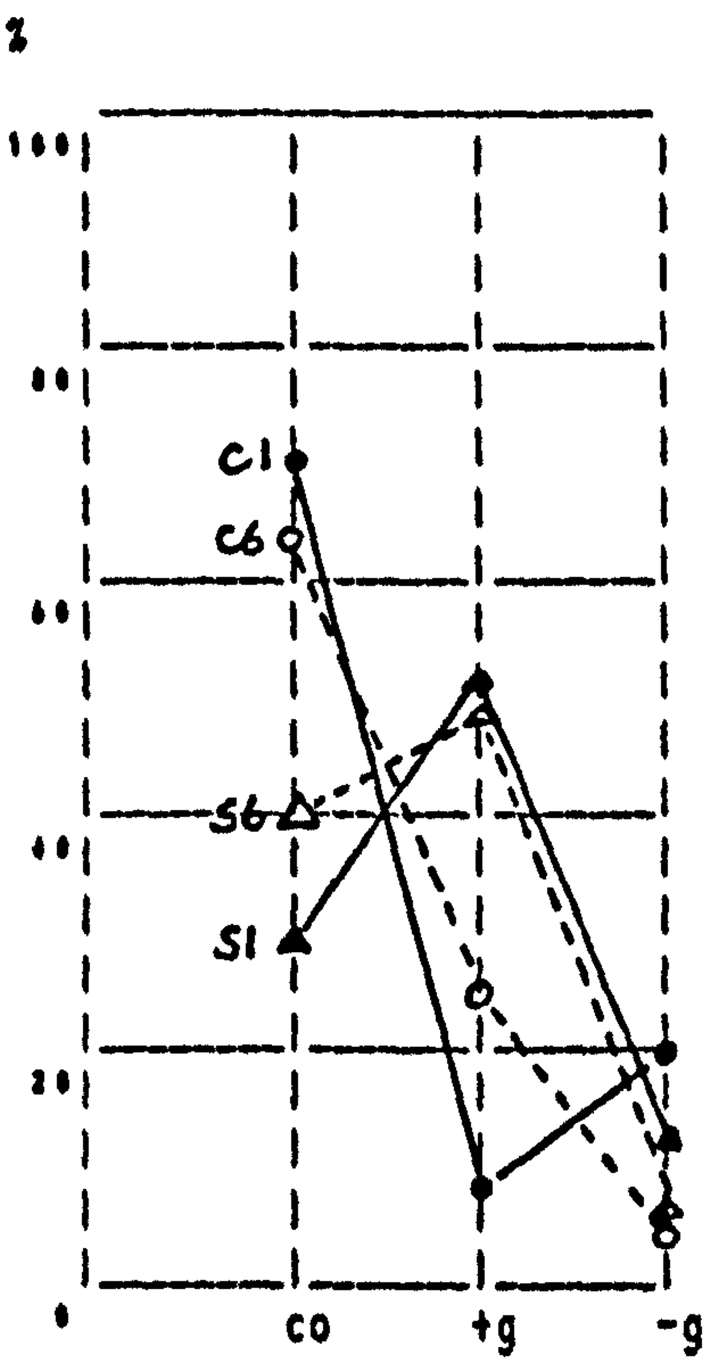
Of the four groups C6 may again be said to be most typical. Their results for /t s/, approach more closely the overall figures. The group most distinct from the global results is again C1. This is confirmed by

statistical testing. χ^2_{tot} = 17.40, $p < 0.01$, for which low gliding in C1 is largely responsible. If C1 is excluded and the three other groups are tested on their own, χ^2_{tot} = 1.23, a non significant result. This is shown visually in graph 52-19.

Graph 52-19
Coalescents (- voice)



Graph 52-20
Coalescents (+ voice)



The same conclusions emerge from the voiced coalescents. χ^2_{tot} = 34.57, $p < 0.01$. Low gliding in C1 is the main contributor; and above average gliding and low coalescence in S1 also of importance. (See graph 52-20 which shows the distinction between the schools).

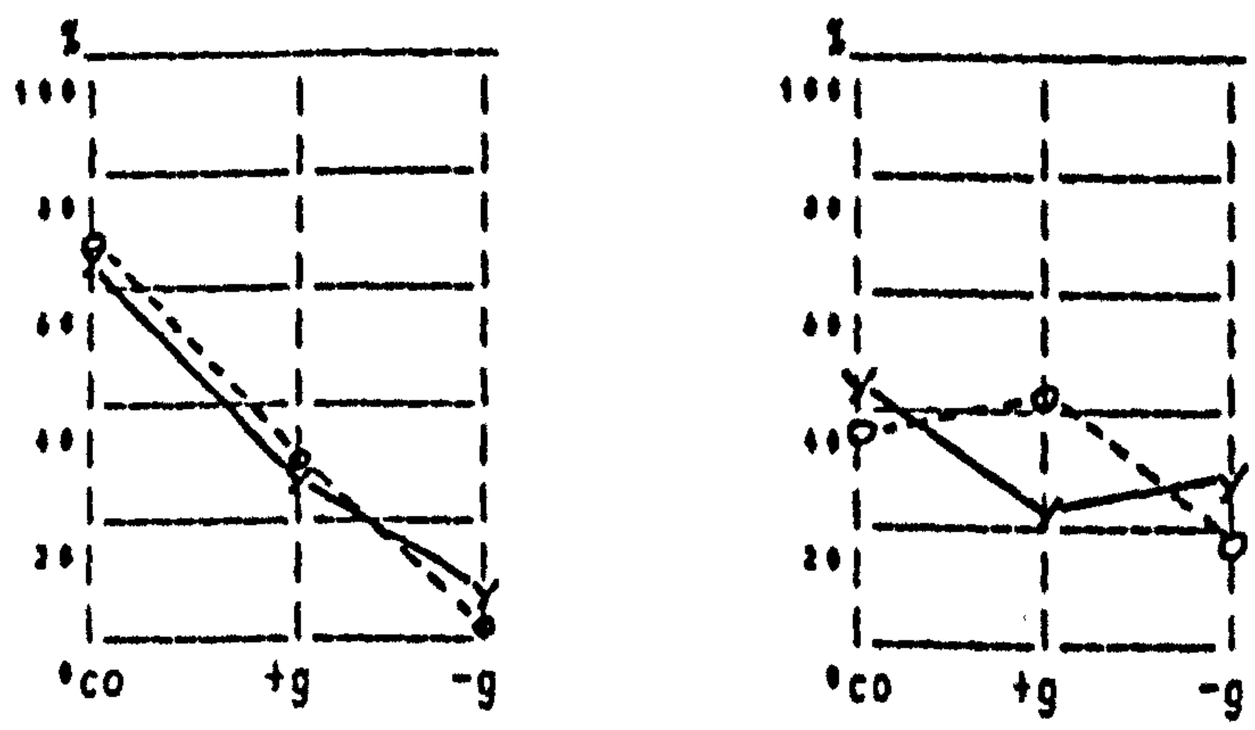
5222 Manner of articulation

When the consonants are classified according to manner of articulation, Horvath found that the stops (42%) were more favourable to palatalization than the continuants (18%). The ratio of 2½:1 is preserved in the estimate I made of male only results, (57% for the stops and 25% for the continuants). In my own tests the untreated results for all words tested, produce almost identical figures 57:24. Using the figures from the pruned set of five, /t d/ produce palatalized variants totalling 66%, with /s z/ on 42%. But in Liverpool, there is a propensity to palatalize word initial syllables in the stops. The continuants demonstrate a more even distribution of variants, as they share the same morpheme <-sume>, like Horvath.

The distribution of variants for the stops /t d/, is almost identical for both age groups, (fig 52-21a). $\chi^2 = 0.24$, $p > 0.1$, which is too low to indicate a significant difference. The results for the continuants /s z/ show a greater use of gliding among the older pupils, but the differences were still not significant ($\chi^2 = 5.54$, $p > 0.05$). See graph 52-21.

Figure 52-21a
Coalescents set of 5
Stops: young v old

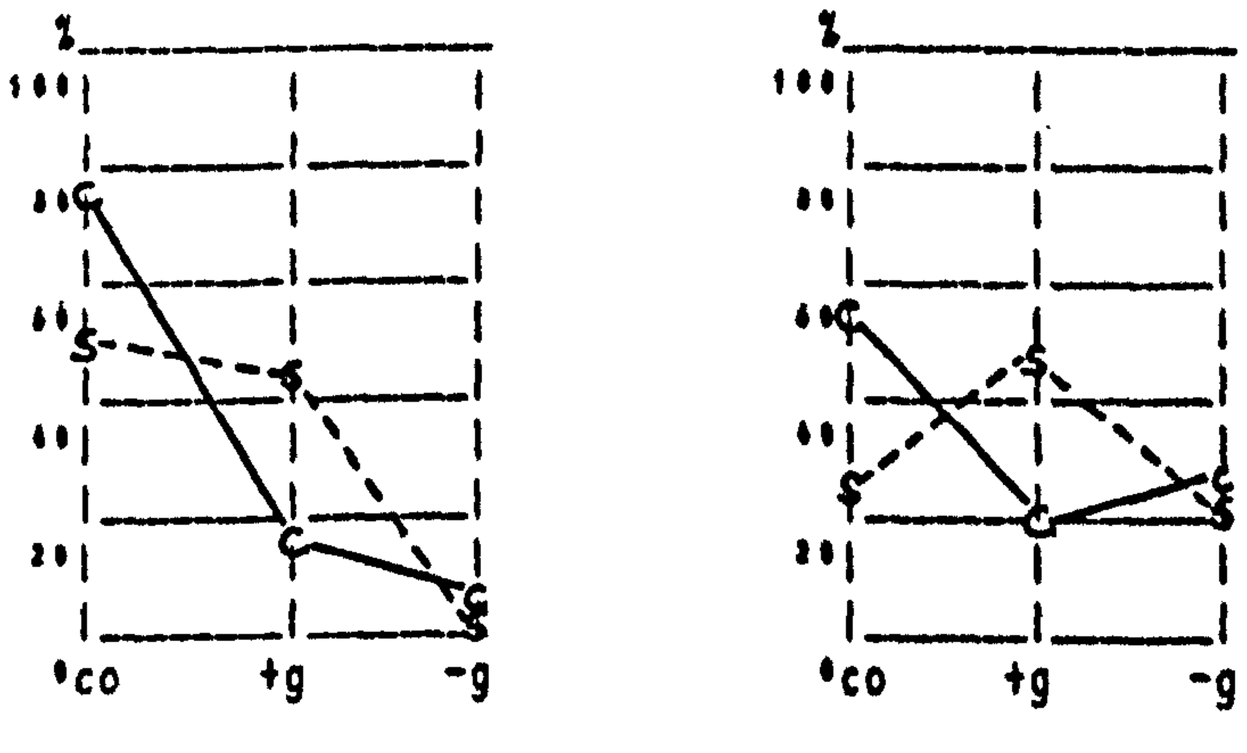
Figure 52-21b
Coalescents set of 5
Continuants: young v old



In the data for manner of articulation, the coalesced forms for both schools show a drop of about twenty percentage points from the stops to the continuants. In both cases they are replaced by the unglided variants. The glided forms remain much the same within schools, but the suburban school uses gliding about 2½ times more often than the city school. Because of the low expected value for the suburban [- glide] in the stops, a 2x2 contingency table was made contrasting the glided variant with a combined non glided form. The differences between the schools were significant. $\chi^2_{td} = 18.29$, $p < 0.01$. The main cause of this lay in the levels of gliding referred to above. Similar results were obtained from a 3x2 table for the continuants. $\chi^2_{**} = 17.14$, $p < 0.01$. Again levels of [+ glide] were the discriminating factor. (Fig 52-22).

Figure 52-22a
Coalescents: set of 5
Stops: centre v suburbs

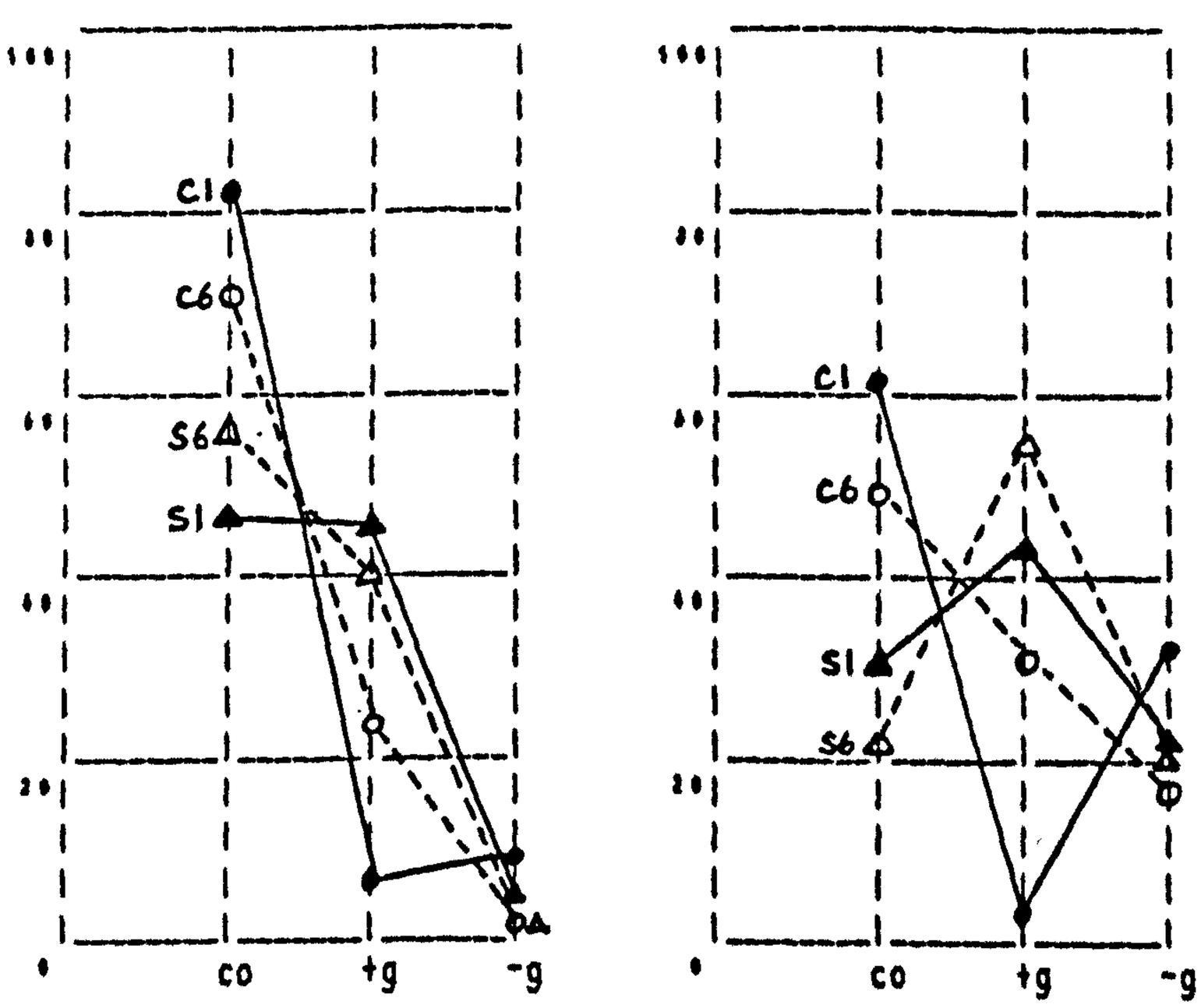
Figure 52-22b
Coalescents: set of 5
Conts: centre v suburbs



the range of [+ glide] (graph 52-23). Results from the significance tests bring these comments into greater relief. χ^2_{td} = 24.24, p > 0.01, where the main contributions to this statistic come from the levels of gliding in the groups just mentioned. In contrast the three variants of the continuants /s z/ are more evenly distributed overall. But while the city centre favours coalescence, the suburbs favour gliding. The most outstanding feature of the very significant result of the test (χ^2_{**} = 25.43, p > 0.001), is the low level of gliding in C1. Their older counterparts C6 emerge as the group closest to the norm for both stops and continuants (graph 52-24).

Graph 52-23
Coalescents set of five
Stops by groups

Graph 52-24
Coalescents set of five
Continuants by groups



5223 The four separate PCs

«tyu» clearly demonstrates the overwhelming dominance in word initial position, of the coalesced forms for all four groups of informants, together with the complete absence of glidelessness. The similarity of each group is reflected in the analysis. χ^2_t = 6.97. For v = 3, this is not significant as it is near the 10% level. In contrast, «dyu» indicates greater variety between the groups. As the main shared feature is the low level of glidelessness, the analysis contrasted [+ glide] and non glide (the combined [- glide] and coalesced variants). χ^2_d = 22.42, p < 0.01. The variety is manifested in the opposing roles of C1 and S1, the former with less gliding, the latter with more.

The most internally diverse is «zyu». The most obvious difference is between the schools. The city centre coalesces more than the suburban school. This is matched by the gliding figures for the older suburban pupils. In a sense, S6 are almost a mirror image of C1. Because of low expected frequencies, a χ^2 test was not applicable. More consistency across groups is shown in the unvoiced counterpart «syu». Three of the groups, C6, S1, and S6 have a preponderance of glided variants, with coalescence marginally more popular than glidelessness. Conversely C1 reverse the dominant distribution of glided forms, but maintain the same pattern with regard to the other variants. The χ^2_- test on the basis of a division between glide and non glide, using a 4 x 2, table gave a statistic of 13.04, which is significant at the 1% level. This result depends on the low gliding frequency for C1.

Having excluded those subenvironments which were categorical for most speakers, we are left with the micro variable coalescents. How extensive they are depends on the method of counting words or morphemes. How important they are depends on their extent and on their ease of identification. 'What is left' does not satisfactorily identify those variable components. They need to be positively demarcated, in so far as this is possible. Whether this is done by means of linguistic features, or by lexical specification (or both) depends on how extensive and how numerous the invariable parts are.

Comparisons with other research may be unreliable. The items tested have a bearing on the results. We can not be sure if other results also conceal categorical subenvironments to the extent that these dominate much of the coalescents in Liverpool. There is also the question of range of variants. In the American studies what distingulshes this variety in general terms from other Englishes is the insignificant level of coalescence, especially word initially. B Phillips 1984 rejected a coalesced token (the only initial affricate she recorded) because "It represents a different direction of sound change" (*op cit*:75). Within British English the coalescent stops do not usually have [- glide]. The basic alternative to [+ glide] is coalescence. But *dunes, duplication, vituperation* have been heard unglided. In /s z/ while all variants are available in theory, they are not necessarily distributed over each suffix or lexical item (table 55-02). And I suspect there still exists a consistent use of a single variant within individual speakers. When variation does occur, it is across speakers and more obviously across groups. This aspect will merit deeper investigation.

5300 *The mini variable (nyu)*

Unlike some other British urban areas, gliding in the /n/ environment was believed to be entrenched in Liverpool, even among those sectors of the population associated with glide erosion and loss elsewhere. But the results suggest that /n/ is better classified as a mini variable. While the composite figures show the glide being present three times more than it is absent, they obscure the variation which occurs between lexical items and between the groups of participants.

For some informants, I was unable to make a clear decision on the presence or absence of a glide, even after repeated listening to the tapes and vacillating between those variants. But by attempting to mimic the articulation of these problematic tokens, the conclusion was reached that sometimes neither [+ glide] nor [- glide] was being produced. What was appearing was a non anterior allophone of /n/. [ɲ̃] or even [j̃] This occurred more in polysyllabic words when the relevant syllable was initial and stressed. Corroboration for this development has appeared in other dialects. Wells 1982 has commented that

> "In some Irish or Scottish speech it can be argued that the [ɲ] used in words like *new* [ɲu:] merits phonemic status, rather than being regarded as a realization of /nj/." (*op cit*:179)

He also suggests that something comparable may happen with /nj lj/ in American speech. These he feels, may produce [ɲ ʎ], as in *annual, failure*. A similar tendency was noted here with (lyu) but it was not as extensive as with (nyu), due perhaps to the result of extensive glide loss in /l/.

5301 Data for (nyu): all items

The data for the seven items tested are given in table 53-01. An immediate distinction may be made between the three items which are basically glided (*january, genuine, avenue*), and the other four which exhibit greater variability (cp diagram 41-01). On this basis, a pair of subenvironments may be tentatively distinguished: word initial and word medial. Equally they may be divided between stressed and unstressed.

Table 53-01
Variants for (nyu)

529		tokens			percents		
		pa	+g	-g	pa	+g	-g
n1	new	3	52	23	4	67	29
n2	nuclear	12	27	37	16	36	49
n3	neutral	12	35	28	16	47	37
n4	january	2	73	1	3	96	1
n5	genuine	0	77	0	0	100	0
n6	avenue	2	75	0	3	97	0
n7	nutrition	3	35	32	4	50	46
	∑	34	374	121	6	71	23

5302 Word frequency

The conclusions reached after analyzing the Phillips data on frequency, emphasized the dangers of drawing positive conclusions from the calculation of a composite coefficient of correlation. They suggest that a different starting point can produce noticeably different results. If we include all seven items used in the test, $r_s = 0.04$. This indicates a total lack of correlation between the variables. When *genuine, avenue* are omitted, the result is far more impressive: $r_s = 0.60$. Further excluding *january* did not produce a larger coefficient. Using the four most variable words, r_s fell

to 0.40. When the three invariable words were taken on their own the coefficient was 0.19. The range of values for correlation indicates that general word frequency is not an important factor in glide loss. It must be kept in mind that in using so few words, results are much less reliable. The greater level of gliding for *new* may lend support to the onset of change in infrequent words, but factors like word position are more efficacious in promoting glide loss.

5310 The micro variable ‹nyu›

I have gathered the group data for each of the 4 variable words in table 53-02. In the variable word initial subenvironment of /n/, [+ glide] can be seen to be the dominant variant with 51% of the tokens; but [- glide] reaches 40%. The non anterior variant produced an averaged result of 9%. Three questions need posing. Why /n/? Why this subenvironment? Why Liverpool now?

Parallels are to be expected for articulatory reasons with other alveolars /t d/, rather than with other nasals. It is word initial position which, from the evidence of the tests (and from observations elsewhere), is most vulnerable to glide loss.

Absence of the glide may be due to the influence of dialects where it is more prominent. I gather that (south) London accents, especially the demotic forms, where loss after /n/ is common, have in recent years received greater exposure on television.

Table 53-02
Token and percentage data for variable ‹nyu› words

296	tokens			percents		
	pa	+g	-g	pa	+g	-g
C1						
nuclear	1	3	15	5	16	79
nutrition	0	2	13	0	13	87
neutral	1	4	14	5	21	74
new	1	7	12	5	35	60
totals	3	16	54	4	22	74
C6						
nuclear	3	6	12	14	29	57
nutrition	1	9	10	5	45	50
neutral	5	7	8	25	35	40
new	1	14	6	5	67	29
totals	10	36	36	12	44	44
S1						
nuclear	3	10	7	15	50	35
nutrition	2	12	2	13	75	13
neutral	3	15	2	15	75	10
new	0	18	3	0	86	14
totals	8	55	14	10	71	18
S6						
nuclear	3	8	5	19	50	31
nutrition	0	12	4	0	75	25
neutral	4	9	3	25	56	19
new	0	14	2	0	88	13
totals	7	43	14	11	67	22
all groups						
nuclear	10	27	39	13	36	51
nutrition	3	35	29	4	52	43
neutral	13	35	27	17	47	36
new	2	53	23	3	68	29
totals	28	150	118	9	51	40

There is also the influence of pronunciation from the USA. Instances were recorded in the interviews of the solecism ['nukjʊlɛ], which seems to bear out this observation. PJS has suggested that the unglided forms may sound trendy. To this we can offer the [kul dudz] of pre and not so pre teenspeak. To have the radically awesome effect (of enhancing the street cred of the speaker), this variant is better used in noticeable subenvironments. For maximal impact deglide word initially. The deglides were mainly found in C1, the home of glide loss.

The non anterior variant was distributed almost evenly over three of the four groups. The exception was the group of younger pupils in the city centre school, where the dominant variant was [- glide]. Some initial observations may be made about the four groups. As we have now come to expect, there is a marked increase in the use the glided variants in both suburban groups, compared with those in the city centre. And there is a corresponding reduction in unglided forms as we move from the city centre to the suburbs.

5311 Age, school and group comparisons for «nyu»

Table 53-03 summarizes the group data for the variable words in the «nyu» word initial micro variable. The participant groups occupy the four corners, with age and school combinations in the middle of the sides.

A test comparing younger with older shows that for $v = 2$, $\chi^2 = 3.494$, which is not significant at 10%. This is reflected in the similar shapes of their graphs (53-04). It repeats the conclusion from the coalescents. In the suburban school the differences between the age groups are also negligible. A χ^2 score of 0.621 for $v = 2$ is not significant at 10%. It is when we turn to the city school that age differences are more evident.

Gliding increased by 20+ percent in the older pupils, and glidelessness decreased by thirty percent. While the older group is evenly divided between [+ glide] and [- glide] at 44% each, the younger informants show a marked predilection for glidelessness at 74%. This value for the dominant variant is the largest of any recorded in the four groups of subjects. The χ^2 value of 14.59 for v = 2 is significant at 0.1%.

Table 53-03
Group data for «nyu» words

S1			S1 + C1			C1		
pa	+g	-g	pa	+g	-g	pa	+g	-g
10	54	13	13	70	67	3	16	54
13	70	17	9	47	45	4	22	74
S1 + S6			◂ groups ▸			C1 + C6		
pa	+g	-g	◂ variants ▸			pa	+g	-g
17	97	27	◂ tokens ▸			13	52	90
12	69	19	◂ percents ▸			8	34	58
S6			S6 + C6			C6		
pa	+g	-g	pa	+g	-g	pa	+g	-g
7	43	14	17	79	50	10	36	36
11	67	22	12	54	34	12	44	44

For «nyu» the differences between the schools are epitomized by the doubling of the percentage of glided tokens in the suburban school, and the equally dramatic drop in glidelessness, from 58% to 19%. (See figure 53-05).

Figure 53-04
Age variation «nyu»

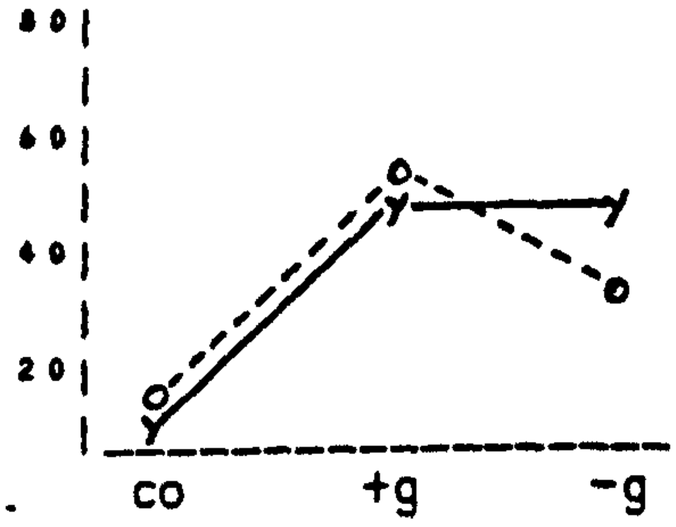


Figure 53-05
School variation «nyu»

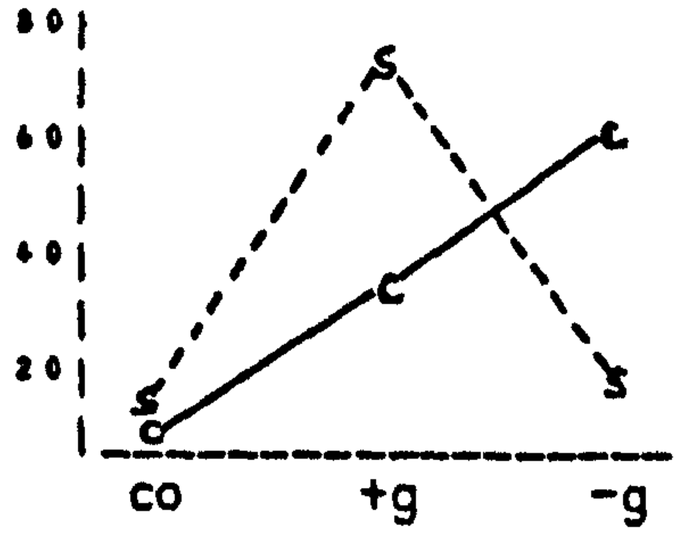
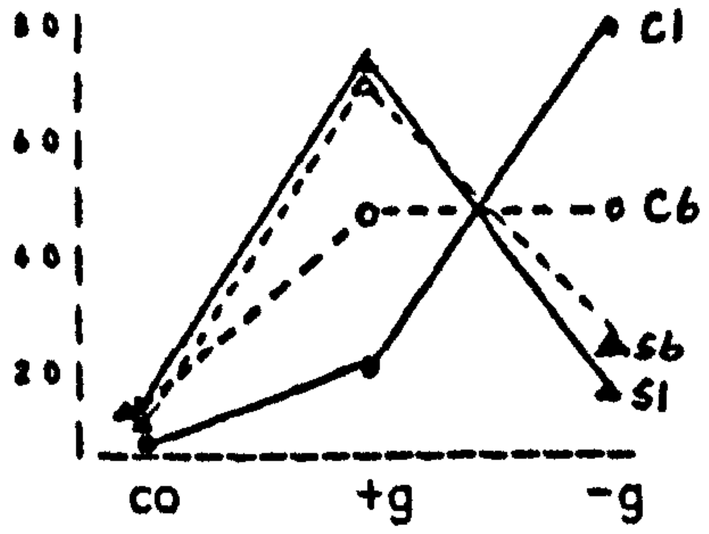


Figure 53-06
Group variation «nyu»



While the tendency towards a palatalized variant remains low for both schools, the differences in the proportions of the other variants clearly shows that the focus of glide loss for «nyu» is again firmly sited in the city centre school. The dominant variant for the city centre is glidelessness at 58%. Even more striking are the figures for the dominant variant in the suburbs. Here gliding reaches 69%. The distinction is confirmed by the χ^2 test which produces a value of 47.49 for v = 2. This is a result significant at 0.1%. Its significance is located in the point just made about the opposed levels of gliding.

Both older groups show equivalence with respect to palatalization, but there the difference ends. While the city centre is evenly split between glided and unglided forms, the suburbs show a 3:1 preference for gliding. χ^2 = 8.743 for v = 2, which is significant at 2.5%. The younger suburban group is only affected by glide loss to the extent of 17%. Contrast this with the amount of glide loss in the city centre which reaches 74%. Measured by χ^2, the value for v = 2 is 49.42. This is significant at 0.1%.

The different natures of the four participant groups are more easily distinguished in figure 53-06 which shows the percentages for the three variants over the four groups. The results for the groups in the suburban school are notable for their similarities. Besides the low palatalization (which is common to all groups except C1), it is the similarity of the levels of the predominant variant [+ glide] and the comparatively low incidence of [- glide] which show up in the almost parallel graphs. This serves to emphasize the lower inclination of the suburban school to glide loss in this new area. In the centre, the outstanding aspect is that the predominant variant for C1 is [- glide]. In C6 this has equal status with [+ glide].

Table 53-07
Group frequency distributions of indices of glide loss for «nyu»

scores	C1	C6	S1	S6	Σ
0	12	6	2	1	21
01 - 25	3	1	0	1	5
26 - 50	2	4	4	3	13
51 - 75	3	3	3	0	9
76 - 100	0	6	12	11	29
mean	20	52	76	80	
median	0	50	83	100	
mode	0	--	100	100	
standard deviation	28	40	31	32	

Individual scores on the «nyu» index show why the differences are most marked between the schools. The frequency distributions of individual indices are given in table 53-07 and illustrated in figure 53-08. The suburban groups attain index means of 76 and 80. These are much greater than the city centre values of 52 and 20. For both suburban groups the modal band is the topmost, with over half the participants in each group belonging

to this band. And while both groups had members at the lowest level, they were too few to exert much influence on the value of the mean. This state of affairs is almost entirely reversed in C1. Here the modal value is the lowest, with over half the participants. There is nobody in the top band. The older city centre school group has a bimodal distribution, with the centres of gravity at both extremes. This is reflected in their standard deviations. All these data emphasize the distinctive nature of C1.

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Figure 53-08
Frequency distributions for «nyu» indices by groups

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fig 53-08a C1

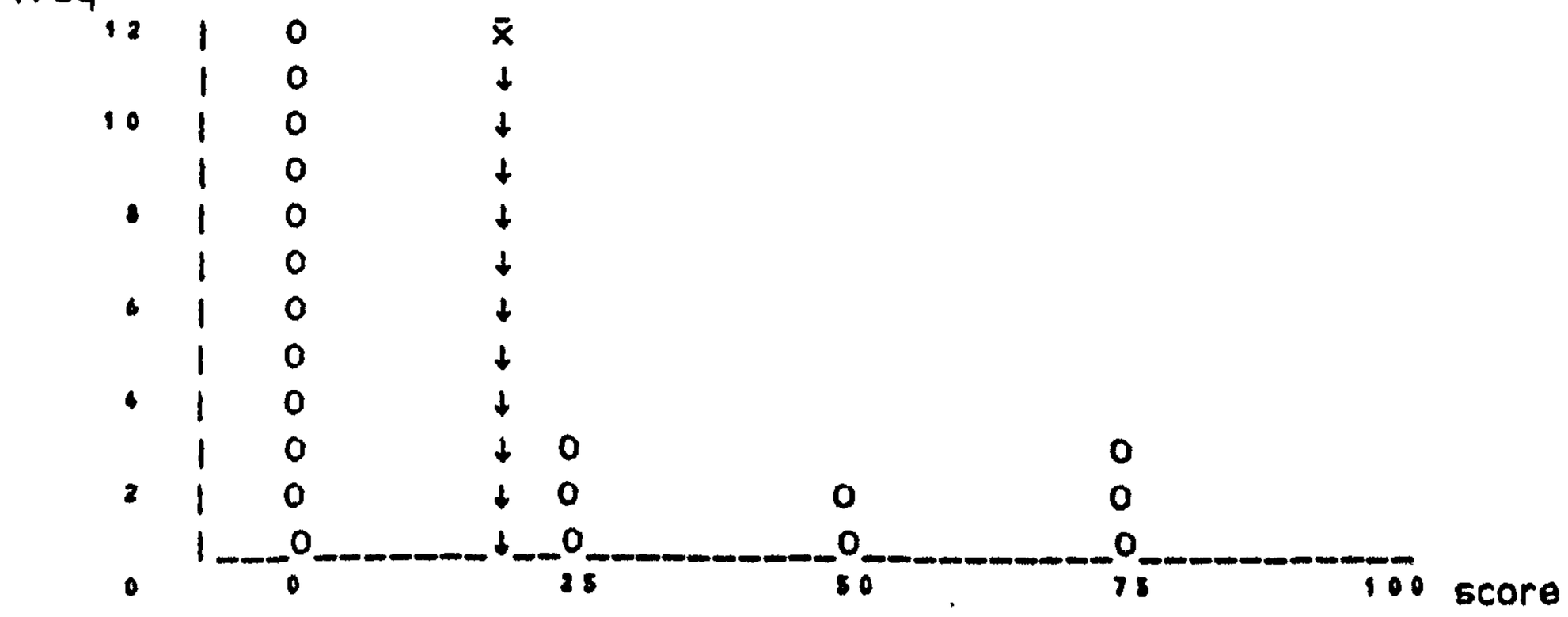


fig 53-08b C6

fig 53-08c S1

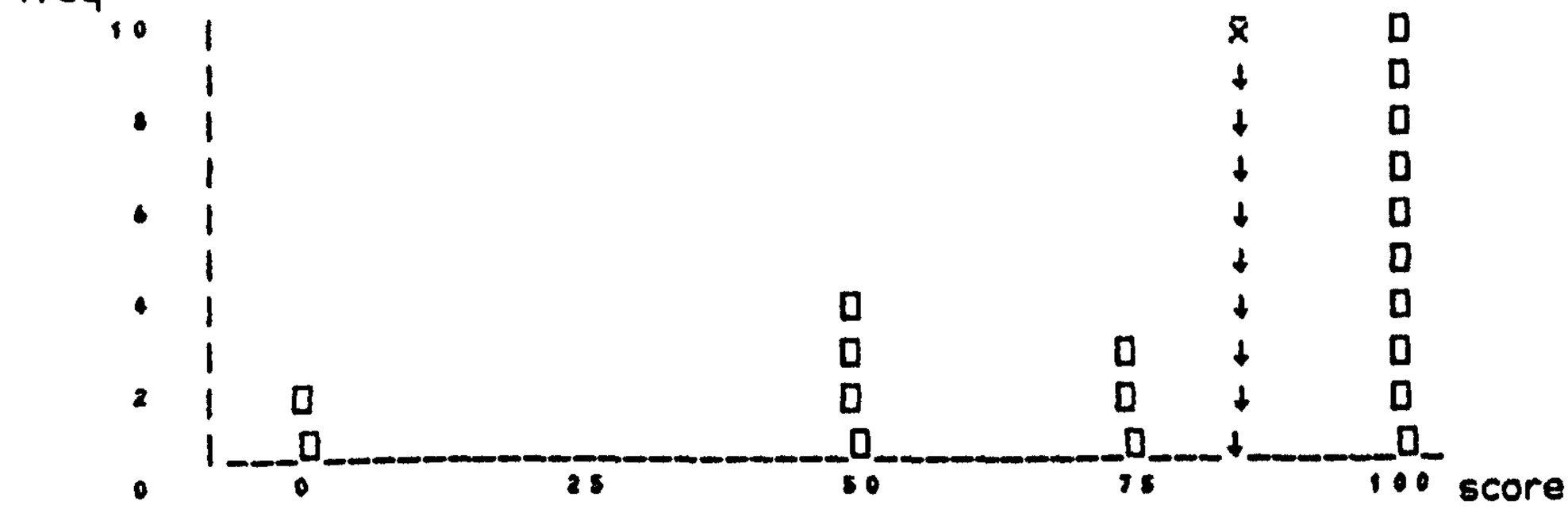
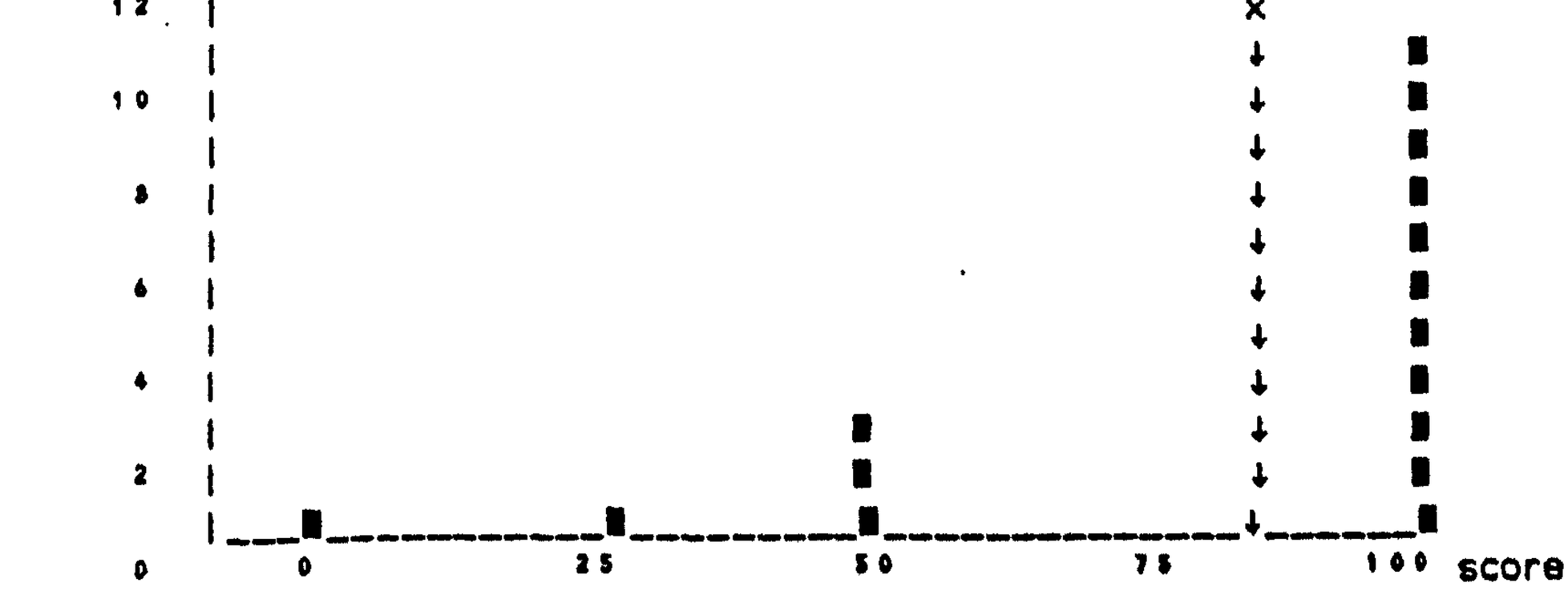


fig 53-08d S6



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5312 Lexical patterns in «nyu»

The most striking observation (apart from all being word initial), is that a clear implicational scale can be established for the four words and for the four groups of participants, patterning in both directions. The percentages for [- glide] only, are given in table 53-09. They do not include the non anterior variant of /n/.

Table 53-09
Percentage glide loss for variable ‹nyu› words

Item	C1	C6	S1	S6	overall
nuclear	79	57	35	31	51
nutrition	87	50	13	25	43
neutral	74	40	10	19	36
new	60	29	14	13	29

The scale in table 53-10 puts each item in order of glide loss across the 4 groups, (1 = most glide loss). It can be seen that there are some similarities in the order. First, there is the general constancy of an increase in gliding as we move across the 4 groups in the order C1, C6, and the suburban groups. There is an inversion of S6 and S1 for *nutrition* and *neutral*, but when it is realized that a single token can for this data entail a percentage change of five points, the disparity in this pair of figures may be treated as insignificant, confirmed by the totals in the bottom line.

Table 53-10
Scale for variable ‹nyu› words by groups

Item	C1	C6	S1	S6
nuclear	1	2	3	4
nutrition	1	2	4	3
neutral	1	2	4	3
new	1	2	3	4
Σ	4	8	14	14

It is clear that C1 are firmly in the forefront of glide loss; their coevals in the suburbs are almost as firmly in the forefront of glide retention.

If we now look at how the items are located in each group we can

see a general decrease in [- glide] for each group, in the order *nuclear, nutrition, neutral, new.*

Table 53-11
Scale for variable ‹nyu› words by lexical items

Item	C1	C6	S1	S6	total
nuclear	2	1	1	1	5
nutrition	1	2	3	2	8
neutral	3	3	4	3	13
new	4	4	2	4	14

There is the exception of *nutrition* for C1 and S1. But for the reason given above, the order of words for S1 needs to be interpreted with caution. The relatively low position of *new* for [- glide] may be linked to its greater frequency, but it is more likely that given the importance elsewhere of word initial position, its salience is greater in polysyllabic words. It is also possible that orthographic ‹eu› and ‹ew›, in containing 2 vowels look as if they have 2 vowel sounds.

5313 *(nyu): a wider context*

In the /n/ environment, yod dropping is commonly heard in British working class speech. It is typical of places like the west midlands and the capital. Wells 1982 gives examples from the latter of both stressed and unstressed syllables: *neutral* ['nu:trou] and *pneumonia* [nu:'mʌunɪə]. But Bowyer 1973, cited in Wells, found in his survey of south London pronunciation that [n] was less common than [nj]. This investigation has shown that glide loss in (nyu) is most common among the younger Scouse speaking city centre pupils. Liverpool has joined the national trend.

5400 *The mini variable (lyu)*

Section 54 is the final section detailing the results of the empirical investigation. It begins by presenting the data for the mini variable (lyu) from the panconsonantal word list and the main study incorporating the reading passage and word list. It looks at the focus and locus of variation together with factors affecting the choice of variant.

Given the initial impetus of glide loss after /r/ and /Cl/ for articulatory and phonotactic reasons, the subsequent lexical diffusion of loss after plain /l/ resides primarily in the subenvironments of word and morpheme initial positions. If we take the list of /l/ words in appendix §7340 as a guide, these subenvironments occupy about 4/5 of the stock. While the lists are not exhaustive, and while it is easier to locate word and morpheme initial words in dictionaries, their extensive coverage goes some way towards accounting for the widespread loss in this environment.

What retention there is is accounted for by the relevant syllable being heterosyllabic and occupying a position of post tonic stress (those lists headed (2,1) in the appendix, where the first digit indicates the place of ⟨u⟩, and the second the syllable with stress, as with *'value*). But apart from these words glide insertion after /l/ is now so rare in almost every dialect, as to sound unusual, distinctive, old fashioned, pedantic (or some combination of these), when it is used. The comment of Fowler (1926, 1965) noted earlier in §1221, that use of the glide was *de rigeur*, has been turned on its head. Of the words he cited which were still capable of taking a glide (*dilute, prelude, delude, allude*, only *prelude* persists. It is a (2,1) word. If we allow for the stock of categorical words like (2,1) with heterosyllabic post tonic stress, the number of variably glidable items is now tiny.

The amount and extent of variation (defined over the total results), whether lexical, stylistic or idiolectal, was small. Out of the 37 words tested, 17 items were categorical (mostly deglided), leaving 20 with some (often minimal) variation. Only half a dozen words of those tested can be properly regarded as being variable. This indicates that the sound change after /l/ is approaching completion for the speakers tested in this survey, as indeed it is for most people elsewhere.

5401 *(lyu) data from the panconsonantal word list*

In the panconsonantal word list elicited as the final part of the interview, a single item *absolute* is categorically unglided. Of the remaining six words, four are QC. These are *salute, illumination, interlude* (unglided), and *insoluble* (glided). Only *deluge, prelude* vary, due to the nonstandard use of tautosyllabic [lu].

5402 *(lyu) data from the main enquiry*

Of the 31 items in the reading passage, seventeen were totally categorical in all elicitations. The eleven with a consonant cluster were of course unglided; as were four items with <lu> in word initial position, viz *lukewarm, lunacy, luminous, lupins*. Only *volume, valuable* were consistently glided, having heterosyllabic [l$u]. 8 of the remainder were classed as quasi categorical, but apart from *soluble* which was 4% unglided, they were all 95%+. The 8 are:

dilute, aluminium, lewd, elusive, lute, hallucinate, polluted

If we take these items and break down the data by informant groups, what is revealed is the by now familiar increase in gliding as we move in both spheres: age and location. In terms of the factors affecting variants, stress

on the relevant syllable is accompanied by a large degree of glide loss. Conversely glide presence occurs in *soluble* which has an unstressed syllable, but which has a heterosyllabic /l/.

Those items exhibiting wider variability over the four elicitations are recorded in appendix 7213. Table 54-01 shows the percentages of glide use for the 6 variable words. The effects of stress are evident at the division, supporting the observation just made. The first items are examples of my (2,1) group which (when we discount non standard pronunciations) are together with prefixes (3,2), the last bastions of glide preservation, even attracting possible hypercorrect glided variants in *illustrate*.

Table 54-01
Variants for ‹lyu› words: all elicitations

1159	tokens		percent	
	+g	-g	+g	-g
deluge	108	14	89	11
salutary	73	27	73	27
voluminous	40	129	24	76
lurid	48	191	20	80
lure	50	252	17	83
delude	22	205	10	90
Σ	341	818	29	71

What was strange was the level of gliding in *lure, lurid* Stranger still was the link in C6 with method of elicitation. This is illustrated later in table 54-06.

5410 *Variation in «iyu»*

The six most variable items will now be investigated from social, stylistic, lexical and phonological viewpoints, with attention to those factors put forward as influencing the choice of variants.

Table 54-02
Group data for «iyu» variable words

S1		S1 + C1		C1	
+g	-g	+g	-g	+g	-g
63	206	86	438	23	231
23	77	16	84	9	91

S1 + S6		groups	C1 + C6	
+g	-g	variants	+g	-g
203	381	tokens	138	437
35	65	percents	24	76

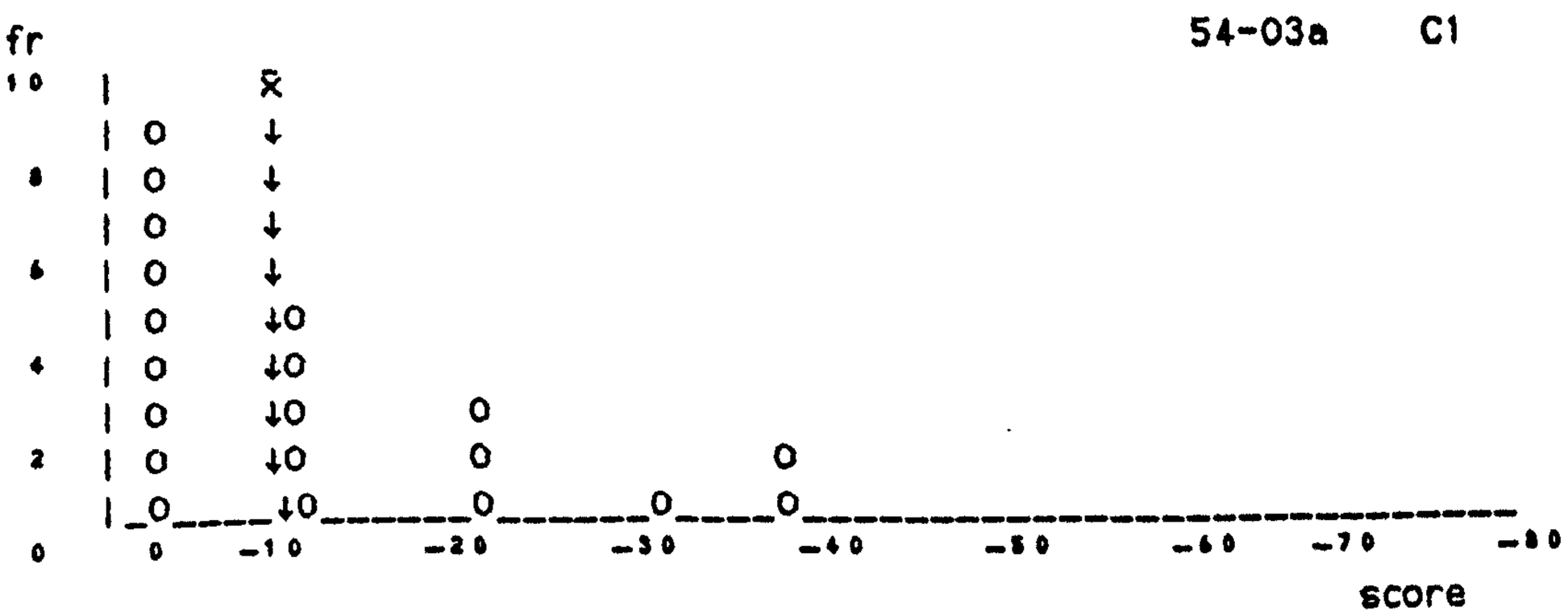
S6		S6 + C6		C6	
+g	-g	+g	-g	+g	-g
140	175	255	381	115	206
44	56	40	60	36	64

5411 *Social variation: age, school and group*

I have arranged the group data in table 54-02. There is a consistent increase in gliding in the order C1 < S1 < C6 < S6. A χ^2 test gave 95.98. A value of this size for $v = 3$ is very significant at $p = 0.1\%$. The

main contributory groups are C1 and S6. The former have an observed level of gliding well below statistical expectation: the latter are above. If all the younger pupils are compared with all the older, the biggest difference lies in glide loss. A reduction of about a quarter occurred, from 84% to 60%. This reduction was compensated for by a percentage difference in gliding for the older pupils of 2½ times what the younger groups recorded. The importance of these differences was confirmed by a χ^2 test, which attained a value of 76.17. For v = 1 this is significant at 0.1%. An equally large gap is opened up between the age groups in the city centre. There is a quadrupling in the gliding percentages in the older group compared with the younger. The intra group proportions of [+ glide] to [- glide] change from 1:10 in C1 to almost 1:2 in C6. The differences were found to be significant at 0.1%, with χ^2 = 54.26. In the suburban school there is less distinction between the older and younger pupils than in the city. The older group glides twice as much as the younger pupils, and lags correspondingly in glide loss. The value for χ^2 at 27.36 is less than the other comparisons made above, but is still significant at 0.1%. In general the differences between the schools are not as dramatic as those measured by age. Gliding increases by a half from 24% in the centre to 35% in the suburbs. The corresponding percentage drop in glidelessness is not as striking being based on a larger figure. However χ^2 at 15.64, is significant at 0.1%. If the comparisons are made on a narrower basis, by looking at the figures for the corresponding age groups in each school, differing conclusions emerge. The younger pupils exhibit more variation than the older. Comparing C1 with S1, gliding trebles in the suburbs. χ^2 = 18.59 which is significant at 0.1%. The older pupils show less differentiation and this is borne out by testing. A value of 4.56 for χ^2 is only significant at 5%.

Figure 54-03
Group frequency distributions of «lyu» indices of glide use



I give the frequency distributions of the individual indices by groups in figure 54-03. The index was based on the six probabilistic words (app 7222). It was calculated as number of glided variants divided by the number of valid tokens, and converted to a percentage. Each group apart from C1 occupies most of the available range of scores. C1 is notable for the preponderance of low scores and consequently its low mean.

5412 Stylistic variation

A typical feature of linguistic variables in other studies has been the correlation of what are seen as more prestigious variants socially, with more formal registers of speech. In the present work the use of variants in the (lyu) mini variable was observed over three methods of elicitation - a word list, the reading passages and the replies to the questions - interpreted as being in descending order of formality. The low incidence and implied difficulty in collecting examples of (lyu) words in everyday speech (whether guarded or unguarded) militated against using this method for the elicitation of data. When we compare the different methods of elicitation, the variation can be likened to ever decreasing circles. Any variation which tenuously exists on an overall, or group, or even word level, finally disappears like a dot in the centre of the diminishing circles, and from this point of view represents nonentity. I give in table 54-04 the figures culled from the individual data in appendix 7222. They are given for each of the four elicitations for each of the four groups of participants. The numbers represent glided tokens.

Table 54-04
Glided tokens by elicitations for the four groups

	WL	RP1	RP2	Q	Σ
C1	7	6	6	4	23
C6	31	28	33	23	115
S1	19	21	14	9	63
S6	36	37	38	29	140
Σ	93	92	91	65	341

The bottom line shows that there is virtually no difference between the four elicitations in the number of glided tokens. The apparent exception, (replies to the questions), is affected by the number of times some items were not elicited, especially among the younger groups with single digit responses. Thus in C1 *deluge* had no valid tokens at all; in S6, *delude* was only elicited twice out of a possible 16. The minute evidence of stylistic variation is confirmed by a significance test which shows that for $v = 9$, $\chi^2 = 3.366$, which is not significant even at the 10% level. The lack of variation also shows itself elsewhere. There is little variation within each of the four groups of participants, especially C1 and S6. There is little variation within individual words. And there is relatively little variation within participants. (But see §5413 for *lure, lurid*).

The reasons for this uniformity are not hard to find. The palatal glide is not a salient distinguishing feature of pronunciation in this environment. Some speakers are not aware of the potential for gliding. The pronunciation of familiar items is fixed for a given individual. Only those words which were unfamiliar, were for that reason, open to a variable if non standard pronunciation whether with glide or stress, as in *deluge, salutary*.

The tenor of some of the interviewees does raise the issue of the reliability of levels of formality in a linguistic interview. The format of traditional dialectology tended to be based (for a variety of reasons) on a restricted method of elicitation, frequently designed to produce single word responses. The use by Labov of levels of formality in speech led to the idea of a set of discrete styles. Given the major distinction between casual and formal speech and the situations they are associated with, a group of subdivisions was made. A frequently used array for stylistic differentiation covers the gamut from casual speech, via formal speech and reading passage style to word list style, "the most formal of all" (Chambers & Trudgill 1980:71). The range may be extended by using a minimal pairs list. Investigations have shown that this methodology can reflect quantitative differences in pronunciation, related to the accepted levels of formality. But there are aspects generated by my interviews, which question the universal application and distinction of these levels.

We can accept that the different levels of formality represent objectively recognized steps in a cline. What I wish to question is the assumption that a given level represents the same degree of formality for every individual. In the Liverpool interviews there was a standard majority pattern of response. But it was clear that the approach and reaction of some subjects to the interview was markedly different from this norm. Some approached with a degree of caution, nervousness, reserve and diffidence. Others made it an opportunity to display their latent thespian talents. For the latter participants, the tone of most of the interview was far more casual than for any of the former. Participants had different attitudes and expectations which put their responses for the objective levels on a different footing.

Another factor which may influence the individual pitching of the formality level is the extent to which participants are aware, in advance, of the range of possibilities. For example, if the general tenor of the interview was to move from relatively less formal to more formal, but this is not indicated in advance, then some subjects may pitch their initial level of noncasual speech in such a way that it is difficult for them to make a more formal adjustment when they encounter a word list. Those doing this were largely in S1. If subjects were told before they start what is involved, some may be able to adjust the level of their responses 'appropriately', in terms of the stylistic continuum above, rather than imposing their own level of formality at the beginning of an interview.

5413 Lexical variation: frequency and shape

The exercise relating glide loss to word frequency was repeated for /l/. For the complete set of words tested, but omitting all clusters except *pleurisy*, so that n = 27, the rank correlation coefficient was calculated to be 0.00, a fairly conclusive indication of nil correlation. The 8 items where ⟨lu⟩ is word initial produced a coefficient of -0.1. Finally I took the seven most variable words *deluge, salutary, prelude, voluminous, lurid, lure, delude*. They produced a coefficient of +0.53. For that size sample this value is insufficient to make any positive conclusions. Fowler had commented that the strongholds of /lju/ were in unaccented syllables and in less common words. This reinforces my view that less common words are used by speakers with a longer exposure to the processes of education, and may thereby be more inclined to monitor their speech more closely, especially in interviews.

Word frequency on its own may not contribute much to the explanation of selection of variants or to glide loss. With words of similar

morphological shape it was felt that a variant will be consistent in words containing the same morpheme. To test this, 2 pairs of words each with contrasting stress and possibly syllabification, were examined. The figures for the variants are in table 54-05. The data for *volume* are omitted since it was invariably glided.

Table 54-05
Gliding tokens for words of similar morphological shape

word	C1		C6		S1		S6	
	+g	-g	+g	-g	+g	-g	+g	-g
salute	0	20	4	16	2	18	0	14
salutary	4	12	32	1	7	7	30	7
voluminous	13	20	7	33	11	26	9	50

Overall, *salute* was 8% glided compared with 73% for *salutary*. When we take the tokens by groups it is obvious that in terms of age the dominant variant for both older groups for *salutary* is [+ glide]. The dominant variant for *salute* is always [- glide]. When the global figures were tested, χ^2 produced a value of 69.65. For $v = 1$, this is very significant at $p = 0.1$. The reasons for the difference must lie somewhere else than in similar shape. With the other pair, categorical gliding for *volume* compares with 24% gliding for *voluminous*. Not all participants made the connection. This was more noticeable among the younger pupils. They may have seen the longer word for the first time. I suspect that if there was a choice as to which analogy to use, *volume* or *luminous*, then if it was the former, gliding occurred. If the latter, there was no gliding. This suspicion is based on the results of C1 where the large number of glided variants recorded can be

attributed to the effects of hesitation over an unfamiliar word, and the influence of analogy.

The hypothesis to be tested concerning words of similar phonological shape, was that, especially for a sound change, such words were more likely to be similar in their use of a variant, not only by groups but also by individuals. But the fact that many of the words tested were categorical and that most were quasi categorical, means that consistency did indeed rule supreme. And if the proof of a pudding is in the eating, then the consistency was unglided. It was possible to compare five sets of words, producing some interesting results in the final pair.

In *lute, lewd* only the voicing of the final alveolar distinguishes them. Since both words were QC, the amount of gliding was minimal. It is of course possible that for a poor reader, *lute* may have been mistaken for *loot*. The only special feature relating to consistency here is that #46 was involved in the glided forms: *lute* in RP2 and *lewd* in RP1 and 2.

With regard to the 5 <lute>s, *lute, dilute, salute, polluted, absolute*, for C1 they were totally unglided, except by #19. The figures for C6 show little difference, a single individual contributing nearly half of the glided tokens. The general loss of the glide in these five words is epitomized by #36. In WL2 when he came to the item *salute*, he pronounced it first with a glide, snorted and smiled, and then produced an emphatic unglided form. Otherwise #46 (again) was in the forefront registering 4 out of the 10 glided versions.

There is some group correspondence between the use of the glide in the three <lude> items, *prelude, interlude, deluda*. But it needs to be tempered by the facts that *interlude* was virtually categorically glideless, and that *prelude* registered very few standard tokens. Any conclusions

therefore lack conviction.

The distribution of variants for *deluge, delude* appears to substantiate the suggestion that stress and gliding are closely linked. (But the same can be said about syllabicity.) The stressed item is unglided; the unstressed vowel is mainly glided. The four subjects in C6 using a glide for *delude*, also glided *deluge* with first syllable stress.

The most interesting of the five sets of phonologically similar words are *lure* and *lurid*, and in particular, some of the participants in C6, with their link between gliding and types of elicitation. For the older group in the city centre, the total of 27 glided tokens was almost evenly divided by occurrence between RP1 (7), Q (7), WL (5) and RP2 (8). Over half the subjects (11/20) were glideless in both words. But among the gliders there was an internal consistency as table 54-06 shows. It is designed to demonstrate the connection between the gliding of both words in each of the possible 16 combinations of elicitations.

What is remarkable is the leading diagonal. This shows that gliding occurred in a given individual for both words in the same elicitation. So from the table, #40 glided both words in the first rendition of the reading passage; participant #36 glided both in the questions, word list and RP2. At the edges of the table (outside of the double lines), the rows marked * indicate that only a single word was involved. Thus at the bottom, #33 and #45 glided *lure* in RP2, but there was no glided response for *lurid* anywhere. Of all the subjects in C6 therefore, #36 and #33 are the most consistent gliders in this pair of words. On the other hand #35 is notable for his inconsistency in this pair.

Table 54-06
Gliding and method of elicitation in *lure* and *lurid* for C6

lurid \ *lure*	RP1	Q	WL	RP2	•
RP1	40				35 36 46
Q		33 35 36			
WL			33 36		35
RP2				34 36	35 46
•	34			33 45	

5414 Phonological variables: stress and syllabification

Having found that neither frequency, nor similar word shapes were sufficiently useful as explanatory variables, the comments indicating that stress plays a decisive role, needed closer investigation here. Since Jones 1956 has covered the /l/ environment in some detail, it is his observations which will be tested, bearing in mind that his remarks apply to an earlier standard of Received Pronunciation. As seen in §4101, he was forced to be inconclusive (or at best quasi categorical). If the relevant syllable (RS) was stressed, the glide was variable but largely absent. If the syllable was

unstressed and followed by stress, the glide was also variable. Only if an unstressed syllable was preceded by stress was he able to conclude that a glide was always present. These simple statements ignore the influence of possible interrelated factors, linguistic or otherwise. I shall now compare my empirical results with Jones three statements, by referring to appendix 7340 where words of ≤ 4 syllables are classifed according to the position of the RS (x) and tonic stress (y).

To test whether stress on the relevant syllable promotes glide loss, table 54-07 gives my overall percentages for gliding in stressed items.

Table 54-07
Stressed syllables and the level of gliding

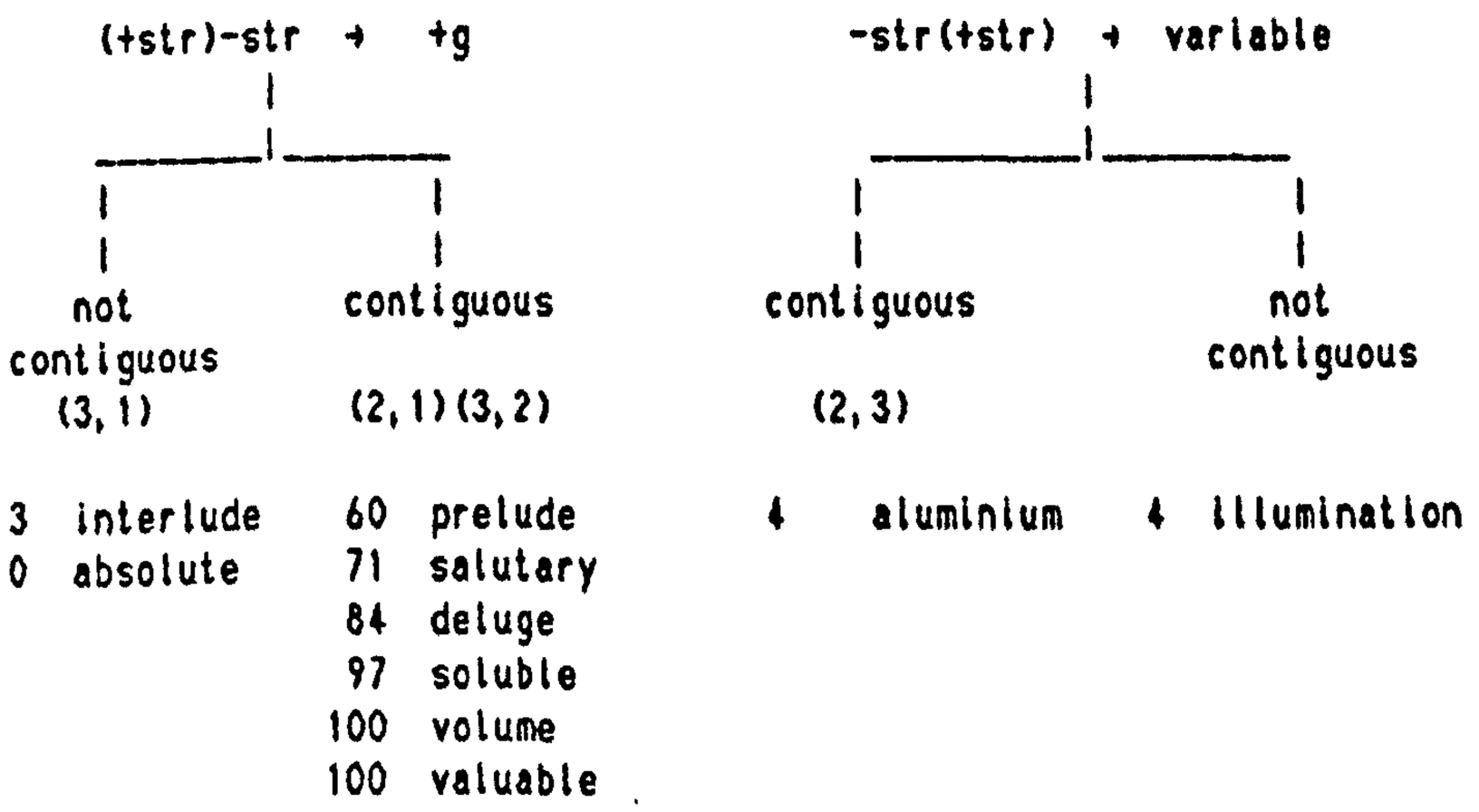
%	glide	%	glide
1	lute	8	salute
1	hallucinate	10	delude
1	polluted	17	lure
2	elusive	20	lurid
3	lewd	28	voluminous
4	dilute		

The rule largely holds; but a few items exhibit degrees of gliding (from 17% to 28%). In the case of *voluminous*, gliding is more common (60%) in the younger participants, for the reason in §5413. On the other hand, for *lure*, *lurid*, 80% of the glided tokens occur in the older groups, possibly reflecting greater exposure to that variant, rather than the effect of the following <-r> or a lowered vowel. In all three items the glided forms were to a considerable extent the preserve of individual speakers, rather than being scattered haphazardly across a group. In a wider context the diagram

relates to groups (1,1), (2,2) and (3,3) in app 7340.

My data for unstressed syllables are given in diagram 54-08, where I have added an extension to the observations of Jones. I make a distinction between syllables where the stress is immediately contiguous to the relevant syllable, and those where it is not. My appendix groupings are bracketed.

Diagram 54-08
Non stressed syllables and the level of gliding



As Jones implied, gliding is promoted only when non stress is (immediately) preceded by a stressed syllable, (with the caveat of reduction to shwa which may produce glide loss). More distant previous stress, (ie where $|x-y| > 1$), is associated with glide loss. Following stress (whether immediate or not) favours glide loss. On the basis of the scant empirical evidence, it is presumptuous to claim that Jones has captured the essence of the problem. Yet together with the minor modification for non contiguous syllables, stress has helped to explain more of the variation. Even so, another influence seemed to be at work, but not as obvious as stress. I

began to suspect that the most glided words - *prelude, salutary, deluge, soluble, volume, valuable* - had another feature in common, apart from the relevant syllable being in post tonic position (my (2,1) (3,2) groups). This other feature, syllabification, may possibly serve as an alternative explanation, to be used where irresolution still occurred.

Less attention has been given to syllabification, probably because of the difficulties in observing distinctions in speech. Only the comments of Bailey 1977 have indicated the importance which (I felt) it deserves. If we assume that this feature acts on its own, its influence can be easily stated. The propensity to glide is diminished if the PCs are tautosyllabic (thus accounting for the vulnerability of word initial position, and loss in medial clusters). Conversely heterosyllabicity favours the glide. I have chosen to test these propositions in conjunction with stress. In order to examine the combined effects on the production of variants, 5 words with easily discernible syllabification were selected: *delude, prelude, salute, salutary, voluminous*. These were variable, not only in the use of nonstandard pronunciations, but in the distribution of variants, the allocation of stress and the careful syllabification associated with hesitant articulation.

The propositions will be tested with reference to a tree diagram (54-09) showing the combinations of variant, stress, and syllabicity.

1 The first division is made according to whether the glide is present or not. This gives 2 groups: +g and -g.

2 The relevant syllable is allocated between a pair of sections depending on whether that syllable is stressed or not. It is independent of the standard pronunciation of a word. This split produces 4 sections.

3 Finally, the sections are subdivided according to whether the relevant syllable begins with a consonant or not.

Taking *prelude* as an example, the corpus revealed a split between:

prel$ude the previous syllable closed. The RS is heterosyllabic, not beginning with [l-]; symbolized by -c. This makes the vowel in the sequence syllable initial. Like words with a zero PC (eg *euphony*), this favours a glide.

pre$lude the previous syllable open. The relevant syllable is tautosyllabic begining with [l-]; and symbolized by +c

There are consequently 8 classes. Using 0 for absence of a feature and 1 for its presence, in the order gsc, (which can stand either for glide, stress, consonant, or group, section, class), the 8 classes are given a binary notation from 000 to 111 (in denary ♦ 0 to ♦ 7).

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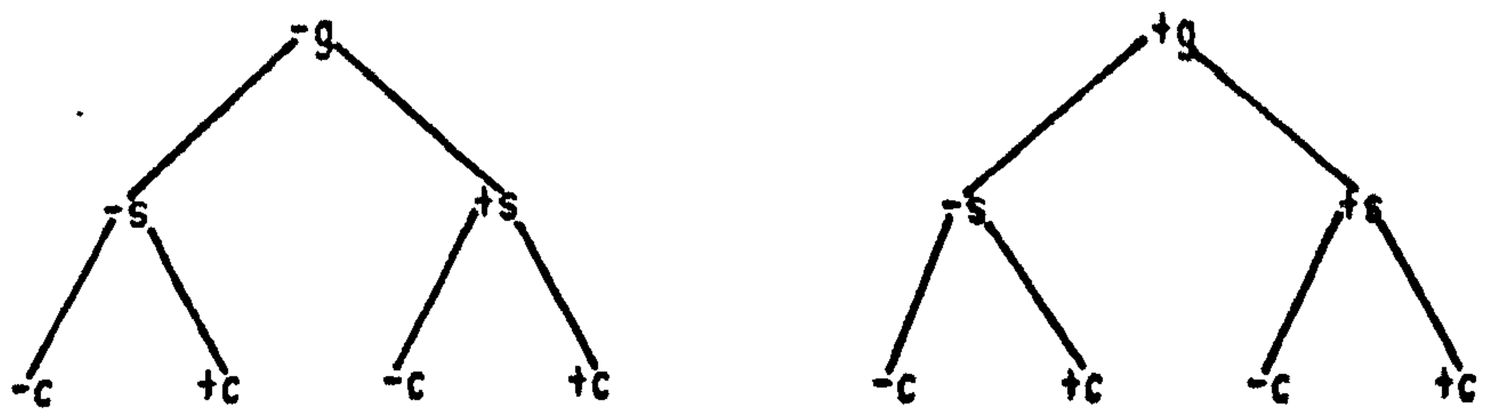
Diagram 54-09
Subdivisions for analyzing syllabification and stress



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This octad can accommodate those mispronunciations which did not appear to be different words, unlike the rest of the analysis where they are excluded.

If we take the variables of syllabification and stress in conjunction, a pair of fundamental propositions are tested.

(P1) tautosyllabicity and [+ stress] work together to favour glide deletion ♦ 3

(P2) heterosyllabicity and [- stress] work together to favour glide insertion ♦ 4

If the variables do not act in conjunction but contrarily, four combinations emerge (capitals refer to the columns in table 54-10).

[+ stress] acts with a heterosyllabic consonant, then

B if [+ glide] results, stress wins over syllabicity to give ♦ 6

C if [- glide] results, syllabicity wins over stress to give ♦ 2

[- stress] acts with a tautosyllabic consonant, then

C if [+ glide] results, syllabicity wins over stress to give ♦ 5

B if [- glide] results, stress wins over syllabicity to give ♦ 1

In addition the variables may operate disjunctively to produce the opposite effect of that predicted in the basic pair of propositions.

D If [- stress] and heterosyllable combine for [- glide], then ♦ 0

D If [+ stress] and tautosyllable combine for [+ glide], then ♦ 7

I shall use data from my investigation to evaluate the effect of each feature in table 54-10. When the percentages for pronunciations are arranged to reflect this classification, the effects of stress and syllabification become clearer.

Table 54-10
Stress and syllabification for 5 ‹lyu› words

	A		B		C		D	
	Both correct		Stress wins		Syllab wins		Neither correct	
	♦3	♦4	♦1	♦6	♦2	♦5	♦0	♦7
delude	88	3	0	5	0	0	0	4
salute	87	3	3	8	0	0	0	0
voluminous	55	22	5	15	0	0	1	1
salutary	34	37	6	6	0	0	18	0
prelude	43	22	22	10	1	0	1	0

Regrettably they tend to undermine my original belief in the superiority of syllabification over stress in the determination of variants. But in its favour, it can be seen from the table that syllabification works 2/3 to 9/10 of the time. The columns in A show the percentages which uphold the pair of propositions on the conjunction of stress and syllabification. It can be seen that all five words are 'correct' for at least % of their utterances. The D columns show what happens when the features conspire to produce a result contrary to that enunciated in the propositions. It very rarely happens. The fluke result for *salutary* (the main odd case that appears to go against Bailey), is due to confusion with the non tested word *solitary*, which appeared frequently as a response for *salutary*. The 18 responses generally represent a mixed version of both words. Columns B and C show what happens when stress and syllabification are in conflict. Stress triumphs.

5500 *Empirical testing: summary and conclusions*

The broad divisions of this summary of the Liverpool tests, cover the evidence from the interviews of linguistic and social aspects of glide use and explanatory variables, together with general observations on the role of certain suffixes. (yu) cannot be treated as a single concept. It must be broken down into components, most readily specified by the PCs. For a PC and its gliding status, the use of distinctive features better summarizes my empirical findings, and may go some way to providing a contributory systemic reason for glide loss. Using the features anterior and coronal, they produce three divisions into which the 16 PCs (excluding ø) may be placed.

D1 [-cor][+ant] ⇒ /f v/ /p b/ /m/

D2 [-cor][-ant] ⇒ /k g/ /h/

D3 [+cor][+ant] ⇒ /θ/ /n/ /t d s z/ /l/ /r/

For completeness, the fourth subset is stated and exemplified.

D4 [+cor][-ant] ⇒ /č j š ž/

The order in which I have listed the consonants basically represents the order in which the PCs appear in terms of gliding. At last, glide tidings of great joy.

With regard to the four divisions, the following points are made.

(a) The PCs most likely to retain the palatal glide are those in D1 & D2, articulated furthest away from yod, ie labials and velars. This suggests the fundamental motivation for glide loss, and explains why of the nasals /n/ rather than /m/ is likely to undergo glide loss. In this thesis the PCs are represented by my categorical and quasi categorical divisions (§5010).

(b) Ir division 4 a glide is never present after the palato alveolar affricates /č j/, and, except in rare individual cases (lexically and

idiolectally), after the fricatives /š ž/. I indicated in §2104 that the glide may be defined as [+cor][-ant] (or maybe hovering on the border depending on whether neutral is [ɛ] or shwa). If [+cor] is admitted, then the effects of articulatory similarity are clearer, as it represents a common feature.

(c) It is division 3 which needs most attention. Of the PCs in this division, most attracted to the glide is /θ/, because of its dental articulation. It is really in a set on its own, being less close to yod than the alveolars. As far as Liverpool is concerned, all accents from Scouse to RP are distinctive gliders with /θ/. The group of alveolars incorporates subgroups reflecting wide differences in levels of gliding, as well as coalescence. /n/ occupies a special position in this investigation on account of its innovatory status with regard to the extent of glide loss. At the lower end of the gliding spectrum is /l/ which has lost almost all contact with the glide not only in Liverpool but elsewhere (except in the specific post tonic stress context). Finally there is /r/, totally unglided. Both /r/ and /l/ in addition to the features mentioned, share with /j/ the features sonorant and continuant emphasizing their similarity. Conversely, /k g/ share none of the four. Dissimilation has the effect that a sound close to yod, rejects yod.

5501 The lexical incidence of PCs

Frequency of incidence depends on the PC. I have noted that the distribution of lexical items for each PC is far from equal. Some PCs like /k f t d/ are associated with a much larger number of lexical items than other PCs such as /v θ/. From an idiolectal standpoint, it is not necessarily the overall frequency of an item, as revealed in a general frequency list, which is always relevant. It is possible to conceive of somebody working in a

publishing house and specializing in the monastic and legend lists. Three /θ/ words (*Methuen, carthusian, arthurian*) will have a greater frequency. But it is the converse situation which is emphasized here. For /v θ/ there may exist speakers with only a single item in each, namely *view, enthusiast* (and their derivatives). Let us further suppose, that the /v/ item is glided, and the /θ/ item is unglided, and this applies to the derived words, then the idiolectal status of a PC can depend on a single lexical item.

5502 *Comparisons with other glide investigators*

As far as the plain consonants are concerned, the combined data for my four groups of subjects reveal close similarities with both RP (§4101), and the hierarchy of Bailey (§4120). The conclusions recorded here reflect those noted by Wells 1982. The data recorded in my survey also conform, in so far as it is possible to make comparisons, with those of Trudgill 1974. There is substantial agreement between the order of PCs based on place of articulation. The dichotomy is between labials and velars, and the more variegated alveolars. All dialects (except east Anglian) agree on the association of gliding with the non coronals. It is within the alveolars that variability occurs. While the position of /r/ at the base of the gliding spectrum is shared by all dialects, it is the relative order of the phonemically palatalizing consonants /t d s z/, the phonetically palatalizable consonants /h n l/, together with /θ/ which is in question. If we consider the quadruplets first, while the three main variants are generally present in British and Australian English, American researchers indicate the comparative absence of coalescence, so that dialects are not simply comparable. Another aspect militating against direct comparisons is the fragmentary evidence for the existence of palatalized variants for the trio /h n l/ in Liverpool. While

this is very specific, and relatively insignificant compared with the pancoronal explanatory variables for glide loss, it does suggest itself as a suitable area for further investigation. Whether such post alveolar articulations represent a trend in the direction of glide absence remains to be seen. Auditory impressions can be suspect, whereas spectrographic methods provide a more objective foundation for analysis. In the case of /θ/, its small lexical load confers on it a peripheral importance in the order of PCs. It is at this juncture that comparisons between lects become more problematical, even if they are based on rank rather than percentage values of gliding. The extent of vocabulary for an individual speaker may affect the degree to which he glides in a PC. In general therefore, Liverpool appears to be broadly in line with urban basilects in the rest of the country, more notably with regard to /n/ as far as my limited testing indicates.

5503 The subenvironments

A crucial point which needs separate treatment is the existence of subenvironments within the mini variables, (and its converse, the existence of small areas of variability within the otherwise monolithic glided plain consonants). Their importance is related to their lexical incidence. They can be disguised in the overall data for a PC, and a concatenation of categorical suffixes can predetermine any results obtained from empirical testing. I have chosen to differentiate the idea of the micro variable from that of the subenvironment. Strictly the micro variable represents a variable subenvironment which can be characterized by reference to a unifying identity (such as word initial position), rather than the detritus or residue remaining after extensive glide loss. For future research and comparisons, they need to be positively identified in order to avoid misleading

conclusions, since mini variables can have categorical subparts. (See §5206 for the opinions of Hudson 1980b on invariable subsets of a phoneme). It is not clear whether other researchers were aware of such subenvironments and hence reported inadequately. Whichever, it can make comparability unreliable.

5504 *Role of the explanatory variables*

Of the explanatory variables tested, the PC provides the most usual basis for discussion. But regarding the PC, 2 were of far reaching influence. They were stress and word initial position, confirming the conclusions of earlier work.

Table 55-01
Stress and variants for variable PCs in Liverpool: nonsuffix

PC	+str			-str					
				(+str)-str			-str(+str)		
	co	+g	-g	co	+g	-g	co	+g	-g
/t/	/	/	x	/	/	x	/	/	x
/d/	/	/	x	/	/	x	/	/	x
/s/	x	/	/	/	/	x	x	/	/
/z/	x	/	/	/	/	x	*	*	*
						non			
					cont	cont			
/l/	-	-	-	-	/	/	-	x	/
/n/	-	/	/	-	/	x	-	/	-
group	(1,1)			(2,1)			(2,3)		
	(2,2)			(3,2)			(1,2)		
	(3,3)			(3,1)					

My hypothesis that syllabification does have an influence (in tandem with stress), was demonstrated in §5414. But when they operate against each other, stress wins. Stress also scores as an explanatory variable since it is more

easily segmented than syllabification. In any case, syllabification may be more susceptible to idiolectal variation which is not as easily detected. But stress is not just a question of plus or minus. In the latter case it matters whether tonic stress occurs before or after the relevant syllable (see table 55-01 where - means not applicable, and * signifies no examples found). For /l/ contiguous and non contiguous syllables are distinguished. Morphological similarity between words was not as fruitful an influence on choice of variant, except in those instances where a word was unfamiliar and thus unrepresentative.

Table 55-02
Stress and variants for variable PCs in Liverpool: suffix subenvironments

PC	+str			-str			suffix	examples	
	co	+g	-g	co	+g	-g		+str	-str
/t/	/	/	x	/	/	x	-ude	multitudinous	attitude
	/	/	x	/	/	x	-ure	mature	furniture
	/	/	/	/	/	x	-ute	constitution	constitutive
/d/	/	/	x	/	/	x	-uce	deduce	reducing
/s/	x	/	/	/	/	x	-sue	ensue	issue
	/	x	x	/	x	x	-ure	unsure	pressure
	/	/	/	*	*	*	-ume	assume	
/z/	/	/	/	*	*	*	-ume	resume	
/l/	-	-	-	-	/	x	-ute		(2,1) (3,2)
/n/	-	/	/	-	/	x	-ude		(2,1) (3,2)

A further distinction must be made for those items which take suffixes. My conclusions based on observation and referring broadly to British English, are summarized in table 55-02 with specific and group

examples. The suffix tested in the continuants <-ume>, shows apparent social stratification, with coalescence dominant in the central school and [+glide] in the suburbs.

5505 *Diffusion of change: linguistic aspects*

For the process of diffusion to start within a PC, weak points must exist.. In the case of the glide, the Liverpool tests confirmed that when the relevant syllable was in word initial position or immediately followed tonic stress, these constituted such environments. It may possibly apply to environmental diffusion in terms of PCs, or even to conditional diffusion in terms of the operative linguistic constraints. This second pattern is also closely linked to another aspect of the basis of the model suggested by Chen & Wang 1975. That is, the scope of the operation of a phonological rule - in this case, glide loss and palatalization - extends to an increasingly larger portion of the lexicon until all relevant items have been transformed. The key words here are *all* and *relevant*. What I shall argue is that there is a necessary difference between a linguistic definition of relevance and an individual interpretation. The former is objectively defined in terms of lexical categories. The latter is subjectively interpreted, perhaps on an ad hoc basis or by a version of folk etymology. Using the linguistic definition provides a standard against which the diffusion across the lexicon may be measured. But individual interpretations of word relatedness, because they may not coincide with linguistic definitions, will introduce a stochastic dimension into the dispersion of glide loss. An example previously mentioned is that of *voluminous*. The pronunciation of this word, and by implication its gliding status, can depend on whether it is seen as being related to *volume* or *luminous*.

It has to be admitted that this process mainly applies to less familiar items, or to items encountered for the first time in print. Subsequent contact with a word may result in a modified pronunciation. No firm conclusions may be drawn about the direction in which individuals will modify.

The model proposed by Chen & Wang 1975, provides no clues about the individuals or groups likely to be in the forefront of change. Trudgill 1974 had shown that in Norwich, glide loss over the complete spectrum of PCs was largely identified with working class speakers. But in east Anglia (yu) has more of the essential characteristics of a linguistic variable. In Liverpool speech in general, and in Scouse in particular, the low profile of the palatal glide in public awareness ensures that its insertion or omission from many lexical items within the micro variables, goes largely unobserved. However in this context a comment by the friend with the *Ford Angular* aunt, is relevant. He had noticed that when he was younger, there were differing pronunciations of the word *nude*. He associated the glided form with more middle class speakers, while the unglided form was definitely identified with more common speech.

Since the participants in Liverpool were not chosen to be statistically representative of any socio economic groupings, and while there are dangers in reifying such groups as they were put in for analysis, the variety of lects examined produced results largely according to the expectation that those with access to a wider range of speech patterns (notably S6), were thereby capable of greater glide use, even if intra individual variation was restricted. A progression by age and school was

discernible. Outstanding in glide loss and erosion was the younger group of the city centre school, main location of the broad Scouse variety.

(a) Their loss was more advanced in /l/.

(b) They had made inroads in word initial position in /n/, which were more extensive than previously imagined.

(c) There was greater use of coalescence in /t d s z/.

It seems likely that the greater homogeneity in social background of the city centre school has facilitated the process of innovation. The problem of actuation may be partially accounted for by the collective recognition and acceptance of a new and trendier way of using a change in pronunciation to signal the awareness of an imported cultural epiphenomenon.

So some changes do have social implications. In particular the loss after /n/ started with young, central urban speakers of the basilect. As such it may be interpreted as a change emanating socially from below. Some evidence of loss after /n/ occurs in the older central group. I have no indication if those members of this older group currently showing no loss after /n/ have always glided, or whether if they did have loss earlier, they have now modified their pronunciation in the direction of the standard glided form.

In summary there is an age and school progression towards the preservation of glided variants upwards in age and outwards from the central city.

recapitulation

CHAPTER 6

GLIDESHED REVISITED

6000 Glideshed revisited

The final chapter completes this thesis by showing to what extent the objectives set in the introductory chapter were achieved. I ended the introductory chapter with a quotation from Horvath 1985, on the variation inherent in the palatal glide in the context of the /Cju/ sequence.

> "The variation associated with this sequence both within a given dialect and between dialects is very complex and ... has never been satisfactorily treated." (1985:109)

I try to resolve the dual aspects of this observation. I also refer to shortcomings which have become evident in this investigation; proposals for improvements in methodology; as well as suggestions for further research.

6010 *How objectives were achieved*

The first chapter showed how the original sources, both native and French, from late OE and early ME, provided the phonological and lexical bases for the sequence /Cju/, and how this stock was extended by the influx of (mainly learned) vocabulary in the 16c and after. It also demonstrated the fragility of the glide after [+cor][+ant] consonants. The causes of glide loss are phonetic and phonological. Phonotactic constraints operated initially in /Cr/ and /Cl/, on the principle of ease of articulation. There is also the systemic argument that approximants do not readily cluster (§2103). In the development of the sequence and the subsequent erosion of the glide, stress and the quicksands of shifting stress have played an important part. Shift within the diphthong /iu/ presaged the emergence of /ju/. Shift within borrowed lexical items bringing them more into line with native vowels and prosodies by changing oxytone to paroxytone, precipitated loss in ‹-ure›, especially after /t/. Glide loss, and later advancement to palatalization began to occur after /t d s z/. Reduction of the relevant vowel to shwa, especially when immediately post tonic (*par'ticular, 'manufacture*), and word initial position (*culinary*) have created sporadic loss in a range of PCs extending to the noncoronal labials and velars. Stress is still potent in accounting for contemporary glide variation. Of all the explanatory variables proposed and tested in this work, it has proved to be the most consistently effective. Glide loss was more extensive across PCs in other dialects than in RP; in particular the Generalized Yod Dropping in east Anglia. The presence of this dialect in the settlement of the east coast of north America and its longer term influence was described. The salience of the glide was increased by its loss, precipitating social factors to operate in tandem. In 19c

America they were instrumental in reducing the extent (§4102), as they did in the 19c English restoration (by some speakers) after the alveolars /t d n/ (§1224). This was a product of prescription and by extension, social correctness, and as such secondary influences. The primary motivators have involved a combination and sequence of articulatory factors.

While Chambers & Trudgill (1980:63) have posited the morpheme as the primary vehicle for phonetic change, when we look at the dispersion of glide loss across the lexicon, the overwhelming impression is of diffusion by subenvironment. These are not necessarily morphemic. In well established environments like the coalescents, when glide loss began, subenvironments were smaller than they are now. The <-ure> and <-ude> sets in /t/, being productive suffixes, have expanded with later additions conforming to the established pattern. In PCs subject to more recent loss, word initial position or shwa reduction are the most favoured subenvironments for starting the process. This process need not come to a complete conclusion. Some features (like heterosyllabicity) may exert a residual influence, so that in /l/, items like *volume* in my group (2,1), may be trapped like a word in a glided cage.

Scouse, the urban basilect of the Liverpool region, provides a focus and locus for glide loss. The speakers tested ranged from varieties of Scouse to the acrolect of near RP. The results of the tests to determine the distribution of variants across the 17 PCs, as well as the influence of the more important explanatory variables, were reported. Compared with the earlier stages, the 20c has seen a stabilization in the extent of variation. Except as is common among the coronals, what was confirmed is the pervasive lack of variation across (yu) in Liverpool. The sequence had to be split into its constituent micro variables, using the mini variable PCs as a reference point, in order to isolate the areas of variation.

Variation, rather like the love of money (1 Tim 6:10), is held to be the root of all evolution. The term *variation* can have a singular plurality of applications. Horvath 1985 has drawn attention to the complexity within and between dialects, but not to variation within individuals. If this implies that idiolectal variation is minimal, then the present investigation confirms this. Consequently the /Cju/ sequence is microlinguistically simple while being macrolinguistically complex. I try to provide a clarification by disentangling the within and the between, using the conclusions arrived at on the basis of my investigations.

If we begin on the large scale with national standard varieties, differences occur in the PCs affected by glide loss. While the variable PCs are in the set of [+cor][+ant], the extent of loss after /n/ in America sets this variety apart, as does this loss in British urban dialects. There is scope for more important variation in the range of variants which are available, and it is in the coalescent stops that the range is most striking. In the British and Australian standards [-glide] is not an option. However this broadly based comparison does not reflect the differences which can exist within dialects both standard and nonstandard.

Finer detail reveals variation which is not only linguistically based, but which is manifested in and correlated to social factors. Empirical studies have concentrated on the coalescents. The ranges of variants which can occur here within dialects superficially appear to introduce complexity. I believe that if a simplification is made by contrasting glide presence with glide absence (whichever form this takes), the interpretation becomes easier. This is more so if we base our observations on the parasocial feature of

prestige (defined for convenience if tautologically in terms of the acrolect), and treat the glided forms as reflecting this (bearing in mind the discrepancy in the southern states of America). Acrolects tend to greater use of [+ glide] than basilects. There is general agreement in the conclusions of the main surveys with regard to the operation of social factors. But basically they reflect universal features of the human condition. The lower strata of society are associated with the non acrolectal prestige variants. The younger groups use more non prestige variants. (As they grow older the proportion may stay the same, thus cementing the sound changes; or people may modify their pronunciation in the direction of the standard, ontogeny overrides phylogeny.) In general males are more disposed than females to use non prestige forms.

A similar approach may be taken to reducing the linguistic variation within dialects to comprehensible proportions. However my attempt to retrieve cosmos from chaos is not necessarily based on the most apposite empirical evidence. Research has often been based only on items in word initial position. This as I have shown, is an explanatory variable in itself when it comes to glide loss. We have seen that morphemes in the coalescents do have variable realizations across the totality of speakers (table 55-02) and so have to be lexically specified. Yet selection by individual users of a variant within a morpheme is usually consistent. Gliding may be optional provided variants are not conditioned by factors of prestige or, (in the continuant coalescents /s z/ especially) the consequence of diachronic diversity.

This investigation was conceived as an exercise in aspects of variation in /l/, but test results did not live up to expectations. A mere six of the original items exhibited variability. If the pilot test had taken place in Liverpool with speakers of school age, it may have revealed the extent of glide loss in this environment, as well as features which now require further investigation, especially after /n/, and also the special place of Scouse speakers. This reinforces the statement of Trudgill (1978:13) that

> "intuition based work is unreliable in the study of areas of the language which are undergoing linguistic change or are subject to variation of some kind."

Some shortcomings in the preparation of the materials used in the interview became evident. The balance of items allocated to each PC had been based on the overall distribution of consonants in English calculated by Fry 1947 (§4321). A better approach involves basing the frequency of items to be tested on the lexical incidence for each PC as subsequently revealed in the appendices. In addition, within some PCs there was an imbalance of subenvironments. In /t/ too many /st/ were used; in /n/ too few medial examples. Possible variation was not adequately anticipated. The presence of so many clustered types with /Cl/ may have influenced the response to gliding. Within the panconsonantal list there were insufficient distractors. A greater sprinkling of non relevant items eases transcription, especially when this is done using a tape recorder without a pause facility for multiple repetition.

In the interview itself, asking subjects to read in their best voice (like a newscaster) did not necessarily achieve the desired effect. My perception of a radio voice appears to have been at variance with theirs. If

subjects of their age do listen to the radio, it is more likely to be local rather than national. At times, the former can sound like the illiterate reading the inarticulate. A different elicitation technique can be to ask subjects to retell the story in their own words. But there is no guarantee the words you want will appear.

In making transcriptions of the interviews, the difficulty of identifying a particular speaker can be moderated by interpolating at regular intervals the name of the interviewee. In addition, the use of a photograph to recall each subject will aid identification, especially when there is no real opportunity to return for further testing.

Finally a better grasp of the nature of cause, determinism and explanation (Lass 1980, 1987; Bhaskar 1975, 1979; Pateman 1987) will have produced a more informed analysis.

6031 Suggestions for future research

It can be disconcerting (but salutary) to find that many of my 'original' ideas and suggestions had been ventilated by others more experienced and expert. I feel however that there is scope for further research on aspects of the palatal glide in areas not covered here. The treatment of loan words with original [y] from German and French (eg *muesli*, *duvet*), will repay investigation. Results may be compared with similar borrowings into Bulgarian and Russian. Danchev 1985 has shown that if a western language has [y] it always becomes [ju] in slavic languages. For non scientific glideable loan words from English into Welsh, where orthographic variety occurs in the use of *iw*, *ew*, *w* and *u*, see Grey 1978. Conclusions regarding explanatory variables may be retested by using polysyllabic made up words where stress and syllable juncture can be indicated and varied.

An extension of the enquiry to adult and female speakers will provide added dimensions to current usage as well as possible indications of sound change in progress. Salience or perception of the palatal glide can be measured using matched guise tests. Since erosion in Liverpool is more a feature of the basilect, the correlation of loss with archetypal aspects of Scouse (like affrication or centralization of back vowels), seems worthy of attention.

6032 *Lexical diffusion and chaos theory*

"The misshapen chaos of well seeming forms." (Romeo and Juliet 1:1)

Superficially chaos is misshapen, but according to recent mathematical developments, below the surface there may be well seeming forms which have structure and pattern. Deterministic chaos originated in the physical and biological sciences, but has applications for many disciplines. (Gleick 1988; Stewart 1989; Butler 1990; *New Scientist* 1989 & 1990). To some extent the theory of chaos has taken on the mantle of the 19c Darwinian theory of evolution, or the early 20c Heisenbergian uncertainty principle, in that it has been seen by some observers in very different fields, as a powerful stimulus to a new evaluation and interpretation of what appear to be the confusing complexities of everyday life. Its basic principle has been described in a leading article in the *New Scientist* of 891021.

> "Chaos theory presents a Universe that is deterministic, obeying fundamental physical laws, but with a predisposition for disorder, complexity, and unpredictability." (vol 124: num 1687)

The ideas underlying the theory of chaos may help to refine and illuminate the contributions of individuals to the overall spread of phonological change across the lexicon, especially when few explanatory variables are involved.

The use and usage of the glide in British English can present problems for non native speakers. In his guide to pronunciation, MacCarthy confirms that

> "The rules governing the insertion of *j* before *uu* are rather complicated." (MacCarthy 1950:147)

I hope to have made some contribution to this field. The present position regarding loss has been governed by a mixture of historical factors, linguistic constraints, social acceptance, and most micro lingulstically of all, lexically. Even Chomsky & Halle 1968 fall back on 'arbitrary lexical categorization' (§4112).

The systematic classification of the factors influencing the choice of variants of the palatal glide, needs, as Wells (1982:66) noted for the RP alternation between [ωə] and [ɔ:], "a combination of optionality, variability and lexical specification".

Stephenson 1970 had predicted the demise of the glide after the alveolars in the United States within a generation. Potter (1969:20) had said that the unglided variant after /l/ was obviously the pronunciation of the future (§1221). Aitchison (1978:143) goes further. Commenting on the fact that [j] is disappearing, she claims that "Soon, it may have dropped out entirely, as it has in east Anglia." I hope these forecasts are incorrect. The palatal glide, like music for Congreve, hath charms. I shall not speculate, but in conclusion adapt an aphorism of Wittgenstein:

> Whereof I am not sure, thereof I shall not speak.

. . . and coda

APPENDICES

7100 Materials tested

7110 The reading passage

THE EVILS OF DRINK

Hugh was an old recluse. He lived on his own in a quiet secluded village in north Wales. It was peaceful there and well away from the polluted air of the towns where he used to work. This was better for him, as he now suffered from pleurisy. In his younger days he had been a musician. He used to play a special kind of flute made of aluminium, but his favourite instrument was an old fashioned lute.

During the good weather, he spent much of his time outdoors in the garden, where he had a beautiful display of blue lupins. He used to try and lure birds into the garden by leaving scraps of food. But they proved very elusive, and usually flew away when he appeared at the door, dressed in his voluminous overcoat.

Sometimes he tried to brew his own beer. He made it from kits which included everything apart from water. On one occasion however, he added too small a volume of water. As a result, the hops which were supposed to be soluble, didnt dissolve. The result was a sticky glutinous mess. He attempted to dilute it with some lukewarm water. Then - big mistake - he tried to delude himself into thinking it was drinkable.

It was definitely an act of lunacy, because it caused him to hallucinate. In this dreadful state, he imagined he saw luminous figures in the darkened room, dressed in lurid clothes, and singing lewd songs in fluent Welsh. This really blew his mind.

So he tried to exclude these horrific images from his head. But as he did so, he spilled the contents of his pint glass all over himself. This deluge of beer woke him up suddenly. The figures disappeared. He decided never to let it happen again. Thus, despite the mess, he learned his lesson. It was a valuable and salutary experience.

7111 Comprehension questions on the reading passage

1 What was the name of the man?

2 How was the village described?

3 How was the town air different?

4 What illnesss did he have?

5 What instrument did he play?

5a What was it made of?

6 What was his favourite instrument?

7 What kind of flowers did he have in the garden?

8 What did he try to do with the birds?

9 What did they prove to be?

10 How did the passage describe his overcoat?

11 What mistake did he make in brewing beer?

12 What are hops supposed to be?

13 What did he get when they didnt dissolve?

14 How did he try to improve the situation?

15 What was his big mistake?

16 Why was this dangerous?

17 What did he imagine he saw?

18 How were they dressed?

19 What were they singing?

20 What did he try to do then?

21 Which word is used to describe the beer he spilled?

22 Was it a good experience?

Did you notice anything about the words in the passage?

7120 *The word lists*

7121 *The /l/ list from the reading passage* WL1

recluse	soluble
secluded	glutinous
polluted	dilute
pleurisy	lukewarm
flute	delude
aluminium	lunacy
lute	hallucinate
blue	luminous
lupins	lurid
lure	lewd
elusive	fluent
flew	blew
voluminous	exclude
included	deluge
volume	valuable
	salutary

january	barbecue	stew
february	communal	excuse
march	prelude	spew
april	during	truant
may	genuine	supreme
june	ridiculous	deluge
july	pupil	abuse
august	costume	human
refuse	amusing	avenue
interview	accurate	salute
acoustic	choose	computer
union	new	insoluble
cruel	tribunal	literature
rescue	enthusiastic	emu
presume	duke	stupid
school	suit	shoot
huge	superb	peruse
jaguar	tissue	ridicule
dual	jewel	miniature
furious	nuclear	shoes
sues	impudent	bureau
tune	introduce	prosecute
humorous	unit	few
screw	suet	formula
nutrition	blue	interlude
consumer	neutral	absolute
illumination	chews	

7200 *Individual data from the main study*

7201 *Symbols used in the tables*

The following section explains the significance of the symbols in the individual data tables.

Subjects and schools

After the table number, C refers to the city centre school; S refers to the suburban. The numbers down the sides of each page represent the subjects.

01 - 20	City centre first year	C1
31 - 50	City centre sixth form	C6
51 - 71	Suburban first year	S1
81 - 96	Suburban sixth form	S6

Gliding

-	absence of glide
+	presence of glide
ι	noticeable vocalic quality
±	glide present altered to glide absent
∓	glide absent altered to glide present
P	palatalized consonants /č ǰ š ž/
o	item omitted

Mispronunciations

M	affecting relevant sounds; eg selʊdəd
m	not affecting relevant sounds; eg flʊət for flʊənt it represents [- glide] unless shown as m+
D	read as different word; eg solitary for salutary
d	read as another testable item in lists; eg deluge for delude
f	for θ1, realized as [f]
r	for b4, [fɛbruɛrl] in place of the vernacular [fɛbjuɛrl]

For /l/ items in §7231 and §7232, the subjects are listed down the page; the lexical items across the page. Each item has 4 columns. In order they represent

(a) word list 1; with /l/ words from list 2: given as item 3;
(b) the passage read in the ordinary delivery: given as item 1;
(c) the passage read in what the subject felt was a BBC or posh delivery: given as item 4;
(d) the words elicited from the questions: given as item 2.

F	not elicited (for test 2 'questions' only)
x	test omitted (subject #15 in test 4 'second reading of passage' only)

Appendix 7211C Plain consonants: categorical

#	/f/ 1 2 3	/v/ 1	/θ/ 1 2 3	/r/ 1 2 3 4	#	Words used	
01	+ + +	+	+ + /	D - M -	01	f1	few
02	+ + +	+	+ + +	/ - M -	02	f2	furious
03	+ + +	+	+ + /	- - - -	03	f3	refuse
04	+ + +	+	+ + /	- - M -	04		
05	+ + +	+	+ + /	D - M -	05	v1	interview
		•					
06	+ + +	+	+ + +	/ - M -	06	θ1	unit
07	+ + +	+	+ + /	D - M -	07	θ2	union
08	+ + +	+	+ + /	- - M -	08	θ3	per + use
09	+ + +	+	+ + /	D - - -	09		
10	+ + +	+	+ + /	- - - -	10		
11	+ + +	+	+ + /	- - - -	11	r1	peruse
12	+ + +	+	+ + +	/ - - -	12	r2	cruel
13	+ + +	+	+ + +	/ - - -	13	r3	truant
14	+ + +	+	+ + +	/ - M -	14	r4	screw
15	+ + +	+	+ + /	- - - -	15		
16	+ + +	+	+ + /	M - - -	16	/	not applicable
17	+ + +	+	+ + +	/ - - -	17		
18	+ + D	+	+ + +	/ - - -	18		
19	+ + +	+	+ + /	- - M -	19		
20	+ + +	+	+ + +	/ - - -	20		
31	+ + +	+	+ + /	- - - -	31		
32	+ + +	+	+ +	D - - -	32		
33	+ + +	+	+ +	D - - -	33		
34	+ + +	+	+ + +	/ - - -	34		
35	+ + D	+	+ + /	- - - -	35		
36	+ + +	+	+ + /	- - - -	36		
37	+ + +	+	+ + +	/ - - -	37		
38	+ + +	+	+ + /	- - - -	38		
39	+ + +	+	+ + /	- - - -	39		
40	+ + +	+	+ + /	- - - -	40		
41	+ + +	+	+ + /	- - - -	41		
42	+ + D	+	+ + /	- - - -	42		
43	+ + +	+	+ +	D - - -	43		
44	+ + +	+	+ + /	- - - -	44		
45	+ + +	+	+ + +	/ - - -	45		
46	+ + +	+	+ + /	- - - -	46		
47	+ + D	+	+ + +	/ - - -	47		
48	+ + +	+	+ + +	/ - M -	48		
49	+ + +	+	+ + /	- - - -	49		
50	+ + +	+	+ + /	- - - -	50		

Appendix 7211S Plain consonants: categorical

#	/f/ 1 2 3	/v/ 1	/θ/ 1 2 3	/r/ 1 2 3 4	#	Words used	
51	+ + +	+	+ + +	/ - M -	51	f1	few
52	+ + +	+	+ + +	/ - - -	52	f2	furious
53	+ + +	+	+ + +	/ - - -	53	f3	refuse
54	+ + +	+	+ + +	/ - - -	54		
55	+ + +	+	+ + +	/ - - -	55	v1	interview
56	+ + +	+	+ + +	/ - - -	56	e1	unit
57	+ + +	+	+ + +	/ - - -	57	e2	union
58	+ + +	+	D + /	D - - -	58	e3	per + use
59	+ + +	+	+ + /	- - - -	59		
60	+ + +	+	+ + /	D - - -	60		
61	+ + +	+	+ + +	/ - - -	61	r1	peruse
62	+ + +	+	+ + /	- - - -	62	r2	cruel
63	+ + +	+	+ D /	- - - -	63	r3	truant
64	+ D +	+	+ + +	/ - - -	64	r4	screw
65	+ + +	+	+ + +	/ - - -	65		
66	+ + +	+	+ + /	- - - -	66	/	not applicable
67	+ + +	+	+ + +	/ - - -	67		
68	+ + +	+	+ + +	/ - M -	68		
69	+ + +	+	+ + /	- - - -	69		
70	+ + +	+	+ + +	/ - - -	70		
71	+ + +	+	+ + /	D - - -	71		
81	+ + +	+	+ + /	- - - -	81		
82	+ + +	+	+ + +	/ - - -	82		
83	+ + +	+	+ + /	- - - -	83		
84	+ + +	+	+ + /	- - - -	84		
85	+ + +	+	+ + /	+ - - -	85		
86	+ + +	+	+ + /	- - - -	86		
87	+ + +	+	+ + /	- - - -	87		
88	+ + +	+	+ + /	- - - -	88		
89	+ + +	+	+ + /	- - - -	89		
90	+ + +	+	+ + +	/ - - -	90		
91	+ + +	+	+ + /	- - - -	91		
92	+ + +	+	+ + /	- - - -	92		
93	+ + +	+	+ + /	- - - -	93		
94	+ + +	+	+ + /	- - - -	94		
95	+ + +	+	+ + /	+ - - -	95		
96	+ + +	+	+ + +	/ - - -	96		

Appendix 7212C Plain PCs: quasi categorical

#	/p/ 1 2 3 4	/b/ 1 2 3 4	/k/ 1 2 3 4 5 6 7	/m/ 1 2 3 4	/θ/ 1	/g/ 1	/h/ 1 2 3	#	Words used	
01	+ + + +	M M + +	+ + + M + + -	+ + + M	+	+	P P +	01	p1	spew
02	- + + M	M M + +	+ + + D + + +	+ + + M	M	+	● ● M	02	p2	pupil
03	+ + + +	+ + + +	+ + - M + + +	D + + +	+	+	P + +	03	p3	computer
04	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	04	p4	impudent
05	+ ? + +	M + + +	D + + + + + +	+ + + +	+	-	P P P	05		
06	+ ? + -	M M + +	+ + + M + + +	+ + + +	+	+	P ● +	06	b1	bureau
07	+ ? + +	+ + + o	+ + + + + + +	+ + + +	+	+	+ + +	07	b2	tribunal
08	+ ? + +	M M + +	+ + + + + - -	+ + M +	M	+	- + +	08	b3	abuse
09	+ + + +	+ + + +	+ + + M + + +	+ + + M	+	+	- + +	09	b4	february
10	+ ? + +	+ + + +	+ + + M + + +	+ + + +	+	+	P ● +	10		
11	+ + + +	- + + +	+ + + M + + +	+ + + +	+	+	+ + +	11	k1	excuse
12	+ + + +	+ M + +	+ + + M + + +	+ + + D	+	+	+ + +	12	k2	rescue
13	+ + + +	+ + + +	+ + + M + + -	+ + + +	+	+	● + +	13	k3	barbecue
14	± + + +	M M M +	+ + + M + + +	+ + + +	M	M	- - -	14	k4	ridicule
15	+ + + +	+ + + +	+ + + M + + M	- + + -	+	+	+ + +	15	k5	prosecute
16	+ + + +	D + + +	M + + - + + +	+ + ± +	+	+	+ + +	16	k6	accurate
17	+ ? + +	+ + + r	+ + + M + + +	+ + + +	+	+	+ + +	17	k7	ridiculous
18	+ ? + -	+ M + +	+ + + M + + -	+ + + +	+	+	+ + +	18		
19	+ + + +	D + + +	+ + + M + + +	+ + + +	+	+	● ● M	19		
20	+ ? + +	D M + +	+ + + D + + +	- + + +	+	-	+ + M	20		
31	+ ? + +	+ + + +	+ + + M + + +	+ + + +	+	-	● ● ●	31	m1	amusing
32	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	32	m2	emu
33	+ + + +	+ + + +	+ + + M + + +	+ + + +	+	+	+ + +	33	m3	formula
34	+ + + +	+ + + r	+ + + + + + +	D + + +	+	+	+ + +	34	m4	communal
35	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ + +	35		
36	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	36	θ1	enthusiastic
37	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	37		
38	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	D + +	38		
39	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	39		
40	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ + +	40	g1	jaguar
41	+ + + +	+ + + -	+ + + + + + +	+ + + +	-	+	+ + +	41	h1	huge
42	+ + + +	+ + + +	+ + + + + + +	D + + +	+	+	+ + +	42	h2	human
43	+ ? + +	+ + + +	+ + + M + + +	+ + + +	-	+	● ● ●	43	h3	humorous
44	+ ? + -	+ + + r	+ + + + + + +	+ + + +	+	+	+ + +	44		
45	+ ? + +	+ M + r	M + + M + + +	+ + + +	+	+	+ + +	45		
46	+ ? + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ + +	46		
47	+ + + +	+ + + +	+ + + + + + -	+ M + M	f+	+	+ + +	47		
48	+ + + M	+ + + +	+ + + + + + +	+ + + +	+	+	● ● ●	48		
49	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ + +	49		
50	+ + + +	+ + + +	+ + + + + + +	- + + +	+	-	+ + -	50		

Appendix 7212S Plain PCs: quasi categorical

#	/p/ 1 2 3 4	/b/ 1 2 3 4	/k/ 1 2 3 4 5 6 7	/m/ 1 2 3 4	/θ/ 1	/g/ 1	/h/ 1 2 3	#	Words used	
51	M + + +	M M + +	+ + + + + + M	+ o + M	+	+	+ + +	51	p1	spew
52	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	52	p2	pupil
53	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	53	p3	computer
54	+ + + -	+ D + M	+ + + + + + +	+ + + +	+	+	- - -	54	p4	impudent
55	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	P P P	55		
56	+ + + +	M + + r	M + + + + + +	+ + + +	+	+	P + +	56	b1	bureau
57	+ + + +	M + + +	+ + + + + + M	+ + M -	+	+	- P -	57	b2	tribunal
58	+ + + M	M + + +	+ + + + + + +	D + + M	M	+	M + +	58	b3	abuse
59	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	-	+ + +	59	b4	february
60	+ + + +	+ M + +	+ + + + + + +	+ + + M	+	+	+ + -	60		
61	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	61	k1	excuse
62	+ + + +	+ + + +	+ + + D + + +	+ + + +	f+	+	+ + -	62	k2	rescue
63	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	63	k3	barbecue
64	+ + + -	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	64	k4	ridicule
65	+ D + M	+ D + +	+ + + + + + +	+ + D +	f-	+	+ P +	65	k5	prosecute
66	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ P +	66	k6	accurate
67	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	P P +	67	k7	ridiculous
68	+ D + +	+ + + +	+ + + + + + +	+ + + +	f-	+	+ P +	68		
69	+ + + +	M + + +	+ + + + + + +	+ + + +	+	+	+ P +	69		
70	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ 0 0	70		
71	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	71		
81	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	P P +	81	m1	amusing
82	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	-	+ P +	82	m2	emu
83	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	83	m3	formula
84	+ + + +	+ + + -	+ + + + + + +	+ + + +	+	+	+ + +	84	m4	communal
85	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	85		
86	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	86	81	enthusiastic
87	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ P +	87		
88	+ + + -	+ + + +	+ + + + + + +	+ + + +	+	-	+ P +	88		
89	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	89		
90	+ + + +	+ + + +	+ + + + + + -	+ + I +	+	-	+ + +	90	g1	jaguar
91	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	-	+ P +	91	h1	huge
92	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ + +	92	h2	human
93	+ + + +	+ + + r	+ + + + + + +	+ + + +	+	+	+ P +	93	h3	humorous
94	+ + + +	+ + + r	+ + + + + + +	+ + + +	-	+	+ P +	94		
95	+ + + +	+ + + +	+ + + + + + +	+ + + +	+	+	+ + +	95		
96	+ + M +	+ + + +	+ + + + + + +	+ + + +	+	+	0 0 0	96		

Appendix 7213C Plain consonants: probabilistic

#	/l/ 1 2 3 4 5 6 7	/n/ 1 2 3 4 5 6 7	Index (nyu)	#		Words used
01	- M - - - - -	- - - + + + -	0	01		
02	- - - + - - M	- N D + + + -	0	02	l1	salute
03	- - - + + - -	- + + + + + +	75	03	l2	deluge
04	- - - + - - -	+ - + + + + -	50	04	l3	prelude
05	- - - + - - -	+ - - + + + -	25	05	l4	insoluble
06	- - - + - - -	+ - - + + + -	25	06	l5	interlude
07	- - - + - - -	+ - + + + + +	75	07	l6	absolute
08	- - - + - - -	- - - + + + M	0	08	l7	illumination
09	- M M + - - M	- - - + + + -	0	09		
10	- - - + - - -	- - - + + + -	0	10		
11	- - - + - - -	- - - + + - -	0	11	n1	new
12	- - - + - - -	- - - + + + M	0	12	n2	nuclear
13	- - - + - - -	P P P + + + -	0	13	n3	neutral
14	- - - + - - M	- - - + + + -	0	14	n4	january
15	- - - + - - -	+ + - + + + -	50	15	n5	genuine
16	- - - + - - -	+ + + + + + -	75	16	n6	avenue
17	- - - - - - -	+ - - + + + -	25	17	n7	nutrition
18	- M - + - M M	- - - + + + -	0	18		
19	- - - + - - -	- - - + + + -	0	19		
20	- - - + - - -	- - - - + + -	0	20		
31	+ + + + - - -	+ + + + + + +	100	31		
32	- - - + - - -	+ + + + + + +	100	32		
33	- + + + - - -	+ + + + + + +	100	33		
34	+ - - + - - -	+ + + + + + +	100	34		
35	- + + + - - -	- - - + + + -	0	35		
36	± + + + - - -	+ - + + + + +	75	36		
37	- - M + - - -	- - - + + + -	0	37		
38	- - - + - - -	+ - - + + + -	25	38		
39	- + - + - - -	+ + + + + + +	100	39		
40	- + + + - - -	+ - + + + + +	75	40		
41	+ + ± + - - -	+ - - + + + +	50	41		
42	+ + + + - - -	+ - + + + + -	50	42		
43	- M - + - - -	- - - + + + -	0	43		
44	- + + + - - -	- - - + + + -	0	44		
45	- M - + - - -	+ - D + + + -	33	45		
46	+ + + + - - -	+ + + + + + +	100	46		
47	- - M + - - -	+ P P + + + -	50	47		
48	- - - + - - -	+ + + + + + -	75	48		
49	- - - + - - -	- - - + + + -	0	49		
50	- + - + - M -	- - - + + + -		50		

#	/l/ 1 2 3 4 5 6 7	/n/ 1 2 3 4 5 6 7	index (nyu)	#		Words used
51	+ - - + - - -	+ + + + M + ±	80	51		
52	- + - + - - -	+ + + + + + +	100	52	l1	salute
53	- + - + - - -	+ m++ + + + +	100	53	l2	deluge
54	- - M + - - -	- - - + + M M	0	54	l3	prelude
55	- - - + M - -	+ - P + + + P	50	55	l4	insoluble
56	- - - + - - -	+ - + + + + -	50	56	l5	interlude
57	- - - + - - -	- - - + + + -	0	57	l6	absolute
58	- M - + - - -	+ - D + + + M	50	58	l7	illumination
59	- - o + - - -	+ - + - + + +	75	59		
60	- + + + + - +	+ + + + + + +	100	60		
61	- + + + - - -	+ ‡ + + + + +	80	61	n1	new
62	- - - M - - -	+ + + + + + +	100	62	n2	nuclear
63	- + - + - - -	+ + + + + + +	100	63	n3	neutral
64	- - - D - - M	- + + + + + -	50	64	n4	january
65	- - - D - - M	+ + + + - + M	100	65	n5	genuine
66	- + + + - - -	+ + + + + + +	100	66	n6	avenue
67	- + - + - - -	+ + + + + + +	100	67	n7	nutrition
68	- - - + - - -	+ + + + + + +	100	68		
69	+ + + + - - -	+ + + + + + +	100	69		
70	+ - - + - - -	+ + + + + + +	100	70		
71	- ‡ - + - - -	+ + + + + + +	100	71		
81	- - - + - - -	+ + + + + + +	100	81		
82	- - - - - - -	- - - + + + -	0	82		
83	- + + + - - -	+ + + + + + +	100	83		
84	- + + + - - -	+ + + + + + +	100	84		
85	- - - + - - -	- - - + + + +	25	85		
86	- + + + - - -	+ + + + + + +	100	86		
87	- + - + - - -	+ - + + + + -	50	87		
88	+ + + + - - -	+ + + + + + +	100	88		
89	- + + + - - -	+ + + + + + +	100	89		
90	- - - + - - -	+ + + + - + +	100	90		
91	- + + + - - -	+ - - + + + +	50	91		
92	- - - + - - -	+ + + + + + +	100	92		
93	- + + + - - -	+ + + + + + +	100	93		
94	- + + + - - -	+ + + + + + +	100	94		
95	- + + + - - +	+ + + + + + +	100	95		
96	- - - + - - -	+ - + + + + -	50	96		

Appendix 7214C Coalescing consonants

#	/t/ 1 2 3 4 5 6	/d/ 1 2 3 4	/s/ 1 2 3 4 5 6 7	/z/ 1	Index	#	Words tested
01	P - + + P P	P D P -	- - D - - - P	z-	0	01	t1 tune
02	P + + P P P	P P P +	- - D - - - P	$P	20	02	t2 costume
03	P + + + P P	P P P M	- - P P - - P	$P	0	03	t3 stew
04	P + + + P P	P P P +	- - D P - - P	$P	20	04	t4 stupid
05	P + + P P P	P P P -	D - D P - - P	s-	0	05	t5 literature
06	P + + + P P	P P P P	- - D - - - P	z-	0	06	t6 miniature
07	P + + + P P	P P P P	- - - P - - P	zP	0	07	
08	P + + + M M	P D P -	- - D + - - P+	z-	20	08	
09	P + + + P M	P P P P	- - D P - - P	zP	0	09	
10	P + + + P P	P P P P	D - D + - - P	zP	20	10	
11	P + + + P P	P P P P	- - - - - - P	z-	0	11	d1 duke
12	P + + + P M	P P P P	- D D - - - P	s-	0	12	d2 dual
13	P + + + P P	P P P P	M D D P - - P	zP	0	13	d3 during
14	P + - + M P	P P P -	- M D M - - P	M	0	14	d4 introduce
15	P + ‡ + P P	P D P -	- - D P - - P	$P	0	15	
16	P + + P P P	P P P +	- - D - - - P	zP	20	16	s1 sues
17	P + + + P P	P P P +	D + D - - - P	zP	20	17	s2 suit
18	P + + + P P	P + P -	- - D P - - P	$P	0	18	s3 suet
19	P + + + P P	P P P +	D - D P - - P	zP	20	19	s4 consumer
20	P + + + P M	P P P P	- - D P - - P	zP	0	20	s5 superb
31	P + + + P P	P P P P	- - - P - - P	z+	20	31	s6 supreme
32	P + + + P P	P P P P	- - - + - - P	z-	20	32	s7 tissue
33	P + + + P P	+ + P +	- - - + - - P	zP	60	33	
34	P + + + P P	P P P P	M - - + - - P	z+	40	34	z1 presume
35	P + + + + P	P P P +	- - - + - - P	zP	40	35	
36	P + + + P P	P P P P	- - - P - - P	zP	0	36	
37	P + + + P P	P P P P	- - D + - - P	s+	40	37	
38	P + + + P P	P P P P	- - - P - - P	zP	0	38	
39	P + + + P P	+ P P +	- - - + - - P	zP	60	39	
40	+ + + + P P	+ + P +	- - - + - - +	z+	100	40	
41	P P + P D P	P P P P	- - - P - - P	zP	0	41	
42	P + + + P P	+ P P P	- - - P - - P	zP	20	42	
43	P + + P P P	P P P P	- - D P - - P	zP	0	43	
44	P + - + P P	P P P -	- - - - - - P	z-	0	44	
45	+ + + + D P	P P P P	D - - P - - P	zP	0	45	
46	+ + + + P P	+ + P +	+ + - + - - P	zP	80	46	
47	P + + + P M	P P P P	- - D - - - P+	s+	20	47	
48	P + + + D P	P P P P	- - D - - - P	z-	0	48	
49	P + + + P P	P P P +	- + M P + + P	zP	20	49	
50	P + + + P P	P P P +	- - - - - - P	zP	20	50	

#	/t/ 1 2 3 4 5 6	/d/ 1 2 3 4	/s/ 1 2 3 4 5 6 7	/z/ 1	index	#	Words tested
51	P + + + D P	+ o + P	- - o + - - P	sP	40	51	t1 tune
52	P + + + P P	+ P P +	- - - + - - P	z+	80	52	t2 costume
53	P + + + P P	+ P P +	- - D P - - +	zP	40	53	t3 stew
54	P + - P M P	P P P M	- - D M - - P+	z+	33	54	t4 stupid
55	P + + + D P	P P P +	- - - P - - P	z-	20	55	t5 literature
56	+ + + + P P	P - + +	- - D P - - +	z+	60	56	t6 miniature
57	P + + + P P	P + P -	M - - + - - P	s-	20	57	
58	P + + + P P	P + P M	- - D + + M P	s-	25	58	
59	P + + + P P	P + + M	- D D + - - P	z+	50	59	
60	D + + + P P	+ P P +	- + - + + - P	z-	75	60	
61	P + + + P P	+ P P +	M - - + - - P	zP	60	61	d1 duke
62	D + + + D P	+ P P P	- D + P - - +	z-	25	62	d2 dual
63	P + + + P P	+ P P P	M - M + - - +	z+	60	63	d3 during
64	P + + + P P	+ P P +	- D D - - - P	zP	40	64	d4 introduce
65	P + + + P P	P P P M	- - - P - - P	z-	0	65	
66	P + + + P P	+ P P +	M D - + - - P	z+	80	66	s1 sues
67	+ + + + P P	+ P P +	+ - + + - - +	zP	80	67	s2 suit
68	+ + + + P P	P P P -	- - D - - - P	z-	20	68	s3 suet
69	P + + + P P	+ + P +	- - - + - - P	z-	60	69	s4 consumer
70	P + + + P P	P P P +	- - D + - - P	zP	40	70	s5 superb
71	P + + + P P	+ P P +	- D - P - - P	zP	40	71	s6 supreme
81	P + + + P P	P P P P	- - - + - - P	zP	20	81	s7 tissue
82	+ + + + P P	- + P +	- - - - - - +	z-	40	82	
83	P + + + P P	P P P P	- - - + - - P	z+	40	83	
84	P + + + P P	P P P P	- - - P - - P	z-	0	84	
85	P + + + P P	+ + P P	- - - + - - P	z+	60	85	z1 presume
86	P + + + P P	+ P P +	- + - P - - P	z+	60	86	
87	P + + + P P	+ + P +	- - - P - - P	z+	60	87	
88	P + + + P P	P P P P	- - - P - - P	zP	0	88	
89	P + + + P P	P P P P	- - - - - - P	z-	0	89	
90	P + + + P P	P P P P	- - - + - - +	z+	40	90	
91	P + + + P P	P P P P	- - - P - - P	z+	20	91	
92	+ + + + P P	+ + + +	- - - + - + P	z+	100	92	
93	+ + + + P P	+ + P +	- + - + + - P	z+	100	93	
94	+ + + + P P	+ P P +	- - - + - - P	z+	100	94	
95	+ + + + P P	+ + P +	+ + - + - - +	z+	100	95	
96	P + + + P P	P P P P	- - D P - - P	s-	0	96	

Appendix 7221C Individual results from reading passage and word list (quasi categorical) (lyu)

	lute				lewd				soluble				polluted				elusive				pleurisy				dilute				halluci				alumini				1	2	3	
	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2				
01	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	m	-	-	-	-	-	-	-	-	-	01
02	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	m	m	m	m	-	M	-	-	-	-	-	-	M	M	M	M	-	-	-	-	-	M	+	02
03	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	m	m	m	M	-	-	-	-	-	+	+	03
04	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	m	-	F	-	-	-	-	-	-	+	04
05	-	-	-	-	-	M	-	-	+	+	+	+	-	-	-	-	D	-	-	-	-	M	-	-	-	-	-	-	m	m	m	m	-	-	-	-	-	-	+	05
06	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	-	-	-	-	m	m	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	06
07	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	07
08	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	M	M	M	M	-	-	-	-	m	-	-	-	-	-	-	-	-	D	+	08
09	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	D	-	-	-	-	m	m	m	-	-	-	-	-	-	-	-	-	-	-	-	-	M	+	09
10	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	m	m	m	m	-	-	-	-	-	-	+	10
11	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	11
12	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	D	m	D	m	-	-	-	-	-	-	-	-	-	-	-	/	-	-	x	-	-	-	+	12
13	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	m	-	-	-	m	-	m	-	-	-	-	-	m	m	m	m	-	-	-	-	-	-	+	13
14	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	M	-	-	M	M	M	M	-	-	-	-	M	M	M	M	-	-	-	-	-	M	+	14
15	-	-	x	-	-	-	x	-	+	+	x	+	-	-	x	-	m	-	x	-	M	M	x	M	-	-	x	-	-	-	x	-	-	-	x	-	-	-	+	15
16	-	-	-	-	-	-	-	F	+	+	+	+	m	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	M	M	M	M	-	-	-	-	-	-	+	16
17	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	M	M	m	F	-	-	-	-	-	-	-	17
18	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	M	M	M	M	-	m	M	m	-	-	-	-	M	M	M	M	-	-	-	-	-	+	+	18
19	-	+	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	M	M	M	-	-	-	-	-	-	+	19
20	-	-	-	M	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	s	M	-	s	-	-	-	-	-	-	+	20
31	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	F	-	-	-	-	+	-	+	31
32	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	32
33	-	-	-	+	-	-	-	F	+	+	+	+	-	-	-	-	-	-	-	-	M	M	M	M	-	-	-	F	-	-	-	F	-	-	-	-	-	-	+	33
34	-	-	-	-	±	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	34
35	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	M	M	-	M	-	-	-	F	-	-	-	F	-	-	+	-	-	-	+	35
36	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	±	-	+	36
37	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	m	m	-	-	-	-	-	-	-	-	+	37
38	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	38
39	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	39
40	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	40
41	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	+	41
42	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	+	42
43	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	-	-	-	-	+	-	-	-	F	m	M	M	-	-	-	-	-	-	-	-	-	-	-	+	43
44	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	44
45	-	-	-	-	-	-	-	F	M	+	+	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	45
46	-	-	+	-	-	+	+	F	+	+	+	+	-	-	-	-	-	-	-	-	+	+	+	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	+	46
47	-	-	-	-	-	-	-	-	+	-	-	F	-	-	-	-	D	D	D	D	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	47
48	-	-	-	-	-	-	-	-	+	?	+	+	-	-	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	m	-	-	-	-	-	-	-	-	+	48
49	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	49
50	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	F	-	-	-	-	-	-	-	-				50

Appendix 7221S Individual results from reading passage and word list (quasi categorical) (lyu)

	lute				lewd				soluble				polluted				elusive				pleurisy				dilute				halluci				alumini				1 2 3	
	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2	3	1	4	2		
51	-	-	-	-	-	-	-	F	+	+	+	+	-	-	-	-	m	-	m	-	o	m	m	M	-	m	-	-	o	M	m	m	-	-	-	-	+	-	+	51
52	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	-	m	-	m	-	-	-	-	-	-	+	52
53	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	D	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	53
54	-	-	-	-	-	-	-	-	+	+	-	F	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	F	m	m	m	F	-	-	-	-	-	-	+	54
55	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	55
56	-	-	-	o	-	-	-	-	+	+	+	+	-	-	-	F	-	-	m	F	-	-	M	F	-	-	-	o	-	-	-	-	-	-	-	o	-	-	+	56
57	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	-	-	-	-	-	M	-	M	-	-	-	-	m	m	M	M	-	+	-	-	-	-	+	57
58	-	-	-	-	-	-	-	-	+	+	+	o	-	-	-	-	m	m	m	F	-	-	-	-	-	-	-	F	-	m	-	-	-	-	-	F	-	-	+	58
59	-	-	-	F	-	-	-	F	+	-	+	F	-	-	-	F	-	-	-	F	-	-	-	-	-	-	-	F	M	M	M	F	-	-	-	-	-	-	+	59
60	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	+	-	-	±	m	m	m	-	+	-	-	F	-	-	-	F	-	+	-	-	-	+	+	60
61	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	61
62	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	F	-	-	-	-	-	-	m	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	m	62
63	-	-	-	-	-	-	-	-	+	s	+	F	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	63
64	-	-	-	F	-	-	-	F	+	m	s	F	-	-	-	-	-	m	-	F	M	o	M	F	-	-	-	F	m	m	-	F	-	-	-	-	-	M	d	64
65	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	D	M	M	m	m	-	-	-	-	-	m	-	m	-	-	-	-	-	M	D	65
66	-	-	-	-	-	-	-	F	+	+	+	+	-	-	-	-	m	-	-	m	M	M	M	M	-	-	-	F	-	-	-	-	-	-	-	-	-	-	+	66
67	-	-	-	-	-	-	+	F	+	+	+	F	-	-	-	-	-	-	-	+	m	m	m	m	-	-	-	F	m	m	m	m	-	-	-	-	-	-	+	67
68	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	D	-	-	F	m	m	m	m	-	-	-	F	m	m	m	m	-	-	-	-	-	-	+	68
69	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	D	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	m	+	+	69
70	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	m	-	-	-	F	-	-	-	-	-	-	-	-	+	M	+	70
71	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	D	-	-	F	-	-	-	-	-	±	±	F	-	-	-	-	-	-	-	-	-	-	+	71
81	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	81
82	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	F	-	-	-	-	-	-	I	-	-	-	+	82
83	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	83
84	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	84
85	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	+	85
86	-	-	-	-	-	-	-	F	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	+	86
87	-	-	-	-	-	-	-	-	+	+	+	F	-	D	-	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	87
88	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	m	+	+	88
89	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	89
90	-	-	-	-	m	m	m	m	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	90
91	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	F	-	-	-	-	-	-	-	-	M	-	+	91
92	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	92
93	-	-	-	-	-	+	+	-	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	93
94	-	-	-	-	-	-	-	-	+	+	+	F	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	94
95	-	-	-	-	+	+	-	F	+	+	+	+	-	+	-	-	+	-	+	F	-	-	-	-	+	+	s	F	-	-	+	-	-	-	-	F	-	+	+	95
96	-	-	-	-	-	-	-	F	+	+	+	+	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	-	-	+	96

Appendix 7222C Individual results from reading passage and word list (lyu) probabilistic

#	lure	lurid	deluge	delude	volumin	salutar	p	#	(lyu) index
	3 1 4 2	3 1 4 2	3 1 4 2	3 1 4 2	3 1 4 2	3 1 4 2			
01	- ± - -	- m - -	s s s F	- - - F	M s - -	D + D D	-	01	14
02	- - - F	- - - -	s s s s	- - - -	M M M M	D M D +	-	02	08
03	+ - + -	- - - -	s s s s	- - - -	s s s s	D D D D	-	03	17
04	- - - -	- - - -	s s s s	- - - -	m + m -	m D m m	-	04	07
05	- - - -	- - m -	M s M F	- - - -	+ - + m	s m m +	-	05	20
06	- - - -	m - - -	s s s F	- - - F	m M - m	s s s s	-	06	0
07	- - - -	- - - -	- - s F	- - - -	s + s s	s s s s	-	07	07
08	- - - -	D - - -	s s s F	- - - -	s m + m	M D m m	-	08	08
09	- - - -	D D m m	M M M F	- - - -	s M M m	M M M F	M	09	0
10	- - - -	m - m m	s s - s	- - - -	s - + -	- - - -	-	10	06
11	- - - -	- - - -	s s s s	- - - -	- m - -	- D - -	-	11	0
12	- - - -	- m D -	s D s s	- - - -	s - - -	M M M M	-	12	0
13	- - - -	- - - -	s M s s	- - - -	- - s -	s - s s	-	13	0
14	- - - -	M M M M	s s s F	D D D D	s + s s	+ M M M	-	14	33
15	- - x -	- - x -	s s x s	M D x D	s - x m	- s x s	-	15	0
16	- - - -	- - - -	s s s s	- - - -	s M s M	M m M M	-	16	0
17	- - - F	s - s -	m s m s	- - - F	s m s -	- s - -	-	17	0
18	- - - F	m D D M	s m s s	m - - -	s m - -	D D D s	-	18	0
19	- - - -	- - - -	s s s s	- - - -	+ + + +	D D D M	-	19	25
20	+ - ± -	+ - - -	s s s s	- - - -	+ s s +	M M s M	-	20	33
31	- - - -	- - - -	+ + + +	+ - - F	+ + + +	+ + + F	+	31	55
32	- - - -	- m - -	s s s s	- - - -	M M M M	+ + + F	-	32	21
33	+ - + +	+ - - +	+ s + +	- - - F	s s s s	s s s F	+	33	57
34	- + + -	m m + m	+ + + +	- - - F	M M - M	s s s s	-	34	54
35	- - - ±	+ + + +	+ + + F	- D - F	s - + -	+ + + F	+	35	60
36	+ + + -	+ + + +	+ + + +	s + + F	- - - -	+ + + F	+	36	76
37	- - - -	- m - F	- s s -	- - - F	s - - -	m s s F	m	37	0
38	- - - -	- - - -	s - - s	- - - -	m M - -	+ + - +	-	38	15
39	- - - -	- - - -	+ s + +	- - - F	- - - -	+ + + +	-	39	30
40	- + - -	- + - -	+ + + +	- - - -	m + - -	+ + + +	+	40	50
41	- - - -	+ - + -	s s + +	- - - F	M m m -	s s s s	±	41	29
42	- - - -	- m - -	+ + + +	+ - - -	s m m s	+ D + +	+	42	44
43	- - - -	D m m m	M M M M	- - - F	- m - -	D M D M	+	43	0
44	- - - -	- - - -	+ + + +	- - - -	- M - -	M + M M	+	44	26
45	- - + -	D D D D	M s M M	- - - F	s s s +	M D D M	-	45	25
46	- - - -	- + + -	+ + + +	+ + + F	- - - -	s s s s	+	46	47
47	- - - F	- m m m	s m m F	- m m F	m m m m	+ M M M	-	47	17
48	- - - -	- - - -	d m s F	- - - F	m m m m	s s m s	-	48	0
49	- - - -	m - - m	s s s F	- - - F	- - - -	+ + + +	-	49	24
50	- - - -	- - - -	+ - + +	- - - F	m m m m	m D D D		50	20

Appendix 7222S Individual results from reading passage and word list (lyu) probabilistic

#	lure 3 1 4 2	lurid 3 1 4 2	deluge 3 1 4 2	delude 3 1 4 2	volumin 3 1 4 2	salutar 3 1 4 2	p	#	(lyu) index
51	+ - - -	- - - F	M M s F	- d d d	M M M M	+ D M +	-	51	30
52	- - - -	+ - - -	+ s s s	- - - -	± - - -	s s s s	-	52	17
53	- - - -	- - - -	+ + + +	- - - -	s m s s	s s s s	-	53	25
54	- + - F	m - - -	s s s s	- d - -	M M m F	D M D F	M	54	11
55	- - - -	- - - F	M s s F	- - - F	M M m M	m M M F	-	55	0
56	- - - F	m m m m	m s s F	- - - o	+ + + -	+ M + M	-	56	42
57	- - - F	m m m F	m m m m	m m m F	m + + m	- M + s	-	57	43
58	- - - -	m m m m	m m m m	± - - F	m m s m	M M M M	-	58	13
59	± + - F	- - - F	s s s F	- - - F	s - - -	- - s F	?	59	13
60	- ± - -	- - - -	+ + + s	s + + F	s s s s	M M s M	+	60	43
61	- - - -	- - - F	+ + + +	s - - F	s M M +	m + m m	+	61	40
62	- - - F	- - - -	s s M F	- - - F	- + - m	s D s F	-	62	08
63	- - - -	- - - -	+ + + +	- - - F	M + M +	s s s s	-	63	35
64	- - - -	m m m F	M s M F	+ m m F	s + m F	M M s F	-	64	33
65	- - - -	- - - -	s s s s	M M - M	M M M M	M - M m	-	65	0
66	- - + -	- + - -	+ + + +	s - - F	- - - -	m M m m	+	66	33
67	+ - + -	+ + + +	s s s s	+ - + F	- - - -	- M M m	-	67	50
68	- - - F	m - - -	m + m m	m m m F	m m m m	D m D D	-	68	14
69	- - - -	- - - -	s + s +	m - - -	- - - -	- + D -	+	69	15
70	+ ± - -	- - - -	s s s s	- - - -	s s s s	s s m s	-	70	15
71	- - - -	- - - -	s s s s	- - - F	- - - -	M s s s	-	71	0
81	- - - -	- - - -	s + + F	- - - F	- m - -	+ + + +	-	81	30
82	- - ± -	- - - -	s s s s	- - - F	- - m -	- M - M	-	82	06
83	- - - -	- - - -	+ + + +	- - - F	- - - -	+ + + +	+	83	35
84	- - + -	+ - - -	- - + F	s - - -	- - - -	+ + - +	+	84	27
85	- - - -	- + + F	+ + + +	- - - F	- + - -	+ s s +	-	85	45
86	+ + + +	+ + + +	+ + + +	s - - F	- - - -	+ + + +	+	86	73
87	+ - - F	m - - -	+ + + +	- - - F	- - - -	+ m + +	-	87	40
88	- - - -	- - - -	+ + + +	s - - F	- - - -	M D M M	+	88	22
89	- - - -	- - - -	+ + + +	s - - F	- - - -	+ + + +	+	89	36
90	- - - -	- - - -	- s s s	- ± + F	+ + - +	- - - -	-	90	24
91	+ ± + F	+ + + +	+ + + +	- - + F	- - - -	+ m + +	+	91	65
92	+ + + +	+ + + +	s s s s	- - + -	- - - -	s s s s	-	92	56
93	+ + + +	+ + - +	+ + + +	- + + F	- - - -	s s s +	+	93	70
94	+ - - +	+ + + +	+ + + +	+ - - F	+ - + -	s + s +	+	94	71
95	+ + + -	+ + + F	+ + + F	- + + F	- + + -	s s s o	+	95	76
96	+ - - F	- - - -	- + - -	D - - F	s + M M	M m m F	-	96	21

Table 73-11
[-cor][+ant] /f/

word initial	-fuse	-fusion	medial
feu	funeral		
feud	funest		affusion	confucian
feudal	funicle	• circumfuse		confute
feudalize	furacious	confuse		confutation
few	furibund	defuse	confusion	curfew
fewtrils	furious	diffuse	diffusion	euphuism
fuchsia	furore	effuse	effusion	febrifuge
fucic	furuncle	infuse	infusion	feverfew
fucus	fury	interfuse		flamfew
fuel	fusain	perfuse		infuriate
fugacious	fusarol	profuse	profusion	infusoria
fugitive	fuse	rediffuse	rediffusion	perfume
fugle(man)	fusee	refuse		refute
fugue	fuselage			refutation
fugal	fusel	reinfuse		subterfuge
fuliginous	fusiform	retransfuse		sulphuric
fumado	fusil	suffuse		vermifuge
fumaria	fusus	transfuse	transfusion	
fumarole	futile			
fume	future			
fumet	fusion			
fumigate	phew			
fumitory				
funambulist				
funis				

Table 73-12
[-cor][+ant] /v/

gravure	view	bravura	ovule
autogravure	interview	revue	ovular
photogravure	preview	rivulet	
rotogravure	review	convolvulus	

Table 73-13
[-cor][+ant] /p/

initial	-pute	-pulate	medial	
pew	amputate	copulate	Apulia	corpulent
puce	amputation	copulation	capuchin	impugn
puke	compute	epulation	copula	impunity
pule	computation	populate	corpulent	impure
puma	depute	population	coupure	lilliputian
puna	deputation		cupule	oppugn
Punic	deputy		depurate	scapula
puny	dispute		despumate	impudent
pupa	disputation		empusa	
pupil	disrepute		epulotic	tempura
pure	impute		epurate	hippuric
purify	imputation		expugn	hypural
putrid	repute			
spew	reputation			
spume				
sputum				
pusillanimous				
purification				

Table 73-14
[-cor][+ant] /b/

word initial		-bute	medial	
Beaufort	buplever	arbute	abuse	catlabu
Beaulieu	buprestis	attribute	abusive	confabulate
Beaumaris	bureau	attribution	abutilon	cunabula
beauty	bureaucracy	contribute	acetabulum	Debussy
bubo	burette	contribution	albugineous	disabuse
bubonic	burin	distribute	albugo	fibula
Bucephalous	butadiene	distribution	albula	funambulist
bucoli	butane	retribute	albumen	imbue
bufo	butea	retribution	albumin	incunabula
bugle	butte	tribute	ambulacrum	infibulate
bugloss		scorbutic	ambulance	infundibular
bugong			arbutus	sonambulist
buhl			balbutient	rebuke
bulimia			barbule	tribunal
buna			bibulous	vestibule
bunodont			carburettor	vocabulary

Table 73-15
[-cor][+ant] /m/

word initial	medial			
meuse	accumulate	commune	cumulus	formula
meute	accumulation	communicate	cumulative	immew
mew	ammunition	communication	demure	immune
mewl	amulet	communion	disimmure	immute
mu	amuse	communique	dismutation	simulate
mucic	bemuse	communism	dissimulate	stimulate
muesli	Bermuda	communist	emu	
mule	cassumunar	community	emulate	tumulus
Munich	circummure	commute	famulous	simulacrum
mural	communal	commuter	flammule	
mure				
muse				
music				
musical				
mute				
mutate				
mutation				
mutiny				
smew				

Table 73-21
[+cor][+ant] /θ/

Arethusa	enthuse	Thule	thulia
Arthurian	enthusiastic	thurifer	thulite
Carthusian	Matthew	thews	thulium
		thujones	thus
		thurible	

Table 73-22
[+cor][+ant] /r/

initial	Cr initial		morpheme	medial
	brew	prude		erudite
rheum	bruise	prudent	bestrew	garrulous
rubric	brume	prune	construe	peruke
rude	bruit	screw	untrue	peruse
rue	brute	shrew		verruca
rued	crew	sprew	detrude	virulent
rule	crude	sprue	intrude	abstruse
rumour	cruet	strew	extrude	accrue
rune	cruel	threw	protrude	imbrue
rural	crewel	true	subtrude	cerulean
	crural	truant	obtrude	cerumen
	drew		withdrew	ceruse
	druid			
	druple		corkscrew	
	grew		thumscrew	
	gru		unscrew	
	grue			

page >>>

Table 73-31
[+cor][+ant] /t/

-tude

acritude	altitude	amplitude	aptitude	attitude
certitude	consuetude	crassitude	decrepitude	defnitude
desuetude	dulcitude	exactitude	fortitude	gratitude
gravitude	habitude	infinitude	lassitude	latitude
longitude	magnitude	mansuetude	multitude	nigritude
omnitude	pinguitude	plenitude	promptitude	quietitude
rectitude	sanctitude	servitude	similitude	solicitude
torpitude	turpitude	vicissitude		

-ture

architecture				
abature	abbreviature	acupuncture	aperture	armature
barbiturate	barbituric	calenture	climature	comfiture
confiture	coverture	culture	cultural	curvature
departure	depasture	depicture	dictature	discomfiture
divestiture	expenditure	forfeiture	furniture	garmenture
garniture	gesture	investiture	judicature	ligature
literature	miniature	miniaturist	mixture	nature
naturist	overture	picture	portraiture	sepulture
signature	tablature	temperature	texture	vulture
pasture				
mature	immature	premature		

-tute, -tution

constitute	constitution	constitutive
destitute	destitution	
institute	institution	
prostitute	prostitution	
	restitution	
substitute	substitution	

word initial

teutonic	tewel	tuba	tube	tuber	tuberculosis
tubule	Tudor	tuition	tuke	tulip	tulle
tumidity	tumify	tumult	tumulus	tune	tunic
Tunis	tureen	Turin	tutor	tutelage	tumour
tufa					

word medial

accentuate	actual	actuary	actuate	amateur
anfractuous	attuition	attune	fortune	importune
opportune	bitumen	cartulary	centuple	century
centurion	coloratura	contumacious	contumacity	contumacy
contumelious	contumely	contuse	contusion	datura
denaturalize	-ation	detumescence	electuary	emphyteusis
fatuous	fluctuate	fortuitous	fortune	gargantuan
gratuity	gratuitous	heptateuch	hexateuch	octateuch
pentateuch	impromptu	infatuate	infatuation	infructuous
intellectual	intubate	intuition	intuitive	intumescence
intuse	obtuse	pertuse	retuse	octuor
octuple	octuplet	noctuid	noctuary	noctule
(in) situ	situate	situation	virtue	virtuous
virtual	virtuosity	virtuoso	vituperate	maturity
sumptuary	sanctuary	statue	statute	pituitary
absquatulate	capitulate	congratulate	gratulatory	

/st/

angostura	astute	distune	blastula	constuprate
costume	fistula	frustule	impostume	expostulate
testudo	estuary			
stew	steward	stupe	stupid	stupor
stupefy	stupendous	studio	studious	Stuart
stupendous	[Stiffkey]			

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Table 73-32
[+cor][+ant] /d/

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word initial

Duane	deuce	deutero-	dew	dual
dubious	dubitate	dubitable	ducal	dude
dudeen	due	duel	duenna	duet
dugong	duke	dulia	duly	duma
Dumas	dumose	dune	duo	dupe
duple	duplicate	durable	dural	durian
duvet	duramen	durance	duration	duress
during	duty	duumvir	duraluminium	duplicity
Deucalion	deuced	deutzia	dubiety	duplex

morpheme initial

bedew	abduce	reduce	archduke	
endew	adduce	reproduce		
honeydew	conduce	seduce	endure	endurance
mildew	deduce	superinduce	indure	
subdue	educe	traduce	perdure	
endue	induce	produce	epidural	
indue	introduce		subdural	

word medial

acidulate	adieu	adulation	arduous	caduac
caduceous	caducity	caducous	calendula	fraudulent
carduus	coadunate	conduplicate	corduroy	credulous
incredulous	deciduous	educate	education	eglandular
fiducial	fiduciary	Honduras	individual	indubious
indubitable	induline	indumentum	induna	indurate
indusium	induvial	Medusa	module	nodule
residue	residual	schedule		

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Table 73-33
[+cor][+ant] /s/

word initial

pseudo	suet	suey	sugar	suit
sural	sure	super (40+)	superb	supreme
sue	sewer	suicide	suitable	superior
supernal	supine	sudarium	sudatory	superstition
sudorific	sumach	Susan	Suez	Sumatra
suitor	sutor	suture	sussuration	suversed

morpheme initial

unsure	assure	assume	ensue
ensure	reassure	subsume	pursue
coinsure	cynosure	consume	pursuit
insure		consumer	

word medial

capsule	cassumunar	casuarina	commensurate	desuetude
flexura	grossular	hirsute	insular	insulator
insulin	issue	mensuration	nasute	Odysseus
pharmaceutical	sensuous	sexual	tissue	pressure
esurience	marsupial	tonsure	peninsula	insulation
censure	dysuria	consular	insulate	

Table 73-34
[+cor][+ant] /z/

Ahazuerus	azure	caesura	casual	casualty
casuist	casuistry	chasuble	epizeuxis	exuberant
exude	exuvial	jesuit	luxurious	resumé
presume	resume	transude	usual	usually
visual	zeugma	zeuxis	Zeus	
closure	erasure	leisure	measure	pleasure
seizure	treasure			

7340 [+cor][+ant] /l/

The tables are arranged by number of syllables. For polysyllabic words they are further divided by reference to stress and the position of the relevant syllable (RS) within the word. The lists are coded according to this classification. The first digit denotes the position of the relevant syllable (usually tautosyllabic /lu/); the second shows the syllable which has primary stress. Thus (2,1) *'curlew* has RS in the second syllable and the stress on the first; (2,3) *alu'minium* has RS in the second syllable and stress on the third. The starred words are those used in the reading passage and word list. Some items are repeated since the number of syllables can vary. The set (2,1) which retains the glide not only has immediate post tonic stress, but /l/ is usually heterosyllabic.

7341 Monosyllabic words

Table 73-41

(lyu) words of 1 syllable (k = 8)

Luke	lune	lute #	luce
lewd #	leud	lieu	lure #

7342 Bisyllabic words

Bisyllabic words have 4 possible cells of which three were used.

(B1) RS occurs first and is stressed eg *'lupins*. Metrically this is a trochaic foot.

(B2) RS occurs second and is stressed eg *dl'lute*. This constitutes an iambic foot.

(B3) RS is second but the first is stressed eg *'volume*. This is also trochaic but the relevant syllable is unstressed. This cell represents those words with post tonic stress which are most immune to glide loss. Where this does occur, it is usually the result of a reduced vowel (shwa) in the RS.

(B4) RS is first, with second syllable stress. Lu'nette is an example.

Table 73-42
(lyu) words of 2 syllables (k = 47)

(1,1)				(1,2)
ludo	Lucan	lupins #	Lucas	lunette
lupine	Lucy	lupus	lutist	lucarne
lucid	lure #	lucent	lurid #	lucerne
lues	lunule	lucre	Lutine	
lukewarm #	lubric	lumen	lumine	
lunar	lutine	lunate		

(2,1)		(2,2)	
curlew	purlieu	dilute #	salute #
pilule	value	pollute	volute
volume #	prelude #	elude	delude #
deluge #	alure	collude	allude
postlude		illude	illume
		allure	colure

7343 Trisyllabic words

Trisyllabic words have 9 possible cells; but only 3 were used in the tests. No examples are given of (1,3) or (3,2). A possible example of (2,3) occurs in *balustrade*. Jones 1945 gives it as unglided with shwa; John le Carré (in a radio broadcast) did glide.

(T1) RS occurs first and is stressed eg *'lunacy*. This is dactylic, (1,1).

(T2) RS occurs second with stress eg *pol'luted* (2,2)

(T3) Stress is on the first syllable but Rs is elsewhere, eg *'soluble*. This is also dactylic but without stress on the relevant syllable.

(T4) Stress is on the second syllable but RS is elsewhere. *Lu'bricious* was a possible example but was not used.

(T5) RS occurs third and is stressed. A recent word *perl'lune* is a rare instance of a stressed anapestic foot.

(T6) No examples were found of unstressed RS in words with final stress.

Table 73-43
(lyu) words of 3 syllables (k = 92)

(1,1)

lucifer	lunacy #	luminal	
ludicrous	lunatic	luminance	
lubricant	lubricate	luminant	
lucency	luminous #	luminist	
lupercal	lucigen	lutenist	
lucidly	lucidest	lutein	
lucrative	luzula	luteius	
Lusiad	lucumo	lunary	
lunula	lucubrate	lunarist	
lurid #	leucocyte	lunulate	
Lutheran	leucoblast		
Lupercal	leucotome		
lubricous	lumina		

(1,2)

lubricious			
Lutetian			
leucoma			
lunated			
leutescent			
lunation			
luetic			
leukemia			
Lucina			

(2,1)

toluene	soluble #		
valuable #	voluble		
cellular	alula		
illustrate	aludel		
alunite	calutron		
preludize	calumet		
celluloid	cellulose		
salutary #	pullulate		

(2,2)

delusion	allusion		
collusion	illusion		
allusive	elusive #		
illumine	aleurone		
seleucid	telluric		
solution	dilution		
pollution	volution		
translucid	pellucid		
aleutian	paludal		
polluted #	diluted		
prelusion	prelusive		

(3,1)

absolute #	resolute		
dissolute	interlude #		
convolute	obvolute		
involute			

(3,3)

perilune	chevelure		

7344 Words with 4 syllables

In words having 4, no examples were found elther of stress in the final syllable or on the RS. (3,2) mainly contains words with prefixes where the base is usually glided.

Table 73-44
(lyu) words of 4 syllables (k = 68)

(1,1)	(1,2)	(1,3)
luminary	lubricity	Lusitania
luminarist	Lucania	lubrication
ludicrously	lutetium	lucubration
	lucidity	leucorrhoea
lucubrator	lucifugous	lumination
luminousness	lugubrious	luminescence
lubricative	leucotomy	lunisolar
lubricator	luteolous	
luminously	luteolin	
	lunarian	
	leukemia	

(2,1)	(2,2)		(2,3)
valuable #	voluminous #	volumeter	aluminium #
salutary #	alluvial	tellurium	valuation
illustrated	salubrious	Seleucia	salutation
	salubrity	preludial	aleurites
	hallucinate #	diluvium	volumetric
	illuminate	alluvium	pullulation
	alumina	philumenist	
	alumium	illusory	

(3,1)	(3,2)	(3,3)	
evolution	insoluble #	evolution	interluner
revolution	invaluable	revolution	involucre
devolution		devolution	
convolution		convolution	absolutely
absolution		absolution	absolutist
dissolution	dissoluble	dissolution	
resolution		resolution	
convoluted		convoluted	
involuted		involuted	
	emolument		

7345 *Words of ≥5 syllables*

Words of 5 syllables or more are unclassifled.

Table 73-45
(lyu) words of 5 syllables or more (k = 16)

luminosity	lupercalia	luminiferous
absolutism	absolutary	anacoluthon
antediluvian	itacolumite	insalubrious
volubility	illumination	illuminated
hallucination	eleusinean	eleutherian
luminarism		

7346 *Clustered items*

I conclude the /l/ lists with some of the (primarily tautosyllabic) clustered items

Table 73-46
Clustered (lyu) words k = 40

conclude	conclusion	ablution
exclude	exclusion	ablutionary
include	inclusion	agglutinate
occlude	occlusion	
preclude	recluse	reclusive
seclude	seclusion	
postlude		

word initial

blew	blue	fluke
clew	clue	flume
flew	flue	flute
slew	glue	plume
	sleuth	plute?
cluniac	fluent	flu
fluid	glucic	pleural
pleurisy	plural	sluit

The same approach as for {lyu) was adopted for words in the {nyu) micro variable. Again the lists are not exhaustive. And again the increasingly rare and arcane nature of the words is evident. Some words are repeated because of variable stress or syllables.

Table 73-51
{nyu) words of 1 syllable (k = 8)

new	news	newt	neume
nude	nu	gnu	knew

Table 73-52
{nyu) words of 2 syllables (k = 30)

(1,1)			(1,2)
nuisance	nucule	neuter	nuance
nubile	numen	neural	
nuance	nutant	newel	
nuchal	nucal	neutral	
nudist	nuphar	nucha	

(2,1)		(2,2)	
menu		Canute	minute
sinew		cornute	anew
granule		enew	renew
venue		denude	inure
tenure		manure	

Words of three syllables were difficult to find with stress on the final syllable. For (3,3) recourse was had to a district in Dublin. This is a very similar pattern to that for {lyu)

Table 73-53
(nyu) words of 3 syllables (k = 51)

(1,1)			(1,2)
nucleole	nubiform	nuclear	nutrition
nubilous	nubia	nummulite	nutation
numinous	nutrient	nudism	neuralgic
numeral	numerate	nudity	nucellar
numerous	nutriment	neutralize	nutritious
nutritive	nutria		nucellus
			neurotic

(2,1)			(2,2)
annual	annular	cernuous	Ichneumon
granular	penury	inula	renewal
sinuous	genuine	inulase	aneurin
fenugreek	genuflect	inulin	denuded
cannula	anurous	hanuman	lanugo

(3,1)		(3,2)	(3,3)
avenue	revenue	continue	Terenure
retinue	detinue		disinure
comminute			

Four syllable (nyu) words exhibit a pattern similar to that for (lyu) words. It was almost impossible to discover any words that fitted in a (4) section, that is, stress on the final syllable or (nyu) in the final syllable.

Table 73-54
(nyu) words of 4 syllables (k = 50)

(1,1)	(1,2)		(1,3)
numerable	nucivorous	nuciferous	numismatic
nugatory	nubigenous	nucivorous	numeration
numerary	numerical	numismatist	
neutralizer	nubiferous	nubecula	
numerator	nutritional	nutational	

(2,1)	(2,2)		(2.3)
manufacture	annuity	anuria	sinusoidal
january	venusian	enucleate	manufacture
aneurism	connumerate	minutiae	eneuresis
	innumerate	inusitate	innuendo
	enumerate	lanuginous	denudation
	connubial	lanuginose	genuflection

(3,2)	(3,3)
insinuate	comminuted
extenuate	comminution
diminutive	imminution
attenuate	diminution
ingenuous	hermeneutic
Emmanuel	
campanula	

(4,2)	(4,4)
hypoteneuse	discontinue

Table 73-55
(nyu) words of 5 or more syllables (k = 12)

innumerable	diminutively	numerically	sternutatory
cornucopia	ingenuity	numerology	disingenuous
continuation	amanuensis	diminuendo	circumnutation

Table 73-61
[-cor][-ant] /k/

word initial

Cuba	cube	cubeb	cubica	cubicle	cubit
cucullate	cucumber	cucurbit	cue	culet	culex
cumic	cumin	cumulate	cumulus	cunabula	cuneal
cunette	cupel	Cupid	cuple	cupola	cupric
cupressus	cuprous	cupule	curacao	curare	curassow
curate	curator	cure	curettage	curia	curie
curio	curious	curium	curlicue	curule	cutaneous
cue	cute	kudos	kufic	queue	
scuba	scute	skew	skua		

word medial

accubation	accumulate	accumulation	acuity	acumen	acuminate
acupressure	acupuncture	anacusic	arcuate	arcubalest	askew
baculine	barbecue	barracuda	cacumen	catechumen	chiaroscuro
concubine	concupiscence	conspicuous	decuman	decuple	decurion
discutient	document	dolichuric	ecu	ecumenic	empiricutic
escuage	escudo	esculapian	esculent	excubant	execute
executive	fescue	impecunious	incubate	incubus	incunabula
ipecacuanha	lacuna	liqueur	miscue	rescue	succubus
curcuma					

-cute	-cution	-cur-	-cul-	
acute		accuracy	acicular	floscule
electrocute	electrocution	accurate	aculeate	fonticulus
	allocution	epicure	animalcule	geniculate
	circumlocution	manicure	articulate	gesticulate
	collocution	mercury	auricular	graticule
	elocution	mercuric	bascule	herculean
execute	execution	obscure	calculate	homunculus
	locution	pedicure	calculus	immaculate
persecute	persecution	procure	canicular	inoculate
prosecute	prosecution	resecure	circular	jaculation
	consecution	secure	circulate	jocular
subacute		insecure	clavicular	molecule
		sinecure	corbicular	osculate
			corpuscular	reticule
-cuse			cortical ar	ridicule
			diduncul us	tentacular
accuse			ejaculate	vascular
accusative			emasculate	vermicule
incuse			fascicule	verricule
accusation			fecula	vinculum
excuse				diverticulum

Table 73-62
[-cor][-ant] /g/

ageusi	ague	ambiguity	ambiguous	angular
argue	argute	cingulum	coagulate	configurate
contiguous	effigurate	energumen	eugubine	exiguous
figuline	figure	gules	gulosity	fulgurate
hegumen	inaugurate	integument	jaguar	jugular
legume	leguminous	lugubrious		
augury				

Table 73-63
[-cor][-ant] /h/

exhume	inhume	heugh	heulandite	heuristic
hew	hubris	hudibras	hue	huge
Hugh	human	humic	humect	humectant
humerus	humid	humiliate	humility	humogen
humour	humourous	humus	huon	hutia
whew				

Table 73-64
[-cor][-ant] /j/

eucaine	eucharist	euchlorine	euchologion	euchre
euclase	euclidean	eucrite	eucyclic	eudemonism
eudialyte	eudiometer	euge	eugenol	eugenic
eugubine	euharmonic	euhemerism	eulachon	eulogy
Eumenides	eumerism	eumycetes	eunuch	Eunice
euonymun	eupatrid	eupepsia	euphemism	euphony
euphobia	euphoria	euphrasy	euphrosnye	euphuism
eureka	eurhythmic	euripus	euroclydon	european
eurus	eurypharynx	eurypterid	eusebian	euskarian
eusol	eusporangiate	eustachian	eustyle	eutaxy
euterpe	eutexia	euthanasia	euthenics	eutheria
euthyneura	eutrophy	eutropy	eutychian	euxenite
ewe	ewer	ukelele	union	unit
ural	urine	usage	use	yew
yule	yugo			
maieutic				

BIBLIOGRAPHY

AINSWORTH W A & PALIWAL K K (1984)
'Correlation between the production and perception of the English glides /w r l j/'
Journal of Phonetics 12: 237-244

AITCHISON JEAN (1978) P121
Linguistics
Hodder & Stoughton: Sevenoaks

AITCHISON JEAN (1981) P142.A4
Language change: progress or decay?
Fontana: London

ALFORD HENRY (1864)
The queens English
(No publisher given)

ANON (1879)
Vulgarities of speech corrected
(No publisher given): London

ANSRE G (1961)
The tonal structure of Ewe
Hartford studies in linguistics 1: Hartford: Connecticut

ANTTILA RAIMO (1972)
An introduction to historical and comparative linguistics
Macmillan: New York

BAILEY C J N (1977)
'Variation and linguistic analysis'
Papiere zur linguistik 12: 5-56

BARBER CHARLES (1964) PE1087.B3
Linguistic change in present day English
Oliver & Boyd: Edinburgh

BARBER CHARLES (1976) PE1081.B3
Early modern English
Deutsch: London

BARRY M V (1984)
'Manx English'
P Trudgill (ed) 1984: 167-177

BAUER L (1985)
'Tracing phonetic change in the received pronunciation of British English'
Journal of Phonetics 13: 61-81

BEAKEN M A (1971)
A study of phonological development in a primary school population of east London
PhD thesis: University of London

BERNARD J R (1981)
Australian pronunciation *The Macquarie dictionary*
Macquarie Library: Sydney

BHASKAR ROY (1975)
A realist theory of science
Harvester Press: Brighton

BHASKAR ROY (1979)
The possibility of naturalism
Harvester Press: Brighton

BLISS A J (1969)
'Vowel quantity in Middle English borrowings from Anglo Norman'
R Lass (ed) 1969: 164-207

BOWYER R (1973)
A study of social accents in a south London suburb
MPhil dissertation: University of Leeds

BRUNNER K (1963) PE531.B713
An outline of Middle English grammar
Basil Blackwell: Oxford

BRUNOT F & BRUNEAU C (1949) PC2101.B75
Précis de grammaire historique de la langue française
Masson: Paris

BURCHFIELD R (ed) (1972-1986) PE1625.097
The Oxford English Dictionary: supplement
Oxford University Press: Oxford

BULLOKAR WILLIAM (1580)
Book at large

BUTLER ALISON (1990)
'A methodological approach to chaos: are economists missing the point?'
Federal Reserve Bank of St Louis: Review vol 72/2: 36-48 & vol 72/3: 2

BUTLER CHARLES (1633)
The English grammar

BUTLER C (1985) P138.5.B87
Statistics in linguistics
Basil Blackwell: Oxford

CARROLL J, DAVIES P & RICHMAN B (1971)
The American heritage word frequency book
American Heritage Publishing Company: New York

CARUS WILSON ELEANORA MARY (ed) (1954) HC13.2E85
Essays in economic history
E Arnold: London

CHAMBERS J K & TRUDGILL P (1980) P367.C42
Dialectology
Cambridge University Press: Cambridge

CHEN M (1972)
'The time dimension: contribution toward a theory of sound change'
Foundations of language 8: 457-498

CHEN M (1976)
'Relative chronology: three methods of reconstruction'
Journal of linguistics 12: 209-258

CHEN M & WANG S (1975)
'Sound change: actuation and implementation'
Language 51: 255-281

CHERRY COLIN (ed) 1956 Q350S95
Information theory
Butterworths scientific publications: London

CHOMSKY NOAM & HALLE MORRIS (1968) PE1133.C5
The sound pattern of English
Harper & Row: New York

CHRISTIE W M (ed) (1976)
Current progress in historical linguistics
North Holland: Amsterdam

CLARKE G & COOKE D (1978)
A basic course in statistics
Edward Arnold: London

COOLEY MARIANNE (1978)
'Phonological constraints and sound changes'
Glossa 12: 125-136

COOPER CHRISTOPHER (1685)
Grammatica Linguæ Anglicanæ

CRYSTAL DAVID (1985) P29.C65
A dictionary of linguistics and phonetics
Blackwell: London

CRYSTAL DAVID (1987) P29.C64
The Cambridge encyclopedia of language
Cambridge University Press: Cambridge

DANCHEV ANDREI (1985)
'On analysis and synthesis in sound change'
Papers from the sixth international conference on historical linguistics: 83-104
John Benjamins: Amsterdam; & Adam Micklewicz University Press: Poznan

DANIELSSON B (1963)
John Harts works on English orthography and pronunciation
Almqvist & Wiksell: Stockholm

DE LYON H B (1981)
A sociolinguistic study of aspects of the Liverpool accent
Unpublished M Phil dissertation: Liverpool

DITTMAR N (1976) P40.D513
Sociolinguistics
Edward Arnold: London

DOBSON E J (1968) PE1137.D58
English pronunciation 1500 - 1700
Clarendon Press: Oxford

EKWALL EILERT (1975)
A history of modern English sounds and morphology
Blackwell: Oxford

EMERSON O F (1909)
A middle English reader
Macmillan: New York and London

FALLON PAUL (1986)
Orthography revision
Unpublished MA dissertation: University of Wales

FIDELHOLZ JAMES (1975)
'Word frequency and vowel reduction in English'
R E Grossman *et al*: 200-213

FOSTER BRIAN (1968)
The changing English language
Penguin: Harmondsworth

FOWLER H W (1926) PE1628.F6
A dictionary of modern English usage
Clarendon Press: Oxford

FOWLER H W (rev) E GOWERS (1965) PE1628:F6
A dictionary of modern English usage
Clarendon Press: Oxford

FRANCIS W N & KUCERA H (1982) PE2839.F7
Frequency analysis of English usage: lexicon and grammar
Houghton Mifflin: Boston

FRY D B (1947)
'The frequency of occurrence of speech sounds in southern English'
Archives néerlandaises de phonétique expérimentale 20: 103-106

FUCKS W (1956)
'The mathematical theory of word formation'
C Cherry (ed) 1956: 154-170

GEDDIE WILLIAM (ed) (1959) PE1628.C4176
Chambers twentieth century dictionary
W & R Chambers: Edinburgh

GILL W W (1934)
Manx dialect words and phrases
Arrowsmith: London & Bristol

GIMSON A C (1980) PE1135.G5
An introduction to the pronunciation of English
Edward Arnold: London

GLEICK JAMES (1988)
Chaos: making a new science
Sphere Books: London

GREY CLIVE GARETH (1978)
'English loanwords in Welsh: some aspects'
Unpublished BA dissertation: UNCW/CPGC Bangor

GROSSMAN R E, SAN L J & VANCE T J (eds) (1975)
Papers from the 11 regional meeting Chicago Linguistic Society
Chicago Linguistic Society: Chicago

GUDSCHINSKY S C (1956)
'The ABCs of lexicostatistics (glottochronology)'
Word 12

HALLE M, BRESNAN J, & MILLER G A (eds) (1978)
Linguistic theory and psychological reality
MIT Press: Cambridge Massachusetts

HART J (1569 rep 1972) PE1142.H28
Orthographie
Scolar press: Menstone

HEYWOOD T (1861)
'On the south Lancashire dialect'
Transactions of the Chetham Society 57: 1-36

HILL A A (1958) PE1105.H5
Introduction to linguistic structures
Harcourt Brace & World: New York

HODGES RICHARD (1643)
A special help to orthographie

HOLMBERG B (1964) PE1137.H6
On the concept of standard English and the history of modern English pronunciation
Gleerup: Lund

HORVATH BARBARA (1985) PE3601.Z9S934
Variation in Australian English: the sociolects of Sydney
Cambridge University Press: Cambridge

HORVATH BARBARA & SANKOFF DAVID (1987)
'Delimiting the Sydney speech community'
Linguistics 25: 257-282

HOOPER JOAN (1976)
'Word frequency and lexical diffusion and the source of morphophonological change'
W M Christie (ed) 1976: 95-105

HOWARD PHILIP (1989)
'A brief history from the A to the An'
The Times: 890314

HUDSON R A (1980a) P40.H8
Sociolinguistics
Cambridge University Press: Cambridge

HUDSON RICHARD (1980b)
'A note on phonological variables6
York papers in linguistics 8: 55-60

HUGHES ARTHUR & TRUDGILL PETER (1979) PE1711.H8
English accents and dialects
Edward Arnold: London

HURFORD J R (1967)
The speech of one family: a phonetic comparison of three generations in a family of east Londoners
PhD thesis: University of London

HYMAN LARRY (1975) P217.H9
Phonology theory and analysis
Holt Rinehart Winston: New York

JAKOBSON R, FANT G & HALLE M (1951)
Preliminaries to speech analysis
Massachusetts Institute of Technology Press: Cambridge Massachusetts

JAMES CARL (1980)
Contrastive analysis
Longman: Harlow

JONES DANIEL (1945)
An English pronouncing dictionary
J M Dent & sons: London

JONES DANIEL (1956) PE1135.J67
An outline of English phonetics
Heffer: Cambridge

JONES DANIEL (1967) PE1135.J66
The pronunciation of English
Cambridge University Press: Cambridge

JONES DANIEL & GIMSON A C (1977) PE1137.J6
Everymans English pronouncing dictionary
Dent: London

JONES J R (1947)
The Welsh builder on Merseyside
Jones: Liverpool

JORDAN R (ed) E J CROOK (1974) PE540.J613
Handbook of middle English grammar: phonology
Mouton: The Hague

KAPLAN ABRAHAM (1965)
'Noncausal explanation'
D Lerner (ed) 1965: 145-155

KENYON J S & KNOTT T A (1944) PE1137.K37
A pronouncing dictionary of American English
G & C Merriam: Springfield Massachusetts

KERSWILL PAUL & WRIGHT SUSAN (1990)
'The validity of phonetic transcription: limitations of a sociolinguistic research tool'
Language variation and change 2: 255-275

KNOWLES GERALD (1974)
Scouse: the urban dialect of Liverpool
Unpublished PhD thesis: University of Leeds

KNOWLES GERALD (1977)
'The nature of phonological variables in Scouse'
York papers in linguistics 7: 129-149

KNOWLES GERALD (1978)
'The nature of phonological variables in Scouse'
P Trudgill (ed) 1978: 80-91

KNOWLES GERALD (1987) PE1135.K66
Patterns of spoken English
Longman: London & New York

KRAPP G P (1925) PE2808.K7
The English language in America vols 1, 2
Ungar: New York

KRATOCHVÍL PAUL (1968)
The Chinese language today
Hutchinson University Library: London

KRISTENSSON G (1967) PE525.K7
A survey of middle English dialects 1290 - 1350: the six northern counties and Lincolnshire
Gleerup: Lund

KURATH H & MCDAVID R I (1961) PE2841.K78
The pronunciation of English in the Atlantic states
University of Michigan Press: Ann Arbor

LABOV WILLIAM (1966)
The social stratification of English in New York city
Center for applied linguistics: Washington

LABOV WILLIAM (1972) P41.L26
Sociolinguistic patterns
University of Pennsylvania Press: Philadelphia

LADEFOGED PETER (1971)
Preliminaries to linguistic phonetics
University of Chicago Press: Chicago & London

LADEFOGED PETER (1982)
A course in phonetics
Harcourt Brace Jovanovich: New York

LANGLEY RUSSELL (1968)
Practical statistics
Pan: London

LASS ROGER (ed) (1969) PE1075.L33
Approaches to English historical linguistics
Holt Rinehart & Winston: New York

LASS ROGER (1980) P142.L3
On explaining language change
Cambridge University Press: Cambridge

LAWTON R (1953)
'Genesis of population' [of the Liverpool region]
W Smith (ed) 1953: 120-131

LEITH R (1983) PE1075.L44
A social history of English
Routledge & Kegan Paul: London

LERNER D (ed) (1965)
Cause and effect. The Hayden colloquium on scientific method and concept
Free Press: New York

LESLAU WOLF (1969)
'Frequency as determinant of linguistic change in the Ethiopian languages'
Word 25: 180-189

LEVINS PETER (1570)
Manipulus vocabulorum
ed H B Wheatley (1867) Early English Text Society

MacCARTHY P A D (1950)
English pronunciation
Heffer: Cambridge

MARSACK C C (1962)
Samoan
English Universities Press: London

MATTHEWS W (1938 rep 1972)
Cockney past and present
Routledge & Kegan Paul: London

MCCALLUM M (1959)
Phonetic reader book 2
Angus & Robertson: Sydney

MENCKEN H L (1963) PE2808.M43
The American language
Routledge & Kegan Paul: London

MENGER L E (1904) PC2944.M5
The Anglo Norman dialect
Columbia University Press: New York

MILROY LESLEY (1987) P40.3.M54
Observing and analysing natural language
Basil Blackwell: Oxford

MOLIN D H (1984) PN2071.F6M57
Actors encyclopedia of dialects
Sterling: New York

MOSSÉ F (1952) PE535.M6213
A handbook of middle English
John Hopkins: Baltimore

NARO ANTHONY (1980)
Review: *Linguistic variation: models and methods* D Sankoff (ed) (1978)
Language 56: 158-170

NEWBROOK M (1986) P40.5.U73
Sociolinguistic reflexes of dialect interference in west Wirral
Peter Lang: Frankfurt

NEWMEYER FREDERICK (ed) (1988) P121.L567
Linguistics: the Cambridge survey, 4 Language: the sociocultural context
Cambridge University Press: Cambridge

NEW SCIENTIST (1989)
Leading article on chaos: vol 124: num 1687

OCONNOR J D (1973)
Phonetics
Penguin: Harmondsworth

PAINTER COLIN (1979) P221.P3
An introduction to instrumental phonetics
University Park Press: Baltimore

PATEMAN TREVOR (1987) P121.P337
Language in mind and language in society
Clarendon Press: Oxford

PETERS S (ed) (1972) P106.G58
Goals of linguistic theory
Prentice Hall: Englewood Cliffs New Jersey

PETYT K M (1985) PE2084.W45P4
Dialect and accent in west Yorkshire
John Benjamins: Amsterdam & Philadelphia

PHILLIPS BETTY (1980)
'Old English *an* ~ *on*: a new appraisal'
Journal of English Linguistics 14: 20-23

PHILLIPS BETTY (1981)
'Lexical diffusion and southern *tune, duke, news*'
American Speech 56: 72-78

PHILLIPS BETTY (1984)
'Word frequency and the actuation of sound change'
Language 60: 320-342

PHILLIPS KENNETH (1984) PE1085.P45
Language and class in victorian England
Blackwell: Oxford

PICTON J A (1865)
'Notes on the south Lancashire dialect'
Proceedings of the literary and philosophical society of Liverpool
19: 17-56

PICTON J A (1875)
Memorials of Liverpool volume 2
Longmans Green & co: London; and G G Walmsley: Liverpool

PITTS ANN (1986)
'Flipflop prestige in American *tune, duke, news*'
American Speech 61: 130-138

POTTER SIMEON (1969)
Changing English
Deutsch: London

PRICE OWEN (1668 rep 1972)
English orthographie
Francis Titon:. Oxford; Rep Scolar Press: Menston

PRINS A A (1974) PE1135.P75
A history of English phonemes
Leiden University Press: Leiden

PULGRAM E (1970)
Syllable, word, nexus, cursus
Mouton: The Hague

PYLES T (1971) PE1075.P9
The origins and development of the English language
Harcourt Brace Jovanovich: New York

RECASENS DANIEL (1990)
'The articulatory characteristics of palatal consonants'
Journal of phonetics 18: 267-280

REID EUAN (1978)
'Social and stylistic variation in the speech of children: some evidence from Edinburgh'
P Trudgill (ed): 158-171

RICKARD P (1974)
A history of the French language
Hutchinson: London

ROACH PETER (1983) P1072
English phonetics and phonology
Cambridge University Press: Cambridge

ROBINSON ROBERT (1617)
The art of pronuntiation

ROCKEY DENISE (1973) PE1137.R53
Phonetic lexicon
Heyden: London

ROMAINE SUZANNE (1975)
'Linguistic variability in the speech of some Edinburgh schoolchildren'
M Litt thesis: University of Edinburgh

ROMAINE SUZANNE (1978)
'Postvocalic /r/ in Scottish English: sound change in progress?' In P Trudgill (ed): 144-157

ROMAINE SUZANNE (1982a)
Sociohistorical linguistics: its status and methodology
Cambridge University Press: Cambridge

ROMAINE SUZANNE (ed) (1982b) P120.V37S6
Sociolinguistic variation in speech communities
Edward Arnold: London

RYAN NICHOLAS (1948)
St Francis Xaviers church centenary Liverpool
Kilburns: Liverpool

SANKOFF DAVID (ed) (1978) P120.V37L52
Linguistic variation: models and methods
Academic Press: New York

SAVAGE W (1833)
The vulgarisms and improprieties of the English language
(No publisher given): London

SCHLAUCH M (1959) PE1075.S37
The English language in modern times (since 1400)
Panstwowe Wydawnictwo Naukowe: Warsaw

SCHOLFIELD PHILIP (1987)
'Cluster analysis in the study of language variation: a revlew and an example' Mimeograph

SCHOLFIELD PHILIP
Measuring language
(awaiting publication)

SCHUCHARDT HUGO (1885)
Über die Lautgesetze: gegen die Junggrammatiker
Translation in Theo Vennemann & Terence Wilbur (1972)
Schuchardt, the Neogrammarians, and the transformational theory of phonological change: 39-72
Athenäum: Frankfurt

SERJEANTSON MARY S (1935) PE1582.A354
A history of foreign words in English
Routledge & Kegan Paul: London

SHERMAN D (1973)
'Noun verb stress alternation: an example of the lexical diffusion of sound change in English'
UCLA reports Second series 17: 46-82

SIVERTSEN E (1960) PE1961.S5
Cockney phonology
Oslo University Press: Oslo

SMART B H (1836)
Walker remodelled: a new critical pronouncing dictionary of the English language
(No publisher given): London

SMITH NEIL V (1989) P121.S577
The twitter machine
Basil Blackwell: London

SMITH THOMAS (1568)
De recta & emendata linguæ anglicæ scriptione, dialogus
Paris

SMITH W (ed) (1953)
A scientific study of Merseyside
University Press of Liverpool: Liverpool

STEPHENSON EDWARD (1970)
'Linguistic predictions and the waning of southern [ju] in *tune, duke, news*'
American Speech 45: 297-300

STETSON R H (1951)
Motor phonetics
Nijhoff: Amsterdam

STEWART IAN (1989)
Does God play dice?: the mathematics of chaos
Basil Blackwell: Oxford

STRANG B M H (1970) PE1075.S85
A history of English
Methuen: London

TAWNEY R H (1954a)
'The rise of the gentry 1558 - 1640'
E M Carus Wilson (ed): 173-206

TAWNEY R H (1954b)
'The rise of the gentry: a postscript'
E M Carus Wilson (ed) 1954: 206-214

THELANDER MATS (1982)
'A qualititative approach to the quantitative data of speech variation'
S Romaine (ed): 65-83

TOON T E (1983) PE140.T66
The politics of early old English sound change
Academic Press: New York & London

TRUDGILL PETER (1974) PE1989.T7
The social differentiation of English in Norwich
Cambridge University Press: Cambridge

TRUDGILL PETER (ed) (1978)
Sociolinguistic patterns in British English
Arnold: London

TRUDGILL PETER (1983) P40.T7
On dialect: social and geographical perspectives
Basil Blackwell: Oxford

TRUDGILL PETER (1990) P1711.T74
The dialects of England
Basil Blackwell: Oxford

TRUDGILL PETER (ed) (1984) P551.G1
Language in the British Isles
Cambridge University Press: Cambridge

TRUDGILL PETER & HANNAH JEAN (1985) PE2751.T7
International English
Edward Arnold: London

WALLER P J (1981)
Democracy and sectarianism: a political and social history of Liverpool 1868-1939
University of Liverpool Press: Liverpool

WALLER ROBERT (1983) JN558
The almanac of British politics
Croome Helm: London & Canberra

WALLIS JOHN (1653)
Grammatica Linguæ Anglicanæ

WALTERS KEITH (1988)
'Dialectology'
F Newmeyer (ed) 1988 vol 4: 119-139

WANG S (1969)
'Competing changes as a cause of residue'
Language 45: 9-25

WANG S (ed) (1977)
The lexicon in phonological change
Mouton: The Hague

WELLS J C (1982) PE1137.
Accents of English
Cambridge University Press: Cambridge

WIJK A (1966) PE1137.W5
Rules of pronunciation for the English language
Oxford University Press: London

WRIGHTSON K (1987)
'Estates, degrees and sorts in Tudor and Stuart England'
History Today 37: 17-22

WYLD HENRY CECIL (1914) PE1101.W8
A short history of English
Murray: London

WYLD HENRY CECIL (1920) PE1075.W9
A history of modern colloquial English
Fisher Unwin: London

WOODS A, FLETCHER P & HUGHES A (1986) P138.5.W66
Statistics in language studies
Cambridge University Press: Cambridge

ZACHRISSON R E (1927) PE1141.Z3
The English pronunciation at Shakespeare's time
Almqvist & Wiksell: Uppsala

ZIPF G K (1932)
Selected studies of the principle of relative frequency in language
Cambridge University Press: Cambridge Massachusetts