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Preface

We are pleased to present the fourth volume of Reading Working Papers in Linguistics. It represents work being done in the Department of Linguistic Science as of the current academic year 1999-2000, and includes contributions from staff and students in the fields of phonology, sociolinguistics, bilingual and monolingual language acquisition and language impairment.

Richard Ingham
Paul Kerswill

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Address for correspondence:

Linguistic Science
Faculty of Letters and Social Sciences
The University of Reading
Whiteknights
PO Box 218
Reading RG6 6AA

e-mail: llsingam@rdg.ac.uk
llskersl@rdg.ac.uk

The emergence of Tense and Agreement in Kuwaiti children speaking Arabic

Khawla Aljenaie

Department of Linguistic Science, The University of Reading

Abstract. This paper investigates the emergence of tense and agreement in Kuwaiti Arabic (KA). Arabic is a highly inflected language and FCs are highly parameterized. Tense has a regular paradigm of person, gender, and number formatives. The discussion is set in the context of Chomsky's principles and parameter model of Universal Grammar (UG). According to Chomsky, parameterization is limited to Functional heads like Comp (complementizer), Inf (inflection), and Det (determiner). There is debate over the availability of UG. On one hand, the Continuity Hypothesis claims that all principles of UG are available from the start. On the other hand, Maturation Hypothesis asserts that UG principles emerge according to an innately specified maturation schedule. A study of morphosyntactic development in KA should provide: interesting insight into acquisition and development of KA; a test of whether UG principles are available to Kuwaiti children from the earliest stages; a study of the pattern of appearance and development of tense and agreement in Kuwaiti children. Two Kuwaiti children (age range 2;0-2;6) were audio recorded in free speech setting (45 minutes session fortnightly). The analysis was run in SALT (Systematic Analysis of Language Transcript, Miller & Chapman, 1993). The results reveal a variety of distinct inflections from the earliest recording and development is rather gradual. Within the tense paradigm, present is the most extensively represented. Individual differences are noted across the two paradigms and within the same morphological paradigm.

1. *Introduction*

Chomsky's theory of Universal Grammar (UG) has stimulated both psycholinguists and linguists to search for rules of grammar that explain a child's acquisition and development of language. The question that evokes debate is "when do principles of UG become available to the child?" A variety of positions emerge in the recent literature. There are two distinct hypotheses, the Continuity Hypothesis and the Maturation Hypothesis. The former postulates that all principles of UG are available to the child from the start (Pinker 1984). The latter claims that UG principles emerge according to an innately specified maturation schedule (Borer & Wexler 1987; Radford 1990; Wexler 1990). These hypotheses are established on only a few languages, and thus Arabic provides a useful

testing ground. To what extent are UG principles available to an Arabic-speaking child from the early language production? And what developmental patterns characterise the acquisition of Arabic?

The acquisition of western languages has been intensively studied. The acquisition of Arabic has received a very little attention. There are two studies that could be mentioned here: Omar (1973) studied the acquisition of Egyptian Arabic of 37 children (ranging in age from 6 months to 15 years) which mainly focussed on the nominal and adjectival morphology besides syntax and phonology. One of the major findings related to this paper is the fact that Egyptian children enter the multiword stage between 2;6-3;0. Second, morphology emerges at the age of 2;6. The second study was conducted by Abdu & Abdu (1986) on the acquisition of Palestinian Arabic of their two children. The data reveals early appearance of grammatical inflections before the age of 2;0 as well as individual differences in the developmental order and the time of appearance. Unfortunately, the previous studies lack quantitative measures of frequency and productivity.

2. *The Arabic language and Kuwaiti Arabic (KA)*

The Arabic language, which belongs to the Semitic group of languages is classified as Classical Arabic (CA), Modern standard Arabic (MSA) or Modern Literary Arabic, and Colloquial Arabic. Classical Arabic is the language of the Quraan (the Holy book of Muslims). MSA is a written form of the language and it is used in the media (radio, newspaper, and television), education, legal and formal texts. The grammar or morphology of Classical Arabic still applies sufficiently to MSA. However, MSA differs from Classical Arabic mainly in vocabulary and stylistic features (Fischer 1997). The expansion of the mass media has led to the popularity of the MSA (Bulos 1965). Colloquial Arabic dialects are used primarily for ordinary oral communication and each country in the Arab world is characterized by its own dialect (Beeston 1970; Bulos 1965; Fischer 1997).

Arabic is a synthetic language and the inflectional markers are realized in suffixes, prefixes and infixes as well. Often two or three of these markers combined together. For example: prefixes *ma-ktab* ‘office’, infixes *in-t-aqala* ‘transferred or moved’ and suffixes *ħammr-a* ‘red-F’ (Owens 1997). The characteristic feature of Semitic languages is their basis of consonantal roots (CCC), which mostly consist of three consonants (triliteral) (Beeston 1970). The triliteral root is the most common type in the language (Erwin 1963). There are some

quadriconsonantal roots and also a limited number of biconsonantal roots. A variation in shade of meaning is obtained first by varying the voweling of the simple root, and secondly by the addition of the prefixes, suffixes, and infixes. By the combination of the root + vowel pattern a ***stem*** is attained which make up word classes (Bakall 1979; Erwin 1963; Jensen 1990; Lyovin 1997; Mitchelle 1962; Owens 1997). Various words with the same root share same meaning through their association with that root (Bakalla 1979). For example, *daras* 'he studied', *madrasa* 'school', *modarris* 'male teacher' etc, are related to the triliteral root *drs* which means 'studying'.

Erwin (1963) categorizes triliteral roots into two types. The first type is the strong root (CCC; C stands for a consonant) which includes sound roots (second and third radical are not identical), e.g. *ktb* 'write' and double roots (second and third radical are identical such as *skk* 'close'). The second type is the weak root where one or more radical element is unstable with either *ʔ*, *w* or *y* or it may be represented by vowel length. Examples of the second type are *ʔkl* 'eat', *rwV* 'show' and *yVV* 'come' (the V stands for the weak radical). It is important to emphasize that the root and pattern are "theoretical abstractions" and not pronounceable in their own realization (Beeston 1970; Jensen 1990).

2.1 *The Verb*

Arabic has its own system of derived stems into which triliteral verbs fall into and most Arabic dialects maintained. MECAS (1965:110) describes the verb derivation: "the system of derived or increased forms is one by which modification to the First Form of a verb are accompanied by modification in the meaning". Within that system there are 10 derivational Classes (Template or Forms) (Erwin 1963; Kaye & Rosenhouse 1997; MECAS 1965). For the purpose of this paper, the main focus is on three Classes only.

1. Class 1: Mostly simple verbs belong to this Class like *ṯaaḥ* 'fall'. Both transitive and intransitive verbs belong to this Class which has no particular meaning.
2. Class II: is the class to make transitive verbs from other forms and the most frequent meaning of the verbs in this Class is causative. Verbs in this Class are characterized by a double middle radical. The conjugation of the Class I verb *ṯaaḥ* 'fell' is *ṯayyaḥ* 'fell/drop' intransitive causative verb since verb *ṯaaḥ* 'fell' is a weak middle root *ṯVḥ*, the *y* in the

causative form is basically the weak radical of that root as elaborated above.

3. Class V: is often considered a reflexive counterpart of Class II, where prefixes t- to Class II verb or sometimes from Class I. For example *sabbaћ* 'to give a bath' and the conjugation of that verb is *tesabbaћ* 'to take a bath'. Class V renders the intransitive equivalent of the Class II.

2.2 *Tense*

Tense is a complex issue; grammarians have used terms like perfect (which denotes completed action) and imperfect (which denotes incomplete action) (Bulos 1965; M.E.C.A.S. 1965; Mitchelle 1962). It is not easy to know whether there is an aspectual or tense distinction in Kuwaiti Arabic. Holes (1990) acknowledges that there is an overlap between past tense and perfect aspect. Lyovin (1997) also indicates that perfect is used for the past, while imperfect is used for both present and past, that is for ongoing actions where there is no certain end. Benamamoun (2000:24) concludes "A long debate and still unresolved issues within Arabic linguisitics has revolved around the information (features) that these two forms (perfective and imperfective) carry. The specific question is whether, in addition to agreement, these two forms carry temporal aspectual features". In this study the investigator will use the term Tense (Present and past) instead of Aspect since it is an undecided issue.

"Arabic has a rich verb morphology involving a large number of inflectional patterns as well as a number of fairly productive derivational ones" (Lyovin 1997:209). In general, verbs in Arabic are marked with tense and agreement (past/present), mood (imperative/indicative), voice (passive/active); these features occur as suffixes or prefixes or both. Moreover, Arabic has a regular paradigm of person, gender and number formatives (as shown in Tables 1-2 below). However, the paradigm is smaller in Kuwaiti Arabic than in MSA; there is no morphological mood distinction as in MSA. Moreover, there are no dual markers or gender plural distinctions as in MSA. This could be due to the gradual shift from the Classical language to the present dialects. Essentially in Arabic there is no infinitive form in the manner that exists in English (Bulos 1965) and every verb form includes the stem and affixes which are of three types: suffixes as in the past/ perfect, or prefixes, or a combination of prefix and suffix. The present/imperfect tense is characterised by the second and third types. The inflected affixes signal more than one thing at the same time, Tense, person, number and gender of the subject. The affixes may have

different forms due to phonological considerations. In general there is no gender distinction in the 1st person inflection in the language.

Table 1 Present / Imperfect inflections in KA[a]

Person	Number	Gender	Morpheme	Verb root (l-b-s)	Gloss
1	SG	-	**(ʔ) a-**	**a**lbis	I wear
	PL		**n(a)-**	**na**lbis	We wear
2	SG	M	**t(a)-**	**ta**lbis	You (m) wear
	SG	F	**t(a)- iin**	**ta**lbis**iin**	You (f) wear
	PL	-	**t(a)- oon**	**ta**lbis**oon**	You wear
3	SG	M	**y(a)-/i-**	**ya**lbis	He wears
	SG	F	**t(a)-**	**ta**lbis	She wears
	PL	-	**y(a)- oon**	**ya**lbis**oon**	They wear

[a]SG= singular, PL= plural, M=masculine, F=feminine, -= common.

Table 1 characterizes 3 features about the present tense inflections. Firstly, the 2nd masculine and the 3rd feminine prefixes are homonymous, therefore, either overt subject or context is essential in comprehension. Secondly, the prefix vowel varies according to the stem as in *ye-rooħ* 'he goes' and *ya-lbis* 'he wears'. Finally, the glottal stop prefix for *ʔ* is not widely used in KA. The classical suffix *-n* in the present tense is preserved in KA and other countries in the area (Iraq, and the Arabian Peninsula) while other Arab countries just disregard it (Motar 1969). As for the 3rd masculine prefix, it has two forms either *y*-or *e*- and they are not in complementary distribution. To illustrate, it is appropriate to say *ye-rooħ* and *i-rooħ* 'he goes'; however in the root structure *lbs* the appropriate form is *ya-lbis* 'he wears' but not **i-lbis*. It seems that Kuwaiti speakers of Arabic do not allow the latter form to avoid confusion with the masculine imperative form which requires prefix vowel in the CCC root structure.

Table 2 that follows demonstrates the past tense paradigm in Kuwaiti Arabic. Looking at the table, it is clear that all past tense inflections are suffixes. The 1st person singular and 2nd masculine are homonymous accordingly overt subject and context are important in comprehension. The third point that needs to be mentioned is the fact that 3rd person masculine has no specific grammatical inflection in the dialect while in CA and MSA the inflection has the suffix form /-*a*/. Accordingly, the 3rd masculine verb form is unmarked form and it is homophonous with its own stem. In the 3rd

person diagram, the two forms of feminine and plural verb forms show local variation.

Table 2 Past / Perfect inflections in Kuwaiti Arabic[a]

Person	Number	Gender	Suffix	Verb root (l-b-s)	Gloss
1	SG	-	**- (-ee-) t**	libas**t**	I wore
	PL		**-na**	libas**na**	We wore
2	SG	M	**- (-ee-) t**	libas**t**	You (m) wore
	SG	F	**-tai**	libas**tai**	You (f) wore
	PL	-	**-taw**	libas**taw**	You wore
3	SG	M	**0**	libas	He wore
	SG	F	**-at**	libs**at** /ilbis**at**	She wore
	PL	-	**-aw**	libs**aw**/ ilbis**aw**	They wore

[a]SG= singular; PL= plural; M= masculine; F= feminine; -=common.

From the above Tables 1-2, two types of verb stem can be distinguished, the past/perfect *libas* and the present/imperfect *lbis* to which the inflections attach accordingly. Erwin (1963) argues that there are two stem types, a perfect stem and imperfect one and the vowel pattern in the stem as in *daras a-a* means past tense. The vowel melody plays a part in marking tense and aspect in KA which is not the case in Moroccan Arabic (Benmamoun 2000). Moreover, Ouhalla (1993) and Mohamed and Ouhalla (1995) suggest that vowel internal to the verb root stands for aspect (perfect and imperfect). According to his analysis of Meccan dialect of Arabic, Bakalla (1979) postulates that it is more reasonable and appropriate to assert that the vowel patterns in the stems indicate aspect and distinguish between perfect and non-perfect stems. Most importantly, there is no general rule which allows prediction of the stem vowel patterns; therefore, speakers learn them when they come across them and they learn them individually (Holes 1986; MECAS 1965).

3. *Method and Subjects*

The research is mainly based on two longitudinal studies of two Kuwaiti children, Sara and Osama. Sara is the youngest child in a Kuwaiti family. Both her parents are college graduates: her father is an engineer and her mother is a kindergarten teacher. She has two sisters; one is two years older than her and the other one is 4 years older than Sara. She went to a nursery at the age of two where Arabic is the first language. At home, Arabic is the dominant language, and the housekeeper (a non-native speaker of Arabic) speaks Arabic too. Osama is the youngest child in a Kuwaiti family. His parents hold higher degrees. His mother is a lawyer and she is working on her master degree. Osama has three brothers. He went to a nursery at the age of two where English is the language of communication. At home, a housekeeper who looks after him speaks English with Osama. He is an active boy, and constantly moving around the place playing with all the toys available. I noticed that Osama used several of English words mostly nouns, such as *car*, *plane* and twice he asked the question in English '*what's this?*'. Afterwards, he started using Arabic words instead of English ones. According to his mother, Osama started playing with one of his relatives (a girl) who speaks only Arabic. Even his mother noticed that change in Osama.

The two children were tape-recorded every two weeks for six months in sessions that last 45 minutes. I audio recorded all the sessions which took place at the nursery. One of Sara's sessions was tape recorded at her home because of the holidays. The taping sessions did not include a wide range of children's daytime activities. Bathing, toileting, dressing and playing outside were not included, since they were audio recorded at the nursery, so all the sessions took place in the classroom. However, we were able to move around from one room to another. The activities were mainly playing with toys and puzzles, and looking at stories and magazines. I was careful that the subjects were not tired, hungry or even sick to avoid any possible effect on the children's linguistic behaviour. Voice recorded contextual notes were taken during the sessions which were easy to report. The following table shows the longitudinal data used in this paper. The two children in the study had unrestricted opportunity to talk and participate in conversation. This rich data serves as a permanent database for a more research in the future as well as data on the interlocutor's linguistic input and interaction between adult and child.

3.2 *Data Analysis*

The samples were directly transcribed to avoid forgetting information and to avoid overlapping of taping and transcribing different subjects. It is better that the investigator is the transcriber, because she was present and familiar with all the detail about the session and the activities. Most importantly, the investigator knows the children well and understands them well. Everything said by or to the child was included, as well as commentary about the object used by the child. Besides this, linguistic as well as contextual information was noted. The investigator ignored the peculiar properties of child pronunciation whenever these do not bear crucially on the issues of the research discussed. All the transcriptions were executed on computer which helped to administer the computer analysis program. The investigator used a computer program called SALT (Systematic Analysis of Language Transcripts) developed by Miller & Chapman (1993), which provides frequencies and general measures like mean length of utterance (MLU). The results of Tense and Agreement are mainly based on total utterances, excluding imitations as well as routines and formulae.

4. *Results*

Sara

The first session was productive in terms of number of utterances as well as the type of data, as it will be presented below. In sample 4, the number of utterances dropped to 194 for no particular reason other than that she wanted to play more than to chat. In sample 6, the number went up to 294 when that recording took place at her home with the presence of her mother and one of her sisters. Again the number slightly dropped in sample 7 when she went back to the nursery after the holiday. Since then the total number of utterances increased gradually till it reached its peak at 406 in the final sample. There is a gap of more than a month between sample 5 and 6 due to the holidays. She was recorded at home and remarkably the change of the settings and the presence of two members of Sara's family did not affect her performance in a negative way.

Table 3 Sara's longitudinal data used in the study[a]

SN	Sara					
	SL	Age	Total Utterances		C&I Utterances	
			Number	MLU	Number	MLU
1	45m	1;11.23	276	1.78	266	1.74
2	45m	2;0.6	341	1.65	320	1.66
3	45m	2;0.20	240	1.88	236	1.89
4	45m	2;1.4	194	1.95	189	1.98
5	45m	2;1.20	253	1.75	242	1.77
6	45m	2;3.5	294	1.83	283	1.85
7	45m	2;3.20	206	2.23	202	2.23
8	45m	2;3.28	299	1.91	287	1.92
9	45m	2;4.14	332	2.17	320	2.19
10	45m	2;4.26	360	2.08	347	2.07
11	45m	2;5.10	264	2.32	258	2.32
12	45m	2;5.23	406	2.24	389	2.24

[a]SN=session number; SL=session time length; Total=total number of utterances; MLU=mean length of utterances; C&I=complete and intelligible.

Osama

Osama's first production was 301 utterances, which is considered high in contrast with Sara. It is obvious from Table 5 that Osama's number of utterances did not decrease below 250, which is also considered exceptional in comparison with Sara. There is a gap between sample 5 and 6 of about a month due to the slight decrease in the total number of utterances in samples 8 and 9, which total 274 and 258 respectively, for no

Table 4 Osama's longitudinal data used in the study[a]

SN	Osama					
	SL	Age	Total Utterances		C&I Utterances	
			Number	MLU	Number	MLU
1	45m	2;0.17	301	1.37	298	1.37
2	45m	2;1.1	317	1.65	305	1.65
3	45m	2;1.14	325	1.67	314	1.69
4	45m	2;1,.8	271	1.63	266	1.65
5	45m	2;2.15	263	1.78	259	1.78
6	45m	2;3.11	315	1.95	306	1.94
7	45m	2;4.1	301	1.95	292	1.94
8	45m	2:4.10	274	2.0	261	1.96
9	45m	2;4.21	258	2.14	251	2.14
10	45m	2;5.8	332	1.88	324	1.90
11	45m	2;5.20	383	2.12	368	2.10
12	45m	2;6.7	390	2.24	381	2.22

[a]SN=session number; SL=session time length; Total=total number of utterances; MLU=mean length of utterances; C&I=complete and intelligible.

particular reason. In sample 10 the number of total utterances rose to three hundred (332) and kept on that level till the end of the study period.

4.1 Tense and Agreement

The following tables present Sara and Osama's implementation of the grammatical inflection in both present and past tense in comparison with the incorrect use in the form of substitution errors.

Table 5 Present tense correct and incorrect use[a]

Inflection	Sara		Osama	
	Correct	**Incorrect**	**Correct**	**Incorrect**
1S	93 85%	16 15%	103 92%	9 8%
1P	3 100%		3 100%	
2F	1 11%	8 89%		
3M	62 84%	12 16%	17 68%	8 32%
3F	15 94%	1 6%	10 100%	
3P	25 89%	3 11%	4 100%	
Total	**199** **83%**	**40** **17%**	**137** **89%**	**17** **11%**

[a]1= 1st person; 2= 2nd person; 3=3rd person; ma= masculine; f= feminine; s= singular; p= plural.

As for the present tense paradigm, the data shows not only that the two children realized the 1st singular and 3rd masculine (93 and 103 respectively) most, but also that they erred in these two (16 and 9 respectively) most as well. Children tend to substitute the 1st singular for other grammatical inflections such as 2nd masculine, 3rd masculine, 3rd feminine and 3rd plural only in present tense. Moreover, the above table shows that Sara erred in several suffixes, such as 2nd feminine, 3rd feminine and 3rd plural present tense inflections, contrary to the other children. In samples 2, 4, 10 and 12 she used the 2nd feminine instead of the 1st singular and in all situations she was influenced by the investigator's use of the 2nd feminine immediately previous to her own utterance, one example is presented in (1).(f= feminine; imp= imperative; 2= 2nd person; pr= present)

(1) Investigator: geʕd- ai Sara baʕdeen te- t̲iiħ-iin!
sit- fimp Sara then 2f.pr- fall- 2f.pr
"sit Sara otherwise you will fall down".
Sara: *tiiħ- iin
fall- 2f.pr
"you will fall".

The asterisk indicates that Sara used incorrectly the 2nd feminine inflection and it is of interest to notice two important issues. Firstly, Sara omitted the prefix of the 2nd feminine and retained the suffix. Secondly, although she had this type of substitution errors in the present tense, she never erred in the past tense where she always used the 1st singular when was asked in 2nd feminine. In contrast, Osama did not use 2nd masculine instead of the 1st singular as Sara sometimes had when she was asked a question; however, he usually replied appropriately. To summarize, the table exhibits the frequent correct use of the present tense inflections 83-89% of the time, and agreement errors occurred 11-17% of the time.

Turing to the past tense, it is clear from the table below that there are differences between the two children. Osama irregularly realized the past

Table 6 Past tense correct and incorrect use[a]

Inflection	**Sara**		**Osama**	
	Corr.	**Incorr**	**Corr.**	**Incorr**
1S	78 96%	3 4%	11 92%	1 8%
1P	2 100%			
2M		2 100%		8 100%
2F	2 100%		1 100%	
3M	11 38%	18 62%	48 62%	29 38%
3F	64 89%	8 11%	14 82%	3 18%
3P	6 100%		2 100%	
Total	**163 84%**	**31 16%**	**76 65%**	**41 35%**

[a]1= 1st person; 2= 2nd person; 3=3rd person; m= masculine; f= feminine; s= singular; p=plural.

tense suffixes 76 times in comparison to the 137 times in the present tense with a high percentage of errors (35% of the time). On the other hand, Sara shows a similar pattern with the present tense where she showed high frequency and low errors. Since the 3rd masculine is the unmarked form and it is homophonous with the stem, the correct uses of that form can not

assert that agreement is established. Though we cannot rule out that type of performance. The two children rarely used 1st singular inappropriately, however, they substituted the 3rd masculine form which is unmarked for other suffixes. Due to the recording setting, it is unexpected that children would use the 2nd masculine, however Sara and Osama implemented the suffix. It is important to emphasize that both children used that inflection in the formula *šif-t* "did you (m) see?" which raises the question whether this form is lexicalised rather than productive.

Besides substitution errors discussed above, the children also erred in other categories as illustrated in Table 7. The Table shows stem errors when the imperfective stem is used instead of perfective one or vice versa, transitivity errors when a transitive verb (Class II) is used instead of intrasitive (Class V), mood errors when the imperative is used instead of declarative, causative errors when a verb is used instead of the causative form of it and voice errors when the active voice is used instead of the passive. Looking at the table below, it is clear that stem errors are very rare which indicates that children use correctly the internal vowel quality that is considered as marking aspect (for more detail look at section 2) quite early. For example: in sample 7 Sara said after closing the watch *ʕaraf* 'know' instead of *a-ʕarif* 'I know'. In that example not only did she not mark the verb with the 1st singular present tense inflection as required but also she used the wrong stem. However, since this is the only case of stem error it could be a performance error.

Table 7 Other types of error in the two children's production

Type	Sara	Osama
Stem	2	1
Transitivity	11	10
Mood	1	1
Causative		2
Voice	3	
Total	**17**	**14**

Children display similarities in having the same transitive verb error on one verb *sabbaħ* 'give someone a bath' while the child should say *tesabbaħ* 'took a bath'. Most importantly, *sabbaħ,* or sometimes *babbaħ,* are adult forms to babies and very young children, where they mean 'take a bath'. This suggests that adults are using the least marked form to children and in their part children pick up on that form and use it frequently. Further, Sara and Osama used, twice each, other type of verb incorrectly

which is the transitive verb *xarrab* ‘to damage’ where they should use the intransitive verb *ixtarab* ‘it is broken’ as in the following extracts (2-3).

(2) Investigator wee ixtarab? ‘oh, is it broken?’
Sara xarrab ‘damaged’
(3) Investigator xarban? ‘is it boken?’
Osama xarrab ‘damaged’

Interestingly, the causative errors are in one type of verb which is *taaħ* ‘fall’, where the children should say *tayyaħ* ‘drop’ instead. The context, as well as sometimes the use of overt subject pronoun, indicates the meaning of the verb that should be ‘drop’ and not ‘fall’. Causative verbs belong to Class II which are distinguished by a double middle radical and they all are transitive. The data shows that causative errors did not occur in Sara’s production during the study period, while it occurred once in Osama’s production

As discussed in section 2, there are two forms of verb stem to which the grammatical inflections are marked, and the difference between the two forms is in the realisation of their agreement features, that is in present/imperfective stem, tense and agreement features are realised by both prefixes and suffixes while the past/ perfect stem is realised by suffixes. The data shows that not all verbs were unmarked e.g. certain verbs namely *ktb* ‘writing’ or *šrb* ‘drinking’, are not well-formed words in Arabic. The table below also reveals the unclassified forms where neither linguistic nor non-linguistic context account for their ambiguity.

Table 8 Unmarked verb forms in the four children’s production.

Types	**Sara**	**Osama**
Unmarked	36 13%	62 28%
Unclassified	8	22

On just occasions, it appears that Sara omitted the 3rd feminine suffix. In sample 12 she was playing with a puzzle as in the following extract (4).

(4) Investigator: xalis- at i- liʕba?
finnish- 3f.pa art- game
‘Has the game finished?’

Sara: *eh xalis
yes, finished
'Yes, it is finished'

Sara erroneously used the verb *xalis* twice when I asked her the same question, while in another 2 instances she used the 3rd masculine form *xalas* "finished". Although Sara's performance may look like omission, what was produced is homophonous with the masculine imperative form. There is no explanation for this sort of behaviour and since they were rare and appeared in the same context they could be performance errors.

Looking at the production in Tables 5-6, a rather impressive number of verb inflections appeared in the children's overall production. The tables also show similarities as well as differences among the children. In the first place, plural forms constitute a very small proportion in comparison with the singular forms across the four children's production, as summarised in Table 9. In the present tense, the singular ranges between 86-95% while the plural is between 5-14%. Similarly, in the past tense, the singular is between 95-97% and the plural is between 3-5%. As a whole, it appears that 1st person singular and plural as well as 3rd person masculine, feminine and plural are realised by the two children. Most importantly, the different proportions explain part of the different acquisition pattern noted for each child.

Table 9 Plural vs singular in the two children' s production

Tense	Number	Sara	Osama
Present	**Singular**	171 86%	130 95%
	Plural	28 14%	7 5%
Past	**Singular**	155 95%	74 97%
	Plural	8 5%	2 3%
Total		362	213

Moreover, it can be inferred from the data that present tense forms are the most extensively represented between 55-64% while the past tense is ranging between 36-45%. Within the verb inflections, the 1st person singular present tense constitutes a considerably large proportion (between 47-75%) for the two children. On the other hand, the subjects did not use the 2nd masculine and 2nd plural inflection, in both present and past tense,

confirming Hyams (1986) and Meisel (1994) findings who attribute this to the constraints imposed by the situation of data collection where we usually had person-to-person conversation.

4.2 Developmental Order

The following tables provide a summary of Sara and Osama's realization of the present and past inflections during the observation period as well as the progress of verb types and verb tokens. First the present tense paradigm shows more similarities than differences, with unintelligible exceptions in the single appearance of the 2nd feminine grammatical inflection. Overall, the data shows increased use of the inflections over time. The 1st singular appears to be produced more frequently than the other markers. The differences can be noticed in the late appearance of the 3rd masculine in Osama's production data. Looking at the tables below, it is clear that the two children have the same developmental order within the paradigm. The 1st singular appeared first, 3rd persons second and the 1st plural came last. Masculine appeared before feminine and singular before plural.

Table 10 Sara's realization of the present tense inflection[a]

SN	Present							
	Type	**Token**	**1s**	**1p**	**2f**	**3m**	**3f**	**3p**
1	4	6	5			1		
2	7	13	10			1	2	
3	4	5	2			1		1
4	5	6	3			2		2
5	3	4	2			2		
6	6	7	4			2		1
7	7	17	10			1	2	4
8	8	18	3			12	1	2
9	10	39	14			18	2	5
10	11	21	11		1	8	1	
11	10	28	9	1		11	1	6
12	13	35	20	2		3	6	4
Total			93	3	1	62	15	25

[a]SN= sample number; 1= 1st person; 2= 2nd person; 3= 3rd person; m= masculine; f= feminine; s= singular; p= plural.

Table 11 Osama's realization of the present tense inflections[a]

SN	Present							
	Type	**Token**	**1s**	**1p**	**2f**	**3m**	**3f**	**3p**
1	2	2	2					
2	1	1	1					
3	1	1	1					
4	1	1	1					
5	5	9	8			1		
6	6	13	8				5	
7	9	22	16			2	4	
8	10	24	21			2	1	
9	6	10	6			3		1
10	8	13	9	2		1		1
11	9	15	8	1		5		1
12	21	26	22			3		1
Total			103	3		17	10	4

[a]SN= sample number; 1= 1st person; 2= 2nd person; 3= 3rd person; m= masculine; f= feminine; s= singular; p= plural.

On the other hand, the past tense paradigm reveals more differences than similarities. Sara realized the 1st singular from the first recording while Osama started using it in sample 7. The delay could be attributed to the homonymy between that inflection and the 2nd masculine which Osama is usually addressed with. Osama did not make use of the 1st plural suffix while Sara implemented it in two occasions on two verb during the study period. The unmarked 3rd masculine appeared earlier and more regular in Osama's production than in Sara's data. In sum, the two children show different developmental orders. Sara showed early implementation of the 1st singular, 3rd masculine and 3rd feminine so that we can not discover which one came first. Osama made use of the 3rd person inflections as well as the unmarked form before the 1st singular suffix. However, in both children's data the 2nd feminine appeared last very rarely (twice and once respectively).

Table 12 Sara's realization of the past tense inflections[a]

SN	Past							
	Type	Token	1s	1p	2f	3m	3f	3p
1	6	20	9			2	9	
2	5	17	12				5	
3	4	11	5			1	4	1
4	5	8	7				1	
5	3	3	1	1		1		
6	11	19	8		1		7	3
7	5	14	10				4	
8	6	9	4		1	2	2	
9	5	13	7	1		3	2	
10	5	17	6				10	1
11	6	14	7			1	6	
12	8	18	2			1	14	1
Total			78	2	2	11	64	6

[a]SN= sample number; 1= 1st person; 2f= 2nd person; 3= 3rd person; m= masculine; f= feminine; s= singular; p= plural.

Table 13 Osama's realization of the past tense inflections

SN	**Past**							
	Type	**Token**	**1s**	**1p**	**2f**	**3m**	**3f**	**3p**
1								
2	2	7				7		
3	2	10				7	2	1
4								
5	2	3				2	1	
6	2	2				2		
7	2	5	1		1	1	2	
8	4	13	4			7	1	1
9	3	12	2			8	2	
10	4	6				6		
11	5	7	1			2	4	
12	4	11	3			6	2	
Total			11		1	48	14	2

SN= sample number; 1= 1st person; 2= 2nd person; 3= 3rd person; m= masculine; f= feminine; s= singular; p= plural.

5. *Verb Types*

In the previous paragraphs the focus has been mainly on the developmental order of the grammatical inflections in both tenses. It is important to examine the root types in the four children's production since the characteristic feature of Arabic is its basis of consonantal root (cf. section 2). Table 14 illustrates the types of root structure produced by the two children during the period of investigation in both present and past tense which are separated due to the fact that each tense has its own stem form.

Table 14 Types of root in the four children's production

Root Type	Sara		Osama	
	Present	Past	Present	Past
CCC	18	16	13	9
CVC	9	9	8	4
CCV	5	2	5	2
CVV	1			
Total	33	27	26	15

Looking at the table above, it is obvious that there is not a significant difference between the total number of root types in both tenses in Sara's data in contrast to Osama. He used 26 verb types in the present form and only 15 in the past. This suggests that the children implemented the present tense inflections more than the past tense suffixes as discussed before (cf. section 4.1). The CCC root structure appeared more frequently in the present tense than in the past, CVC came second and the least frequent is the CCV. Sara used one type of CVV structure in the verb *yaa* 'come'.

Comparing the total number of root types and total number of inflected verbs as shown in Table 14 above, (type/number present: 33/199, and 26/137; and past: 27/163 and 15/76). One might interpret the low ratio as showing that children's use of the grammatical inflection was highly productive (that is each verb was inflected with more than one inflection). However, based on further examination on the number of root types that were inflected with one inflection and those inflected with more as summarized in Table 15, one can reach a different conclusion.

Table 15 Number of Inflections on roots in the four children's production

N. of Inflection	Sara		Osama	
	Present	**Past**	**Present**	**Past**
1	21	19	19	8
2	6	5	4	4
3	2	1	2	2
4	3	2		1
5	1		1	

To begin with, the majority of root types appeared with one grammatical marker and the ones that appeared with two markers were significantly rare while the ones that appeared with more than that are even more rare across the children. The data reveals that most verbs with one marker are inflected with the 1st singular. Sara and Osama inflected one verb with 5 grammatical present tense markers (*laʕab* 'play' and *raaħ* 'go' respectively).

6. *Discussion*

Characteristics of children's acquisition of language may provide insight into both the nature of language structure and the nature of human learning. One of the main findings of this research is the presence of UG to the four children in the form of FCs from the earliest recording sessions. This finding is an apparent challenge to the current theories of language acquisition such as that of Radford (1990), who assumes that early child language is mainly lexical-thematic progressed to functional-nonthematic and UG makes different types of principle available to the child at different stages of maturation. Apparently, the results did not show a pattern suggestive of Radford's hypothesis even though the data revealed that elements associated with functional categories were not always present and were not frequently used in the children's early language. This nonetheless suggests that early grammar cannot be characterized as a stage where functional items are universally absent. Overall, what the data reveals is that the children's verb system is not limited to just a few adult inflections. The data obtained in this study reveal many facts about the manner in which Kuwaiti children acquire Arabic as a native language. In the age range from 2;0 –2;6, a rich variety of distinct verb inflections were found in the two children's production data. Hyams (1987:4) justifies the ease of the acquisition of grammatical inflection with reference to "how the system interacts with principles of UG, or more to the point whether the

inflectional system is a core or peripheral property of the language". Children in this study appear to develop their morphological inflections in much the same manner as that observed for children learning other languages. The grammatical infixes appeared in a certain pattern in which the singular precedes the plural, which is consistent with Pizzuto & Caselli (1992,1994) and Robin & Pine (1998).

The data shows that the use of inflections increased in frequency and accuracy with age. However, the two children typically produced verbs in different contexts which lacked any kind of finite morphology in both present and past tense, where grammatical inflections are required in the adult language. First of all, in the present tense the unmarked forms appeared homophonous to the stem or imperative form. In other words, the unmarked forms can be called stem or imperative forms. In order to identify them as stems, forms such as *ktib*, *šrab* or *lbis* (write, drink and put on respectively) would be expected in the four child's production data; however, none of these stem forms were found during the observation period. Accordingly, the unmarked forms cannot be referred to as stems. The other possibility is to call these masculine imperative forms of the adult language such as *rooħ* and *dawir* for 'go and 'search' respectively, since the masculine has zero marking (the feminine and plural imperative have a suffix). As for the CCC root structure of some verbs where a prefixed vowel is required as in *i-ktib* 'write!' for the masculine imperative, the children avoided using that. The data reveals that in roots such as *šrb* and *ktb* (drink and write respectively) the children never unmarked these types of verb which would not be well-formed words. Therefore, children did not say *šrab* instead of *a-šrab* 'I drink' as they did with *dawir* instead of *a-dawir* ' I search'. It is important to bear in mind that since *šrb* and *dawir* are CCC root structures, the former unmarked form is an inappropriate stem *šrab* and the masculine imperative required the prefix vowel i-and the latter unmarked form is homophonous to the masculine imperative form. Rather, they do not leave *šrab* unmarked, they substituted the required inflection for other ones (in most cases the 1st singular present tense) *a-šrab* 'I drink' (cf section 4.1).

Regarding the past tense, the production data shows that they used the 3rd person masculine verb form which is a zero morpheme where some inflections were clearly required. In sum, what has been proposed so far is that the various properties which characterize the children's early grammar, particularly the optionality of unmarked forms, can be handled in a more unified way. The masculine imperative and the 3rd person

masculine forms are considered the unmarked forms in Arabic, in present and past tense respectively, and these forms persisted during the data collection period. Interestingly enough, children retain the CCV root structure. Since finiteness in Arabic is marked by Tense and Agreement, it is possible to call the masculine imperative and the 3rd masculine past tense verb forms non-finite forms, especially since there is no overt tense marking. However, in this paper the term unmarked is used instead.

It is important to take into account, however, that all the variation noticed in the four children language was within well-defined limits. The children did not construct "wild grammars". Based on the assumption that children are equipped with innate principles of UG, each "intermediate grammar" must be constrained with these principles (Hyams, 1986). Moreover, Grodzinsky (1990) suggests that children's language cannot be unacceptable strings according to the adult grammar. Hyams (1987) proposes a Stem Parameter which is a well-formedness condition on word formation: 'a verbal stem does/does not constitute a well formed word'. Concerning acquisition, children "set" this parameter very early on, so they learn at a young age what is a well-formed word in their language. Since Arabic is a highly synthetic language with rich bound morphology, neither root nor stems (sometimes) can be used as individual entities, it is reasonable to assume that prior to a more advanced stage of language processing, children would not treat stems as independent items. Therefore, in unmarking verb forms, children have two options. They either leave the form uninflected, or alternatively they choose another infix. The former option is excluded since stems do not constitute a well-formed word in their language. The other option is to mark the stem with another inflection. Both options satisfy the requirement obliged by the Stem Parameter according to the language, however the second one violates an agreement rule with the subject.

Hyams (1986) acknowledges that although children in their early stages of acquisition do not employ inflections in an orderly way, the non-appearance of class errors implies that they identify which grammatical inflections belong to which lexical class. It strongly suggests that children have no problem in identifying morpheme boundaries where grammatical inflections are used with word stems from quite early which suggests that both the stem forms and their inflections are evidently psychologically real units (Slobin, 1966, 1973). The data shows that stem errors where children use the appropriate inflection with the wrong stem are strikingly rare (cf. Table 8).

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Opacity and Sympathy Theory

Photini Coutsougera

Department of Linguistic Science, The University of Reading

Abstract. This paper examines Sympathy Theory, a relatively recent development of Optimality Theory, and in particular how it accounts for ***opacity*** in Cypriot Greek (a dialect of Modern Greek). Opacity remains a thorn for an output-based constraint theory such as Optimality Theory. I will discuss original Sympathy Theory (McCarthy 1998[1]) and also revised Sympathy (McCarthy 1999) and will argue that it breaks a fundamental principle of Optimality Theory: parallelism. This paper does not intend to offer solutions as to how to account for opacity but argue that, as things are now, there are theoretical problems that need to be resolved.

1. *Introduction*

The phonological behaviour of the high vowel i is of particular interest in Cypriot Greek (henceforth CG). The semivocalisation of high vowel i in a prevocalic position is not an unusual phonological process, as it takes place in a lot of languages other than Greek. However, the fortition / strengthening (and indeed a maximal one) of high vowel i to *palatal c* or *velar k* in the aforementioned position, is a particularly uncommon phenomenon. The fact that this is matched with opacity in certain examples (see data below) makes the CG case very appealing from a linguistic point of view.

2. *Presentation of Data*[3]

a. High vowel i surfaces as palatal **c** or velar **k** in

(i) *postconsonantal, prevocalic position and following simplex obstruents or r:*

[1] Earlier versions of McCarthy (1998) have been presented in several workshops and research groups.

[2] High vowel u does not semivocalise to bilabial w in Greek.

[3] Some of the examples were taken from Newton (1972) and Menardos (1894).

Singular forms	Gloss	Plural Underlying forms		Plural Surface forms
[lépi]	‘scale’	/lepi+a/	→	[lépca]
[máti]	‘eye'	/mati+a/	→	[máθa]
[eláfi]	‘deer’	/elafi+a/	→	[eláfca]
[póði]	‘foot’	/poði+a/	→	[póθca]
[ʃéri]	‘hand’	/xeri+a/	→	[ʃérka]

(ii) in *reduced underlying CCiV clusters (in postconsonantal, prevocalic position):*

Singular forms	Gloss	Plural Underlying forms		Plural Surface forms
[xartí]	‘paper’	/xarti+a/	→	[xarcá]
[alévri]	‘flour’	/alevri+a/	→	[aléfka][4] or [alérka]

Gloss	Underlying forms		Surface forms
‘heart’	/karðia/	→	[karcá]
‘beauty’	/omorfia/	→	[omorcá]

The latter are not examples of singular/plural alternations but there are good reasons for claiming that also surface [karca], ‘heart’ and [omorfcá], ‘beauty’ (both singular) have the underlying forms /karðia/ and /omorfia/ respectively.

b. When *in postconsonantal, prevocalic position and following a sonorant (other than r) or the fricatives /s/ and /z/,* high vowel i coalesces with the consonant preceding it. This results in palatalisation. Note that all consonants coalescing with i are [+coronal]:

[4] [aléfka] is attested in Mesarka and [alérka] in Pafos (regions of Cyprus). [alévria] is the contemporary standard form.

Singular forms	Gloss	Plural Underlying forms		Plural Surface forms
[lemóni]	'lemon'	/lemoni+a/	→	[lemóɲa]
[malí]	'hair'	/mali+a/	→	[maʎá] or [maʝá]
[krasí]	'wine'	/krasi+a/	→	[kraʃá]
[maxazí]	'shop'	/maɣazi+a/	→	[maxaʒá]

c. i remains syllabic in *unreduced CCiV clusters:*

Gloss	Underlying forms		Surface forms
'ploughs'	/aletria/	→	[alétria]
'far'	/makria/	→	[makriá]
'I need'	/xriazume/	→	[xriázume]
'light' (adj.fem)	/elafria/	→	[elafriá]
'flour' (pl.)	/alevria/	→	[alévria]
'old woman'	/ɣria/	→	[ɣriá]
'nets'	/ðixtia/	→	[ðíxtia]

Cypriot Greek, unlike Standard Mainland Greek (henceforth SMG), exhibits a **consistency** in its phonological system. The behaviour of high vowel i and its 'reflexes' is perfectly predictable.

In SMG, where patterns of the high variety Katharevusa and the low variety Demotiki (Demotic) co-exist, the phonological behaviour of i and j is not always predictable and their distribution is at times highly erratic. SMG exhibits alternative syllabifications on a large scale and neither stress nor syllable structure constraints are capable of accounting for it. There are cases in which i freely alternates with j[5], such as in [sxolío], [sxoljó], 'school' while in other cases only one of the two - i.e. either i or j - is allowed to surface, despite the fact that the structural environments are similar or identical:

[5] In SMG i semivocalises postconsonantally and prevocalically (or is sometimes fricativised) but does not strengthen to a stop.

e.g. [peδjá] *[peδía] ‘children’
[vivlía] *[vivljá] ‘books’
[δí.xtja] *[δí.xti.a] ‘nets’
[amáθi.a] ‘ignorance’ vs. [aŋgá.θja], ‘thorns’

It appears that, on this point (as on many others), CG has *one grammar*, while SMG has two grammars, which interact with each other.

3. *Opacity and Cypriot Greek*

Some of the above examples in (a) are particularly interesting because they are **opaque**:

i) Under-application of ***velarisation*** (***c*** fails to become ***k*** in the environment of r):

/xartia/ → [xarcá] (instead of the expected form *[xarká])
/karδia/ → [karcá] (instead of the expected form *[karká])

ii) Over-application of ***velarisation*** (velar ***k*** instead of palatal ***c*** seems to surface gratuitously in the environment of an obstruent):

/alevria/ → [aléfka] (instead of the expected form *[aléfca])

Opacity (Kiparky 1971) occurs when the conditioning environment of a phonological process has been eliminated in the surface representation and the process in question has become obscure, usually as a result of a counterfeeding or a counterbleeding ordering of rules[6] (terms first introduced by Kiparsky 1968). Below is a demonstration of counterfeeding and counterbleeding rule orderings:

Counterfeeding order

/AA/
--- (rule 2: B→C / ___])
B (rule 1: A→B / A ___)
[AB]

[6] in derivational terms

A counterfeeding order enforces rule under-application (as in [xarcá], [karcá] above) when [AB] meets the structural description of one of the rules of this grammar (rule 2: B → C /___]) but nevertheless does not undergo it due to the ordering of rules. Things cannot therefore be accounted for with respect to the available surface structure.

Counterbleeding order

/AA/
B (rule 1: A→B / A ___)
X (rule 3: A→X / [___)
[XB]

A counterbleeding order enforces rule over-application (as in [aléfka] above). Opacity occurs here due to the fact that the surface form cannot be traced back to its underlying form as the conditioning environment for rule 1 has been eliminated (see also Roca 1997).

The area of opacity is a major problem for Optimality Theory (henceforth OT) as the latter claims to be entirely output-based. As a result, in an OT tableau, the *transparent* candidate is always going to be selected by EVAL. (See *tableau 2* below, where the undesired, transparent candidate**deʃ* is selected instead of the correct *deʃe*.)

Opacity is by no means a rarely attested phenomenon in the languages of the world. On the contrary, it is very common. Opacity features in a large number of languages or dialects other than Cypriot Greek (cf. Roca 1997 for examples from Dutch, Tiberian Hebrew, Yokuts, Gere, Berber, Icelandic and Kager 1999 for examples from Tunica, Turkish and Isthmus Nahuat[7], to mention only a few). The phenomenon of opacity posits problems to classic OT either because it appeals to the need for morphology-associated strata or to pre-surface phonological structure. Below, I quote a relevant example of Tiberian Hebrew from McCarthy (1998), where the conditioning environment for the epenthesis of *e* has been eliminated in the surface representation:

[7] in English, too, there is an opaque application of secondary stress retraction (Jansen 1999)

Tableau 1: Opacity in Tiberian Hebrew

	/deʃʔ/	CODA–COND	*Cmplx	❀MAX–V	★MAX– C	DEP–V
opaque	☞deʃe				*	*
transparent	deʃ			*!	*	
sympathetic	❀deʃeʔ	*!			✓	*
faithful	deʃʔ	*!	*!	*!	✓	

[McCarthy 1998: 6]

4. *A Derivational Account of Opacity in CG*

The derivations of the opaque examples *karðia, xarti+a* as well as the derivation of the transparent example *xeri+a* are given below:

‘hands’	‘heart’	‘papers’
/xeri+a/	/karðia/	/xarti+a/
	1. Semivowel formation	
xerja	karðja	xartja
	2. Semivowel fortition (semivowel → fricative)	
xerʝa	karðʝa	xartʝa
	3. Continuancy dissimilation (consonant obstruent → continuant stop)	
xerɟa	karðɟa	xarθɟa
	4. Stop devoicing (voiced stop → voiceless stop except after a nasal)	
xerca	karðca	xarθca
	5. c→k / r ___	
xerka	___	___
	6. 3-consonant cluster reduction	
___	karca	xarca

7. Voicing agreement in obstruent clusters

___ ___ ___

8. Palatalisation of x before i, e

ʃerka ___ ___

Rule **5** is crucially ordered before rule **6** as the reverse ordering would give the undesired derivation *[karka][8].

Also, two alternative derivations of the opaque example *alevri+a* follow:

	‘flour’ *pl.*
	/alevri+a/
1. Semivowel formation	alevrja
2. Semivowel fortition (semivowel → fricative)	alevrja̧
3. Continuancy dissimilation (consonant obstruent → continuant stop) alevrɟa	
4. Stop devoicing (voiced stop → voiceless stop except after a nasal)	alevrca
5. c→k / r ___	alevrka
6. 3-consonant cluster reduction	alerka/ alevka
7. Voicing agreement in obstruent clusters	_____ alefka

[8] A controversial proposal has been made by Kaisse (1992) who maintained that the feature [consonantal] is capable of spreading to adjacent segments (causing vowels to become [+consonantal] next to consonants). Basing her data on Cypriot Greek and Berguner Romansh (Swiss dialect in which consonantalisation takes place preconsonantally), Kaisse proposed a modified model of Feature Geometry in which she has demoted the feature [consonantal] from the root node to a class node so as to justify its being phonologically *active*.

As can be seen, in rule 6, the cluster can be reduced in two different ways: either by deleting the obstruent v (vCC) or by deleting r (CrC).

5. *Opacity and Sympathy Theory*

As I have mentioned above, classic OT [Prince & Smolensky 1993] has been proven incapable of accounting for phonological opacity as OT is in principle *output-based*.

The mechanism of OT is fairly simple: first we establish the constraint **hierarchy** in such a way that it will reflect the phonology of the language in question. The constraints (CON) operate on the candidate set – generated by GEN (Generator) – via the mechanism of EVAL (Evaluator), which performs evaluation of candidates in a *parallel or simultaneous* manner and without considering any intermediate forms between input-output (henceforth I-O).

Parallel evaluation is feasible in an OT tableau: EVAL checks whether the candidates violate or obey each constraint (e.g. whether they are faithful to the input or not, and also whether they obey other type of constraints: markedness or alignment ones). The candidate which has the most non-violations, starting with the highest ranked constraint and carrying on in a descending order, is the winner.

This is problematic for opacity examples, where the trigger (i.e. the conditioning environment) is not present in the surface representation (e.g. in [aléfka] from underlying /alevria/, the apical trill ***r***, which is responsible for the velar ***k***, does not surface). Thus the output forms are characterised by 'gratuitous' faithfulness violations e.g. unmotivated by surface structural harmony (e.g. [omorcá] violates the constraint *rca seemingly gratuitously in *tableau 2* below since it does meet its structural description).

The need for intermediate levels of representation (by means of which we arrive at the surface level) could be regarded as major motivation for serial derivation (or *Serialism*, following McCarthy 1998's terminology), as opacity can be easily accounted for by a derivational framework. This is due to the presence of intermediate levels of representations in a derivational framework, which determine the properties of the final output form.

However, deviations from the classic OT output-based mechanism have been proposed by McCarthy & Prince (1995), Benua (1995/1997), Kenstowicz (1996). Cases of ***Reduplication, Truncation, Paradigm***

Uniformity & Opacity require pairs of representations: base/reduplicant, full word/truncatum, simple word/derived word. In a sense, opacity as well requires an extra pair of representations (other than I-O): ❀candidate (=sympathetic candidate) / output.

6. *An overview of Sympathy Theory*

Sympathy Theory (McCarthy 1998), a development of OT, has been proposed as an attempt of dealing successfully with opacity.

The idea is that EVAL selects the optimal candidate after the mediation of a designated ***sympathetic candidate***, annotated with a rosette, ❀, which influences the optimal one, though fails to win. The sympathetic candidate is selected by a ***selector constraint***, which has to be a faithfulness one, annotated with a ✯ (e.g. ✯MAX- C in *tableau 1*). The key idea is that the selector should choose a candidate in which the opaque process is motivated *transparently*. The sympathetic candidate *has to obey* the selector constraint. The influence of the sympathetic candidate on the output is mediated by a ***sympathetic constraint***, also annotated with a rosette, ❀ (e.g. ❀MAX-V in *tableau 1*), which has to be a faithfulness constraint, and in particular a *dominated* one, as an undominated one has to be obeyed by every optimal candidate and will be of no interest to the evaluation process. Therefore a candidate will be the winnner because it is in sympathy relation with a co-candidate of special status, which is optimal with regard to a specific *dominated* constraint.

We should also make clear that we have to *set up* the selector constraint and the sympathetic constraint *specifically* for the ST tableau. As can be seen, the OT tableau gives the wrong output and this is precisely why ST is called upon.

Tableau 2: OT selects the wrong candidate in Tiberian Hebrew

/deʃʔ/	CODA–COND	*Cmplx	DEP–V
deʃe			*
☞ deʃ (wrong winner)			
deʃeʔ	*!		*
deʃʔ	*!	*!	

6.1 Selection of the ❀candidate

With regard to the selection of the ❀candidate, McCarthy's (1998) bases his proposal on the notion of *harmonic evaluation*, which is central in OT:

"There are three main principles involved in the choice of the sympathetic candidate:

(1) Harmonic Evaluation
The sympathetic candidate is the most harmonic member of the subset of candidates available under (2) (among the candidates which obey the selector constraint, incurs the fewest violations of Faithfulness constraints)

(2) Confinement to $C_{(+F)}$
Selection of the sympathetic candidate $\aleph_F$ is confined to $C_{(+F),}$ the subset of candidates that obey the I-O faithfulness constraint F.

(3) Invisibility of Sympathy Constraints
Selection of sympathetic candidates is done without reference to Sympathy Constraints" [McCarthy 98: 8].

As far as ***invisibility*** in (3) is concerned, McCarthy claims that "…the choice of $\aleph_F$ can't depend on performance on a constraint that needs to know what $\aleph_F$ is in order to be evaluated. … It also restricts the descriptive power of the theory in an important way, and this helps to sharpen the differences between sympathy and standard rule-based serialism." [McCarthy 98: 12].

6.2 Status of ❀candidate and ❀constraint

The ❀candidate is almost always identical to an intermediate stage of a serial derivation. Although the ❀candidate is selected in a valid fashion and according to specific conditions, the fact that another level of representation is indeed needed for the correct output to be chosen, could be used in favour of Serialism.

The connection therefore between classic Serialism and ST is that the ❀candidate has the same status as the output of an intermediate stage rule in a serial derivation (apart from some cases of *multiple-opacity*,

which according to McCarthy 1998 differ in that the ❀candidates do not coincide with intermediate levels of serial derivations).

In ST the ❀candidate acquires a **special status**. As a result, all candidates have to be assessed as to whether they are faithful not only to the input but also to the ❀candidate (in the manner that this is dictated by the ❀constraint).

The ❀constraint acts as though it is the highest ranked (undominated) one in a ST tableau during the first step (see section 7.3) of the evaluation and thus acquires a **special status**, too.

6.3 Application of Sympathy Theory to CG

The following tableaux show how ST applies to CG (a slightly modified version of *under-application and over-application of velarisation* from Malikouti-Drachman 1999, handout):

Tableau 3: Under-application of velarisation

/omorf-I[9]a/	Strong ONSET	*Cmplx	❀IDENT-**O** (pal)	✭MAX I-O C	*rca	IDENT-**I-O** (pal)
❀omor.fca		*		✓		
☞omor.ca				*	*	
omor.ka			*	*		*
omor.fa	*		*	*		*

[9] Malikouti-Drachman takes *I* to be an *archi-phoneme* in the underlying representation.

Tableau 4: Over-application of velarisation

/alevr-I-a/	Strong ONSET	*Cmplx	ICC-Obstr (voi)	❀IDENT -O (vel)	★MAX I-O C	*rca	IDENT-I-O(pal)
❀alev.rka		*			✓		*
☞alef.ka					*		*
alef.ca				*	*		
ale.ca				*	*		
ale.fa	*			*	*		*
alev.ka			*		*		*

Note that the sympathetic constraints ❀IDENT-O (vel) / ❀IDENT-O (vel), are crucially ranked before *rca.

Malikouti-Drachman proposes a syllabification[10] with non-branching codas and maximal consonants (voiceless stops) in the onset position of the syllable. Branching onsets are permitted, too. Codas may not be maximal, so that they will not be less sonorant (or more complex) than following onsets (also supported in Drachman & Malikouti-Drachman 1996). By *strong* onset it is meant *maximal* onset. Finally, according to Malikouti-Drachman (with the exception of *ICC Obstr (voi)= voicing agreement in obstruent clusters*), the constraint hierarchy in CG is the following: Onset > Rising Sonority > Strong Onset > *Complex > ICC Obstr (voi) > *rca > IDENT I-O (pal) > Weak Coda.
Rising sonority applies to branching onsets. Let me also note that irrelevant constraints are not mentioned in the tableaux when not necessary.

McCarthy (1998) maintains that by making faithfulness constraints as selectors of the sympathetic candidate, opacity contributes to the notion of ***recoverability*** of underlying representations. This notion was first introduced by Kaye [1974: 146], who maintained that cases of derivations resulting in recoverability should not be considered unnatural and that "…languages show a positive predilection towards evolving recoverable derivations".

McCarthy uses recoverability to say that if an opaque interaction gives a segment, which does not occur anywhere else, the derivation can be *invertable*: e.g. /alevria/ is *recoverable* from [alefka] as the presence of

[10] Alternative syllabifications can be proposed here, too.

the velar k in the latter gives away the presence of an apical trill (***r***) in the underlying representation, which preceded ***k*** and which is not present in the surface one.

Let us note here, however, that recoverability is not a *necessary* property of all opaque cases.

7. *Problems*

In sections 7.2 and 7.3 I will discuss two specific problems related to opacity without touching upon any other residual issues, such as learnability, which the theory needs to resolve and which are being dealt with in ongoing research.

7.1 A Local ordering equivalent?

The annotation of a rosette, ❀, effectively makes the relevant constraint much more powerful than an ordinary one in certain circumstances (it could even be from dominated to undominated) and it could be maintained that this is analogous to local ordering (as opposed to linear ordering) in serial derivations.

Linear ordering relations were challenged by Anderson (1974) who proposed the theory of ***local ordering*****,** i.e. *contingent* ordering restrictions along the lines of serial derivations. The examples he discusses are from Alaskan Eskimo, Icelandic and Sudanese.

As Anderson [1974:164-165] explains "…ordering relations are stated between certain **pairs of rules** in the grammar of a language. Such stated restrictions are independent of one another, and they may in addition be either absolute or contingent in their applicability. To determine the order in which the set of rules should apply to a given form, we assume that any pair of rules applies in the natural order for the form in question (if one is defined), unless this is overruled by an absolute ordering restriction. In the event that neither order of a pair of rules is natural for this form, the grammar must contain a restriction (either absolute or contingent, depending on the existence of a subclass of forms for which a natural ordering does exist, and on whether the natural situation in fact obtains there). Such a restriction specifies the order in which rules apply, where this is significant and unpredictable or language-particular."

Local ordering is the equivalent of ST insofar as ST implies violation of parallelism (see below), hence an intermediate stage in the evaluation process and possibly different ranking orders of constraints in

different areas of the same language.

7.2 Parallelism

A fundamental principle of OT is ***parallelism***: evaluation of candidates is performed *simultaneously*. OT (and consequently ST) is therefore to be preferred to Serialism because all processes as well as the rankings determining them *are parallelled* and thus abstract intermediate levels of representations, which are claimed to be psychologically implausible in human languages, are avoided. The question is though: "Are phonological processes really parallelled in ST?".

Let us try to work out the algorithm of ST: GEN generates candidates among which there is the optimal one and the sympathetic one. However, it appears that EVAL acts in two steps / stages: after the selector constraint has selected the ❀candidate, the ❀constraint mediates in the evaluation. EVAL checks which candidates are faithful or not to the ❀candidate with respect to the content of the ❀constraint and discards the candidates which are unfaithful to it. It then checks which of the surviving candidates are faithful or not to the input with respect to the content of the other faithfulness constraints while also checks violations / fulfilments of markedness constraints. Apparently, this cannot be a parallel process.

In order to symbolically describe the process of selecting the optimal candidate, let us define *Cand* to be the set of all the candidates and *C* the set of the constraints, both of which are potentially infinite, i.e.

$$Cand = \left\{ cd^i : i = 1,2,...,\infty \right\} \text{ and } C = \left\{ C_j : j = 1,2,...,\infty \right\}.$$

We define an indicator function $\mathrm{I}_{i,j}$ to denote whether or not i (cd^i) violates some constraint j (C_j) as $\mathrm{I}_{i,j} = \begin{cases} 0, \text{if } i \text{ violates } j \\ 1, \text{if } i \text{ obeys } j \end{cases}$.

The **first step** is to eliminate all the candidates that violate the ❀constraint, resulting in a reduced set F_1. F_1, a subset of *Cand*, is the set that contains all successful candidates and symbolically we write $F_1 = Cand - \left\{ cd^i : *! cd^i_{j_{sym}} \right\}$, where *! stands for *violation*.

The **second step** is to choose the optimal candidate among the candidates in F_1. From now on we proceed as in a normal OT tableau and

successively eliminate candidates according to their non-violations of the constraints, taking into consideration the constraint ranking.

To that end, we successively define sets (using *subscripts* to denote candidates and constraints) containing the discarded candidates. Starting from the highest ranked constraint (say constraint 1), we eliminate all candidates violating it. D_1 contains all candidates violating constraint 1, while there is at least one candidate k (not belonging to the sets of the discarded candidates F_1), obeying constraint 1. D_2 contains all candidates violating constraint 2, the second highest-ranked constraint, while there is at least one candidate k (not belonging to the sets of the discarded candidates F_1 and D_1), obeying it. D_3 contains all candidates violating constraint 3, the third highest-ranked constraint, while there is at least one candidate k, which obeys it and which does not belong to the sets of discarded candidates F_1, D_1 and D_2. This process is carried on until all candidates but one have been discarded and can be written symbolically as

$$D_1 = \{i : I_{i,1} = 0 \ \wedge \exists k \in F_1 - \{i\} \text{ with } I_{k,1} = 1\}$$
$$D_2 = \{i : I_{i,2} = 0 \wedge \exists \ k \in F_1 - \{i\} - D_1 \text{ with } I_{k,2} = 1\}$$
$$D_3 = \{i : I_{i,3} = 0 \wedge \exists \ k \in F_1 - \{i\} - D_1 - D_2 \text{ with } I_{k,3} = 1\}$$
$$\ldots$$
$$D_n = \{i : I_{i,n} = 0 \wedge \exists \ k \in F_1 - D_1 - D_2 - D_3 \ldots - D_{n-1} \text{with } I_{k,n} = 1\}$$

At the end of the procedure, the optimal candidate is then going to be $OPT = F_1 - D_1 - D_2 - D_3 \ldots - D_n = \{i_{opt}\}$.

OPT should have only one candidate (if otherwise, i.e. if $OPT = \varnothing$ or it contains more than one candidate, either the constraint ranking is incorrect or perhaps more constraints need to be added). The discarding of candidates from F_1 is performed in a simultaneous process by EVAL in the OT mechanism.

Let us demonstrate this in *tableau 1*, which I cite here again slightly modified as *tableau 5*. *deſe?* and *des?* are **not** the first candidates to be ruled out due to their violating the highest ranked constraint. Instead *deſ* and *des?* are out first because they violate the ❀constraint, ❀MAX–V. In the **first step** of our algorithm, this constraint acts as though it is the **highest ranked** (undominated) one. Once *deſ* and *des?* have been discarded, ❀MAX–V is deprived of its special powers and now acts as a dominated constraint. In the **second step** *deſe?* is the next candidate to be

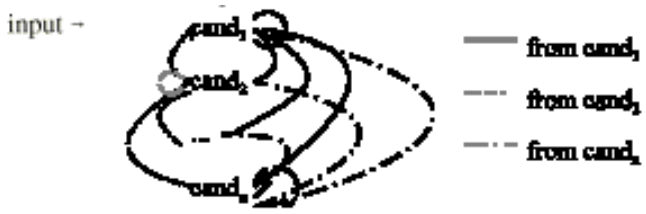
ruled out as it violates CODA–COND. *deʃe* is the winner scoring 3 non-violations of the highest ranked constraints (against *deʃ*, which has 2 but which is discarded before *deʃeʔ*, which has 0 non-violations). In the tableau below, **0** stands for violation and **1** for non-violation:

Tableau 5: Opacity in Tiberian Hebrew - Demonstration of steps / stages

/deʃʔ/	CODA–COND	*Cmplx	❀MAX–V	✯MAX–C	DEP–V
☞deʃe	**1**	**1**	**1**	**0**	**0**
deʃ	**1**	**1**	**0**	**0**	**1**
❀deʃeʔ	**0**	**1**	**1**	**1**	**0**
deʃʔ	**0**	**0**	**0**	**1**	**1**

7.3 Parallelism and inter-candidate correspondence

McCarthy (1998) provides a solution to the problem of parallelism by extending the notion of ***correspondence*****,** so that it will hold in the set of candidates, among which the ❀candidate is included. Each candidate is now in an ***inter-candidate correspondence*** relation to itself and to all other candidates, as shown in the figure below. By doing so, parallelism is secured and the theory is temporarily rescued.



[McCarthy 1998:18]

Fig. 1 Inter-candidate Correspondence

Correspondence, as developed by McCarthy & Prince (1995), is a **relation** between base – output (in the same way identity is treated by faithfulness between I-O). The original notion of Correspondence is defined by McCarthy & Prince (1995) as follows:

"Correspondence

Given two strings $\mathbf{S_1}$ and $\mathbf{S_2}$, **correspondence** is a relation **P** from the elements of $\mathbf{S_1}$ to those of $\mathbf{S_2}$. Elements $\alpha \in \mathbf{S_1}$ and $\beta \in \mathbf{S_2}$ are referred to as **correspondents** of one another when $\alpha \mathbf{P} \beta$."

[McCarthy & Prince 1995: 262]

A new type of correspondence is therefore proposed in ST since the notion of correspondence has been *extended* to affect the relation among candidates derived from the same input. After all, the candidate-to-candidate relation is absolutely legitimate as a **faithfulness** relation provided by **Correspondence Theory**. From here McCarthy (1998) goes on to establish a candidate-to-candidate sympathy relation (in essence a Faithfulness relation among co-candidates), by relating another phonological level (other than the input) to a surface level of representation.

In Correspondence Theory, which is also along the lines of OT, GEN has been given an additional role: *it supplies correspondence relations* between a string S_1 and a string S_2. EVAL evaluates each candidate pair assuming the existence of all associated correspondence relations between the members of the pair[11].

Extended correspondence therefore establishes a relation in the set of candidates *among which there is the sympathetic one*. It is a relation **(**not a ***function***[12]), which also allows one-to-many relationships and not only one-to-one relationships between segments or other higher-order units of prosodic structure. By virtue of the mere properties of the sympathetic candidate, we can *automatically* see what properties the latter shares or does not share with all the other candidates.

By this, one can argue against the existence of an **operation** (vs. **relation**), which simply compares each candidate with the sympathetic one and rules out the undesired ones. By postulating a relation and not an

[11] In particular, each pair (base – reduplicant) is assessed for completeness of mapping, dependence on input/base, contiguity of mapping, linearity of mapping, anchoring of edges and featural identity.

[12] Given two sets *X* and *Y*, a **correspondence**, in a mathematical sense, is simply a relation **P** between *X* and *Y*, consisting of all the pairs *(x,y)* with *x* in *X* and *y* in *Y*, as in figure 1. A **function** from *X* to *Y* is a relation *f* such that for each *x* in *X* there is a **unique** *y* in *Y* with *y = f(x)* (see also Halmos 1960). The relation **P** among the candidates in an ST tableau is *not* a function.

operation McCarthy precisely avoids **time implications***:* an operation implies time whereas a relation does not.

8. *Cumulativity*

8.1 Rejection of inter-candidate correspondence by McCarthy (1999)

Nevertheless, the model of ST proposed by McCarthy (1998) is too powerful. The ❀constraint is given all the power it needs to exert ANY possible influence onto the candidates and thus, in a certain sense, 'manipulate' the result. McCarthy (1999) admits that the framework of inter-candidate correspondence is too rich as it brings with it the full expressive power of correspondence theory and thus permits unattested patterns of opacity to be described, such as the *feeding Duke-of-York*[13] ones[14].

"The theory's excessive richness comes from inter-candidate faithfulness constraints such as ❀IDENT (high)[15]. These constraints allow ANY information about the sympathetic candidate to be transmitted to the actual output form. … I therefore reject the notion of inter-candidate faithfulness constraints and here propose a more restrictive alternative." [McCarthy 1999:20].

The ❀constraint IDENT-O (pal) in *tableau 3* is what transmits the critical property of palatality to the output. This is also precisely what the constraint ❀IDENT I-O (pal) failed to transmit to the output as it is crucially ranked below *rca. Ranking IDENT-O (pal) above *rca would fail, too, as this would give the wrong output ***ʃerca*** for the transparent example *ʃerka* (see data in 2 and derivations in 4 above).

8.2 Introducing Cumulativity

In an attempt to restrict the excessive descriptive power of the theory, McCarthy (1999) re-visits ST, rejects inter-candidate correspondence and proposes ***Cumulativity*** (also discussed in McCarthy 1998).

He introduces an extra constraint, ❀SYM, in the ST tableau (see below). In simple words, Cumulativity is based on evaluating whether two candidates share *a subset of the same <u>unfaithful</u> mappings*.

[13] Duke-of-York derivations have the form A→ B → A.

[14] According to McCarthy (1999), feeding Duke-of-York derivations are not attested in any language.

[15] ❀IDENT -O (pal) / (vel) in our examples of CG

Successful candidates must match/resemble the ❀candidate as to having violated at least the same faithfulness constraints as the ❀candidate (they must have *accumulated* at least the same unfaithful violations as the ❀candidate).

"**❀SYM**[16]
Given a sympathetic candidate ❀-Cand, to evaluate a candidate E-Cand, derived from the same input:

- If $U_{❀\text{-Cand}} \subseteq U_{\text{E-Cand}}$ then E-Cand's performance on ❀SYM is proportional to the cardinality of the set $U_{\text{E-Cand}} - U_{❀\text{-Cand.}}$
- If $U_{❀\text{-Cand}}$ and $U_{\text{E-Cand}}$ are *non-comparable* in their unfaithful mappings, then E-Cand's performance on ❀SYM is worse than that of any candidate that is comparable."

[McCarthy 1999: 23]

E-candidate is then cumulative with respect to the SYM candidate when the SYM candidate has a subset of E-candidate's I-O Faithfulness violations.

Below is an application of cumulativity to CG. The optimal candidate *omorca* resembles the ❀candidate in the following way: they both have the feature *palatal* in place of the archi-phoneme *I* in the input, which is precisely what OT would get wrong, giving **omorka* as the winner.

What happens when the sympathetic candidate does not violate any faithfulness constraints?

[16] U_{Cand} stands for the set of unfaithful mappings relating some input to the output candidate Cand .

Tableau 6: Application of Cumulativity to CG

/omorf-Ia/	Strong ONSET	*Cmplx	❀SYM	✯MAX I-O C	*rca	IDENT I-O(pal)
❀omor.fca		*				
? ☞omor.ca				*	*	
? omor.ka				*		*
omor.fa	*			*		*

In the above tableau **all** possible candidates would be in a relation of cumulativity with the sympathetic one, as the latter does not violate any faithfulness constraints at all. The problem here has to do with the fact that no candidates are discarded in the first round. Even though *omor.ca* can be said to be 'closer' to the sympathetic one, as it violates fewer faithfulness constraints than **omor.ka*, nevertheless this cannot be **formally** demonstrated in *tableau 6*, where both *omor.ca* and *omor.ka* have scored 3 non-violations of the three highest ranked constraints.

Finally, cumulativity (a *dynamic* notion, which effectively implies **time**), does break parallelism again. The presence of the constraint ❀SYM implies a non-parallel process, where ❀SYM again acts as though it is the highest ranked/undominated constraint in the **first step** of the algorithm:

Tableau 7: Application of Cumulativity to CG
Demonstration of steps / stages

/omorf-Ia/	Strong ONSET	*Cmplx	❀SYM	✯MAX I-O C	*rca	IDENT I-O (pal)
❀omor.fca	**1**	**0**	**1**	**1**	**1**	**1**
☞omor.ca	**1**	**1**	**1**	**0**	**0**	**1**
omor.ka	**1**	**1**	**1**	**0**	**1**	**0**
omor.fa	**0**	**1**	**1**	**0**	**1**	**0**

9. *Conclusions*

Cumulativity considerably restricts the power of the theory by decreasing the power of the sympathetic constraint (❀SYM) and its influence on the candidate set. It appears however, that this has been done

at the cost of parallelism. On the contrary, when parallelism is observed the theory becomes too powerful.

Could we still then regard ST as being in accordance with the core OT postulate despite the fact that it violates a fundamental principle of it?

Several critical questions could also be raised here with regard to Sympathy Theory and **Learnability** (regarding latent rankings of constraints or whether the learner takes into consideration and performs all rankings based on / incurred by the sympathetic candidate and not only by the optimal one, etc.). They will not, however, be discussed here but will be the subject of further research.

It is generally observed that the theory gets more and more complicated, without succeeding in resolving the existing problems. Old & revised ST seems to be too perplexing or daunting for it to be convincing or psychologically plausible.

Appendix

Mathematical symbols

$\forall$: for every

: such that

$\in$: belongs to

$>$: greater than

$\exists$: there exists

$\subseteq$: subset

$\wedge$: and

$\neq$: not equal

$\sum$: sum

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Dissociated lexical and grammatical development in children with specific language impairment

Richard Ingham

Department of Linguistic Science, The University of Reading[1]

Abstract. Locke (1994, 1997) has claimed that grammatical problems in specific language impairment (SLI) may be due to an initial deficit in lexical acquisition. This paper investigates the grammatical ability of 20 SLI children with and without a receptive lexical deficit, and finds no association between lexical deficit and poor grammatical ability. It is also found that their level of performance on argument structure alternations is associated with a grammatical deficit but not with a lexical deficit. These findings are taken as tentative indications that single-route acquisition models associating lexis and grammar may characterise SLI less successfully than dual route models dissociating lexis and grammar. It is proposed that the concept of grammatical deficit needs to include alternating assignments of grammatical roles by lexical verbs.

1. Introduction

There is a view that lexical and grammatical development are closely related. Bates, Bretherton & Snyder (1988) and Bates & Goodman (1997) have found correlations between the development of grammar (measured by syntax or by morphology) and vocabulary size, though this has been disputed by others (e.g. Marcus et al. 1992). This debate is bound up with issues of modularity in language acquisition: is grammar a modular system acquired differently from the lexicon, as argued in certain quarters, or is it acquired by a unified non-modular acquisition device, as others contend? If the claim is that in normal development two things are closely associated, a good way to test that claim is to see what happens in non-normal populations. In such populations, dissociations may arise whereby one ability is relatively spared while the other is seriously impaired.

Children with SLI constitute one such population, offering the researcher the presumed advantage of avoiding a confound with clear

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cognitive deficits. They show a range of problems with language including varying combinations of grammatical, phonological, and lexical semantic deficits. One leading characteristic of this population is a much-documented difficulty in forming regular past tense, among other problems of course. Proposals by Gopnik & Crago (1991) and Rice, Wexler & Cleave (1995) have argued for a selective deficit in grammatical morphology, and thus support a modular approach. On the other hand, Marchman, Wulfeck & Ellis Weismer (1999) explore a non-modular approach to past tense impairment, arguing against the dual mechanism theory. They suggest that protracted lexical learning which they say is characteristic of SLI may be responsible for SLI children's errors with past tense. Bates & Goodman (1997) also appear to claim that no dissociation between grammatical ability and lexical ability in such children should be in evidence in children with SLI.

Locke (1994, 1997) also related grammatical and lexical development, but not in the same way. The second phase of his analysis of child language development, which Locke considers to be accomplished by right hemisphere neural resources, is dedicated to 'collecting utterances' as Locke expresses it. This period is one in which the child uses language as single words or fixed expressions without showing evidence of having analysed input so as to achieve grammatical representations. In the third phase the child discovers the regularities in language, especially in grammar, as evidenced by overregularisation phenomena. This phase is largely a matter of left hemisphere neural resources.

In language impairment, what happens, according to Locke, is that the child experiences problems in phase 2, having utterance processing limitations which results in insufficient stimulation of the neural resources available in phase 3. The analytical mechanisms in stage 3 require a substantial amount of stored utterances on which to work, otherwise it will not properly succeed in extracting the patterns of the target language. Crucially this does not cause the child's ability to learn language to crash completely. Instead the child deploys other brain capacities to address the task of learning language.

The idea put forward by Locke is that children with SLI need not be lacking in the species-specific grammatical analysis capacity argued for by Principles & Parameters theory, but rather in the prerequisite for that capacity to operate - the capacity to acquire 'utterance material'. It would appear that the capacity to acquire utterance material is essentially what acquisitionists have studied under the heading of early lexical acquisition, that is, the

acquisition of words and utterance chunks constituting a major part of a child's acquisition of language in the first year and a half of life. They are items with phonological and semantic representations and they are stored in long term memory. Locke quotes Thal, Tobias and Morrison (1991) who found an association between small receptive vocabulary and language progress more generally, in support of his notion that it is delayed receptive vocabulary which in some way leads to grammatical deficit. A second important strand in his argument was that he accepted the 'constant lag' claim of Bishop and Edmundson (1987): the finding that children with serious language delays surveyed over an 18 month period made progress in language comparable with the rate of acquisition of their language-normal peers, even though they had experienced an initial delay and thus continued to lag behind them in language development. As observed by Leonard (1998) and others, Locke's ideas are challenging but call for empirical investigation.

If one wishes to investigate Locke's proposals empirically, the direct route is to compare children with and without a receptive lexical deficit and try to discover what effects this factor might have on their grammatical development. Ideally one would like to pursue a longitudinal study to check the assumption made by Locke of a constant lag; this is how he refers to Bishop's findings that, measured against LN children, children with SLI make 18 months' worth of progress in 18 months of time. Clearly lexical development is unlikely to be totally uniform; we know that most children show a lexical spurt in the second year of life, so we can't rule out other such spurts. But the research reported here was not in a position to check this assumption, so it will be assumed with Locke that SLI children's lexical deficits arise from a late start and not or not primarily from a lower rate of lexical acquisition. The general issue raised in this study was whether, as claimed by Locke (1994, 1997), grammatical SLI is a result of poor lexical assimilation in the early years of language acquisition. Locke's (1997:282) striking formulation of this position is 'A lexicon delayed may be a grammar denied.'

The research question addressed in this paper is: What kind of evidence can be brought to bear on the proposed relationship between grammar and lexicon within a particular population, such as children with SLI? This work in progress paper report the findings of an exploratory study conducted with a group of children with SLI intended to throw some light on this issue.

2. Subjects and hypotheses

From a database containing transcriptions from 42 children diagnosed clinically as having a specific language impairment, two groups of SLI subjects were identified, one with chronological age-appropriate receptive lexical knowledge, as measured by BPVS age-equivalent scores within 4 months of the child's chronological age at testing, the other with a deficit of two years or more in BPVS scores. The first group will be referred to as the 'no lexical deficit' (-LD) group and the second as the 'lexical deficit' (+LD) group. There were thus four groups: 10 children with SLI [-LD], that is who had chronological age-equivalent BPVS scores, 10 language-normal (LN) children matched for BPVS with the children with SLI child by child. There were also 10 children with SLI [+LD] who obtained a BPVS score of 2 years or more below their CA, and 10 LN children matched with them child-by-child for BPVS. Group means for age, BPVS score and MLU (morphemes) are given below:

Table 1: Subject group means

	SLI [-LD]			SLI [+LD]	
CA	BPVS a.e.	MLU (M)	CA	BPVS a.e.	MLU (M)
6;6	6;7	4.32	7;2	4;4	3.90
	LN MATCHES OF SLI [-LD]			LN MATCHES OF SLI [+LD]	
CA	BPVS a.e.	MLU (M)	CA	BPVS a.e.	MLU (M)
5;9	6;7	N/A	4;9	4;4	N/A

The NLD group was slightly younger than the LD group (with an average CA of 6;2 as compared with the LD groups CA of 7;1) but had a higher MLU (4.32 as compared with 3.90). The LD group, not surprisingly, also had an expressive lexical deficit as measured by Renfrew age-equivalent scores, which was found to average a full 2 years across the group. We are therefore

investigating a group of children with SLI who appear to have quite severe problems in both expressive and receptive lexical abilities.

Members of these two groups were matched individually with LN children to the nearest 3 months at a maximum on BPVS a.e. scores (most subjects to within 1 month).

The [+LD] group had a BPVS a.e. score of two years or more below their CA. If the position taken by Locke (1994, 1997) is correct, that is if we assume that these children had been experiencing a constant lag in lexical development, this group should have experienced fairly severe lexical storage difficulty, leading to grammatical impairment. Their performance on grammatical measures should therefore be well below that of their LN BPVS matches.

The [-LD] group had chronological age-equivalent lexical abilities as measured by BPVS. If the position taken by Locke (1994, 1997) is correct, this group should not have experienced the difficulty with storing lexical material that leads to grammatical impairment. Their grammatical performance should therefore approximate to that of LN BPVS matches.

The hypothesis to be investigated was that only children with SLI with a lexical deficit, i.e. the SLI [+LD] group, should show an associated deficit in grammatical forms. The grammatical measures selected were among those most studied in the literature on SLI: finiteness marking on verbs, and aspects of grammar related to it, i.e. null subjects and incorrect case on subject pronouns. These have been taken as key indicators of grammatical deficit by investigators such as Rice, Wexler & Cleave (1995) and Loeb & Leonard (1991).

In addition, the profile of SLI children's morphosyntax was extended to include possible deficits with argument structure (a-structure) realisation (cf. Pinker 1989). Loeb, Pye, Richardson & Raymond (1998) report finding no significant differences between children with SLI and chronological and language matched controls in the production of argument structure alternations. However, Schelletter et al. (1996) found an association between argument structure realisation in children with SLI and morphological deficit. SLI children with a morphological deficit were poor at argument structure alternations– they typically produced only one alternant where the verb offered two. For example, they made use solely of a transitive structure, or solely an intransitive structure, to describe scenes providing a context for a given alternating verb, but which differed only in that one depicted an agent and the other did not. Those with no morphological deficit were nearly as

good as their CA matches on this measure of a-structure performance, varying the structure to suit the scene being depicted. This could suggest that a-structure knowledge is acquired as part of grammatical development, rather than being dissociated from it.

In fact, in the Schelletter et al. study, the children with a morphological deficit also had a much greater lexical deficit as measured by BPVS scores (av. 25 months versus av. 16 months) so their poor argument structure performance may simply have been a reflection of the lexical deficit rather than with the grammatical deficit. In the present study this issue was taken up by looking at two SLI groups very sharply differentiated as regards lexical knowledge. If argument structure alternations are a matter of lexical learning, then we would expect the LD group to have a deficit in argument structure realisation as compared with vocabulary matches, but the NLD group to have no such deficit as compared with their matches.

3. Methodology

The performance of these four groups was investigated on elicitation tasks designed to reveal aspects of the grammatical and lexical abilities of pre-school children. These are described in detail in Fletcher et al. (submitted) & Ingham et al. (1999). These involved describing two series of video scenes. The first task used a commercially available video from the Pingu series, which has no words but plenty of actions. It was played twice. The investigator described events in the present tense the first time the video was shown. The second time, children re-narrated the story in the past tense. This task allowed certain grammatical areas associated with finiteness, such as tense form, to be investigated, and was chosen to allow plenty of opportunities for the use of regular past verbs.

The second task used a video especially prepared for the research project, and featured scenes designed to illustrate actions denoted by verbs of particular interest for their argument structure. Five verbs which were alternated by 50% or more of adult controls were scored for the use of alternations by the 40 SLI and LN children. These were *open, move, bounce, give* and *rub*. The child was supplied with the target verb, and asked to say what happened in the video scene. For each verb two scenes were included in the video; in each scene the events portrayed were such as to favour the use of one alternant rather than the other. For example, in one scene for *bounce* an

agent was shown bouncing a ball, in the other a ball was shown bouncing with no agent in the picture. The child's use of argument structure with that scene was then analysed for how semantic role was linked to grammatical function. This is illustrated below:

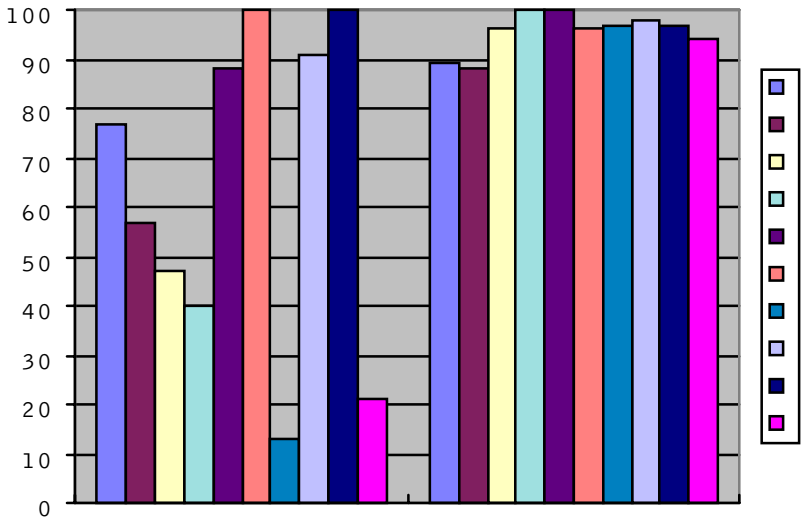
Argument structure alternations

(SCENE WITHOUT AGENT)	(SCENE WITH AGENT)
Child response	
(1) 'The ball was bouncing'	(2) 'The boy was bouncing the ball'
SUBJECT	SUBJECT OBJECT
THEME	*AGENT THEME*
(3) The girl rubbed polish on the shoe	(4)The girl rubbed the shoe with polish
OBJECT	OBJECT
THEME	*LOCATION*

Each group of children with SLI was then compared with the matched LN group on the particular measures. For past tense this was the frequency with which the child supplied the past tense of regular verbs in the narrative task. For argument structure this was the frequency with which each child used both forms of an alternation, e.g. (1) as well as (2).

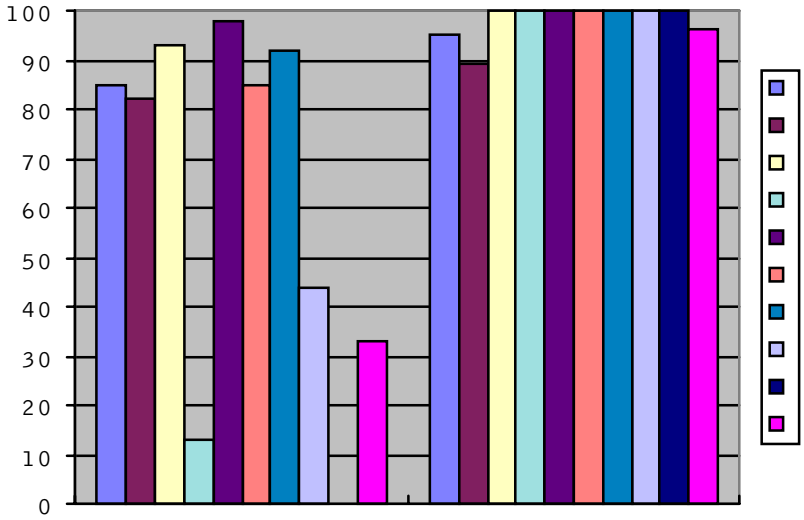
4. Results and discussion

As shown in Figure 1, the past Tense scores of children with SLI (+LD) show great variation, their BPVS matches far less.



SLI [+LD] LN BPVS matches

Figure 1: Past tense % realisation - SLIs [+LD] and LN matches



SLIs [-LD] LN BPVS matches

Figure 2: Past tense % realisation – SLIs [-LD] and LN matches

All the matches scored above 85%, but five of the SLIs in the [+LD] group and four of those in [-LD] group (Figure 2) scored below 60%. The means for the two SLI groups are almost identical, close to 63%:

Table 2: Group mean percent correct on reg. Past Tense realisation

SLI [+LD]	Past Tns		LN matches of [+LD]s
		63.4	95.5
		63.5	
SLI [-LD]			matches of [-LD]s
	62.5		98.0

The lexical deficit clearly fails to predict performance on regular past tense, considered to be a key indicator of grammatical deficit. The implications of this finding will be discussed below.

Other vulnerable areas of grammar in grammatical impairment (Loeb & Leonard 1991) are null subjects and pronoun case. Even adults sometimes ellipt subjects in finite clauses (cf. Schelletter 1990), so a null subject score of up to 5% was not taken as an indicator of a grammatical deficit. However, only two of the SLI children with a LD showed null subjects with a frequency of over 5% and with the SLI children with no lexical deficit the same was found. Pronoun case errors, where a child used the object form of a pronoun in a nominative case context were rare in both SLI groups.

Thus the hypothesis derived from Locke that the [+LD] children with SLI would show a pattern of much more severe grammatical deficits than the [–LD] group was not upheld. What we found instead is a dissociation between widespread problems with past tense forms, and generally correct performance on pronoun forms and obligatory subjects, a result which in fact raises questions as to the account of grammatical SLI as an extended optional infinitive phase (Rice, Wexler & Cleave 1995) which cannot be pursued here for reasons of space. However, it should be noted that the four children with frequent null subjects were among those with the lowest past tense realisation, an association predicted by the optional infinitive account.

We move on now to the other issue that investigated in this research. Was verb argument structure performance associated with a lexical deficit? In order to answer this question, rather than comparing SLI groups with their matches, we need to compare the performance of the two SLI groups directly.

Did the [+LD] group perform worse than their [-LD] counterparts? This was the issue that arose from Schelletter et al. (1996), referred to earlier.

Table 3: Mean no. of argument structure alternations (Max N=5)

SLI [+LD]	LN matches of SLIs [+LD]
1.9	2.7

SLI [-LD]	LN matches of SLIs [-LD]
2.4	2.8

(No significant between-group differences)

Although the mean number of alternations produced was slightly lower in the SLI group with a lexical deficit than in the group without a lexical deficit, the difference was not statistically significant. Hence argument structure realisation appears not to be related to the child's level of lexical acquisition.

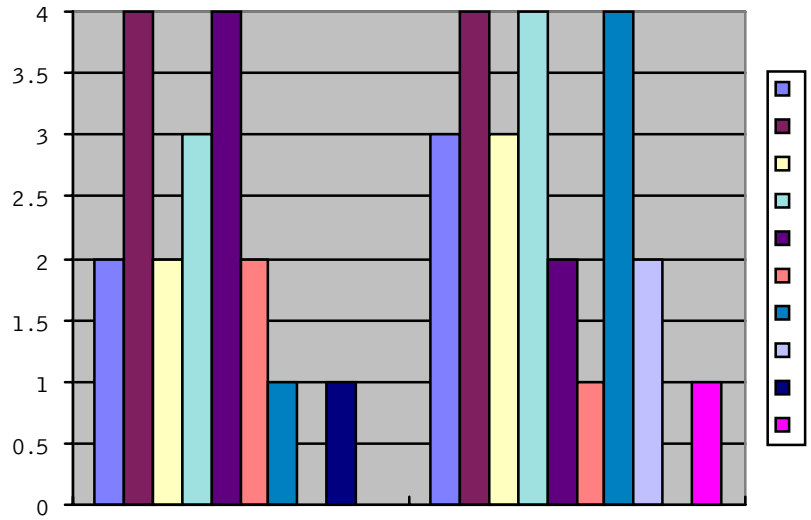


Figure 3: Mean frequency of A-structure alternations,SLIs [+LD] and [-LD]

There was no significant difference in the performance of the two SLI groups distinguished by the presence or absence of a lexical deficit. Wilcoxon rank sums test: z = -7.56 n.s

The findings so far indicated that a pronounced lexical deficit predicts neither a grammatical problem on a common measure of morphological impairment, nor poor performance on a measure of verb argument structure devised by earlier research showing that children with SLI often had a deficit in this area. The position taken in Locke (1994, 1997) that the lexical acquisition mechanism is responsible for grammatical impairment has not been upheld. It even appears that poor receptive lexical knowledge does not account for delayed verb argument structure acquisition, which is more surprising since one might well think of argument structure as subserved by a lexical acquisition mechanism.

This finding prompted a further question: was verb argument structure ability associated with grammatical ability? To investigate this question, scores on past tense production were compared with scores on argument structure alternations. To permit group comparisons, each SLI child was re-categorised for this purpose as + or – Grammatical Deficit (GD) on the strength of the past tense production task. Nine children with a production rate of under 60% were categorised as GD, the other 11 as NGD. Because of the lack of association between grammatical deficits and lexical deficits remarked on earlier, some children with SLI in the GD group had a lexical deficit, while others did not, and the same was the case for the [-GD] group.

Table 3: Mean no. of argument structure alternations(Max N = 5)

	SLIs [+GD]	LN MATCHES of SLIs [+GD]
MEAN	1.11	2.89
Wilcoxon's T = 1.5 (N=9) p = 0.5, 2-tailed		
	SLIs [-GD]	LN MATCHES of SLIs [-GD]
MEAN	3.00	2.64
Wilcoxon's T = 33.0 (N=11) n.s., 2-tailed		

This analysis showed a clear difference in the argument structure performance of the children with SLI grouped by grammatical deficit. Statistical analysis

using the Wilcoxon ranked sums test showed that the [+GD] group performed significantly worse on argument structure alternations than its LN matches, while the [-GD] group was statistically non-distinct from its LN matches.

A-structure therefore seems to be a grammatical discriminator identifying SLIs with a grammatical deficit, but not those without a GD. This is interesting because a-structure is not encoded in English by grammatical morphology. So the grammatical deficit in the GD children is seen to go beyond morphological deficit, of the kind envisaged in e.g. Gopnik & Crago (1991).

Let us now return to the issue posed by Locke of the relation between grammatical deficit and lexical deficit, which was not upheld here. The problem is that 4 of the 9 GD subjects show no lexical deficit. Therefore we have no reason to believe their utterance acquisition mechanism was defective. Yet they have a marked grammatical deficit. How can this be if a GD is consequent upon a deficient utterance acquisition mechanism? Conversely, five of the SLIs with NGD have a severe lexical deficit. How can this not have led to a grammatical deficit if GD is consequent upon an impaired utterance acquisition mechanism?

If we insist on linking lexical deficit and GD we might have to say that the constant lag assumption made by Locke is simply too strong. The GD subjects with no LD at the point of testing could have had a lexical deficit years earlier, but accelerated their lexical acquisition at a faster rate than normal so that they arrive with LN a.e. scores by the time they reached the point of BPVS testing. Conversely the NGD subjects with a lexical deficit at the point of testing could have had an age appropriate receptive lexicon in time for Locke's structure analysis phase, phase 2, but thereafter their lexicon grew at a much slower rate than normal, so that they arrive at the point of BPVS testing with a major lexical deficit, which led to problems in Locke’s Phase 3.

These explanations are logically possible. But if we adopt them we have to give up the constant lag claim made by Bishop, which appears to have been well-motivated, on the basis of a large sample (over 80) language-delayed children.

We might have to do that. But for now, while there are as yet no detailed longitudinal studies of SLI children that would resolve this issue as far as I am aware, I suggest that the cross-sectional data reported here indicate a somewhat modified version of the constant lag assumption. In some SLI children vocabulary development exhibits a persisting lag, while in others

grammatical development exhibits a persisting lag. The two kinds of deficit need not be associated.

5. Conclusion

These findings suggest a double dissociation in language impairment between grammatical deficits and lexical deficits. Children with a grammatical deficit may lack a lexical deficit, and vice versa. These findings are consistent with Pinker's dual mechanism (Pinker 1991) approach to language acquisition. There is a mechanism which deals with rote learning such as irregular past and another mechanisms which extracts generalisations from input. Both, neither or either one may be impaired. This need not be incompatible with Locke's overall theory of language development. The rote learning mechanisms is similar to Locke's utterance acquisition device, while both Pinker and Locke postulate a computational mechanism dedicated to acquiring grammar by establishing abstract rules and representations.

However, the relationship postulated by Locke between lexicon and grammar in SLI is not supported by these findings. Hence the computational system can be seen as fairly robust, able to operate adequately on a reduced amount of stored utterances in some of the [+LD] children. Likewise a normal amount of stored utterances may not ensure the successful operation of the computational system, as shown by some of the [-LD] children with delayed grammar.

The findings are likewise inconsistent with the claims of Bates and others that a single acquisition mechanism drives the acquisition of lexis and grammar. Dissociations such as those indicated in the data I analysed, if upheld in further research, have no theoretical explanation within this approach, whereas they are predicted by a dual mechanism theory.

Verb argument structure is undoubtedly a theoretically interesting area, as it seems to lie astride syntax and lexicon, thus posing an immediate problem for an acquisition theory with a dual mechanism approach. Which mechanism is to be used? On the one hand we might expect the mechanism driving utterance acquisition to be used since we are apparently dealing with the storage of verb-specific lexical information. On the other hand, there is clearly a syntactic dimension to argument structure too: elements of argument structure are linked to syntactic structure positions. As discussed by Pinker (1989) a-structure alternations are not purely a matter of idiosyncratic lexical

representations but also involve establishing some form of rule-governed knowledge. The findings in the present paper show that children whose rule-based language system is developing normally do not have a deficit in this domain, whereas those whose rule system-forming ability is impaired (on a production measure of past tense form) also have a deficit with argument structure (on a production measure of verb-specific syntactic forms). This alignment of an a-structure deficit with a past tense deficit may suggest that grammatical SLI involves the representation or processing of structural relations at the clause level, thus going beyond morphological feature-blindness (Gopnik & Crago 1991), extended optional infinitive (Rice, Wexler & Cleave 1995) or impaired paradigm building (Leonard 1998), and suggesting a structural relations account such as that of van der Lely & Stollwerck (1997).

However, despite this slight widening of grammar acquisition to include argument structure, my tentative conclusion is that these grammar impairments are fundamentally dissociated from lexical acquisition, *contra* the position taken by Bates & Goodman (1997) and others. It appears to occur in some SLI children with no receptive lexical deficit, while in others grammar acquisition seems robust enough to proceed despite a pronounced receptive lexical deficit. The research presented here in preliminary form indicates that models of acquisition which provide for a dissociation between acquisition mechanisms will be more successful in accounting for these results than models which provide a single mechanism driving both grammar acquisition and lexical acquisition.

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'Salience' as an explanatory factor in language change: evidence from dialect levelling in urban England[1]

Paul Kerswill and Ann Williams

Department of Linguistic Science, The University of Reading

Abstract. The article considers the notion of salience as applied in the explanation of language change through dialect contact, focusing particularly on Trudgill's 1986 exploration of the idea. The article opens with a discussion of six studies which have explicitly used 'salience' in an explanatory capacity. This leads to the conclusion that the factors involved in salience are many and varied. There follows a critique of Trudgill's salience model; while problems (mainly to do with circularity) are identified, Trudgill's model is considered to be testable. Data from a study of dialect levelling in England shows that, while language-internal factors play a part, it is in the end sociodemographic and other language-external factors that account for the salience of a particular feature. Finally, a three-component model of salience is presented: first, it is suggested that salience is only relevant in the case of dynamic linguistic phenomena (those involved in acquisition or change). Second, language-internal factors are listed, and third the all-important language-external factors are given. It is suggested that there are bidirectional causal links between the second and third components.

1. *Introduction: dialect contact and language change*

A current theme in contact linguistics is the interplay between internal, external (contact-based) and a range of non-linguistic factors in language change (see Jones et al. (eds.) forthcoming). Because of the uniqueness of every case of language change and the problem of finding controls, it is extremely difficult to predict, for a particular constellation of factors, exactly what the outcome will be. However, in assessing their role, there is a great deal to be gained by post hoc argumentation. This article explores some of these factors by appealing to a notion which seems to lie at the cusp of internal and external motivation: that of *salience,* which we can provisionally define rather simply as a property of a linguistic item or feature that makes it in some way perceptually and cognitively prominent. Salience is a notion of

[1] We are very grateful to Peter Auer, Jenny Cheshire and Peter Trudgill for valuable comments on earlier drafts of this article. This is a version of an article which will appear under the same title in Jones et al. (eds.) (forthcoming).

some venerability, dating at least back to Schirmunski's (1930) notion of *Auffälligkeit*, which he used to try to explain the difference between '"primary" dialect features ([salient features] which are susceptible to change or loss) and "secondary" dialect features ([less salient features which are] relatively resistant)' (Hinskens 1996:12). As our review in the next section shows, a salience-type concept has been adduced as an independent factor in a number of branches of linguistics; however, in the context of recent dialectology, it is in Trudgill (1986:11, 37) that we find the most careful elaboration of 'salience' and its most explicit application to language change. We take the view that salience offers sufficient insights for it to be a potential explanatory factor, while stressing that, without careful argumentation on the linguist's part, the concept all too easily lapses into circularity and mere labelling.

Trudgill discusses salience in the context of *dialect contact*. Far from being a limited 'special case' of language contact, dialect contact is a phenomenon typologically different from language contact because it does not involve speakers learning a new language, either wholly (giving rise to varying degrees of bilingualism) or in a restricted sense (typically resulting in lexical borrowing, but without any other changes). Instead, items can be mixed apparently at will and with minimal loss of intelligibility, without violating Poplack's 'equivalence constraint' (Poplack 1980; Kerswill 1994:17; Kerswill forthcoming). Moreover, it can be argued that dialect contact in fact lies at the heart of any language change that does not primarily involve contact between mutually unintelligible and structurally different varieties. If we accept, with J. Milroy (1992), that innovations are spread (though not originated) through contact between individual speakers, then the centrality of dialect contact becomes clear: a speaker adopts, or rejects, a linguistic form (which may be an innovation) used by another speaker with whom he or she is in contact. The fact that dialects in contact are typologically very close means that innovations are free to spread within the large number of linguistic units which are structurally equivalent, especially phonemes and lexical items, following either a Neogrammarian route or else by lexical diffusion (McMahon 1994:58).

Contact cannot, however, explain the reason why a particular change happened at the particular time and place it did, and not at some other time or place when the linguistic and social conditions were similar. As Croft points out: '[T]he source of new variants is often external; but this can be argued to be propagation across dialect (or language) boundaries. But the question

remains as to where the dialect diversity that is the source of variants came from in the first place' (2000: 55). Part of the reason for investigating salience is that, by trying to 'unpack' this complex phenomenon, we may be able to shed light on the interplay of internal (language-structural) factors and the large range of other factors which impinge on language change, including contact and those in the social psychological and sociodemographic domains. This can give us a window on the 'why' of the source of the diversity mentioned by Croft.

It is particularly in dialect contact that Trudgill sees the salience notion as applying. This, we would argue, is because restrictions on adoption caused by structural differences, as well as the more general difficulties speakers experience in learning new items, are of a much lesser order in dialect contact than in language contact. Instead, sociolinguistic factors, particularly social psychological ones, come to the fore in influencing the adoption or non-adoption of linguistic forms. As we shall see, salience attempts to combine both structural (internal) factors with sociolinguistic and psychological (external) factors in a single explanatory concept.

The case study we will discuss here concerns the convergence of linguistic features in three English urban centres, this being a manifestation of a wider process of dialect levelling taking place in Britain. By choosing features from the discourse and grammatical levels as well as the phonological level, we can follow up Trudgill's implied injunction to look at features other than phonological ones (1986:37).

2. 'Salience' as explanation in linguistics

There are a number of phenomena, particularly in language change, language acquisition and sociolinguistically-determined variation, for which it seems expedient to turn to some notion of 'psychological prominence' when attempting an explanation. In what follows, we discuss six cases where the notion has been adduced in an explanatory capacity. It will become clear that, in order for salience to avoid having a circular definition or being a label, it must have recourse to language-external factors, which will be a combination of cognitive, social psychological or pragmatic factors.

A rather straightforward, and circular, definition of 'salience' as referring to 'high frequency' is used by Bardovi-Harlig (1987) in her study of EFL learners' acquisition of English preposition stranding, as in *Who did John give the book to?*. This construction, she claims, is marked, yet is learnt

far sooner than the unmarked construction exemplified by *To whom did John give the book?*. The reason given is the massively greater frequency, or 'salience', of stranding in the data available to the learners. We would add, however, that the salience of the construction in the target language may actually be caused by its very absence in the learners' L1s, and that it is the resulting contrast effect coupled with high frequency that leads to its early adoption.

Kerswill (1985) applies a definition of salience in terms of the sociolinguistic sensitivity of a feature, and suggests a link with phonetic discreteness. He proposes that, as the connected speech process of syllable-coda l-vocalisation in south-eastern English varieties becomes increasingly fossilised as the unmarked realisation (i.e., a part of canonical speech, unrelated to factors such as speaking rate and attention), it becomes 'sociolinguistically salient'. Thus, speakers tend to produce *film* as [fɪʊm] in all circumstances. In Labov's terms, this vocalised pronunciation becomes the stigmatised variant of a linguistic 'marker' with the non-vocalised velarised realisation [ɫ] as the other variant. Kerswill hypothesises that the salience is connected to the fact that, as l-vocalisation becomes fossilised, it ceases to be articulatorily and auditorily gradual, and takes on a phonetically distinctive variant, a vocoid [ʊ], which differs more sharply from the 'clear' [l] used in pre-vocalic environments than did [ɫ]. It is, therefore, a moot point whether the development of distinct variants *follows from* salience, or is the *cause of* salience. Nolan, Kerswill and Wright (1991) find evidence for the sociolinguistic salience of the vocoid in some speakers' ability to avoid its use, hypercorrectly replacing it with the clear [l] in situations where there is social pressure to speak 'correctly' or when disambiguation is necessary. Moreover, a perception experiment carried out by them showed that the presence of l-vocalisation leads listeners to downgrade the social acceptability of a speaker, again suggesting its sociolinguistic salience. Here, phonetic distinctness goes hand-in-hand with the evident social evaluation of the feature (its salience, as defined by these authors), revealed by speakers' and listeners' behaviour with respect to it.

Using a rather more explicit definition of 'salience', Mufwene (1991) uses this notion to explain the preference, in the pidgins and creoles he has investigated, for analytic syntax and overt personal pronouns and other grammatical markers even in cases where the lexifier languages do not have these. Salience, for him, is used 'strictly in perceptual terms for the

unlikelihood of a marker to be omitted or missed even if it were reduced ... salient markers may be stressed; their non-salient counterparts may not ... e.g. the French T[ense] A[spect] inflections in their word-final position' (1991:139). He goes on to refer to a semantic characteristic of salient items: 'the role of salience in determining markedness values depends on whether the relevant salient forms are clearly associated with specific meanings' (ibid.). A further claim by Mufwene is important from the point of view of the argument to be developed in this article. When discussing the origin of particular pidgin and creole features, he states that while some could be taken from different dialects, 'these could have been selected because they were favored by the contact situation even though they are marked options in the lexifier' (1991:127-8). This is an allusion to his central contention that the exigencies of the contact situation are crucial in determining the outcome of pidginisation and creolisation, and that salience plays a prominent part. We shall argue, in a very similar vein, that sociolinguistic factors, including those arising from contact situations, can outweigh structural linguistic factors in influencing the adoption of a particular features.

Transparency in the form-meaning relationship, mentioned by Mufwene, is also adduced by Chapman (1995) in her exploration of two types of analogical change in Swiss German dialects, the analogical extension of *umlaut* (the front-back vowel alternation found in German morphology) and in the generalisation of vowel lengthening in nouns from the base form to inflected and derived forms. She finds that in neither case is the productivity of the process determined by whether a particular alternation is located in the lexicon (as in derivation) or is a syntactic rule (for example, inflection) – the prediction being that productivity would be greater for syntactic rules. Instead, she claims that productivity is determined by 'general semiotic and cognitive principles', which include 'the transparency of the semantic relation between base and derivative and the uniformity and transparency of the formal means used to signal the semantic oppositions in question' (1995:2). These combine to form 'perceptual salience, defined as the interaction of semantic and formal transparency' (3).

In all the definitions mentioned so far, we can detect an element of circularity: by labelling a feature as 'salient', the authors claim to have explained its patterning. However, the circularity is broken especially by Chapman's appeal to factors outside a particular theory-based analysis of the linguistic system: the 'general semiotic and cognitive principles' referred to above. Further support for a general notion of salience, with foundations

outside linguistic structure, is provided by Yaeger-Dror's (1993) study of accommodatory behaviour by Israeli pop singers when being interviewed and when performing. Yaeger-Dror was interested in the alternation of the mainstream Israeli koine pronunciation [ʀ] for /r/ with the Mizrahi (Sephardic) and standard Hebrew [r] in the usage of singers of different ethnic origins and having different target audiences. Her operationalisation of 'conscious accommodation' versus 'unconscious accommodation' is novel, though the classification itself seems to be related to Labov's distinction between indicators and markers (see below): she hypothesises that conscious accommodation will take place in 'cognitively salient positions' (1993:203), while less conscious accommodation will be found in 'relatively nonsalient environments'. Citing a range of studies on linguistic and psychological correlates of 'salience', she assesses the environments in her data according to their salience versus nonsalience on the following three dimensions: phonetic prominence, lexical ordering and prosodic factors. Although these three dimensions are arguably 'labels' and therefore not free of circularity, Yaeger-Dror's results suggest that the choice of factors was well motivated. She finds that, among the Mizrahi singers, whenever sociolinguistic factors (especially appropriacy in song) strongly suggest the use of [r] rather than [ʀ], then this indeed occurs in the salient environments. Conversely, in nonsalient environments, the other variant [ʀ], or a compromise 'fudge' [rʀ], is more likely to occur, signalling the ethnolinguistic ambivalence of these individuals in a more unconscious way.

While Yaeger-Dror's approach to salience involves a combination of linguistic and psycholinguistic criteria, Cheshire (1996; 1999) applies a definition of salience which is more pragmatically based than any of those discussed so far. Cheshire focuses her attention on the particular patterning of syntactic variables, noting that their relative infrequency leads to their being likely than phonetic variables to be used as identity markers (1999:61). Their pragmatic and interactional function will be correspondingly more important. Thus, the form of BE in existential *there is* appears almost invariably in the singular form even with plural logical subjects (that is, *there is* is invariant), a fact which she interprets as deriving from the function of the construction as a means for taking the floor. Because of this, it is economical for *there is* to be a 'prefabricated' phrase. The 'salience' of particular pragmatic and interactional functions, as well as syntactic positions, is explicitly explored in Cheshire's (1996) discussion of variation in the frequency of a number of

syntactic features. She argues (1996:6) that interrogative and negative clauses are 'inherently interactive syntactic environments', and she cites examples of the greater frequency of non-standard forms in these contexts. Similarly, she argues that prominence is related to foregrounding in discourse, and that this leads to the use of non-standard features there, too. The reason, in her view, for the salience of both negative/interrogative clauses and foregrounded material lies in the fact that 'non-standard language is an essentially oral form of language', and therefore, 'those environments that favour the occurrence of nonstandard variants will be those that are particularly important in spontaneous oral communication (1996:5).

We can summarise the claims of the studies just mentioned as follows:

- Salient non-standard features may be hypercorrectly avoided
- There may be negative social evaluation of speakers using a salient non-standard feature
- High frequency items are salient
- Grammatical markers which cannot be phonetically reduced, such as non-cliticised pronouns, are salient, while affixes may be non-salient
- Processes in derivational and inflexional morphology are salient if there is transparency in the form-meaning relationship
- Phonetic features in prosodically prominent positions are salient
- Grammatical (perhaps mainly syntactic) features in interactionally prominent positions are salient

Salience, then, is a useful notion only if the definition adopted avoids circularity. As stated at the beginning of this section, this can only be achieved if it is defined against extra-linguistic criteria, which will be a combination of the cognitive, social psychological, pragmatic and interactional factors listed above. Later in this article, we will see that we need to add sociodemographic factors to this list. At the end of the article, we present a model which incorporates the approach to salience just presented. We turn now to the use of salience as an explanatory concept in language change, with particular reference to that resulting from dialect contact. Our attention focuses on the work of Trudgill, who (as we stated earlier) has applied the concept in an explicit way.

3. *Internal and external factors in language change through contact*

In order to contextualise 'salience' as applied in sociolinguistic studies of language change, we will briefly enumerate significant internal and external factors in change triggered by contact, as suggested by the work of Thomason and Kaufman (1988), Trudgill (1986; 1994) and Siegel (1985). Between them, these authors seem to agree on emphasising the importance of the following as factors affecting the outcome of contact:

'Internal' factors

- Typological distance between varieties in contact (roughly equivalent to language vs. dialect contact)
- Transparency of equivalent constructions in the varieties in contact
- Markedness vs. naturalness of features which are candidates for transfer

'External' factors

- Social relations between the borrowing group and the group it is borrowing from
- Time-scale and intensity of contact
- Are adults or children primarily involved in the contact?
- Does contact result in language shift or borrowing?

It is useful to think of these as 'independent variables' in an experimental sense, though of course (for reasons given earlier) we can only make weak predictions about outcomes. As Thomason and Kaufman (1988:59) say, 'Since even the most natural changes often fail to occur, it is always appropriate to ask why a particular change happened when it did', in recognition of the need to look for *multiple causes* of any linguistic change. They in fact stress the importance, or even primacy of language-external factors. As we shall see, 'salience' as normally conceived shows some confusion about the relationships between internal and other factors.

The outcomes of dialect and language contact can be thought of as a set of 'dependent' variables. These include:

- The *linguistic component* (level) affected
- *Simplification* (vs. complication): a loss of irregularity in morphology and an increase in invariable word forms (Mühlhäusler 1977, cited in Trudgill 1986:103; Mühlhäusler 1980, cited in Siegel 1985)
- *Reduction* (impoverishment): "those processes that lead to a decrease in the referential or non-referential potential of a language" (Mühlhäusler 1980:21), involving, for example, a reduced vocabulary or fewer stylistic devices
- *Admixture*: the use of items (usually lexical, but also phonological, morphological or syntactic) from more than one variety
- *Levelling*: the decrease in the number of variants of a particular phonological, morphological or lexical unit in a given dialect area, usually resulting from the loss of minority or marked forms found in the different varieties spoken

As can be seen, these outcomes refer to a combination of internal and external factors: the first four refer to changes in the language structure, while the fifth refers to a purely sociolinguistic notion, that of the reduction in the amount of variability in a speech community.

4. *Trudgill's notion of 'salience'*

However, there is a further set of factors which affect the outcomes of dialect contact. Trudgill refers to these collectively as contributing to the salience of particular features. Trudgill's basic idea is that features which are adopted in dialect contact are salient. He takes as his starting point a brief analysis of 'markers', defined by Labov as linguistic variables to which speakers can pay more or less conscious attention (as opposed to 'indicators', to which speakers do not pay conscious attention). Trudgill lists the following as factors leading to variables becoming markers, and therefore salient (adapted from Trudgill 1986:11):

- The variable has at least one variant which is overtly stigmatised
- The variable has a high-status prestige variant reflected in the orthography
- The variable is undergoing linguistic change

- Variants are phonetically radically different
- Variants are involved in the maintenance of phonological contrasts

The importance of Trudgill's conception is that it attempts to explain why certain features are adopted, and others rejected, in dialect contact. Salience is a factor that is *additional* to the list of seven 'independent' variables given above. It hints at psycholinguistic explanations, though it does not do so explicitly. In his discussion, Trudgill also covers attitudinal and sociodemographic factors which may lead to stigmatisation. Trudgill takes the reader through a number of examples of features which are regularly adopted by speakers in dialect contact situations, and some which are not, the conclusion being that salient features are the ones acquired. There are, however, three provisos. First, features which are too 'difficult' are acquired late (if, for instance, they involve the learning of a new contrast). Second, they are avoided if they result in homonymic clash in the speaker's original dialect. Finally, they are avoided if they have *extra-strong salience,* that is, the features are (for the speakers) overly strong markers of the dialect being accommodated to.

However, there are two related sources of circularity and therefore loss of explanatory power in Trudgill's argument. The first has been discussed by other authors, particularly Hinskens (1996), and concerns the idea of extra-strong salience. It appears that the very factors that lead speakers to notice and to adopt new features, including the five listed above, are precisely those that also lead to a feature being avoided. If we just look at features which are salient, there is no way of predicting, on purely linguistic grounds, which ones will be adopted and which avoided – there is no objective measure either proposed, or even possible (it seems to us) that can achieve this (on this point, see also the discussion in Kerswill forthcoming). Instead, we must have recourse to non-linguistic information lying outside the stricter definition of salience. We argue later that it is these extra-linguistic factors that, in the end, are the decisive ones.

But problems lie in the five factors themselves. All of these, Trudgill argues, lead to speakers becoming aware of a feature. However, even here it is possible detect difficulties. We deal with the factors in reverse order. The only non-controversial factor among the five is probably the last one: even though current phonological theories do not necessarily operate with the idea of 'contrast', we are still dealing with differences that must be incorporated in

the lexicon. This is an all-or-nothing matter, and the differences are potentially the bearers of semantic information – though semantic differences are by definition not allowable in the notion of the 'linguistic variable' itself (Cheshire 1987). Because of the potential for semantic differentiation, awareness of the contrast is likely to be high rather than low. Despite this, the presence of a contrast is no *guarantee* of salience (see Auer, Barden & Grosskopf 1998).

The fourth factor (phonetic distance) is relevant only for phonological features. It has psychoacoustic explanations, though the parameters have not been clearly established. However, for vowels a formula for the establishment of 'just noticeable differences' has been proposed (Rosner & Pickering 1994), and it has been applied in a study of phonetic changes in a speaker suffering from Foreign Accent Syndrome (Dankovičová et al. 1999). Even though this technique is likely to tell us what the absolute minimum phonetic difference for salience might be, as we shall see from the example to be discussed later in this article, it is unlikely to help us predict whether a particular vowel difference will actually show salience (or, for that matter, extra-strong salience).

The third predictor of salience (involvement in linguistic change) is circular if salience is to be used as part of an *explanation* of language change – which is surely Trudgill's intention. The way in which this factor can be maintained is if it is assumed that salience does not itself lead to change, and that it is the change itself that causes speakers to notice the feature involved.

The first two criteria are essentially sociolinguistic in nature. They are incontrovertibly signs of salience, but are not explanations. Stigma (factor 1) and prestige (factor 2) are the result of a set of factors which lead to speakers becoming aware of the particular features and attaching to them socially negative and positive connotations, respectively. However, in setting out these two criteria for salience, Trudgill can be accused of resorting to circularity in his account: since we are attempting to explain both awareness of features (salience) and their 'polarity' (i.e. whether negative or positive associations are involved), it is not enough to say that speakers are aware of the features because they have stigma or prestige (negative or positive polarity). In fact, Trudgill breaks out of the circularity by discussing certain features in terms of their wider social embedding – their geographical and social distribution. Explanations for stigma and prestige should, then, be sought in language-external sociolinguistic factors.

Despite some problems, Trudgill's version of salience is a testable hypothesis which can be measured against new data, and this is done in the research to be reported in the next section. To anticipate our conclusions: there is a strong need to view individual linguistic features more explicitly and carefully in terms of their social embedding and evaluation (to use Labov's terms). This is because, even over a relatively short period of time, social embedding changes rapidly and in often unpredictable ways. Second, even within one community, embedding and evaluation may not be shared. Third, different linguistic features which are undergoing change vary in their social patterning in ways that may be related to their linguistic level (discourse, grammar or phonology), or sub-level (e.g., vowels or consonants). Differences related to linguistic level are not discussed by Trudgill; as Cheshire suggests, explanations for variation in grammatical, particularly syntactic, features may well be found in pragmatic and interactional factors. However, Trudgill believes factors 4 and 5, *degree of phonetic difference* and *surface contrast* (1986:37), to be the at the core of the salience notion, and we shall argue that these remain useful so long as they are seen as interacting with language-external factors.

5. *The Dialect Levelling project*

5.1 Premises and structure

The study reported here[2] set out to investigate dialect levelling across urban centres in England. Its premises were the following:

- In areas of high population movement, there may be rapid changes in dialect and accent features, including levelling. The speech community is *diffuse*
- Membership of a close-knit, stable social network with strong local ties leads to linguistic conformity. This inhibits change, including that manifesting as levelling. The speech community is *focused*

[2] Funded by the Economic and Social Research Council of Great Britain (ref. R000236180). See Cheshire 1999; Kerswill & Williams 1997, 1999, forthcoming; Williams & Kerswill 1999; Cheshire, Gillett, Kerswill & Williams 1999.

- The distance of a town from a metropolis (in this case London) is inversely proportional to the degree to which the town adopts linguistic features from that metropolis (the gravity model: see Trudgill 1983)
- Language change is most visible through the comparison of teenage language with that of adults

The project investigated teenage speech in three towns, Milton Keynes, a new town lying 70 kms north-west of London and having a highly mobile population (Kerswill & Williams 2000), Reading, a well-established town lying 60 kms west of London, and Hull, a northern city with declining industries. The choice of southern towns (Milton Keynes vs. Reading) enabled us to assess the effect of geographical mobility vs. stability and open vs. close-knit social networks on dialect levelling, while the choice of Hull allowed us to investigate the presence of convergence or divergence between North and South. In order to find evidence of parallel trends across social classes, in each town two broadly defined social groups were investigated, 'working class' and 'middle class', sampled by targeting schools in different catchment areas. In each town, 32 14-15 year olds were recorded in interviews and group discussions. Additionally, in each town, four elderly working-class residents were recorded. The following variables were quantified:

- 4 vowels (those in the lexical sets of PRICE, GOOSE, GOAT and MOUTH[3])
- 4 consonants (T-glottalling, fronting [θ] -> [f], fronting [ð -> [v], H-dropping)
- 12 non-standard grammatical (morphological and morphosyntactic) features
- the focus marker *like*

5.2 Results

We now look in detail at the geographical and social spread of a number of these variables. In order to investigate the role of salience, we will first try to assess the possible reasons for the difference in their spread in relation to one of the internal factors mentioned in section 3, that of markedness vs.

[3] These words are used mnemonically, following Wells (1982).

naturalness. Restricting the discussion to just this factor is because, in this project, all the remaining factors are constant, even if their values are not always known. Where this fails, we look at the language-internal salience factors (phonological contrast and phonetic distance), and then at other language-external, sociolinguistic/social-psychological factors.

Consonants

Figure 1 shows the distribution of T-glottalling and θ- and ð-fronting in the three towns. T-glottalling refers to the replacement of [t] by [ʔ] in intervocalic positions within a word, as in [leʔə] for *letter*. θ-fronting refers to the variable (th), which concerns the replacement of /θ/ by /f/, giving [fɪŋ] for *thing*. ð-fronting refers to the (dh) variable, the equivalent process affecting non-initial /ð/, which is replaced by /v/ in words like *brother*. Together, the latter two changes are often referred to as TH-fronting. The distribution of all three is broadly similar in all three towns: the strongest

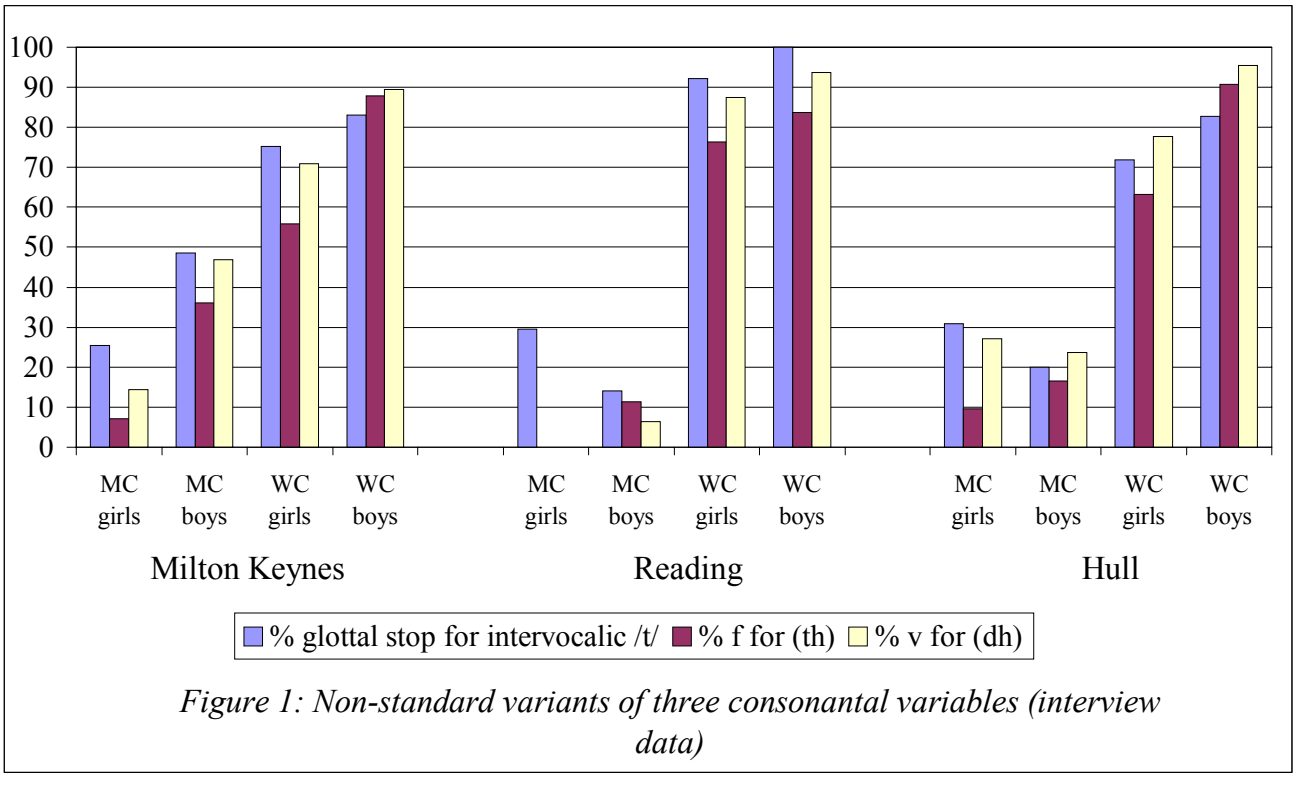
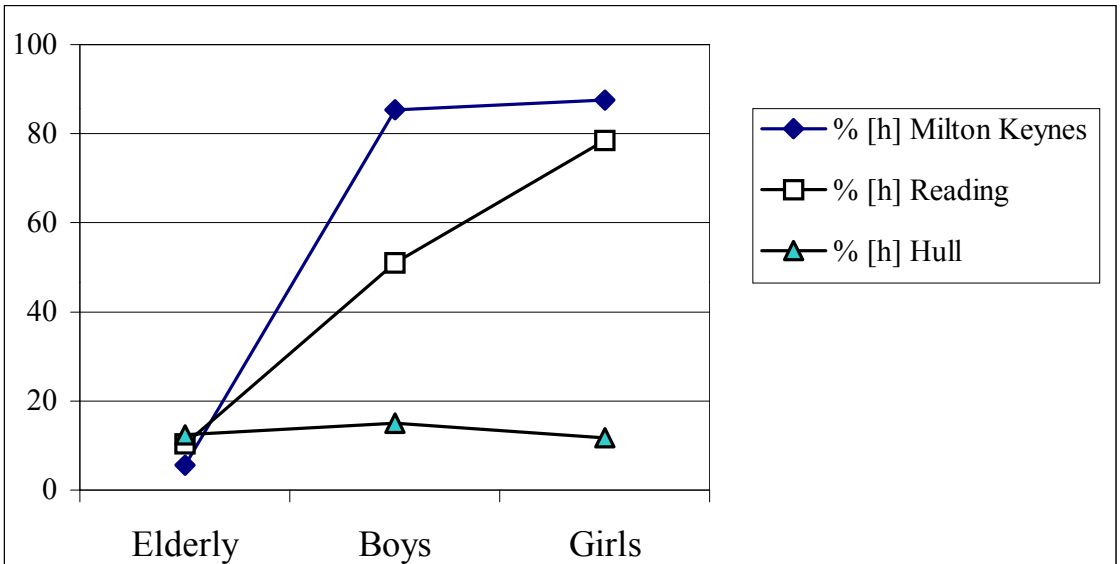


Figure 1: Non-standard variants of three consonantal variables (interview data)

factor is class, with middle class (MC) teenagers using far fewer of the innovative non-prestige variants than their working class (WC) peers. There is a decidedly unclear gender distribution, though there is a tendency for girls to use more of the prestige variants – a pattern reversed among WC children in Reading and Hull.

These rather similar results in the three towns (especially evident in the scores for Hull and Reading) belie the very different recent histories of the features. All three features are at least a century old in London, and have been spreading throughout the south-east, though TH-fronting has been slower to spread than glottalling. In the North, all three are recent. In Hull, there is evidence that T-glottalling in this intervocalic environment started among today's elderly generation, who use it but at a very low frequency, though in other regions it is more recent still (in Newcastle-upon-Tyne, some 150 kms to the north, it is relatively widespread among young middle-class females born since about 1970 – see Watt & Milroy, 1999: 29). In Hull, there is evidence that TH-fronting has only been common among working-class children since some time in the decade after 1980. In the case of these three consonants, then, there is complete levelling towards the southern pattern in the northern city of Hull and, we suspect, elsewhere too.

We must consider reasons why this happened at the same time for all three variables. The first possible explanation is that they are all consonants, and therefore pattern differently from vowels, which, as we have argued elsewhere (Williams & Kerswill 1999), show no North-South convergence at all. To answer this question, we look at another consonantal feature, that of H-dropping in lexical words like *house*, *hard*. All three towns lie in the large central belt of England where /h/ is dropped in traditional dialects and generally in working-class speech. This is, indeed, the pattern we find among our elderly speakers in all three towns, who in the interview used /h/ only between 5 and 12 per cent of the time. Figure 2 shows this pattern. However, it shows another extremely striking result: the



apparent reinstatement of /h/ by the southern working-class teenagers, who, especially in Milton Keynes, use it up to 83 per cent of the time. There is, thus, a massive divergence between North and South on this variable, with the North retaining the traditional form.

We must look for explanations for these patterns, beginning with naturalness. TH-fronting and H-dropping are normally thought of as natural; both lead to a reduction in phoneme inventories and to the loss of a marked segment. T-glottalling differs in that it is the straightforward replacement of one stop by another, with no loss of distinctions. Thus, naturalness fails to group these variables according to their sociolinguistic behaviour: it does not predict the fact that TH-fronting and T-glottalling behave similarly, while H-dropping shows a different pattern.

We turn next to Trudgill's definition of salience to see if this serves to differentiate them. Trudgill's first two criteria do not differentiate the features at all: there is overt stigma attached to the non-RP (Received Pronunciation) variant in each case, with overt correction by parents and teachers; in each case the prestige variant is reflected in the orthography. All the variables are undergoing change at the moment in that there are gradual changes in the frequency of use of existing variants. Trudgill's final two criteria, concerned with linguistic factors, do not help either, since they fail to group T-glottalling and TH-fronting, differentiating them from H-dropping: variants are phonetically radically different in the case of T-glottalling and H-dropping, but less so with TH-fronting. H-dropping and TH-fronting both involve the loss of a phoneme, while T-glottalling does not.

We are left unable to explain why T-glottalling and TH-fronting are spreading, while H-dropping appears to be receding in the South. Yet the pattern we have observed in our data fits in very well with what is known about changes affecting these consonants in British English more generally. Glottalling, at least in environments other than the word-internal intervocalic one, is now very common among younger high-prestige speakers, even those whose speech is labelled as 'posh' by lay listeners (posh is a colloquial term that can be glossed as 'upper class' or 'snobbish', and may be used derogatorily). Glottalling is therefore losing its stigma and, along with formerly non-standard features like the labiodental [ʋ] for /r/ is now fairly widespread among young English middle-class speakers (Foulkes & Docherty 2000, Williams & Kerswill 1999). TH-fronting is likewise spreading, though at a slower rate. On the other hand, H-dropping is still extremely rare among middle-class speakers, including those who speak

compromise varieties like so-called 'Estuary English' (between RP and broader south-eastern speech) (Rosewarne 1994, Coggle 1993, Wells 1982).

It could be said that H-dropping has *extra-strong salience* as a low-prestige marker, which leads to a tendency to abandon it. But a *converse* extra-strong salience may be appealed to in order to explain its continued strength in Hull: it could be that it is heard as 'southern' or 'posh', both of which may be undesirable features among Northern teenagers. Appealing to extra-strong salience is, as we have seen, a circular argument if we stick just to the linguistic correlates of salience. Also, this does not explain why the originally southern features of T-glottalling and TH-fronting are adopted in the north with such rapidity. We need to look at large-scale attitudinal and identity factors affecting the North and the South differently, and which operate independently of phonetic difference and phonological contrast. Even though T-glottalling and TH-fronting are southern in origin and are demonstrably spreading from the south, they apparently do not pose a threat to a northern identity – unlike the use of /h/. The condition for this seems to be that the southern features must at the same time have low prestige.

We must still explain the reinstatement of /h/ in the south among speakers who remain quite strongly non-standard in their grammar and phonology. It appears that the evaluation of /h/ has changed among adolescent working-class speakers: it is as if it is no longer a marker of 'poshness' for these speakers. It is tempting to seek an explanation in the greater social mobility in the region than in the north. However, for the Reading working-class adolescents this is not obviously the case, since they are resident in a district of the town which has very strongly local networks in the same way as the Hull working-class subjects (Kerswill & Williams 1999; Cheshire et al. 1999). If sociodemographic changes do turn out to differentiate the northern and southern teenagers, we must still explain the southerners' adoption and maintenance of other non-prestige features like TH-fronting and T-glottalling. Having exhausted linguistic and social explanations for the adoption vs. non-adoption of particular features, we have to recognise that we may, ultimately, be dealing with linguistically arbitrary factors.

The following is a summary of the results for the three consonantal variables:

Summary for consonants

- Consonantal features spread from the south to the north. (We can add the increasing use of labiodental [ʋ] for /r/ in the north, following a southern innovation - see Foulkes & Docherty 2000.) The successful ones are those which (i) are natural and (ii) have low prestige

- Explanations in terms of a restricted definition of salience fail (i) because of the circularity of 'extra-strong salience' and (ii) because the factors of phonological contrast and phonetic difference do not serve to group consonantal features in terms of their sociolinguistic behaviour

- Northern identity factors mean that southern features perceived as 'posh' are not adopted in the north. There is less resistance to 'posh' features in the south

- We may ultimately not be able to explain why one feature is adopted while another is not; linguistically arbitrary factors may play part

Vowels

In terms of vowels, the study showed no evidence at all of convergence between North and South. Instead, we see independent, relatively local developments leading in some cases to divergence, and in other cases the maintenance of very localised features (Williams & Kerswill 1999). The vowel of PRICE illustrates the difference between the regions.

Table 1 Percentage use of variants of /aɪ/ (PRICE), Reading Working Class, interview style

	[a̲ɪ]	[ɑ̟ɪ]	[ɑɪ]	[ɔɪ]	[ʌ̟ɪ]	[ʌɪ]
Elderly (2f, 2m)	0	12.4	47.8	21.8	1.7	15.7
Girls (n=8)	2.8	21.2	45.1	21.1	4.3	5.1
Boys (n=8)	0.6	19.1	63.7	13.7	2.7	0

Table 1 shows that, in Reading, there is a gradual loss of back-onset and central-onset diphthongs (last three columns) in favour of low-back-onset diphthongs [ɑɪ] (third column) – a levelling towards majority southern urban speech, presumably spread by diffusion through contact. In Hull and parts of the surrounding East Riding of Yorkshire, there is a striking allophonic difference between two variants of PRICE, a monophthong [aː] before voiced consonants, as in *ride*, and a diphthong, typically [aɪ], before voiceless consonants, as in *bike*. Table 2 shows the distribution among the Hull subjects: the allophonic distinction is largely maintained by the younger working-class speakers, with only one girl and one boy at times using diphthongs in the 'monophthong' environment. Despite its localised nature, there is little convergence with the south on this vowel and, more interestingly, there is also little convergence with other northern accents, which do not have this feature. While the Reading PRICE vowel is being levelled, its Hull equivalent is maintaining a strongly localised pronunciation.

Table 2 The PRICE vowel with following voiceless and voiced consonants, Hull speakers

(a) with following voiceless consonant, e.g. *bright*

	% [aɪ] ~ [aːᴵ]	% [aː]
WC elderly (n=4)	100	0
WC girls (n=8)	100	0
WC boys (n=8)	100	0
MC girls (n=8)	100	0
MC boys (n=8)	100	0

(b) with following voiced consonant, e.g. *bride*

	% [aɪ] ~ [aːᴵ]	% [aː]
WC elderly (n=4)	0	100
WC girls (n=8)	25.7	74.2
WC boys (n=8)	17.5	82.5
MC girls (n=8)	100	0
MC boys (n=8)	95.0	5.0

Note: Each adolescent read the following words: *bright, knife, lighter, bike, whiter*; *bride, five, pint, smile, wider*. Scores for the elderly are derived from the interview data; 20 tokens per speaker were transcribed.

Finally, we consider the vowel of MOUTH, which is undergoing rapid change in Reading. Table 3 shows the distribution of its variants among working-class speakers there. This shows a near-complete shift away from the traditional variant across two generations: among the adolescents, the old forms are only used sporadically. The figures do not show a striking facet of Reading speakers' behaviour with respect to this vowel: those

Table 3 Percentage use of variants of /aʊ/ (MOUTH), Reading Working Class, interview style

	[ɛʊ̯]	[ɛɪ]	[ɛː]	[a^{ɔ}]	[æʊ]	[aʊ]
SED informants	✓					
Elderly (2f, 2m)	53.5	38.1	3.3	0	4.1	0.7
Girls age 14 (n=8)	0	2.3	0	8.0	0	90.4
Boys age 14 (n=8)	3.8	3.2	0	5.7	0	87.1

speakers who use both old and new variants actually switch between these two, with no phonetically intermediate variant. To sum up: both Reading vowels are undergoing quite rapid change (dramatically so for MOUTH), while Hull PRICE remains relatively unlevelled, showing little convergence with southern or even majority northern variants.

Let us now look more closely at these vowels in terms of the motivating factor of markedness/naturalness. There is no reason to suppose that any of the variants which are being lost (viz., Reading [ɛʊ̯]/[ɛɪ] for MOUTH, [ɔɪ]/[ʌ̟ɪ]/[ʌɪ]for PRICE) are less natural than the variants that are replacing them. On the other hand, the position for Hull PRICE is quite different. The allophonic distribution vowel was doubtless originally phonetically motivated, and hence natural, but that motivation has, presumably, long since been lost. Importantly, its continued existence in fact represents the maintenance of a complex, or more marked feature. This is a fact for which we must seek language-external explanations. Elsewhere (Williams & Kerswill 1999), we argue that this feature's maintenance is due to the relative geographical and social isolation of the Hull working-class speakers, leading to close-knit networks.

Returning to the salience notion, we find that none of the variants is reflected in orthography, nor is there a phonological contrast at stake anywhere. However, there are differences with regard to phonetic distance. Both the Hull PRICE vowel and the Reading MOUTH vowel involve relatively large differences, with little tendency for intermediate variants. These facts are certainly reflected in the switching in Reading between the variants of MOUTH; users of the traditional Reading variant are often aware of it, and younger users often have their attention drawn to it by non-users, who may

regard it as 'old-fashioned' or 'country'. In Hull, we do not have sufficient information on speakers' awareness of the two allophones of PRICE, but it is a feature frequently commented upon by incomers to the city.

The phonetic distance criterion applies in a rather less obvious way to Reading PRICE, the variants of which are distributed along a relatively small phonetic continuum. Despite this, the Reading vernacular vowel is quite strongly stereotyped in the south-east, and contributes specifically to the perception of Reading speakers as 'rural' (see Kerswill & Williams forthcoming). Incomers to Reading frequently comment upon it, and adolescent users may get teased for it. Yet there is a way in which the linguistic predictors of salience hold up: it may be that the older variants are heard by other speakers as the vowel of CHOICE – in which case we are dealing with a contrast. However, there is no merger for the Reading users of the back vowel, so far as we are aware.

What we are left with is three highly salient features which fulfil the 'phonetic difference' criterion for salience, but to differing degrees, and which turn out to pattern very differently in their degree of change and in whether the variants are discrete or placed on a phonetic continuum. None of this can easily be predicted by the two linguistic factors favouring salience. On the the other hand, as with consonants, sociodemographic factors play a part (though not the same ones: the maintenance of the complex Hull PRICE allophony can be ascribed to the relative isolation of this group of speakers rather than regional – i.e., North–South – identity factors).

The position for vowels can be summarised in the following way:

Summary for vowels

- The salience factors of phonological contrast and phonetic difference do not (i) correlate with degree of overt stigma or (ii) mirror sociolinguistic patterning in any clear way. All three vowels are overtly stigmatised, but only Hull PRICE and Reading MOUTH show discrete variants. Against expectations, it is with these vowels that no phonological contrast is at stake for either speakers or outsiders (Reading PRICE may be heard as CHOICE)
- Phonetic difference does, however, appear to cause (i) switching between discrete variants and (ii) a relatively sharp stratification in terms of class and/or age.

- Markedness/naturalness play no part in predicting the spread of vowel features

Grammatical variables and discourse features

Following Cheshire (1987), we distinguish between morphological variables, for which it is relatively easy to identify variants which do not affect any aspect of meaning, and syntactic variables, for which this is difficult or impossible, and where the notion of 'variable' may be inapplicable anyway. In the study reported here, we focused on morphology. Morphological variables are likely to be salient in Trudgill's terms because they involve different lexical realisations of underlying grammatical categories. This component, or level, was not originally investigated by Trudgill, though he encourages others to do so (1986: 37). In addition to quantifying the frequencies of a number of variables, we also investigated their salience by asking the teenage subjects whether they thought particular grammatical forms could be heard locally. The majority of the non-standard features investigated have long been shared by all three non-standard varieties. But there is some evidence of levelling between the three towns (that is, change leading to convergence) with respect to specific features. For example:

- *them* as demonstrative adjective is being generalised (Hull *them there*, as in *look at them there cars*) is absent from teenage speech)
- there is a reduction in frequency of two localised features – Hull zero definite article and Reading present tense *-s* – in favour of majority/standard forms
- there is an increased use of clause-final tag *innit*, replacing [ɪntɪʔ], in Hull. In the two southern towns, the tag need not agree with its antecedent in number, person or modal verb

To this can be added a feature which is not a variable *sensu stricto*: the use of *like* as a focus marker, as in *I'm like real tired when I get in* and as a marker of reported speech or thought, as in *He's like wow that's great*. At the same time, there is a loss in all three towns of clause-final discourse marker *like*, which shares some of the functions of a tag, e.g. *I've got a lot to do, like*.

The 'grammar salience test' was administered as a questionnaire during group discussions with the adolescents. Sentences containing examples of 40 non-standard features were presented in printed form (following the practice adopted in Cheshire, Edwards & Whittle 1989/1993), and the subjects had to write down whether they thought the constructions could be heard in their town.

Table 4 shows the recognition scores for some of these features. Below each score, the working-class subjects' actual usage is given, expressed as the percentage use of the non-standard form in the interviews. Four main patterns emerge. Pattern 1 shows that, for a number of features, medium or high usage among working-class speakers goes with a high recognition rate among both working-class and middle-class judges. Pattern 2 shows that the same is true for features particular to individual towns: non-standard *done* in the southern towns and non-standard *was* in Hull. Conversely, Pattern 3 shows that low linguistic scores can correspond to relatively low recognition rates.

The results for Patterns 1–3 are in line with the assumption, stated earlier, that grammatical features are likely to be salient because their variants are distinct. However, there are other patterns which suggest that factors other than distinctness are at work. Pattern 4 suggests that some strongly localised features can receive a high recognition rate, even when their absolute frequencies are low. Both the Hull zero definite article and the Reading non-standard present tense *-s* are decreasing in frequency, yet they remain highly salient. Furthermore, within Patterns 2 and 3 we find a mismatch between recognition rates for the two groups of judges. Thus, in Hull, middle-class adolescents believed that preterite *done* was a characteristic of local speech (showing this by their 'recognition' rate of 100 per cent), while the linguistic score (at 8 per cent) demonstrated this was not the case – *did* is the local form. It is as if these judges are stereotyping local non-standard speech, attributing an otherwise widespread and stigmatised feature to Hull when it is in fact largely absent there. Conversely, in Reading, middle-class judges fail to recognise the present tense marker *-s*. These results suggest that, even within a single town, there can be a lack of shared knowledge of local norms, a fact which is very much in line with the results from a 'dialect recognition' experiment reported in Kerswill & Williams (forthcoming). It follows that salience, however defined and however caused, will be different for different social groups.

Table 4 Association between recognition scores (percent) and Working Class linguistic scores (percent non-standard) for selected grammatical features

Pattern 1. High recognition rate, moderate to high non-standard linguistic score in all towns:

		Reading			**Milton Keynes**			**Hull**	
Item No.	**Feature**	**WC**	**MC**		**WC**	**MC**		**WC**	**MC**
1	neg. concord	94	100		69	100		94	100
	non-st. score	*37*			*34*			*67*	
2	non-st. *come*	75	63		88	100		81	71
	non-st. score	*82*			*57*			*73*	
3	non-st. *them*	50	63		81	100		100	88
	non-st. score	*67*			*56*			*25*	

Pattern 2. High recognition rate, moderate nonstandard score, individual towns, with differences in recognition rates between classes:

Presence of feature in MK and Reading, near-absence in Hull:									
4	pret. *done*	100	100		69	100		31	100
	non-st. score	*36*			*56*			*8*	
High frequency of feature in Hull, lower frequency in MK and Reading:									
5	*non-st. was*	94	87		100	20		100	100
	non-st. score	*29*			*21*			*78*	

Pattern 3. Low to moderate recognition rate, low nonstandard score, in all towns:

6	relative *what*	25	50		0	0		6	0
	non-st. score	*4*			*3*			*26*	

Table 4 (continued)

Pattern 4. Low nonstandard score, high recognition rate, individual towns:

Recessive Hull feature (absent in south):									
7	zero def. article	6	38		50	0		69	100
	non-st. score	*0*			*0*			*9.5*	
Recessive Reading feature (absent in MK and Hull):									
8	pres. tense -s	100	13		0	0		0	0
	non-st. score	*12*			*0*			*0*	

Pattern 5. Recognition of 'old' discourse marker clause-final like *and 'new' focus marker medial* like:

		Reading			**Milton Keynes**			**Hull**	
Item No.	**Feature**	**WC**	**MC**		**WC**	**MC**		**WC**	**MC**
9	clause final *like*	0	13		0	0		13	25
10	focus marker *like*	100	100		75	100		94	100

Finally in this discussion of data from the English adolescents, we return to Cheshire's (1996) claim that some non-standard features occur in interactionally prominent, or salient positions, owing to the fact that non-standard varieties are developed in face-to-face interaction. The final feature we consider has a discourse function. It is not a variable as ordinarily conceived, because of the difficulty of establishing semantic or even functional equivalence for possible variants. This is the focus marker *like*, shown under Pattern 5 in Table 4. First, we can note the uniformly high recognition rate. It is a new feature, widespread in the English-speaking world, and not surprisingly it is used by all the adolescent groups in the sample (Cheshire, Gillett, Kerswill & Williams 1999). Anecdotal evidence suggests that it is commented upon, and criticised, by many adults. This marker has obvious interactional functions, including encoding the degree of importance to be placed on the proposition which it precedes, expressing the speaker's orientation towards and commitment to the truth of the proposition, and (in the form *be like* – see Tagliamonte & Hudson 1999) as a quotative.

By contrast, the clause-final discourse marker *like* (e.g., *I did that when I got home, like*) has a very low recognition rate and, we can infer, low salience – despite the fact that it is present in all three towns, albeit as a recessive feature. It shares, however, some of the same functions of utterance-medial focus marker *like* especially in expressing commitment to the proposition. In utterances such as *Did you see her, like?* it has a clear interactional function. Therefore, it is surprising that it is barely recognised. Aside from the fact that it is increasingly rare, one reason for its apparent unfamiliarity may lie in the fact that it occurs in a position that may be both prosodically and pragmatically non-prominent. Thus, its post-tonic and utterance-final position leads to less phonetic prominence. Also, the propositions it modifies have normally not been foregrounded. This discussion must remain speculative at the moment.

The following summarises this discussion:

Summary for morphological variables and the focus marker *like*

- These features are likely to be salient because they involve lexical differences. The generally high level of recognition bears this out
- But certain factors increase salience:
    - Localised features, though decreasing in use, remain highly salient
    - Discourse features may be salient if they occur in prosodically and pragmatically prominent positions (medial *like*); admittedly the evidence is unclear on this point
- Salience is not shared across the community:
    - Middle-class non-users of the features often do not recognise local features.
    - Middle-class non-users may also resort to stereotyping, resulting in the reporting of features which are not, in fact, present
- Although strongly localised features are levelled, they may remain salient
- For morphological and discourse features, the *a priori* predictors of salience (phonological and phonetic distinctiveness) combine with

sociodemographic and social psychological factors to produce varying levels of salience. In this respect, they do not differ from phonological features, though the details of the factors vary

6. *A model of salience*

Discussing salience in a way that divorces it from language-external factors leads to a failure to gain insights into the social patterning of linguistic features; at worst, to do so leads to circularity and labelling. If we suspect that a feature is salient for speakers because of its particular patterning (in terms of acquisition, change or variation), we start by checking for language-internal factors. But we must immediately look for extra-linguistic factors that might be linked to the salience. These factors, as we saw in the early part of this article, are extremely varied and sometimes complex. We argued that, of Trudgill's five factors, only the two language-internal ones (phonetic difference and phonological contrast) fully avoid circularity. It was also suggested that we cannot immediately say whether these two factors are a potential *cause* of salience, since they may also be a *result* of prior salience. The data from the Dialect Levelling project shows that these two factors do not always lead to features becoming salient, and that features which do not fulfil the criteria for either factor (or show relatively small phonetic differences, like Reading PRICE) may nevertheless be salient. Thus, there are no necessary and sufficient conditions which must be met in order for a linguistic feature to be salient – barring the obvious one that differences between its presence and absence must be noticeable in a psychoacoustic sense.

More explicitly, we see the social psychological property of 'salience', which may be attached to a feature by language users, as being linked to internal and external factors as outlined in the following model. Any operationalisation of the salience notion must involve a match between three components:

1. the presence of a linguistic phenomenon whose explanation we suspect may be due to the salience of the linguistic feature or features involved. Typically, the phenomenon will be a particular pattern observed in language change, language variation, the variable behaviour of individual speakers, or the acquisition of a linguistic feature. In cases of

language change and variation, the linguistic features are items being transferred from one language variety to another through diffusion; however, diffusion-type mechanisms may hold for the other types of phenomena as well.

2. language-internal explanations, such as the presence of phonological contrast, great phonetic distance, internally-defined naturalness, semantic transparency, or a particular syntactic or prosodic environment
3. language-external cognitive, pragmatic, interactional, social psychological, and sociodemographic factors. Some have a natural link with the linguistic features being adopted (e.g., that between a syntactic feature and its pragmatic function), while others have an arbitrary relationship (e.g., the favouring of one vowel quality over another)

Note that the list given under component 1 covers only a portion of what might be termed 'linguistic phenomena'. In particular, *non-dynamic* phenomena are excluded, such as grammatical or phonological theory and description (unless the focus is on a change from state A to state B), aphasiology and acquisition in relation to linguistic theory, descriptions of language changes where contact is not being discussed, much of articulatory phonetics, and some areas of psycholinguistic processing.

The presence of at least one element taken from component 2 appears to be a precondition for salience. Certain elements are gradient, others categorical. Component 3 is essential if we are to avoid circularity, and is ultimately the cause of salience. Components 2 and 3 are linked in complex ways, sometimes natural, sometimes arbitrary. There will often be a causal relationship between components 2 and 3, though the direction of causality will depend on the particular case. However, it is the language-external factors of component 3 that in the end directly motivate speakers to behave in a certain way, and are therefore central to the salience notion.

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Caste and Class: Reassessing their significance in investigating sociolinguistic variation and change in urban India

Sonal Kulkarni

Department of Linguistic Science, The University of Reading

Abstract. The principle of caste, which is said to distinguish south Asia from all other societies, has gained much the same importance in social, political and academic debate as class in Britain or race in the United States. Sociolinguistic studies in India have been affected by the exclusive focus on caste as the as the basis of social stratification in India and this had led investigators in the past to hold that static, categorical 'caste dialects' existed in the sub-continent. Subsequently, attention was shifted to the effects of education and urbanisation in levelling out caste influence. However, the function of social class as a sociolinguistic leveller is not always clear. This, I argue in the present paper, has often been the outcome of the inclination of researchers to assume a direct correspondence between caste status and class status. This paper discusses some findings from the sociolinguistic study of 125 school-aged adolescents in the city of Pune. Quantitative analyses of the tape-recorded linguistic data reveal that, in the process of linguistic acculturation, the emerging social class system has variable influence on different traditional caste groups.

1. *Introduction*

In discussing mobility in different types of social organisation, researchers routinely compare typical class systems in western industrial societies with rigid, 'immobile' caste systems (Dumont 1970; Littlejohn 1972; Giddens 1989). The south Asian Hindu society, where social inequalities are believed to be permanent and fixed, has commonly come to be regarded as an archetype of the latter. Although instances of positional changes in the caste order are well documented in the sociological literature on south Asia (Srinivas 1966: 6; also see Gupta 1993 for a collection of essays) misconceptions regarding mobility in the caste system are evident in recent western sociolinguistic literature and are reflected in such unenlightening comparisons as 'a caste system is a class system with no social or occupational mobility' and '… class systems and caste systems appear to be poles on a continuum' (Chambers 1995, 2nd edition 1997: 53). Within Indian sociolinguistics too, the place of caste in the study of linguistic variation and change has not always been clear. Following the immense interest generated

in the Indian caste hierarchy by American social anthropologists, there was a spate of sociolinguistic activity in the subcontinent. Most of these studies (compiled in Ferguson and Gumperz's 1960 publication, *Linguistic Diversity in South Asia*) were primarily concerned with the effect of caste on linguistic maintenance and change. These studies evince a certain bias in that most of them were conducted in rural and semi-urban communities where the social structure was most conservative and where caste was, largely, the unit of all social action. This enabled the American sociolinguists and their Indian cohort to consolidate the notion of 'caste dialects' in India. In the 1970s, however, the caste-oriented position came in for heavy criticism; indigenous sociolinguists questioned the overstated importance of caste and dismissed 'caste dialect' as being a "meaningless nomenclature" (Pattanayak 1975: 97).

Retrospectively, this outburst appears to be a reflection of the politically charged climate in the country at the time. In the 1960s and the '70s the non-Brahmin low castes had successfully formed a united front against high caste oppression. Reservations (quotas) in government services for the *dalits* or the Scheduled castes (outcasts, having the lowest status in the traditional social order) and the Scheduled tribes had existed since colonial times. Demands were now being made for an extension of 'protective discrimination' for the middle caste peasantry which constituted 52% of the population. These demands were struck down by the Supreme Court in independent India and state-level Planning Commissions were instructed that the criteria for reserving posts should be "economic" and not caste-based (Omvedt 1993: 69-70. Also Bayly 1999). The 1970s were a decade of "caste-class" debates. Marxist writers insisted that the 'caste-war' was essentially a 'class-war'. Prominent high caste social scholars like M.N. Srinivas too joined the "campaign for economic criteria" for reservation in public services and stressed the harmfulness of dealing politically with caste. Thus, the pursuit of a "classless and casteless society" resulted in *ignoring* caste rather than finding ways of abolishing the system (Omvedt 1993).

The shift in focus away from caste benefited Indian sociolinguistics by effecting the inclusion of other social factors such as education, occupational status, age, sex and urban affiliation in investigations of social variation in language (see for instance Pandit 1969; Bernsten 1978). However, the role of caste identity and its interaction with class and other social factors in the process of sociolinguistic change have never been fully explored (but see Bapuji 1994). Relatively little is known about the significance of caste in facilitating or stalling dialect shift / maintenance in the process of linguistic standardisation in urban centres in India where, as

with modern urban societies in most parts of the world, social boundaries are becoming increasingly diffuse and contact between people of diverse social backgrounds is becoming the norm rather than the exception.

This paper reports some findings from a sociolinguistic study of the choices made by Marathi-speaking adolescents in urban Pune between standard and non-standard features of the language. Specifically, the purpose here will be to assess the roles of caste and class membership in dialect shift in an urban Indian context. But first I shall review the sociological notions of 'caste' and 'class'.

2. *Conceptual formulation of caste and class*

Despite the deluge of literature that has been produced on the 'extreme form of social stratification' (Dumont 1988: 3) found in India, only two scholars, as far as I am aware, have challenged the universal view that caste is a unilateral, hierarchical principle of social stratification. Das (1982) and Gupta (1993) have both challenged Dumont's conceptualisation of caste as an all-encompassing hierarchy. Here I summarise only the main arguments which have emerged.

Continuous hierarchies are built around a single criterion which is shared to a greater or lesser extent by all those who occupy that hierarchy. To borrow Gupta's illustration, a foreman on the shop floor is not a manager, but is nearer to a manager than an ordinary worker is (1993:116). Within the organisation of the factory these relative positions of authority are undisputed. Members of a society can be ranked on a class continuum using the single criterion of income, land or wealth; they can be assigned to a particular stratum which can be read off a hierarchical scale. Middle class, lower middle class, working class, etc. are the various arbitrary demarcations on the scale employed by the analyst for purposes of a specific analysis.

Discrete categories, unlike continuous hierarchies, separate units into exclusive categories. In a caste system there exists no single criterion the possession of which makes one a *Brahmin*, and the lack of which makes another a *Maratha* (a non-Brahmin high caste)[1]. There exist multiple caste

[1] The caste names used in this study are as follows:
High castes, i,.e. having high social status in the traditional caste order:
1. Brahmin (the priestly caste) 2. Marathas (the warrior caste, who were also the landed gentry in the Marathi region).
Low castes:
3. Backward castes or BC (which is the term used in official government terminology for the touchable non-Brahmin castes. These were the artisans and craftsmen in the old order). 4. Scheduled Group (includes the

ideologies, each emphasising the need to separate caste groups from one another. Each idiosyncratic articulation of caste ideology draws on an identical pool of salient symbols to position itself with reference to the others. To assert that the 'true hierarchy' (Dumont 1970) is one which is based on the notions of 'purity and pollution', would amount to insisting that the Brahmin vantage point was paramount. This would however be out of step with contemporary reality where members of the society are aware of, and recognise, the denoters or symbols (social practices, customs, rituals, beliefs, genealogical heritage, etc.) which separate and keep the castes distinct. But these symbols are not ranked on any 'universal', unequivocal hierarchy. Alternatively, we may say that there are as many hierarchies as there are castes. The different castes assert their dignity and pride as separate groups without considering themselves inferior to any other caste. Gupta concludes that it is because of the shared recognition of the salient symbols of separateness that the discrete castes constitute a *system*.

In the final analysis, the difference in the class system of stratification is one of *degree*; in the caste system it is one of *quality* (Das 1982:69, emphasis added).

Occupational specialisation and purity are no longer principles underlying the caste system. What then is the caste system today? Gupta sums up the essence of the caste system in its present state as "a form of differentiation wherein the constituent units of the system justify endogamy on the basis of putative biological differences which are semaphored by the ritualisation of multiple social practices" (p.137).

Just as occupational stratification may coexist with gender, religious and linguistic stratification, so also caste and class systems coexist in modern India. There is no reason to believe that if there is class there can be no caste or vice versa. There may be a significant statistical correlation between caste and class, but that should not tempt us to conflate the two categories. Conceptually and analytically they are distinct categories of stratification; empirically one form of stratification is found overlaid by another. Assumptions regarding the growing influence of one system as the other wanes out are an outcome of 'conceptual fogginess' (Gupta 1993:4). "Caste and class do not constitute a continuum" (ibid.). So, adopting Chambers's view (cf. Introduction) would be committing a theoretical solecism.

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untouchable non-Brahmin castes or the outcasts from the old order who did menial jobs, and the Scheduled tribes) who had the lowest social status.

Implications

The conclusions drawn from a review of the literature on Indian sociology were incorporated in the choice of social categories for the analysis of the Pune speech data**.** Here I have not treated caste groups and class as being coterminous. Following Karve (1965), Bernsten (1978) and K.S. Rajyashree (1980) have combined economic status with caste categories as "in general, it shows that the high castes and high economic status tend to converge" and the backward classes "still constitute the least educated and the lowest economic section in the society", (K.S. Rajyashree 1980: 41). Thus, they use three broad caste-class categories: (1) advanced class (white collar and landed), (2) Backward classes (inclusive of scheduled castes and tribes), and (3) Others (cultivators and artisans). The assumption made in this approach is suited to a rural/ semi-urban setting; it does not, however, reflect urban Indian reality, where occupation groups cut across caste categories. Moreover, since the focal interest of this research is to examine the influence of education and social class across traditional caste groups as it is reflected in linguistic behaviour, the variable of class is crucial to this study.

3. *The Pune Study*

3.1 *Background*

Marathi, a modern descendant of Old Indo-Aryan, is the official language in the south-western state of Maharashtra and is spoken by over 70 million people (Census of India 1991) and has the third largest number of native speakers in the country after Hindi and Telugu. Pune, after Mumbai (Bombay), is the second largest city in the state and has a population of 2.5 million. While Mumbai is the economic and political capital of the state, Pune is recognised as the cultural seat. The study of linguistic acculturation of various social groups in Pune acquires significance for a number of socio-historical and sociolinguistic reasons.

Both in pre- and post-independence times Pune has been at the hub of political activity in the country. The *Poona Sarvajanik Sabha*, founded in 1870, was the leading association of western India in colonial times. Under the leadership of political activists like Ranade, the *Sabha* became one of the most active and energetic political associations in India (Johnson 1970). Under the influence of the *Sabha,* Pune witnessed the beginnings of many social and judicial reforms in the last three decades of the nineteenth

century. The *Sabha* was, however, dominated by the upper caste Brahmin elite. The Brahmin leaders failed to persuade the larger non-Brahmin population to accept their leadership and eventually Pune, the centre of Brahmin power in the mid-nineteenth century, became the stage for non-Brahmin propaganda. In 1873 Jotirao Phule, a *Mali* (gardener, non-Brahmin low caste), founded the *Satya Shodhak Samaj* in Pune to challenge the supremacy of the Brahmins and to champion the cause of the non-Brahmin castes. Above all, he aimed at educating non-Brahmins (and women) so that they would be able to compete with Brahmins on their own terms (for a detailed account refer to Johnson 1970). In the 1970s Pune once again became a scene for caste struggle in the state. The anti-caste movement initiated by Phule re-manifested in the shape of the *Dalit Panthers*. The *dalits* (the downtrodden in the society) waged a battle against the high caste nexus of the Brahmins and the landed Marathas.

The Marathi language was standardised in the nineteenth century under the supervision of Major Candy, the British director of education in what was then the Bombay Presidency (K.S. Rajyashree 1980 provides a comprehensive account of the historical development of standard Marathi). The attempt was made in response to the need to have a uniform code which could be used to produce grammars and dictionaries of the language, and to finally translate school textbooks from the English to replace indigenous texts. The English-educated Brahmins and other high caste elite in the city of Pune, who were closer to the centre of power, first introduced the Marathi language to the British and, subsequently, their variety of the language came to be recognised as the prestigious variety. Pune had been the educational and cultural centre of Maharashtra besides being the seat of the government for over a century. The choice of the Pune variety met with little resistance and was generally approved by the influential native grammarians and scholars at the time. During the period 1874-1947 planned standardisation of the Marathi language resulted in a well-stabilised, elaborated code. Eminent social and political reformers writing in this variety lent further prestige to the standard code. The acceptance of the Pune variety for literary and educational purposes meant the relegation of the other dialects to the position of mere vernaculars.

Since independence increasingly larger masses of people were being exposed to the standard variety through formal education, the mass media and social mobility. The growing number of educated people came from a wider range of social backgrounds and the standard was now being used in a variety of social domains; the regional non-standards such as the language of the slums and the lower castes were now finding expression in Marathi

literature. The rigid variety of Marathi which had evolved during colonial times had to become flexible enough to accommodate changes. Thus, in the latter half of the twentieth century, standard Marathi attained "flexible stability" (K.S. Rajyashree 1980: 91-6).

3.2 *Data Collection*

The data reported here are derived from fieldwork carried out in four secondary schools in Pune. It was expected that the modern urban school, which brings together in increasing numbers children from a variety of caste and class backgrounds, must act as an effective solvent of barriers between different social groups. The data were collected from 125 children (57 girls and 68 boys) aged 12-14 who were interviewed in same sex pairs. The normal routine during the course of the fieldwork was to first interview some volunteers with their best friends, to identify their peer group members, become acquainted with them and to record as many of them as possible in pairs in semi-structured informal interviews. Systematic information regarding the children's family backgrounds and their social contacts in the school was obtained in the interviews and verified using the children's responses to a sociological questionnaire. Some select friendship networks were studied in greater detail through participant observation.

3.3 *The variables and analysis of the data*

The main social parameters included in this study are:

1. Sex of the child
2. Parents' social status
    (a) Traditional caste membership
    (b) Mother's education
    (c) Father's education
    (d) Father's occupational status
3. Children's friendship networks in the school

For the purposes of this paper I shall focus narrowly on the effects of the children's caste identity and the family's social class status on their linguistic choices. 'Social class status' was measured in terms of the father's occupation. This was measured on a six-point scale and later conflated into two broad categories, working class and middle class, to make possible the study of interactions among the various social factors in the statistical programme used.

The main study includes eleven linguistic variables (seven phonological, one morpho-phonemic, two morphological and one composite lexical) which were identified in a pilot study. All the linguistic variables are binary (referred to here as 'standard' and 'non-standard'. Previous researchers have tended to treat the linguistic divide as being between 'Brahmin' and 'Non-Brahmin' speech varieties).

The interviews were transcribed phonemically and percentage standard scores were calculated separately for each linguistic variable. The quantified linguistic data were tested statistically for the effect of the social parameters listed under 1 and 2 under 3.3 above. The test Binary Logistic Regression in the statistical programme SAS was used (the testing procedure is briefly described under 4.1 below). A qualitative approach was used in analysing the effect of the children's school networks on their speech habits. This approach helped to observe the ways in which children use speech to re-position themselves with respect to their corporate social identities (denoted by caste and class) in their school interactions.

Statistical analyses of the eleven linguistic variables revealed that variation through the four caste groups is further superimposed upon social class variation, gender distinctions and differences in parents' formal education generating patterns of sociolinguistic differentiation that are necessarily complex. In the following sections I shall present the analyses of three linguistic variables which yielded results that are relevant to the discussion of caste and class influence on linguistic standardisation in the Pune study. The three linguistic variables discussed here are:

1. (N)

This variable refers to the alternation between the standard retroflex nasal /ɳ/ and the non-standard /n/. /ɳ/ and /n/ are phonemically distinct in the standard dialect.[2] The retroflex nasal has not only been discussed by previous scholars as a prominent marker of high caste/educated speech, but is also overtly recognised as such by the speakers of the language (i.e. by non-linguists). The pronunciation of the dental nasal corresponding to the retroflex in the standard has always been identified as a stereotype of non-Brahmin speech and is heavily stigmatised. Brahmins commonly refer to non-standard speakers as those who say /ani/, /pani/ and /loni/ instead of /aɳi/, /paɳi/ and /loɳi/ (glosses: 'and', 'water' 'butter' respectively). Thus from a folk

[2] For a discussion of the historical development of this sound in Marathi see Bloch 1970: 142-6.

linguistic perspective, the ɳ/n distinction in Marathi is probably the most significant.

2. (Aspiration_Medial_Final) or (Aspi_M_F)
Aspirated stops in word-medial and –final positions in the standard tend to be unaspirated in non-standard speech. The phonological variable refers to the retention in the standard versus loss in the non-standard of aspiration of stops in word-medial and word-final positions.
Examples

Standard	Non-standard	Gloss
dudh	dud	milk
aʈhʊi	aʈʊi	eighth

3. (Lex)
This is a composite variable consisting of some frequently occurring content and function words.
Examples

Standard	Non-standard	Gloss
patelə	patilə / bhəgulə	pot
miɭalə	bheʈlə	get (past)
khup / phar	ləi	a lot / many

3.4. Hypotheses

Drawing on the findings from the sociolinguistic surveys of semi-urban Phaltan Marathi and of working class Marathi in urban Bombay (Bernsten 1978 and Apte 1962 respectively), it was hypothesised that –
1. Caste membership will not have a significant effect on children's linguistic choices
2. Social class effect on the choice of standard/non-standard variants will be greater than the caste effect.

4. Quantitative Analyses of Three Linguistic Variables

4.1 The variable (N)

Table 1 presents a summary of the results of the Linear Logistic Regression analysis for (N) using data from 114 of the 125 adolescent informants in the sample. 9,613 linguistic tokens were used in the following analysis.

Table 1. Statistical results for the social correlates of 'N'

Terms in model	Deviance	d.f.	F-ratio	p-value
constant	6452.4975	113		
+ caste	5168.4986	110	12.09	**< 0.001**
+ sex	4917.6131	109	7.09	**0.009**
+ em	4478.8393	107	6.2	**0.003**
+ ef	4372.8539	105	1.5	0.2774
+ of	4279.8227	104	2.63	0.5852
+ caste*sex	4100.402	101	1.69	0.2197
+ caste*em	3740.2251	95	1.70	0.2229
+ sex*em	3660.1190	93	1.13	0.3058
+ caste*of	3267.007	90	3.7	**0.015**
+ sex*of	3266.0893	89	0.03	0.8747
+ em*of	3082.8759	87	2.59	0.081

The linear logistic models were first fitted, adding one explanatory factor (or main effect) at a time, (indicated by [+caste], [+em], [+ef], and so on in the table above where em = mother's education, ef = father's education and of = father's occupation). The deviances for the nested models were compared using F-tests, comparing each difference with the residual mean difference for the model with all explanatory factors[3].

For example

$$\frac{(D^*.\ \text{constant} - D.\ \text{caste}) / (\text{d.f. constant} - \text{d.f. caste})}{(\text{Deviance for the largest model}) / \text{d.f. for the largest model}}$$

[3] For details of the statistical procedure used refer to Collett 1991, Chapter 6.

i.e.

$$\frac{(6452.4975 - 5168.4986) / (113 - 110)}{3082.8759 / 87}$$

(* D = Deviance, d.f. = degrees of freedom)

The F-ratio for the [caste] model was thus found to be 12.09. A significant value of the F-statistic indicated that the model (constant) and model (caste) could be distinguished. The significant F-statistic (i.e. the low p-value) strengthens my claim that, even with the small sample size, any difference we observe is most unlikely to be the result of chance; the observed difference is the result of treatment effect and the figures are reliable.

From the above table we see that addition of the factor 'caste' to the model yielded a significant value of the F-statistic ($p < 0.001$). Similarly, additions of 'sex' and 'mother's education' to the model yielded significant F-ratios ($p = 0.009$ and 0.003 respectively). Subsequent additions of 'father's education' and 'father's occupation' to the model (indicated in the table above by [+ef] and [+of] in the table) did not reduce the deviance greatly and the F-ratios were not found to be significant. Three social factors were thus identified which co-vary significantly with a high frequency of occurrence of the standard variant of (N). Further, 'caste' emerged as the most significant explanatory variable, suggesting that the phonological variable (N) is a caste marker.

Having isolated 'caste' as the most significant social factor, I proceeded to explore inter-caste differences. Table 2 below presents an analysis of parameter estimates for the factor 'caste'.

Table 2. Analysis of parameter estimates for 'caste'

Parameter	Estimate
Scheduled	-1.65
Backward	-0.92
Maratha	-2.06
Brahmin	0.00

Holding the estimate for the 'Brahmin' group constant and allowing for the variation caused by the four main effects other than caste, I found that, the estimates for the three non-Brahmin caste groups in the sample were

comparatively lower (indicated in the table by the minus sign): the Backward caste children scored the highest among the non-Brahmins followed by children from the Scheduled group, while the Maratha children scored the least overall (see fig. 1 below).

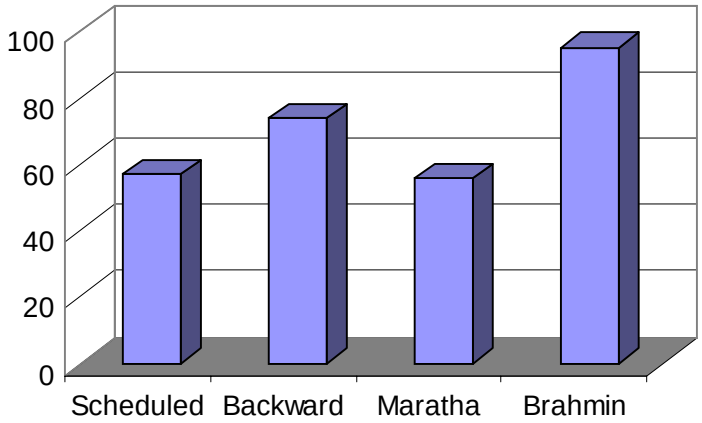

Fig 1: Percent standard (N) usage by caste

Interactions of the three significant main effects (caste, em and sex) were added to the statistical model, but none of these were found to be significant, as is evident from the corresponding p-values in table 1 above. The only significant interaction was found to be between caste and class (measured in terms of the father's occupational status). This interaction is represented in fig. 2.

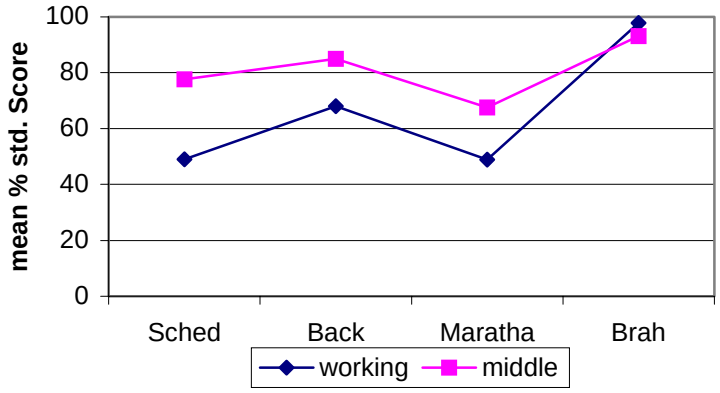

Fig.2 Percent standard (N) by caste and class

Among the non-Brahmin caste groups the middle class children of each caste group scored significantly higher than the children in the corresponding working class categories with the Maratha children scoring the least for both classes. While the Brahmin children's scores were significantly higher for both classes overall, observe that the group score for the middle class children is lower than that for the working class children.

The effect of social class across caste and sex

Three-way interactions are often difficult to interpret and were therefore not added to the statistical model. However, the effect of class across caste and sex groups tabulated in Table 3 below and graphically represented in Figure 3, point to some interesting tendencies in the data.

Table 3: *Percentage use of standard /ɳ /by caste, social class and sex*

	CLASS					
	WORKING			MIDDLE		
	GIRLS	BOYS	MEAN	GIRLS	BOYS	MEAN
CASTE						
SCHED	62.6	29.6	49.0	73.6	78.4	77.6
BACK	55.6	75.9	68.0	98.5	74.8	85.0
MAR	49.3	45.5	48.8	79.2	64.4	67.6
BRAH	98.4	97.3	97.8	100	89.3	93.1
MEAN	60.0	57.1	59.3	89.6	79.2	83.3

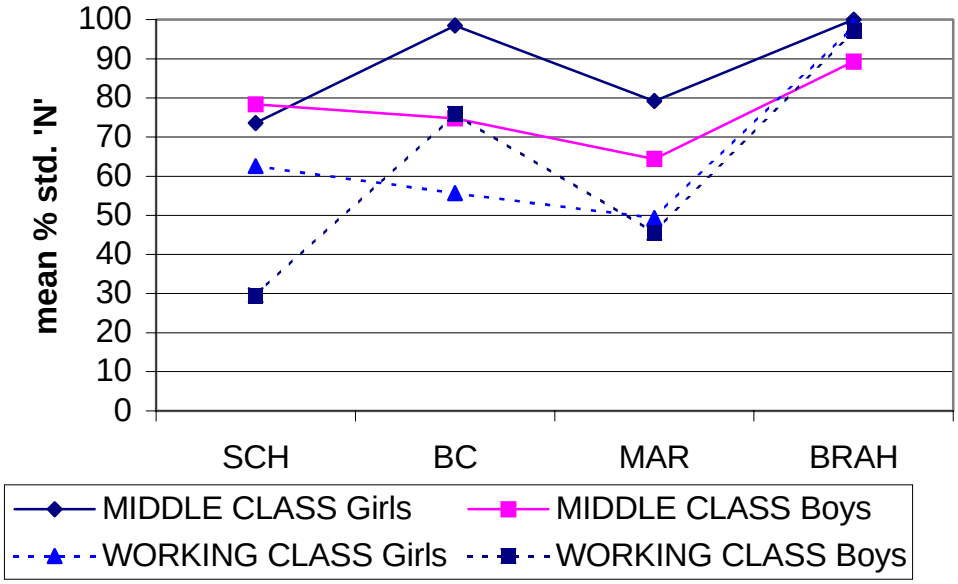

Fig.3 Percent standard (N) by caste, social class and sex

A cursory look at the table shows that overall it is the middle class children who use the standard variant of the (N) variable more frequently than the working class children; similarly, girls get higher percent standard scores than the boys in general, and the Brahmin children score higher than the non-Brahmin caste groups.

Within the Brahmin group, the middle class girls are the most conservative scoring 100% on this phonological variable. Working class girls and boys get high scores too, though, strikingly, the middle class Brahmin boys get a low group score of 89.3% (refer back to fig. 2). On closer examination I found that five of the eleven boys in this group scored well short of 100%. It is interesting to note that both the middle class Brahmin boys and girls interact with non-Brahmin children in their school friendship networks.

By contrast with the Brahmin group, the effect of class appears to be more distinctly marked within the non-Brahmin group, with the middle class children getting noticeably higher scores than the working class children. In the working class group, the Maratha girls and boys along with the boys from the scheduled group used the retroflex nasal variant less frequently. Among the children from middle class families (which coincide more or less with the more educated non-Brahmin families in the sample), the Backward children get the highest group score (85%) with the girls of this caste group

showing an almost complete shift towards the standard variant (98.5%). Children from the Scheduled group with a group score of 77.6% follow behind the Backward group. Though the middle class Maratha girls show reasonably high scores (79.2%), the boys of this group score the least (64.4%) within the group of middle class children in the sample.

To summarize the findings from the foregoing analysis of the use of the retroflex nasal among children in the Pune sample:

Statistical analysis revealed that caste membership has the most powerful influence on the use of standard /ɳ/. This finding has made it possible to conclude that the (N) variable is a caste marker and that it marks off Brahmin identity from non-Brahmin identity. There is, however, a strong standardising tendency among the children from educated and middle class Scheduled and Backward caste families.

Singh (1979) investigated caste influence on the categorical use of retroflex and dental nasals in certain lexical items in the Punjabi dialect spoken in the village of Desu Marja. He failed to find definite caste patterns. He has not, however, considered differences in frequencies of use of the two variants. Sastry (1993) found that the /ɳ/ in standard Telugu co-varied with caste, geographical region, and formality of the situation (pp: 80-1). The feature occurred most frequently in the educated and uneducated speech of all the prestigious upper caste groups (including the upper caste non-Brahmins) of coastal Andhra Pradesh, the region from which the standard dialect of Telugu originates.

The Pune data presents a contrasting case. While the Marathas (or the high caste non-Brahmins) persist in the use of the non-standard [n], it is the Backward caste (who traditionally had a low caste status) who are leading the shift towards the standard [ɳ]. Later in this paper I shall argue that these are the linguistic ramifications of the complex social history of the Marathi region.

4.2 *Aspiration_Medial_Final*

11,700 linguistic tokens transcribed for 114 children were used in the statistical analysis. As in the case of (N), the effect of caste on the retention of aspiration of stops in word medial and final positions was found to be predominant (F-ratio 6.47 and p-value < 0.001). Once again the three non-Brahmin groups scored lower than the Brahmins. Further, among the non-

Brahmins, the Backward caste scores approximated the Brahmin scores most closely while the difference between the Scheduled caste and Maratha scores was not very large.

Table 4: Analysis of parameter estimates for 'caste'

Parameter	Estimate
Scheduled	-0.57
Backward	-0.21
Maratha	-0.60
Brahmin	0.00

Class, when treated independently, did not yield any significant variation, but a highly significant interaction effect emerged for caste and class (F-ratio = 11.25 and p-value < 0.001).

Table 5: Aspi_M_F by caste and social class

	Working class	Middle class
Scheduled	26.7	30.8
Backward	28.7	47.3
Maratha	24.8	31.2
Brahmin	46.1	46.2

Figure 4 displays graphically the effect of class across the four caste groups.

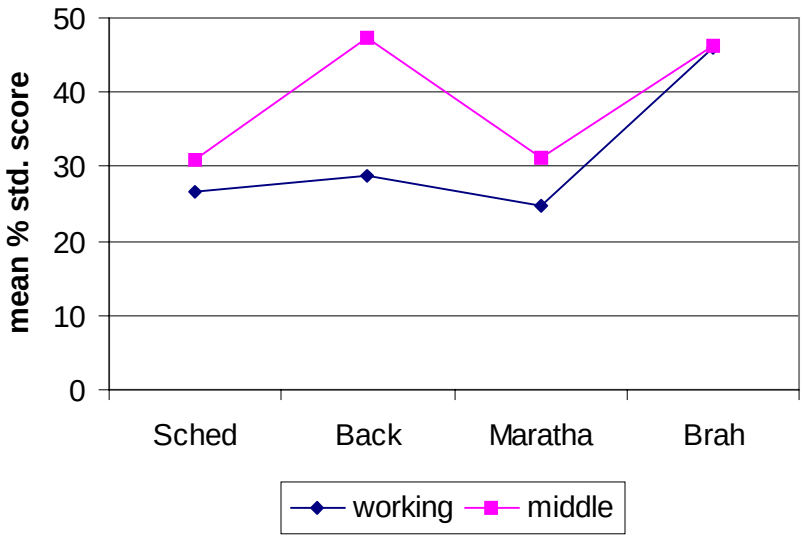

Fig 4. Aspi_M_F by caste and social class

The small difference between the working and middle class Brahmin groups (46.1% and 46.2% respectively) indicates a greater tendency towards retention of the standard form. The middle class Non-Brahmin children scored consistently higher than the corresponding working class groups. The effect of class is most marked in the case of the middle class Backward caste children with a group score of 47.2%, which is higher than the middle class Brahmin group score of 46.2%. The effect of class across the Scheduled and Maratha groups was comparatively small. From the graph we see that the differences between these groups are in fact gradient. The Maratha children scored the least in both the class groups.

4.3 *The Composite Lexical Variable (Lex)*

12,372 tokens of highly frequent lexical items were used for the Linear Logistic Regression Analysis of the composite lexical variable (number of subjects used for the analysis = 114).

Statistical testing revealed that caste membership is the most important social factor influencing the choice of standard lexical items (F-ratio = 8.52 significant at the 0.1% level). Parents' social class and sex of the child also

accounted for a large amount of the variation in the data (both significant at the 1% level). Inter-caste differences become apparent from table 6 below:

Table 6. Parameter estimates for 'caste'

Parameter	Estimate
Scheduled	-1.04
Backward	-0.42
Maratha	-0.92
Brahmin	0.00

Brahmin children used standard lexical items most frequently, while, among the Non-Brahmins, it was once again the children from the Backward group who used the standard variants most frequently. The Maratha children in this instance scored higher than the Scheduled group.

Similarly, girls (93.2%) and middle class children (90.3%) scored significantly higher than boys (85.2%) and working class children (77.0%) respectively. The significant caste-class interaction effect ($p < 5\%$) helps us to identify the social locations of linguistic difference more precisely. Figure 5 below displays graphically the sharp class stratification across the three Non-Brahmin caste groups. Scheduled group children score the least among the working class, and Marathas among the middle class. Note the minimal differences in the lexical scores of the working class and middle class Brahmin children. The scores of the middle class Brahmin, BC and Scheduled group children too are very similar.

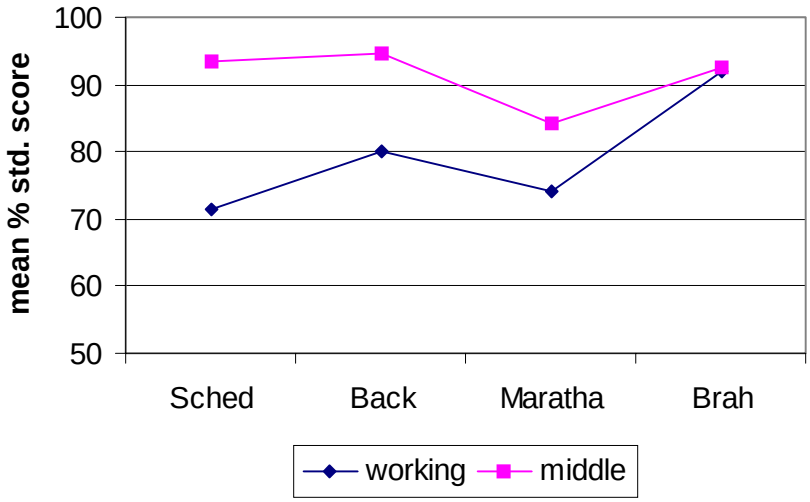

Fig 5. Mean percent standard (Lex) by caste and social class

4.3.1 *Discussion of the results for (Lex)*

Gumperz (1958) found in his study of dialect differences in the north Indian village of Khalapur that, while phonological differences correlate with larger groupings of castes, lexical differences occur between individual castes (p. 45). Similarly, in Kupwar (Gumperz and Wilson 1971), although the syntactic differences among the three languages spoken here – Marathi, Urdu and Kannada – tended to be suppressed, vocabulary distinctions symbolized caste differences. McCormack (1960) in south Indian Dharwar and Pandit (1963) in west Indian Gujarat reported that standard lexical use may most clearly reflect education rather than caste partly because education provides access to standard sources. Bernsten (1978: 247) in her Marathi data from semi-urban Phaltan discovered high correlations between lexical variation and caste and education of the speakers.

Although caste influence predominates in the lexical choices of the Pune adolescents, I have not found any definite lexical isoglosses coinciding with caste boundaries of the nature reported by Gumperz for north India. The differences in the Pune data lay mainly in the *frequency* of use of standard lexical variants. Parents' education did not figure as an important influence on the children's lexical choices though parents' social class did. The impact of social class across individual caste groups within the non-

Brahmin cluster produced the most striking patterns, especially for the middle class children of Scheduled and Backward caste groups. That is to say, the lexicon of the non-Brahmin adolescents in Pune is undergoing a gradual change from vernacular to standard lexical forms, a change which is accelerated by middle class membership (the inference of change here is, however, tentative; see footnote 5). Kerswill (1987: 34) refers to this type of lexical differentiation as 'lexical standardisation'.

It must be noted that the composite lexical variable in the Pune study includes only commonly occurring content and function words. The composite variable excludes kinship terms (and address forms) which constitute a special component of the lexicon. Kinship, along with colour, religion and taboo terms forms closed lexical systems of a language's lexicon. Studies in South Asian anthropology/ethnographic semantics have been heavily oriented towards kinship studies (Shapiro and Schiffman 1981: 224-38 provide a comprehensive summary). Karve (1965, 1970), Southworth and Daswani (1974), Dumont (1953) and Tyler (1964), to list only a few of them, deal with the nature of the relationship between the system of kinship terms and culture and other forms of cultural behaviour. Generally speaking, caste groups are distinct in their ritual and social practices and therefore this part of the lexicon has been reported to reflect caste lines most clearly. It becomes necessary to mention here that the same may be true in urban Pune, especially among working class children of the Scheduled caste group.

A rapid round of questions was included in the first component of the interview with the children in order to 'warm them up'. One such question pertained to kinship terms. The questions were often uncomplicated, eg: what is your mother's brother's sister to you?, the expected answer being /mame bəhiɳ/ (approximate translation = cousin sister). It was therefore bewildering when some of the boys answered /bajko/ (= wife/). To give another example, when I asked AG and SB (both 13 year old Scheduled caste boys from working class families) in separate interviews, what is your mother's brother's son to you, both answered without any hesitation /mheʊna/ (= brother-in-law) whereas the expected answer in standard Marathi would be /mame bhau/ (approximate translation = cousin brother). That these answers are in fact not 'mistakes' becomes evident when we consider the cultural practices of some caste groups where cross-cousins are the preferred marriage partners (mother's brother's daughter for the boy and father's sister's son for the girls). This explains the answer 'wife' above. In

Marathi the kin term /mehuɳa/ denotes one's wife's brother and one's sister's husband. The answer /mhewna/ too was therefore not 'incorrect'.

Moreover, the children were aware of the different kin terms in 'their language' and insisted on using them. Consider the following extract from the interview with SG. When he answered that his mother's brother's son would be his 'brother-in-law', I tried to 'correct' him:

Interviewer: ərе mame bhau lagɳar na!
Free translation: won't he be your cousin!

SB: naj.. bhauts lagto... pən amcça natjat ʊegɭə e .. mənɟe […] amcça ghərat dzat .. te hets ʊegɭa e nateʊaik
Free translation: no .. he is my (cousin) brother .. but it is different among our relations .. like […] in our house caste … relations are different

Kinship terms feature in the 'general knowledge' component of the Scholarship Examination which some children sit in classes four and seven. Therefore, when I posed my 'kinship question', children's typical reactions varied from 'tai[4], madʒhi nati pəkki ahet. mi skɔlərʃipcça donhi pərikʃa dilja ahet. he tər farats soppə ahe!' (= I know the kinship terms very well. I've sat both the scholarship exams. This one [the one I had asked] is too easy!), and 'tai, aɳkhi ʊicçar na!' (= ask me some more!) to 'tai, məla nati əɟibat jet nahit. pərikʃet nehmi tsuktat' (= I don't know the kin terms at all. I always get them wrong in the exam), the last response being typical of the working class scheduled children. The lexical differentiation in the area of kinship terms noted above is reflected in the children's self-reports on their performance in and attitude to a standardised exam procedure which tests the children's knowledge of standard kinship nouns. It is apparent that such tests put a certain segment of the school population at a disadvantage.

4.4 Discussion of the results of statistical testing of the sociolinguistic data

My hypothesis regarding the non-influence of caste identity on language use among children has clearly been disproved. Four of the eight phonological

[4] The children used the address term /tai/ (= elder sister) when speaking to me.

variables and the composite lexical variable were used by the four caste groups in different ways to mark caste identity. This key finding of the Pune study, far from affirming the notion of 'caste dialects', provides substantial evidence for sociolinguistic change[5] in progress. The main observations in this regard may be summarised as follows:

(1) The trend among the non-Brahmin children is one of increasing convergence towards the standard dialect. The shift towards the standard phonological and lexical features is led by the children of the Backward caste group. The Maratha children were found to retain more vernacular features. The sociolinguistic position of the Scheduled children in the Pune data is more ambivalent: in the case of (ASPI_M_F) and (N) they occupy a position that is intermediate between those of the Marathas and the Backward castes. In the frequent non-standard use of the lexical items included in the composite variable the Scheduled group children lag behind the two other non-Brahmin groups.

Probable interpretations of the differential diffusion of the standard dialect features among the non-Brahmins may be found in the social history of the Marathi region. Commentators on contemporary Indian society agree that there is an urgent desire for respectability among the Backward castes, who for generations had been consigned to social denigration. These sections of society are using language as well as the anonymity of city life to discard their traditional caste status. The Scheduled group children appear to be moving towards the linguistic standard along the same axes as the group of Backward castes, but from a point farthest from the standard and from the standard-speaking social group. The ambivalent pattern noted above in the use of the standard linguistic variables by the Scheduled group children may be a consequence of this social fact.

By contrast, the traditionally prestigious Marathas, who are known to be proud of their high status in the traditional social order, do not appear to feel as much pressure as the Backward and Scheduled groups to change their speech in the direction of the accepted standard. Alternatively (and more tentatively) it may be suggested that the prestigious Marathas (or the high caste non-Brahmins) mark their position in opposition to the Brahmins by shifting the least towards the standard dialect. So, we have here a case where features of the non-standard dialect are being used as a 'badge of identity'

[5] The term 'sociolinguistic change' needs to be used here with some caution. No adult speakers of the language were included in the study and hence no cross-generational comparative data could be generated. But using the voluminous literature documenting caste differences in the language as a basis for comparison, the use of the term becomes legitimate.

not by the less-privileged groups, but by a high status group to mark its identity in opposition to the contending elite group. Thus, a social psychological explanation for the differential linguistic acculturation of the non-Brahmin groups observed in the Pune study can be obtained in Le Page and Tabouret-Keller's third constraint on linguistic shift (1985:184-5): positive and negative motivation to identify with groups. In using the standard dialect features less frequently the Marathas are carrying out an 'act of identity'.

The contemporary Indian situation compares with the Hungarian case reported by Kontra (1992, cf. Chambers 1995, 2nd edition 1997:54-5). Since independence there has been in India a constant growth in the number of socially under-privileged people gaining access to education and, through it, a means to social mobility. Similarly, with the communist take-over in Hungary in 1948 the new government policy "pushed working class children into higher education" and parents employed by the government received generous aid as long as the children were at school. The linguistic outcome of the large influx of the lower class into the middle class was the incursion of non-standard features into the standard language. Kontra explains the phenomenon thus: "[the] power structure made it possible for members of the communist political and economic elite to retain their vernacular non-standard speech ... When they came to power, they may have changed some of their habits or their clothing, but there was no linguistic threshold to cross". Clearly the social forces at work in urban Pune are of a different nature: the pressure to standardise speech is great despite the large numerical majority of the non-Brahmin population.

The second hypothesis formulated in section 3.2.3 was concerned with the role of social class in the observed variation in the children's speech. Most western urban sociolinguistic surveys involving adult informants report a clear link between a speaker's language and his or her position in a social class hierarchy (Labov 1966 and 1972; Wolfram 1969; Trudgill 1974; Macaulay 1976). Adolescents in the west, though, appear to be less influenced by parents' social status in their speech habits and are reported to conform more to norms of the local peer-culture (Cheshire 1982; Eckert 1988 and 2000). Adolescent speech in urban Pune showed a strong correlation with father's occupational status as was demonstrated by four of the eleven linguistic variables included in the study. It is difficult to say whether the reason for these divergent findings are the socio-cultural differences or the different age groups of the children in the Pune study and of those in Eckert's study (most of the informants in Cheshire's Reading study, though, were aged between nine and thirteen). Wolfram (1969) in the

U.S. and Reid (1976) and Mees (1977 cf. Romaine 1984:92-3) in Britain, too, have reported patterns of social class stratification in the speech of children aged 10-12. The correlation of children's age and social class membership with speech habits is an issue that needs further research.

A finding of the utmost interest, however, was the significant effect of class membership across caste groups (refer to the discussions of statistical results for (N), (Aspi_M_F), and (LEX) above). The significant interaction effect strengthens my inference regarding sociolinguistic change in progress. I found that class differences tend to produce visible linguistic differences within the non-Brahmin caste groups; within the Brahmin caste, though, effect of class on speech is often minimal. Middle class children of the Backward caste group approached the categorical standard score very closely and in two cases ((Aspi_M_F) and (LEX)) they even outscored the Brahmin children. The distinctness of caste and class as analytical categories in examining linguistic variation in urban India was strongly argued for in section 2. Their separation in this investigation is vindicated by the evidence of the class effect across caste groups.

Conclusion

The sociolinguistic study of the Pune adolescents has demonstrated (1) that traditional caste identity correlates with different rates of diffusion of the standard dialect features and (2) that the interaction of caste and class must be recognised and studied explicitly in Indian sociolinguistics as a social factor with linguistic correlates. Status-based explanations for linguistic maintenance/shift derived from western studies using stratified distribution models have often correlated a higher position in the social class hierarchy with a greater use of the standard linguistic features (Labov 1966 and 1972). The linguistic behaviour of the high caste Marathas and the remaining non-Brahmin castes has shown that such explanations cannot be extended to the caste set-up. The Pune results can be better interpreted within the multi-dimensional historical and social space provided by the 'acts of identity' model of language variation and change.

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Testing Social Network Theory in a Rural Setting

Jonathan Marshall

Department of Linguistic Science, The University of Reading

Abstract. In this paper, we present a study of language change in process in a Scots farming community. The study was designed to help us understand the social 'mechanisms' and motivations involved in allowing language change to occur. Established theories, such as Social Network Theory, are tested alongside newer ones, such as Pedersen's (1991) adaptation of Højrup's (1983b) theory of Life Modes, in which she sees the degree of mental urbanisation as an important predictor of rural people's acquisition of urban speech norms.

1. *Introduction*

The subject of language change, and the social mechanisms involved, has prompted much interest in language or dialect loss and shift. Researchers have shown renewed interest in non-standard varieties and the changes occurring in them. This has given important linguistic insights into the types of area, social network, and social group in which language changes originate and how diffusion occurs. Some studies of attitudes have tested for correlations between attitudes and social (including linguistic) behaviour, but the relationship between the two has not always been clear-cut. Some view the individual as a semi-passive follower of norms which exist in the social network in which he or she is 'embedded', while others see the individual as the agent, one who acts with intent, and has the power of choice when it comes to behaviour. The present study has taken what has been learnt in both urban and rural sociolinguistic studies, and used it to test Social Network Theory and some other sociolinguistic theories which have emerged in recent years. In addition, the influence of certain other social factors, such as social class, attitude to the dialect, and national pride are assessed.

2. *Change versus Resistance*

McIntosh (1961) writes that it is generally possible to say that in a given community there is an 'old-fashioned' type of speech. That is to say, one which, as far as our knowledge will permit us to judge, has been less affected than other types of speech spoken there, by recent influences from outside. For convenience, those who use this kind of speech can be called 'resistant types': they will often, though not always, prove to have lived all or most of their lives in the area which is being investigated. He writes that these resistant types will generally be middle-aged or older, *but it will turn out that some young people are also resistant types and that some older persons are not* (1961: 85). He does not venture to say what it may be about these speakers that causes them to be resistant, and this leaves us with the question of what social factors, other than age, will predict language change or maintenance. In the Doric Study, this notion of 'resistant types' is important. The social and ethnographic data of such resistant individuals shows certain patterns under quantitative analysis.

People's *attitudes* to changes and to the groups in which they originate are specific and measurable, and have an important effect on the success of their diffusion (Kerswill and Williams 1994: 9). This has been an important consideration in the present study, and attitudes have been measured as part of the questionnaire.

The question of how a language community maintains vernacular norms in the face of relentless pressure from the standard is one which interests many linguists. It is very clear that vernacular norms *are* persistently maintained in many communities, and that they have important social functions. But when language change finally begins to occur in a hitherto conservative variety, it offers the researcher a good opportunity to study the social factors involved in language change, as well as clear, linguistically distinctive variables to use when testing for correlations between social and linguistic variables. Most modern sociolinguists see language variation as inextricably tied with language change, and this study is based upon this notion.

Language variation provides an explanation of how transmission takes place, but the problem of *actuation* remains elusive. McMahon (1994) adopts the view that language is a system containing 'orderly heterogeneity' (Labov, Herzog and Weinreich 1968: 100). This implies that:

> language variation is not random, but rather strictly controlled, often by extra-linguistic factors, and the specification of these factors may help us account for change (McMahon 1994: 226).

The purpose of this study is to discover more about these very extra-linguistic factors. What is interesting is which individuals are more 'resistant' to change than others, *ignoring age and sex grading*. This has become the central focus of the Doric study: to explain which social 'mechanisms' predict language change, at least in rural speech communities.

3. *Topic Selection*

The selection of the topic came about as a reaction to the abundance of studies of linguistic change and the social mechanisms involved in the diffusion of change. The dialect in question, known locally as 'the Doric', is spoken (with slight variation) throughout the north-east of Scotland in Aberdeenshire, and here the town of Huntly has been the focus (see map below).

The location may be regarded as a relic area for linguistic purposes, as will become obvious from the data. Until recently, the speech of the area was rather conservative, and now that change is taking place rather rapidly, the community has been singled out for sociolinguistic study. Improved transport links and increased geographical mobility have also meant that local villagers

have become more exposed to the possibility of becoming 'mentally urbanised'. Whereas previously, many villagers would have seldom, if ever, journeyed into Aberdeen, many do nowadays. Their earlier conceptions of cities and their inhabitants may change as a result of this mobility, and they may become more mentally urbanised. This may mean that the individual becomes less resistant to the speech norms of the city, and even comes to favour them over local norms, which may take on increased connotations of rural backwardness.

According to Aitken (1979b: 145), the fact that Scots has only recently begun to take a more prominent role in linguistic studies is surprising, as it is informative in the historical phonology of the English language, as well as in linguistic variation studies. In the last two generations, there has been a rather steep decline in the knowledge and use of the Doric. The changes underway mean that researchers can investigate more easily the social mechanisms involved in language change generally, and test existing sociolinguistic theories.

4. *Social Networks*

Gumperz (1971: 14) points out that personal social network structure is influenced by a very large number of factors. It is therefore not possible to identify and measure all of them, though it is important to be able to justify the approach which has been adopted. The measurement of social network strength used in this study is based upon the one used by Milroy in her 1980 study of Belfast.

4.1 L. Milroy 1980

Milroy (1980, 2nd ed. 1987) proposes that the notion of *social networks* be used as an analytic device, which can explain linguistic variation in a more sophisticated way than simple social stratification. Seen in terms of Milroy's concept of social networks, the people in this study mostly have what she calls high-density networks, that is, they interact within a defined territory, and their contacts nearly all know each other. Of course, the notion of high- versus low-density networks is a heuristic idealisation, and the reality is more like a continuum between the two, along which an individual can roughly be placed.

Milroy also admits that it is both network patterns and complex *attitudinal factors* which act as a basis for the measurement of degree of integration into the community, and, as will be seen later, the Doric LIFMOD score is just such a measurement. The survival and transmission of a vernacular is partly due to important values of local loyalty and solidarity, often seen as opposites to institutionalised provincial or national values. There is a constant tension between these values, and the vernacular and the standard have prestige associated with each. This often corresponds to what is referred to as covert and overt prestige (Trudgill 1983).

Milroy believes that a speaker's network ties can change over time, and that this will affect the amount of influence the network has over the speaker. If an individual's network structure becomes less close-knit, it follows that the mechanism of non-standard norm maintenance will no longer be so influential, and that he will be free of the constant supervision and control that the network exercised (Milroy 1987:182). It seems generally true that tribal societies, villages and traditional working-class communities usually have dense multiplex networks, while geographically and socially mobile societies usually have sparse uniplex networks (Milroy 1987: 52).

Milroy believes that in order to apply any sort of quantitative analysis to the data, a network *strength scale* must be allocated to each speaker. This is because of the difficulty of seeing a person's whole network. A five-point scale, designed to be relevant to the local community, was used in her Belfast study:

1. Membership of a high-density, territorially based cluster.
2. Having substantial ties of kinship in the neighbourhood (more than one household, in addition to his own nuclear family).
3. Working at the same place as at least two others from the same area.
4. The same place of work as at least two others of the same sex from the area.
5. Voluntary association with work mates in leisure hours.

According to Milroy, condition one is an indicator of density, while conditions two to five are indicators of multiplexity. Allocating a network strength index score allows the network patterns of individuals to be measured and possible links with linguistic patterns to be tested. Milroy's scale was developed for her urban study, but it is based on factors in the sociology literature, and ought to be generalisable to other communities if it is to have any sort of universal applicability, and besides, it is based on the criteria used by social

anthropologists. As many of the respondents in the Doric study are farmers, or their wives or children, numbers three and four have been slightly revised, and some extra questions added[1]. These are similar, but more specifically stated. Some critics (Maehlum 1983, Coates 1986) have noted that social network criteria are biased towards males, especially in working-class and traditional, rural communities. This is likely to cause a 'gender effect'. Questions three to five above are not appropriate for women who manage homes and children, and their answers yield low network strength indices, yet they may interact strongly with locals in a non-working environment. The Doric questions were therefore worded specifically to include housewives and children, and the questions were often rephrased during the interviews to tease out such possibilities.

In sum then, Lesley Milroy finds strong evidence to support the theory that a dense, multiplex network structure will predict relative closeness to vernacular norms. She believes that this is because a close-knit network has the capacity to exercise *close supervision and control* over its members. She does, however, point to certain constraints on the capacity of network structure to influence language use, saying that the relationship between the two is not absolute. Its influence is most felt in communities where traditional sex/network equivalence patterns are preserved. When these patterns are disturbed for some reason, such as geographical mobility or high male unemployment, the relationship between network and language use is less close (Milroy 1987: 162). Of course, this compromises the general applicability of the theory.

She also admits that the question of *why some speakers are more closely integrated into local networks than others* cannot easily be answered, and that this placed limitations on how we should interpret correlations between language use and network structure. The line of causality is not pre-determined and necessary here. She asks the question 'does a person *choose* to be more or less closely integrated into his community and to signal his choice when he speaks?' She cites Le Page as saying that

> The individual creates his system of verbal behaviour so as to resemble those common to the group or groups *with which he wishes from time to time to be identified* (Le Page 1968, cited in Milroy 1987:182, my emphasis).

[1] The questions were designed to have local relevance, based on observations made during the pilot study.

In other words, does a personal network score reflect a psychological (attitudinal) fact, or does it simply reflect in a neutral way his informal relationship structures? (Milroy 1987:214). The two models are therefore as follows in Figure 1.

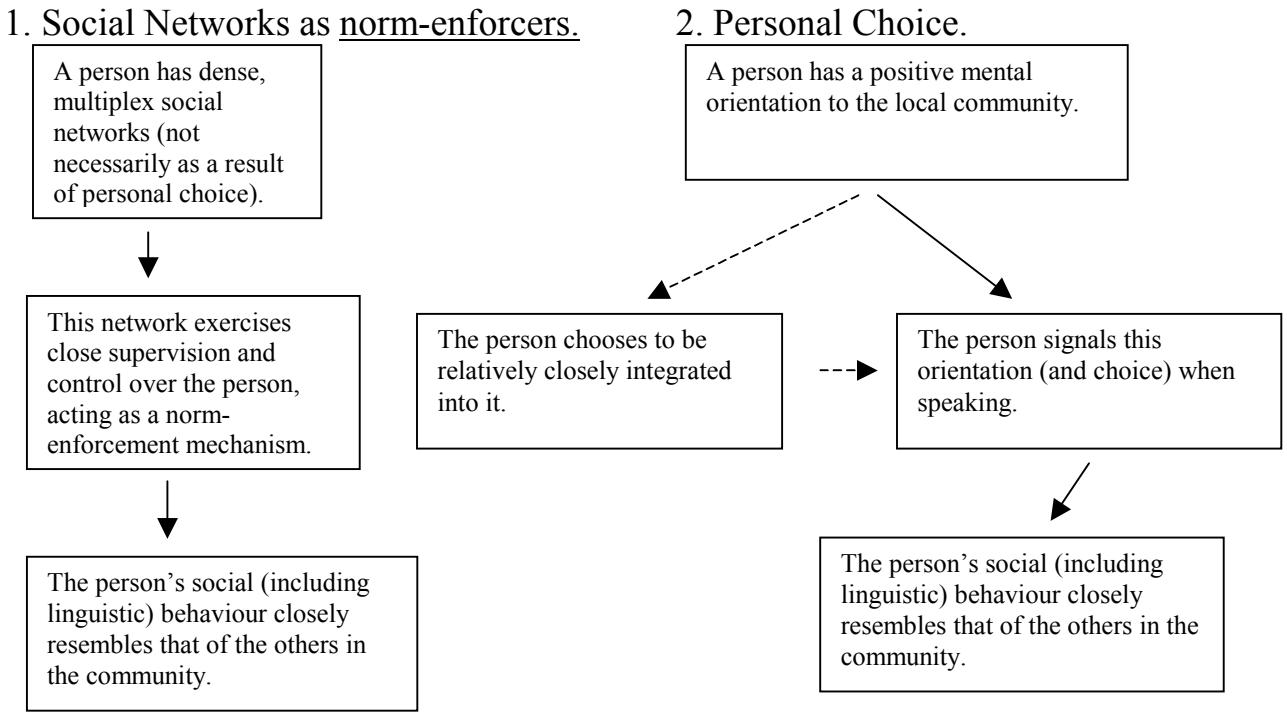


Figure 1.

The line of causality implicitly proposed by social network theory has the network as the agent, exercising its influence on the person, who is the patient. The question of how the person has come to belong to the network in the first place is not answered[2]. The person passively follows the norms and values prescribed by the network, and the end result is that he or she displays local behavioural norms.

On the other hand, given that personal choice is acknowledged in so many other linguistic studies, for example on code-switching (Macaulay 1991), perhaps we should examine more carefully how the mechanism actually works. The line of causality proposed on the right-hand side of the diagram above shows the same end result as the one on the left. It can account

[2] Later, J. and L. Milroy (1992) go on to point to macro-level social, political, and economic structures as the point of origin. These lead to persons falling into one of three life modes, which in turn lead to certain patterns in community-based ties, and then to maintenance of vernacular or standard norms.

for data such as Milroy's showing a high correlation between language use and social network scores (the dotted lines). At the same time it can account for a lack of correlation between these two variables, such as is found in Pedersen's work in Denmark and in the Doric Study. The dotted line shows that a person's positive mental orientation *can* cause that person to choose a relatively high degree of integration into a local network, but that this is not automatic. Such an attitude is, however, likely to cause a high degree of behavioural integration, as is shown by Pedersen's data and that from the Doric Study. It is not suggested for a moment that linguistic norms found within a speech community or social network will not have an influence on a person's speech; merely that the speaker has the power to choose whether to copy these features. It is a question of actuation and agency.

This would account for differing individuals, with different character traits, such as relative introversion, being able, on the one hand, to signal positive mental orientation to the local group in everyday interactions, but, on the other hand, to choose a relatively low degree of *integration* into the networks of the local group. Of course, this viewpoint does not explain how those speakers who have a positive mental orientation to a local *urban* speech community and would like to signal this in their language use, but decide to have relatively low degrees of network integration, gain access to changing vernacular norms. In fact, it is much more powerful as an explanatory device for *rural* speech communities where the vernacular is a conservative, rather than innovative variety. In this type of speech community, the vernacular norms are available in the speech of older people and in everyday speech events between farming and fishing folk, and in village shops, for example. Access to them is not dependent upon high levels of integration into social networks. They have been in use for generations, and are therefore known by people in the community, and can be used in speech to signify a less or more positive mental orientation to the local community. By contrast, in a community where the vernacular is a rapidly changing urban variety, such as the one found in Eckert's (2000) study in Belten High School, strong network ties *would* be required for a speaker to gain access to the constantly changing vernacular norms. This is illustrated in Figure 2.

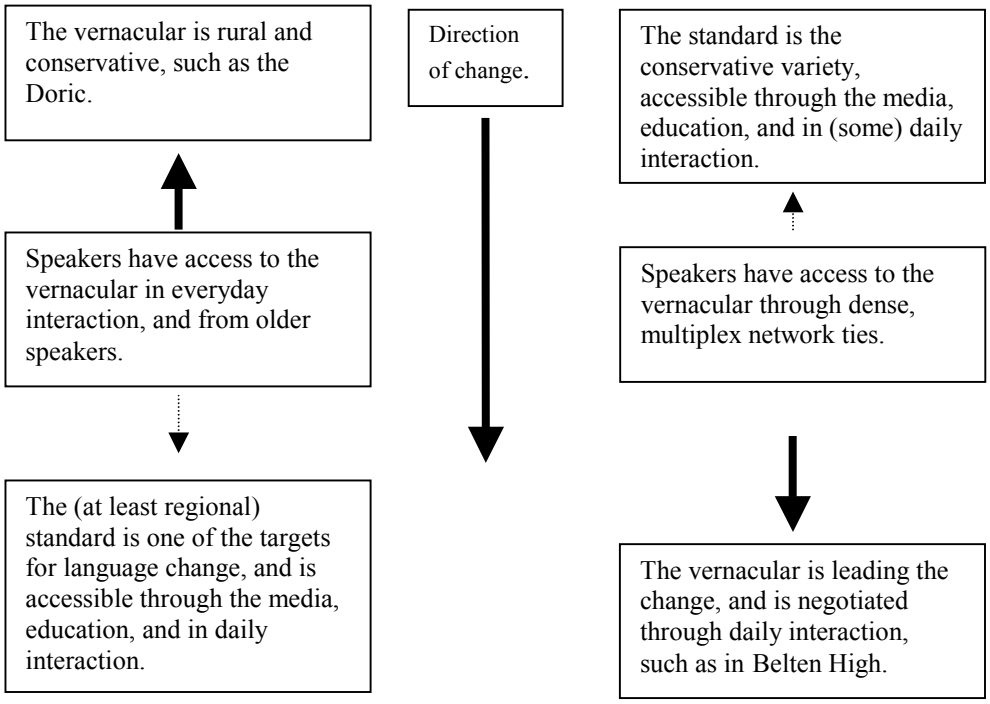


Figure 2.

Of course in Milroy's Belfast data, the vernacular in certain urban areas is mostly conservative. This is different from the situation in Belten High. In Belfast, the urban vernacular stems from rural varieties brought in during migration into the city. These people are likely to have a strong sense of solidarity, perhaps due to their common rural Ulster roots, which has given rise to 'urban villages', each socially cut off from the others. The speakers are likely to signal this in their speech. The strong sense of 'us and them' is preserved in such working-class communities, shown by language loyalty. Milroy, in her later (1992) paper (see below), argues that people are precipitated into modes of production by macro-level social, economic and political factors, and that these modes of production then yield different strengths of community-based ties, which in turn cause differences in language use. In this view, the network becomes the 'all-seeing eye', exerting a controlling and supervisory influence over its members' behaviour. The power of people to make choices in all areas of their lives, including language use, is not given much attention.

Milroy does in fact point to the influence of attitudinal factors on language maintenance.

> To some extent, [network] multiplexity and density subsume other, less easily measurable variables. This can be demonstrated by referring to Elsie D, one of the older women in Ballymacarrett. Elsie D placed a low affective value on her relationships with her neighbours and appeared to reject 'local team' values. *Devising a reliable measure of these attitudes would have been difficult* and was in any case unnecessary, for the reason that the low level of multiplexity in her personal network ties formed what might be described as an 'objective correlative' to her subjective attitudes. […] it is worth noting in this context that *both* network patterns, *and* attitudinal factors suggest themselves as a basis for the measurement of degree of integration into the community (Milroy 1987: 140, emphasis mine).

In the Doric study, those speakers with high LIFMOD scores have a highly positive mental orientation to the local group. This is clear from their answers to the questionnaire. This mental orientation is likely to cause such speakers to positively evaluate local behavioural (including linguistic) norms. This in turn is likely to yield a high percentage of use of these norms. On the other hand, a person may begin to broaden this mental orientation to include supra-local norms. Milroy cites Haugen (1966:103) as saying that 'the modern nation state extends some of the loyalties of the family and the neighbourhood or the clan to the whole state' (Milroy 1987: 190). The implications of this are far-reaching. If these categories of identity become less important, it follows logically that certain social values associated with local linguistic forms, and which maintain them, may be transferred to less localised forms (p. 190). This is supported by the results of the Doric data analysis. The social variable LIFMOD measures the orientation to the local rural area versus the city, and by extension, solidarity with the local group (and its linguistic norms) on the one hand, and with the larger scale group of Aberdeen and the rest of the county on the other. It is those speakers with the most positive attitude to the city who display the least vernacular features. They are the ones who have extended their loyalties to include the city, and for whom the linguistic features of urban speakers have become the norm. As Milroy allows (1987:190),

> […] complex attitudinal factors, in addition to more obvious ones such as upward mobility, are probably involved in the association between a loosened network structure and a movement towards a standardised norm.

The features of Aberdeen city speech are highly relevant, as it is the closest city, and the centre of wealth and culture in the north-east. Those individuals

with high degrees of mental urbanisation will travel to the city more often to go to the theatre, shops, and to visit friends. They will not only be exposed to urban speech more, but also be more receptive to it. The linguistic features of Aberdeen speech are, at least for middle-class speakers, close to the national standard emanating from Edinburgh. The only differences are phonetic and prosodic, with a few lexical items surviving. This is the norm to which north-easterners look, and these are the features which are adopted.

Urban and rural speech communities, while sharing many important features, are nevertheless different in many ways. In a recent paper, Røyneland (2000) shows that language change in cities is endocentric, or internally generated, while that in peripheral areas is exocentric, or contact-induced. She writes that the role of adolescents differs in the two sorts of area: in cities, adolescents are more non-standard than older generations, while in exocentric ones they are more standard. While the Doric Study has not focused on the role of adolescents, and on the effect of age generally, the data analysis agrees with that of Røyneland, in that adolescents are leading the changes towards the standard, at least as far as the males are concerned. What is focused upon more here is the degree of mental urbanisation of a rural speaker, regardless of age, and what implications this has for dialect maintenance. However, fundamental differences between the two types of community exist at all levels, and the implications of this are far-reaching in terms of the different directions of change, different network structures, and attitudes to change.

4.2 J. and L. Milroy 1985

The Milroys admit that social network analysis is limited by its superior ability to handle close-knit ties as opposed to weak, diffuse types of network structure, because of the fact that personal networks are in principle unbounded. Their model suggests that 'innovations flow from one group to another through 'weak' network links' (Milroy J. and L. 1985: 344). This model offers a practical solution to an aspect of the actuation problem, and as such is concerned with *speaker* innovation. Close-knit networks are located mainly at the top and bottom of society (at least in Britain), with the majority of socially and geographically mobile people located between these two points. For close-knit, territorially defined groups, however, they claim that it is possible to treat personal networks as if they were bounded groups, and

these close-knit ties are an important mechanism of language maintenance.

Although loose-knit networks are difficult to use as an analytic tool at the operational level, they are important concepts at the theoretical level (Milroy 1987:199). They acknowledge Granovetter's (1973) notion of 'weak ties' and their importance as links between micro-groups. The strength of a tie is related to the amount of time, emotional intensity, intimacy, and reciprocal services which characterise it. A multiplex tie would thus be relatively strong. Weak ties between non-overlapping groups provide important bridges for the diffusion of innovations. Granovetter suggests that *no strong tie can be a bridge*.

The Milroys make a distinction between *innovators* and *early adopters* of an innovation. They refer to other studies (linguistic and non-linguistic) which show that innovators are marginal to the group adopting the innovation. It is the very weakness of their ties that allows the marginal member to bring in the innovation. They do not strongly experience the norm-enforcing effect of the group, whereas they are more likely to be susceptible to outside influence. The question of why these individuals choose to have weak ties is left unanswered. Early adopters, on the other hand, are central to the group, have strong ties within it, and conform highly to group norms. As a general condition, they propose:

> Linguistic change is slow to the extent that the relevant populations are well established and bound by strong ties, whereas it is rapid to the extent that weak ties exist in populations (Milroy, J. and L. 1985: 375).

Their conclusion is that innovations are transmitted from one group to another by persons having weak ties with both groups. Furthermore, where the proportion of weak links in a community is high, linguistic change is likely to be rapid. It is also necessary to distinguish between *innovation*, which is the act of one or more speakers, and *change*, which is the reflex of a successful innovation in the language system.

4.3 J. and L. Milroy 1992

In a later paper (1992), the Milroys point out that a *conflict* model is necessary in order to explain the process of linguistic change. They posit that linguistic variation and change are best accounted for by a framework that emphasises competing social values, and in this paper they attempt to integrate the social

network model with the social class model. They argue that the structure and social function of both strong and weak network types needs to be considered in order to do this. They feel, however, that analyses of variation based on social class are limited when the subgroups are economically marginal, not distributed evenly with respect to class, or live in territorially well defined neighbourhoods (Milroys 1992: 6).

The original (1980) work has been refined somewhat in this paper. The Milroys acknowledge that some studies have shown that close-knit networks are found mostly in rural areas nowadays, with urban (specially middle-class) areas having more loose-knit networks, with impersonal ties and greater social distance.

In any close-knit network, a weakening of the structure will allow more outside innovation and influence. While the Milroys claim that network analysis is effective in explaining the effects of strong ties, they concede that it cannot easily demonstrate the effects of weak ties *using quantitative methods*. They agree however, with Granovetter (1973), who claims it is weak links which are the paths along which innovations travel between groups, and so it is at the level of *theory* that the notion of weak ties is most useful.

The theoretical implications of the weak tie model are numerous. Mewett (1982) argues that class differences in small communities begin to emerge over time as the proportion of multiplex relations declines. This suggests the development of a sociolinguistic model with two levels: one where small-scale network structures have individuals embedded and acting 'with intent' in their daily lives, and the other where large-scale social class structures determine relationships of power at the institutional level (Milroys 1992: 16). This model proposes local stability and cohesion at the network level versus overall fragmentation and conflict at the social class level, and that the two types of analysis are in fact complementary. The Milroys do admit that the model is more suited to urban communities (p. 17).

At this point the Milroys introduce Thomas Højrup's (1983) concept of 'Life Modes', and attempt to integrate it into their model, together with social class. It will be useful to summarise Højrup's paper at this point, before going on to examine how the Milroys have incorporated it into their model. Højrup's (1983) notion of 'Life Modes' was developed in Denmark for social anthropology, but can be useful for sociolinguistics. In this model, all people belong to one of three modes of production or 'life modes':

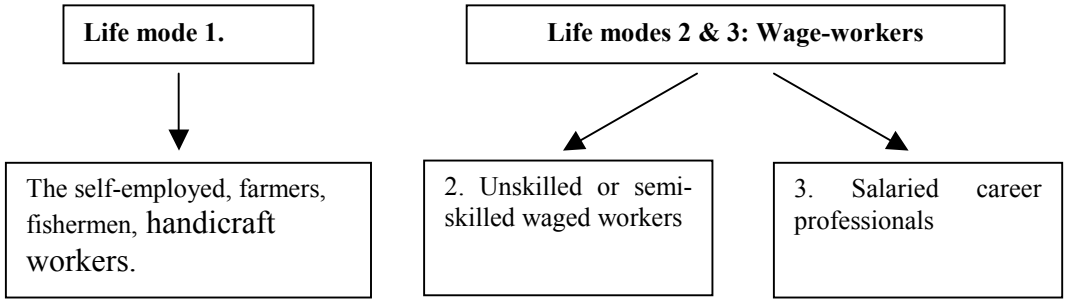


Figure 3.

The first is that of the self-employed, where the person is involved in what he terms 'simple commodity production'. This includes farmers, fishermen, 'liberal trades', handicrafts, and partnership companies (Højrup 1983: 20). The second and third form part of what he terms the 'wage-workers' life modes. Life mode two has to do with wage-earning workers in the capitalist mode of production. These people possess neither the means of production as property, nor the qualifications to begin and control the production process. Included in this category are unskilled and semi-skilled workers, who work only in order to obtain the means with which to live a meaningful life during their free time. The third type includes qualified, educated and responsible people, those who monitor and control the production process, and who attend to organisation, management and marketing. These people are not paid hourly, but usually receive a salary for their abilities. In this career- or success-oriented life mode there is less sense of solidarity with colleagues than is found with the wage earner of life mode two (I return to this notion below). The Milroys refer to Højrup's notion of life modes as a theory

> which can explicitly link a network analysis of subgroups within society to an analysis of social structure at the political, institutional, and economic levels (p. 19).

Højrup's life modes theory sees subgroups as the effect of 'fundamental societal structures which split the population into fundamentally different life modes' (Højrup 1983: 47). The Milroys suggest that the different types of network structure seem to *arise from* the differences in life mode of individuals. Højrup's concept of life mode, like that of network, is a structural one, and the characteristics of one life mode are determined by its contrast to

the others (Milroys 1992: 22). The Milroys emphasise the conflict-based notion of class, rather than the Labovian notion, which is consensus-based. The main thrust of the article is therefore that there are macro-level social, political and economic structures in society, which *produce* different modes of production, or life modes, and that these in turn *produce* different types of network, and that these then *produce* different types of social (including linguistic) behaviour. The earlier absent explanation for just how a person 'falls' into a particular type of network is now supplied. The model is conflict-based at two levels: the macro- and micro-levels.

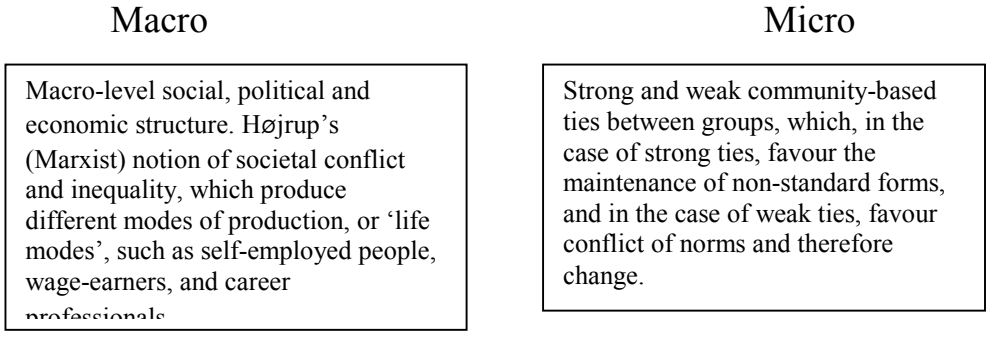


Figure 4.

This concept is shown in figure 5, from J. and L. Milroy (1992:22):

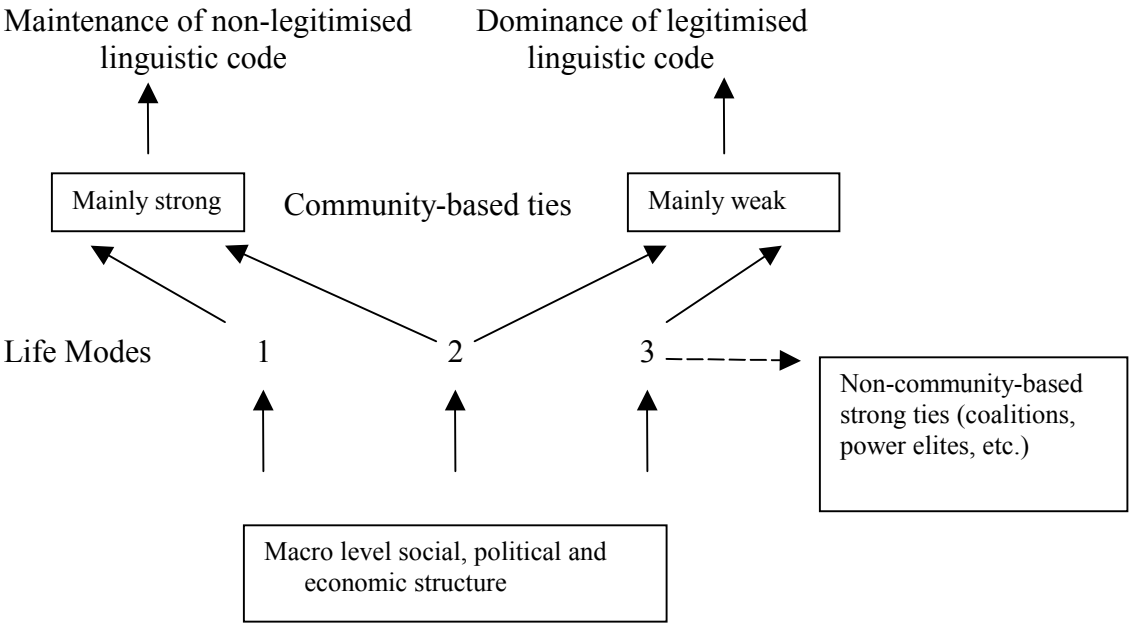


Figure 5.

There are, however, some problems with the notion that factors at the macro level *produce* different modes of production, which in turn *produce* network structures, which in turn *produce* certain forms of language use. The model is forced to take the speaker's mental orientation and freedom of choice into account, at least as far as Life Mode 2 goes. Notice that the flow chart splits here, indicating that a certain life mode will not simply *produce* a certain level of network integration, but that the individual has the power to choose what level of integration s/he wishes. Surely this freedom of choice is also to be acknowledged when it comes to using language? In fact, there is a discussion in Milroy (1987), of two women in the same area, in the same age group, who show great variation in language use and integration into social networks.

> Paula and Hannah, for example, *differ greatly* in their level of integration into the local networks. Paula has a large family of her own, visits frequently with neighbours, and belongs to an informal bingo-playing group. Her neighbours are also her work-mates. Hannah, on the other hand, has no children, or kin in the area (she is the child of a Protestant/Catholic mixed marriage). She belongs to no local informally constituted group of the kind we have described in chapter three as a *high-density cluster*, and her work-mates are not from the Clonard. […] A glance at table 5.4 will remind the reader that although the social status of the two women was very similar, their *patterns of language use* were quite different. […] It will also be recalled that Paula seemed to be much more closely integrated than Hannah, in terms of kin, work and friendship ties, into the local community. In fact, Paula scores two and Hannah scores zero on the network strength scale, reflecting the difference in the character of their everyday social ties (Milroy 1987: 134, 152, emphasis mine).

I will argue that the chain of dependency proposed in figure 5 is not automatic. The Milroys (1992: 22) claim that macro socio-economic and political factors precipitate people of the same social class into the same mode of production, say, wage-earning worker mode. This worker life mode then supposedly triggers dense, multiplex, area-bound networks.

> […] the different types of network structure that we distinguished in the previous section can be seen *to a considerable extent as springing from* differences in the life-modes of different individuals.
>
> Just as different types of network structure *emerge from* the economic conditions associated with life-modes 1 and 2, so a certain type of personal network structure is likely to *follow from* life-mode 3.

> […] this *chain of dependence* running from political and socio-economic structures through life-modes to network structure and ultimately to sociolinguistic structure […].
>
> […] these economically *determined* life-modes *give rise* not only to the social and cultural differences described by Højrup, but to different kinds of network structure (Milroy, J. and Milroy, L. 1992: 19 – 22, emphasis mine).

If these macro socio-economic and political factors are the actuators of modes of production, then they have surely placed these two women of the same social class into the same modes of production. This worker life mode (Højrup's life mode 2) should then *produce* similar levels of network integration, and these two women should then have similar network and language scores. However, as can be seen in the extract on Paula and Hannah, they do not. If the mental orientation of these two speakers to the local community had been measured, perhaps more light would have been shed on their differing linguistic scores. I believe that Milroy's data supports the hypothesis that a positive mental orientation to the local group will cause the person to signal this in language use, although mental orientation to the local group was not measured in Milroy's study. Personal character traits, such as relative introversion, will affect personal choice in integration into local social networks, but will still allow the person to signal local solidarity with language use. This will produce low correlations between social network scores and language use on the one hand, and high correlations between attitudes to the local group and language use on the other, as is found in Pedersen's data and that of the Doric Study.

It should be made clear at this point that the alternative line of causality proposed in this study does not ignore the potential influence a network may have on an individual. It is felt that, while people are free to make choices when it comes to social (including linguistic) behaviour, they are nevertheless constrained by what is *available* to choose from. The question of who is the agent is important, though. Social networks must have some effect on social behaviour, and in certain contexts, this influence will be more keenly felt than in others. However, I argue that mental attitude, solidarity, or orientation is the locus of actuation, the driving force behind choices made about levels of social network integration and language use. This can account for a high degree of correlation between network indices and language use, as is found in Milroy's data, as well for low degrees of correlation, as found in Pedersen's and the Doric data, where mental urbanisation is found to be more important. An individual with a highly positive mental orientation to a speech community

can choose a high level of integration into local networks and a high level of use of local vernacular features. In fact, Lesley Milroy also points to the importance of mental orientation:

> Both the low-status vernaculars and RP may be viewed as owing their relative stability to covert ideologies of solidarity and reciprocity (1987:185).

Later linguistic studies have not always been uncritical of Milroy's research:

> [ ] neither stratificational analysis nor network analysis *alone* is capable of answering all questions; they must be considered as two approaches to quantifying certain aspects of a complex picture which includes subjective evaluation and other (*perhaps as yet unidentified*) socio-cultural factors (Lippi-Green 1989: 215, emphasis mine).

Lippi-Green notes of Milroy's work in the urban neighbourhoods of Belfast that, while it provides a departure point, there is still a 'practical and methodological gap between a study of this type and one of an isolated mountain village of 800 persons' (p. 218). As we shall see, the Doric data supports this cautious viewpoint of social network theory for rural communities.

She writes that age and sex are indicators of group alliance about which the individual has no choice, and within which he or she must function. The openness, density and multiplexity of her social networks are more about the individual as a relatively free agent. One participates in the social life of a community to the extent one wishes, but one cannot control the family or community into which one is born. Of course, one can decide whether to stay in the community and about strengthening ties with it. This viewpoint supports what has been said in this study about the freedom of choice available to individuals. People are born in a certain generation, and belong to one of the two sexes, but have a lot of say in the extent to which they build community ties and conform to community language norms.

Lippi-Green finds that social network integration alone, or the interaction of integration and age and sex, cannot explain or predict linguistic behaviour, and that subjective evaluation from the perspective of the individual can clarify many of the problems of the quantitative analysis of group behaviour. She notes that previous insights into the social matrices of rural communities were constrained by the urban model, causing theoretical

and methodological hindrances. She does not clarify what she means by 'subjective evaluation from the perspective of the individual', however. Perhaps asking the individual questions about his or her mental orientation to the local speech community, in order to try to see things from his or her perspective, would help a researcher to do just that. This is what has been done in the Doric Study, with surprising effectiveness.

5. ***Life Modes Revisited***

Most of the people in the Doric Study belong to (Højrup's) life mode one or three. The question is, what are the implications of Højrup's model for studies of language conservation and change? In its original form, it is mainly sociological. If we take the model a step further, and ask *what effect* these life modes may have on the mental orientation[3] of individuals to their local communities, and, by extension, on their language use, it may take on greater significance. The Danish linguist Inge Lise Pedersen has done just that.

5.1 *Pedersen*

Pedersen's notion of life modes is particularly useful for comparing the Danish situation with that in Scotland. Denmark has developed from a dialectal society into a relatively uniform linguistic community, *viewed from the outside*. Prior to industrialisation and urbanisation, the country could be divided into a number of fairly homogeneous dialect areas, each diverging greatly from the others (Pedersen 1994: 87). Today the geographically determined differences have diminished, and instead there is much linguistic variation within individual areas. Marx's concept of class distinction and the traditional model of social stratification are both unable to account for the variation within these areas, and the connection between educational background/occupation and language use provides no clear picture either.

[3] By this is meant the person's attitude to the local group. It is a measure of how much solidarity the individual feels with his or her speech community. In the case of rural people, I will use the term 'mental urbanisation', taken from Pedersen (1994). A rural speaker's relative degree of mental urbanisation will be closely related to his or her mental orientation to the local rural group, since a high degree of solidarity with the local rural group will inhibit mental urbanisation.

Pedersen therefore, like Milroy, has searched for other ways of grouping speakers in an attempt to explain the phenomenon. She believes that *urbanisation* is the major factor determining language or register choice, even more than social stratification. She uses this term in the sense of 'mental urbanisation', i.e. the spread of a specifically urban *pattern of behaviour* that extends beyond physical urbanisation (Pedersen 1994: 87). She relies upon the nature of the network in order to measure the degree of urbanisation, since it is a common assumption that the networks of those who live in cities are of a different nature than the networks found in rural societies. However, at the level below the network, that of the individual, she finds this concept to be inadequate. She relies on the notion of life mode as an analytical tool to show that language variation at the individual level can be accounted for as 'an expression of the tensions which exist between the person's life mode and his or her objective social status'. In the Doric study, this concept has proved particularly useful. Before the building of transport links such as the railway line from Aberdeen to Inverness and the A96, many villagers seldom, if ever, journeyed into Aberdeen, whereas many do nowadays. The friction of distance[4] has been reduced, and people may be more open to mental urbanisation. Their earlier conceptions of cities and their inhabitants may change as a result of this mobility, and they may become less resistant to the social behaviour patterns emanating from the city. The resulting process of mental urbanisation may mean that the individual becomes less resistant to urban speech norms, and even come to favour them over local norms, which may take on increased connotations of rural backwardness. Those individuals who resist such mental urbanisation have proved to be more resistant to linguistic influence from the city as well, as will be shown in section 7.

Pedersen believes that urbanisation, in the mental sense, has been transmitted by means of mass communication, like the television, to the population in the rural areas[5]. Cultural uniformity has been advanced as the culture of the city/metropolis has spread and dissolved the rural communities with their local ties (Pedersen 1994: 88). She has compared this degree of mental urbanisation with the linguistic variation that is found in communities which were once purely rural, and found a correlation, although she has not quantified this. In this study, mental life mode has been quantified and used as an independent variable for the analysis of the linguistic data.

[4] A term often used by geolinguists.
[5] Although, for a view on the transmission of linguistic change, see Trudgill (1986).

5.2 *Rural Life Modes*

The traditional agricultural family with its rural life mode is characterised by integration in production and a lack of sharp distinction between work and leisure time. Survival and the possibility of passing the productive mechanism to the next generation are highly important. Kinship ties often exist with other families in the area, and goods are often exchanged. There is an orientation towards a nearby town, participation in local club activities, and local friends and acquaintances. The entire family ideology is one of mutual responsibility, and qualities such as endurance, responsibility, independence and co-operation are highly valued. The farm is what life revolves around, and what gives independence to its owners.

5.3 *Urban Life Modes*

These are tied to a means of industrial production. Here work is detached from family life, and separated from the home spatially and temporally. Leisure time is spent in the home, and the family has no function in the organisation of the productive apparatus. The family 'delegates' tasks such as child-minding and food production to outsiders, in that food is bought in shops, rather than grown. One does not have to associate with one's neighbours. The worker and career person share these aspects. The two are different in that the *worker* (specially the man) sharply divides working and leisure time, and the latter gives life its meaning. People at work do not usually form part of one's social group, or meet one's family for social activities. At work, one's ideal is 'solidarity' with the other workers against the 'others', the bosses. The *career life mode* lacks these sharp contrasts between work and leisure. Here people refer to themselves as part of the company, and often work overtime without extra pay. It is their work which makes life worth living for these people, and they are reasonably free to manage their affairs *in* their work. Here dedication and ambition are highly important (Pedersen 1994: 90).

5.4 *Composite Life Modes*

The changing material circumstances of rural people have been seen as the cause of their mental urbanisation. Life Mode analysis shows that it is not the

case that these people are passive recipients of this influence. Many commuters take a job in an urban centre in order to maintain a rural lifestyle. This is when their life modes become complex and *composite*, even if they are still ideologically determined by the rural life mode (Pedersen 1994: 90). These people are more reliable at work and less supportive of pay disputes; they are farmers and remain so. This may be a transitional stage in which more and more of the rural life mode will be displaced by the urban one, but Pedersen suspects that it is a reasonably stable situation which can last the lifetime of the individual and even be passed on to the next generation. She believes that life modes are not specifiable to the point where one can measure them directly, but they can illuminate linguistic and other behavioural patterns within sociologically defined groups. Figure 6 is a diagram of Pedersen's concept of the different life modes, with Højrup's given in brackets.

Pedersen's Concept of Life Mode as a Mental Urbanisation

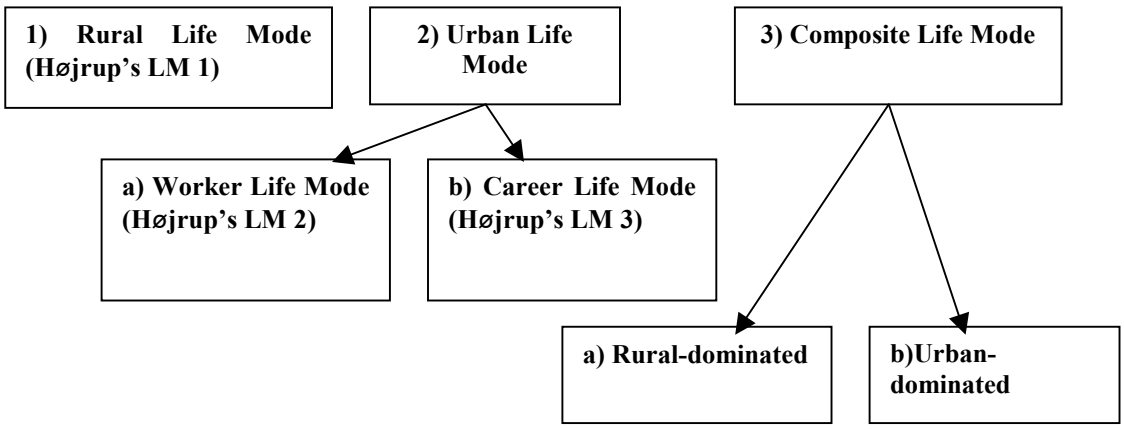


Figure 6.

Of course, the question of whether a speaker's composite life mode is rural- or urban-dominated is a subjective evaluation. In the Doric study, most people have either Pedersen's life mode 1 or 3, and it is believed that it is those people with life mode 1 or 3 a) who are maintaining the dialect the most. This is strongly supported by the quantitative analysis in section 7.

5.5 *Life Modes and Language*

Pedersen differentiates between urban, rural, and composite life modes (Pedersen 1994: 106). The latter can be dominated by either a rural or an urban mentality or orientation. In her study, the informants who have rural-dominated composite life modes generally have higher dialect scores than those with urban-dominated composite life modes with *the same network scores.*

Pedersen's data shows (at least as far as the men are concerned) that there is a connection between dialect use and life mode, or the way one views oneself, which cannot be explained by network indicators (p. 107). She posits that life mode cannot be quantified, nor analysed quantitatively as a variable, but rather sees it as a picture one can build up of an informant by using an extended interview. In this study we have designed a questionnaire, and shown that one can in fact arrive at an index score for life mode and use it effectively as an analytical tool.

Pedersen concludes that linguistic standardisation is a 'mechanical' consequence of the transition from a rural to an urban occupation (p. 112). The degree of linguistic (mental) urbanisation can be measured through an analysis of the speaker's network character. This, however, does not always suffice, as some variation is left unaccounted for. Some speakers choose to signal their rural ties, or life mode, by using dialect features in a handful of words, where others with the same network indicators, but urban-dominated composite life modes, do not. She is convinced that linguistic groups are not automatically the same as social groups, and that the notion of life modes, with its emphasis on both a material and an ideological aspect, can lead to a better understanding of the relationship between language and social identity (p. 113). This view is supported by the data from the Doric study. As is shown later in the data analysis section, life mode scores account for linguistic variation far better than social network indicators, even once they have both been rigorously tested using statistical methods.

6. *Research Question and Hypothesis*

The research question is as follows:

> The linguistic conservatism of the Huntly area has been due to many reasons, such as historico-political and geographical factors, and national pride. Now that these are becoming less influential, and change is accelerating, which social factors are primarily involved in language change and maintenance?

The hypothesis is:

> Young female speakers will lead linguistic change. People with dense, multiplex social networks, and low degrees of mental urbanisation will lag.

6.1 *The Research Design*

The relatively rapid language change currently in progress in the Huntly farming community makes it ideal for a study of language change. Sociolinguistic theories have been developed to account for language change and maintenance, many in urban speech communities. Pedersen's (1991) and Lippi-Green's (1989) studies of rural communities have not yielded the same results as, for example, Milroy's (1980) study of Belfast speech. The Doric study was conceived as a test of the various social factors involved in language change and maintenance. The question is, is an individual's degree of integration into social networks a reliable predictor of language maintenance, especially in rural speech communities? Are attitudes to the local variety reliable? Is national pride, especially in a country like Scotland, an important factor in this question? Does Pedersen's adapted form of Højrup's (1983) concept of Life Modes, where she focuses more on the mental urbanisation of the individual, throw more light on the problem of accounting for resistance to change?

6.2. *Sampling*

The Doric spoken in the valley between the towns of Insch and Huntly in the county of Aberdeenshire in Scotland has been focused on, in an attempt to answer the research question. This is in the middle of what Hendry (1997)

calls 'the heartland' of the Doric, i.e. Buchan and Gordon. Until the last generation, the dialect was conservative, but now that change is taking place rather rapidly, a study of the social factors involved in language change can be undertaken. The study has drawn on Social Network Theory, as well as Pedersen's (1991) adaptation of Højrup's (1983b) theory of Life Modes. Age, sex, social class, attitude to dialect and national pride are the other independent variables (more on these later), and a stratified sample based on age and sex has been used. The socio-political history of Scotland is surely an influential factor in the dialect maintenance found in this area, and although all the contributing factors cannot be analysed quantitatively, some of the synchronic social scores, such as NATPRI (national pride), and ATTDIA (attitude to the dialect) represent attitudes which have resulted from this complex past. This study will examine the influence of the social factors involved in allowing or facilitating language change, in an attempt to test some of the main sociolinguistic theories in a rural setting.

6.3. *Choice of Variables*

Sociolinguistic research is centred on the notion of the linguistic variable, an 'element which has a number of realisations, or variants, in speech, but a constant meaning' (McMahon 1994: 235). According to Hatch and Lazaraton, 'a *variable* can be defined as an attribute of a person, a piece of text, or an object which 'varies' from person to person, text to text, object to object, or from time to time' (1991: 51). When analysing the data, a score was assigned to each occurrence of the variable: 1 for a dialect form, and 0 for a non-dialect form. The resulting figures were then plotted against age, sex, and so on, to see whether any significant patterns emerged. This kind of quantitative, statistical approach is necessary because most speakers will use both variants, but the frequency of use will vary according to non-linguistic factors (McMahon 1994: 235).

After transcribing the recordings made during the pilot study, a number of linguistic variables were identified as being clear features of the vernacular. These were identified by comparing them with equivalent forms in Standard Scots English (SSE). It is realised that SSE is not spoken even in the city of Aberdeen as it is in, for example, Edinburgh. Aberdeen urban speech has distinctly north-eastern phonetic and prosodic characteristics. The categories of analysis are mainly phonological, as phonological items

> 'are high in frequency, have a certain immunity from conscious suppression, are integral units of larger structures, and may easily be quantified on a linear scale' (Macaulay 1991: 4).

There are two phonological scores, one achieved by means of a picture list, and the other by means of non-linguistic tasks performed with a partner. One morphological variable was also used. Although fifty lexical variables were used to arrive at a lexical score for each speaker, these cannot generally be regarded as very reliable indicators of dialect maintenance. Passive recognition of lexical items, which are perhaps used by a speaker's grandparents, does not imply active use by that speaker.

6.4. *Phonological Variables Chosen for the Experiment*

The following is a list of the phonological variables chosen for the experiment. The IPA will be used throughout, as the variables are often so phonetically different from SSE.

1) Initial /f-/ (also ɸ) where SSE has /hw / in 'wh-questions'

[faːrzaʔ] 'where's that?'
[fuː mʌkəlz aːt] 'how much is that?'

2) Doric /e/ ~ StdE /o/ ([əu~ɔ]) correspondence:

[heːm] 'home'
[meːr] 'more'

3) Non-glottalisation of /t/. This is a feature of the older informants' speech, but some younger ones are beginning to use t-glottaling. The more resistant types are resisting this change.

[waʔər] 'water'

4) The presence of /x/ in certain preterite forms and certain lexical items.
[boxt] 'bought'

[nɛxt] ‘night’

5) Consonant-cluster reduction.

[grʌn] ‘ground’
[hʌnər] ‘hundred’
[hɑn~hɑnz] ‘hand ~ hands’

6) [v] - deletion or - substitution.

[gi:] ‘give’
[he:] ‘have’
[owər] ‘over’

7) Full rhoticity. /r/ is realised in all positions, either as [r] or [ɾ]. The use of [ɹ] or zero has been regarded as non-dialect.

Non pre-vocalic [r]

[ke:rt] ‘cart’

pre- or inter-vocalic [r]

[kaɾərvaɾn] ‘caravan’ (Standard Scots English [kaɹəvan])

9) [ʌ] where StdE has a small set of fossilised lexical items in [ʊ].

[bʌl], [fʌl] [pʌl] ‘bull’, ‘full’, ‘pull’

10) [a̠~ɑ] where StdE has [æ] (SSE does have a lower vowel than StdE here, but the Doric vowel is even lower and more back)

[ha̠n], [ba̠dʒər], [ma̠nɪ] ‘hand’, ‘badger’, ‘manny’

6.5. *Morphological Variable Chosen for the Experiment*

1) Preterite endings in /ɪt/ are used where Standard English has /-t/, for example:

kick ~ kickit
pick ~ pickit

This ending (or its allomorphic variant [-t]) is used also where StE has a stem vowel change:

catch ~ catchit
tell ~ tellt
sell ~ sellt
ken ~ kent

This is the only morphological variable used in the experiment, as it proved too difficult to reliably elicit variables of this type.

6.6. *Lexical Variables Chosen for the Experiment*

The list of lexical variables is given below. The speaker was required to give the equivalent English word, or a Doric sentence using the word correctly.

Word	**Equivalent**	**Word**	**Equivalent**
1 mʌkəl	big/much/many	26 dwam	Daze
2 pʌkəl	few/small/little	27 daik	Ditch/wall
3 lun	boy	28 tʌp	Ram
4 kwain	girl	29 jauw	Ewe
5 blad	damage	30 gaip	Fool
6 tʃav	struggle	31 sark	Shirt
7 klap	slam/hit	32 spʌrgɪ~dɪ	sparrow
8 duk	swim	33 ɪlkɪ	Every
9 djuk	duck	34 aneθ	beneath
10 ext	bother/own/eight	35 abin	above

11 hap	cover	36 bru	forehead
12 hevər	speak nonsense	37 brɔz	meal porridge
13 klartɪ	dirty	38 tʃap	tap/strike
14 red ʌp	clean/tidy up	39 krak	conversation/fun
15 rœy ʌp	roll up	40 dʌbɪ	Dirty
16 sik	seek/search/look for	41 fʌlpɪ~felpɪ	Whelp/puppy
17 spir	ask	42 grit	Weep
18 gɪn	if	43 hœyk	Dig
19 faʃ	fuss	44 dʒi:lt	Frozen
20 ava	at all	45 kest	chest(box/body part)
21 ben	through	46 pu:tʃ	pocket
22 estri:n	yesterday evening	47 kwi:t	ankle
23 sain	then	48 semɪt	vest
24 bi:zəm	brush	49 sɪkər	sure
25 du:	dove	50 stju:~stu:r	dust

This leaves the social variables. As Kerswill (1994: 51) puts it: finding a set of extra-linguistic parameters relevant to the informant group is crucial in a sociolinguistic study. For reasons of practicality, these are normally selected from the set of all possible parameters in order to simplify the results, and effective selection requires that the investigator know the community rather well. The social variables chosen for the Doric Study are based on previous sociolinguistic research in the area of language change.

6.7. *Social Network and the Present Study*

The Doric SOCNET score is a network index score, or a *combination* of interactional and structural criteria (mostly the former), which has been used to test whether a high social network score will predict a high (conservative) dialect index score. The questionnaire for the social network index is as follows:

Question:
1 Do your friends generally know each other as well as knowing you?
2 Do you have family members in this area? How many?
3 Do you work/go to school with 2 or more local people?

4 Do you work/go to school with at least two other locals of the same sex?
5 Do you spend time with work/school friends after work/school, or during weekends and holidays?
6 Do you take part in a local group (organised or non organised) in the area? (religion, scouts, guides, youth groups, DofE, sports, jobs, holiday activities, hunting, cards, bridge).
7 Do you take part in leisure or sports activities with 2 or more locals or work/school friends?
8 have your mother and father lived here all their lives?

The Doric SOCNET score is a network index score, or a combination of interactional and structural criteria (mostly the former), which has been used to test whether a high social network score will predict a high (conservative) dialect index score. The range is zero (minimal network density and multiplexity) to eight (maximal). The Doric index has limitations for *structural* criteria, such as the following:

1) Size
2) Density
3) Centrality
4) Clustering
5) Network role of the speaker

It does, however, accurately measure the *interactional* criteria of the network, and as such is similar to Milroy's network strength index:

1) Number & frequency of interactions
2) Multiplexity
3) Strength
4) Content

The questionnaire was based closely on Milroy's and Pedersen's questionnaires, and this makes the scores obtained comparable to theirs. A more complex and structurally oriented measure could not have been achieved without spending an extremely lengthy period of time in the fieldwork area, living among, and interacting with local people.

6.8. *Life Modes and the Present Study*

Pedersen believes that life modes are not specifiable to the point where one can measure them directly, but that they can illuminate linguistic and other behavioural patterns within sociologically defined groups. In this study however, a section of the questionnaire was developed to yield an index score for life modes, which can be compared with that of social networks. This takes the form of a section of questions with gradable answers along a five-point scale (see below). The answers were graded from zero to four[6], reflecting a mental orientation to either a rural or urban life, or a *mental urbanisation index*. An index score was arrived at for each speaker, with a maximum score (40) indicating a completely rural, and zero a completely urban life mode. There were similar sections assessing attitude towards Scottish identity and the Doric, which did not prove to be reliable predictors of dialect maintenance. All these scores were compared with the social network scores, to explain linguistic variation between individuals who have the same network scores. The scale used for this section of the questionnaire was graded as follows:

0 strongly agree	1 agree	2 neutral	3 disagree	4 strongly disagree

Here follows the section of the questionnaire on life mode:

1) I notice what people are wearing in Aberdeen. I like to keep up with fashion.

2) I mostly watch TV programs about city life and avoid nature/ environmental programs.

3) I would like to follow a career in a city rather than one where I work in the country or a small town around here.

4) I think it is very important to own a PC or at least have access to one at school/work.

5) I would love to move away from this area to the city.

6) When I am in Aberdeen, I feel at home and unstressed by the crowds and traffic.

7) City folk are just as friendly as anyone, and are basically the same as country folk.

[6] Or four down to zero, depending on whether the question related positively or negatively to the particular category. This was done in order to avoid a cumulative effect of consistent positive questioning about one view or the other.

8) I never eat brose or any traditional meals. I prefer modern/international dishes.

9) A good education, getting on in life, and having all the modern equipment and appliances is more important than quietness and having a good family life.

10) I'd rather spend a day in Aberdeen playing computer games and shopping than spend it walking up Bennachie with friends and family.

This category of the questionnaire has proved consistently useful as a predictor of language use. The reader will recall that Pedersen found that those speakers who have rurally dominated composite life modes generally have higher dialect scores than other informants with the same network scores. Although Pedersen's analysis was impressionistic, it prompted the author to design the Doric experiment in such a way that an index score could be arrived at for each individual involved.

6.9. *Methodology and Data Collection*

The data was collected in much the same way as in the pilot study, with the only changes being to the design of the word-list and personal profile questionnaire. The interviews were conducted informally, but as uniformly as possible. Time was allocated to non-linguistic, as well as linguistic tasks, in an attempt to allow interview speech as well as less formal speech. In Kerswill's (1994) Bergen study, interview speech was chosen, as it was felt that the data would be as far as possible identical for each speaker, and more easily compared[7]. As comparisons are to be made between individuals and between groups, the speech samples should be comparable, so the Doric interviews were designed structurally.

In the 1960s sociolinguistics was born to break with the dialectological tradition of excluding the social aspects of variation (McMahon 1994: 233). We now know that it is essential not to select informants in a subjective way, since the experimenter's own prejudices could have an unwelcome influence on the results (loc. cit.). The informants in the Doric study were, for this very reason, not selected by the author[8]. McMahon writes that, once the speakers have been randomly selected, the problem of overcoming the 'Observer's

[7] Informal secondary recordings were, however, made for some informants.
[8] See below, under 6.13.

Paradox' needs to be addressed. Speakers usually speak 'correctly' and therefore formally in the presence of an interviewer and recorder. There are ways around this problem.

Various techniques have been used to deal with the Observer's Paradox, the most common in earlier studies being the structured interview, where the speaker is asked to perform tasks at decreasing levels of formality, followed by informal speech where the speaker is encouraged to talk about childhood and emotional experiences. Later experimenters have often followed Milroy (1980), who argues that it is easier to access the vernacular if the informant is relaxed and this is achieved when the interviewer is integrated into the speech community (the friend-of-a-friend technique) (McMahon 1994: 234). In the Doric study, the author's family ties with one of the families in the valley were brought into play to this end. A substantial percentage of the interviews were, however, conducted by a research assistant, who, being local, could also activate network contacts.

The advent of portable recorders has of course made it possible to analyse large samples of continuous speech, giving modern researchers a great advantage. In this study a Marantz CP 430 portable cassette recorder was used with a PZM Professional desktop microphone, which does not appear as intrusive as a normal microphone, as it is flat. This yielded good results, as it is non-directional, and was able to pick up the interviewer and subject equally well, without contributing negatively to the problem of the observer's paradox. The main study has followed on from the results of the pilot study and literature review: the former showed that there are strong features of the Doric in daily use in the community, and this provides clear linguistic variables with which to compare the social scores. What needed to be tested was whether one can show empirically that there is a correlation between the social factors identified here and linguistic change. The linguistic variables were identified during the pilot study, and the cards and word lists designed to elicit these variables, and as mentioned, informal narratives were encouraged during the interviews where possible (mostly in private homes, as time constraints in the school prevented this). The questionnaire drew up a social profile of the speaker with which the linguistic variables could be compared. It was at this stage that the life mode of the speaker was evaluated. Obviously repeated interviews over an extended period would have allowed for a more complete picture to be built up, but this was not possible because of time constraints. In Hatch and Lazaraton's (1991) terms, this is a 'one-shot' research design, and relies on the notion of 'apparent time' change. As

mentioned, a 'real time' experiment is beyond the scope of this study, but it is believed that a study such as this *can* shed light on the processes involved in language change:

> Sociolinguistic studies have now convincingly shown that sound changes in progress *can* be observed, by carrying out 'apparent time' studies of speakers of different classes and ages within a speech community (McMahon 1994: 49).

6.10. *Determining the Social Scores*

The entire database was worked through at least twice, with some interviews being listened to three times. A score-sheet was filled in for each section of the interview for each speaker. Some of the social scores, such as LIFMOD, NATPRI and ATTDIA were arrived at during the interviews. The answers to the questionnaire, which were graded from 'strongly disagree' to 'strongly agree', where ticked off on score sheets during the interviews, and totalled up later. Others, such as SOCLAS and SOCNET were simply recorded on the cassettes, and added up later, while the recordings were being played back.

6.11. *Determining the Linguistic Scores*

There are three linguistic scores for each speaker:

1. PHOVAR. This is an index score calculated from the use of dialect phonetic variables during the description of a picture list, where the interviewer was the interlocutor. It was decided to use a picture list instead of a word list. In studies where the dialect is linguistically distant from the standard, use of word lists can trigger code shifting, or at least style shifting in those speakers who do not have a fluent command of the dialect. Besides, there are different cognitive processes involved in, on the one hand, reading words, and on the other hand, saying what one sees in a picture. Reading tasks are, to the respondent, obviously linguistic tasks, and can result in careful speech styles. Describing pictures is not an overtly linguistic task, but rather a general cognitive task, albeit involving language. The focus is on successfully describing the picture, and it was found that the respondents concentrated more on the task at hand, than on their speech. Often the respondent had to be prompted and guided towards the required word, and this is why it was

necessary for the interviewer to be the interlocutor. The picture list was designed to test whether the respondent uses the Doric or the SSE phonetic form of the variable. The Doric form resulted in a score of one, and the SSE form in a score of zero. From these scores, a composite index score, representing the eleven phonetic and morphological scores, was arrived at, as was done in Kerswill's (1994) Bergen study. The maximum possible score here was fifty-six. The words below are the *expected answers* for the picture list, which has not itself been included, because of space constraints:

Word-Elicitation Task: PHOVAR.

1 ruler	2 three	31 night	32 right(not left)
3 car	4 fall	33 bull	34 caravan
5 nothing	6 badger	35 cart	36 full
7 rabbit	8 ladder	37 heart	38 everything
9 lorry	10 bag	39 nobody	40 Anne
11 butterfly	12 'why?'	41 eight	42 who?
13 pull	14 polar bear	43 kicked	44 cold
15 roller skate	16 horse	45 stream	46 both
17 full	18 panda	47 rolling pin	48 apple
19 Alford	20 water	49 only	50 'when?'
21 butter	22 bread	51 call	52 'what?'
23 old	24 'how much?'	53 cat	54 hand
25 more	26 'which?'	55 gutter	56 give
27 home	28 a hundred	57 over	58 eight
29 ground	30 'where?'	59 told	60 this

2. SSSCOR. This is an index score for phonetic variables used during the 'non-linguistic' tasks, which involved a partner, such as a spouse, sibling, or friend. These included a scene description and a treasure hunt. These tasks proved very useful, as the focus is on successfully completing the task, and not on one's speech. At every point during the task, where a Doric or an SSE form could be used, a score was allocated; one for a Doric form, and zero for an SSE form. As no two respondents gave exactly the same number of variables, the scores then had to be converted to a decimal fraction, for use in the statistical analysis. These scores are comparable, as the maxima are reasonably similar, covering a range of forty-nine to seventy-two. A respondent who used no Doric variables would have a score of zero, and another, who used Doric variables at every possible point in the non-linguistic task, would have a score of one. The aids used for elicitation appear below:

3. LEXREC. This is an index score for the recognition of fifty Doric lexical items read from the list, which appears above, under section 6.7. The words were read out in the full Doric pronunciation, and the respondent was asked to either give the meaning of the word, supply a Standard Scots English equivalent, or to use the word in a sentence, in order to show that its meaning was known. A correct answer yielded a score of one, and an incorrect one, zero. The maximum possible score is fifty. The results of this test are, however, used with caution, as passive lexical recognition does not automatically imply active use in everyday situations[9]. These three linguistic scores were then correlated with the social factors sex, age, life mode, social network, social class, attitude to dialect and national pride.

6.12. *Subjects*

The part of the valley to be studied consists of a rough triangle formed by the towns of Huntly and Insch, and the village of Kennethmont. The furthest of these are twelve miles apart. The sample has been stratified according to age and sex, and contains sixty-nine interviews, of which six have been excluded, due to the unsuitability of the speakers[10]. That is to say, males and females are equally represented, and the following age groups were sampled: eight to twelve, fourteen to seventeen, twenty-five to forty, and over sixty. These groups were chosen to fit in with the writer's existing networks, and also to be representative of the community. After a discussion with other sociolinguistic researchers, it was decided to include two child age groups. The youngest group was included because speakers are already at school-going age, but not yet old enough to be subject to the peer pressure involved in teenage groups. The interviewer also has family ties with children in this age group, which have been exploited as network contacts in the community. The teenage group was included because this group leads language change (Kerswill 1994), and also because the interviewer has family ties with children in this age group in the community. A minimum of eight speakers per cell was aimed for, as this is the recommended minimum for statistical tests of significance.

[9] Although lexical recognition was used extensively in Macafee and McGarrity's (1999) study of Aberdeen.
[10] These speakers are not 'locals', having moved to the area from other parts of the UK. This was an oversight on the part of the research assistant.

The schoolchildren are mostly from the Huntly Academy, a state non-selective secondary school. The selection was made as follows: all the children falling into the two age groups were given letters by the teachers, asking if they would participate, and those who agreed, and who obtained permission from their parents, were interviewed. The adult informants were accessed via network connections. This method makes use of the *benefits of association* provided by network contacts (Milroy: 1988). One possible source of skewing in the sample is of course the fact that the adult subjects were mostly accessed via network connections, but this was offset by the fact that the research assistant's network contacts were also brought into play. The adult sample is therefore not as 'random' as the child sample, which consists mostly of recordings made at the local school, where the author had no control over the choice of subject.

7. *Statistical Analysis*

7.1. *Correlations and Plots*

It was decided that, because the data is continuous, the only effective tests would be firstly correlations and then multiple (linear) regression, and these have been used throughout[11]. The aim of the data analysis is to see if any of the social variables are correlated with any of the linguistic ones (or in fact with any of the other social variables). This will help answer the research question related to the significance of life modes and social networks as predictors of language change in rural areas.

As a first measure, Pearson's correlation tests and plots were used to see which variables might be related to each other. More rigorous testing was done later at the model building stage, using multiple regression. Correlation shows if two variables tend to vary together (positive correlation), or to vary in opposite directions (negative correlation). Showing such a correlation does not, however, mean that one variable is the cause of the variation in the other. The variation may be caused by a third variable. In order to test rigorously whether one variable is causing another to vary, one must use regression. This will show which variable is the predictor, and which the response. A regression analysis is like the numerical representation of a scatter plot, and the regression line is a straight line through the middle of the data points, one

[11] This was in consultation with the Applied Statistics Advisory Service at the University of Reading.

which comes nearest to touching all of them. The measure of regression is then based on how much distance there is between the regression line and the actual points on the graph.

Correlations are shown in the following manner: a perfect negative correlation will show as minus 1, and a perfect positive correlation as plus 1. Scores close to zero will show no significant correlation. The reader will bear in mind that these correlation tests are only first measures. The first batch of Pearson's Correlations reveal the following:

	phovar	ssscor	lexrec	lifmod	socnet	soclas	attdia	natpri
age	**0.734**	**0.659**	**0.764**	**0.558**	0.186	**-0.432**	0.334	-0.083

Those that correlate significantly are in bold. These correlation coefficients show that:

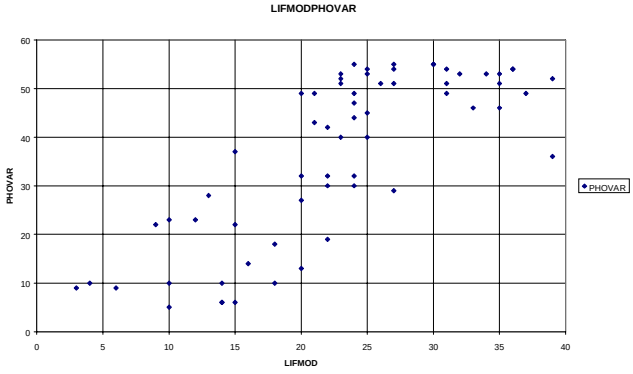
AGE is correlated positively with 1) PHOVAR, 2) SSSCOR, 3) LEXREC, 4) LIFMOD, and negatively with 5) SOCLAS. The correlation between age and the linguistic scores comes as no surprise: the dialect is being lost, and younger speakers do not have access to the range of dialect features that the older ones do. As age is highly correlated with many variables, and as it is not included in the hypothesis, its effects will have to be removed during the model-building process in the regression analysis. Age also correlates highly with LIFMOD. This shows that older people are less mentally urbanised than younger ones generally. The effect of age has been smoothed out during the model-building phase, so that correlations between LIFMOD alone and the linguistic scores could be more rigorously tested. Age correlates negatively with social class. This shows that younger folk are not only more educated, but also read more national newspapers, and aspire to greater things vocationally, for example.

Next the correlations between LIFMOD and the other variables were considered:

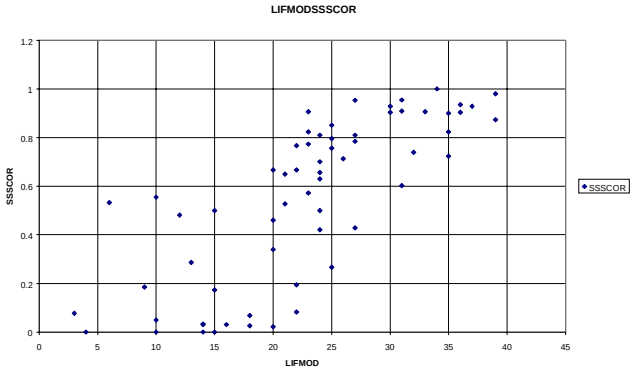
	phovar	ssscor	lexrec	age	socnet	soclas	attdia	natpri
lifmo	**0.782**	**0.767**	**0.704**	**0.558**	0.186	**-0.553**	**0.468**	0.242

From this we can see that LIFMOD is positively correlated with PHOVAR, SSSCOR, LEXREC, AGE, and ATTDIA, and negatively with SOCLAS. This seems to show that, at this stage of the analysis at least, LIFMOD is a strong

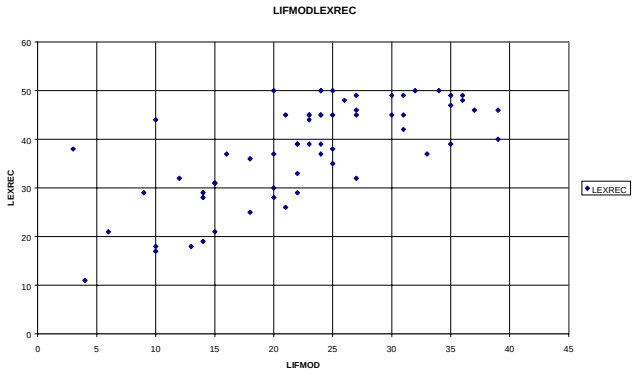
predictor of language use, and is also linked to some of the other social variables. The following scatterplots show the trend: a strongly positive orientation to the local rural community (i.e. a low degree of mental urbanisation) yields a high dialect score.



	ssscor
lifmo	**0.767**



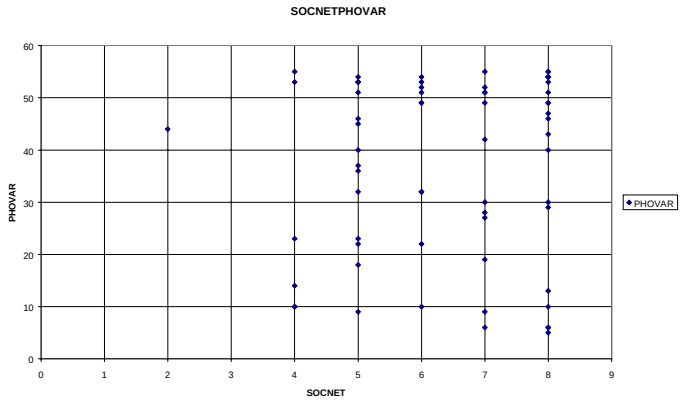
	lexrec
lifmo	**0.704**



Next, the correlations for SOCNET were considered:

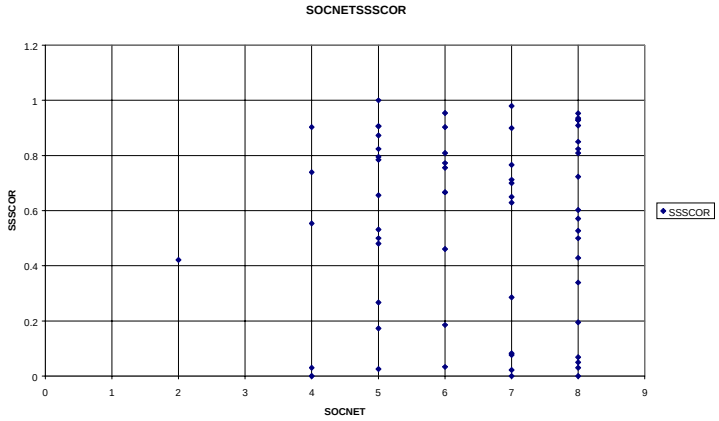
	phovar	ssscor	lexrec	lifmod	age	soclas	attdia	natpri
socne	0.056	0.040	0.197	0.186	0.186	-0.140	-0.116	-0.132

SOCNET is not correlated with any other variable. It appears at this stage that the social network scores are not significant predictors of dialect use. This will be tested more rigorously once the regression model has been built. Next we look at a scatterplot showing the correlation between SOCNET and PHOVAR:

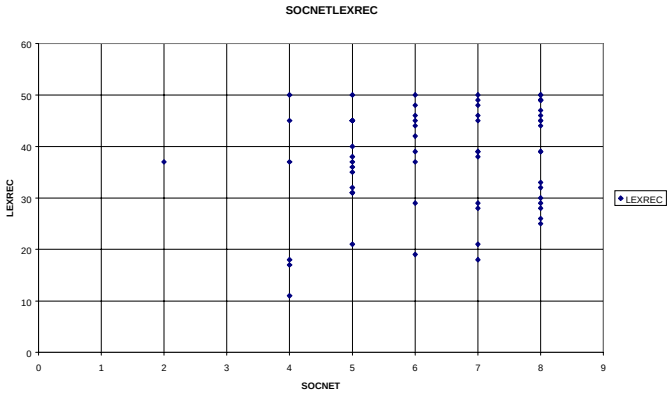


This scatterplot reveals that the two variables do not co-vary. It is what the statistician calls a 'starry night'. The plots for the other two linguistic variables are similar:

	ssscor
socne	0.040



	lexrec
socne	0.197



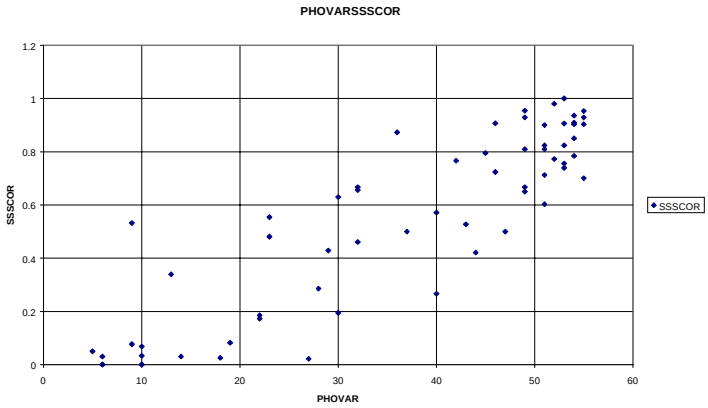
Next we consider the correlation between the three linguistic variables, in order to judge their accuracy as measurements of dialect use:

	ssscor	**lexrec**	socne	**soclas**	attdia	**age**	**lifmo**	natpri
phov	**0.886**	**0.794**	0.056	**-0.541**	0.356	**0.734**	**0.782**	-0.041

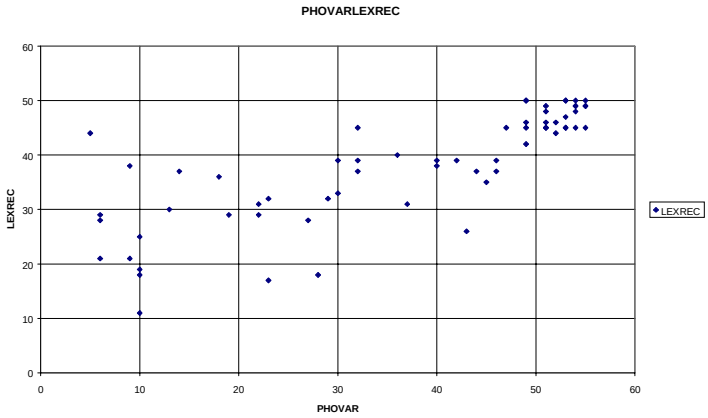
PHOVAR is positively correlated with 1) SSSCOR, 2) LEXREC, 3) AGE, 4) and LIFMOD, and negatively with 5) SOCLAS. Correlations with the other linguistic scores are to be expected, as they each measure some aspect of the speaker's linguistic performance in the dialect. This correlation confirms that

the different tests were well designed, and measured different aspects of the speaker's language use as they were intended to.

	ssscor
phov	**0.886**



	lexrec
phov	**0.794**



The effect of sex is not important for this study either, and will be removed during model building. The summary statistics show that AGE is a strong predictor of dialect use, while SEX has less of an effect, although males do use the dialect more than females. Next we will use more advanced methods to 'flatten' the effects of age and sex on the language use of the speakers, and then see whether the social variables identified have a significant effect on their own.

7.2. *Regression Analysis: Building a Model*

Using linear regression analyses, we will build a model that adds first age, then sex, then the interaction between age and sex into the equation. After that, the relevant social variables will be added in order to test their significance as predictors of language use.

The two results to take note of are:

1) The P-value (probability of the variation occurring by chance), the lower this figure the more significant the result. The minimum accepted for most studies is 0.05 (or 5% possibility of the variation occurring by chance).
2) The (adjusted) r-squared value, a measure of how much of the variation in the dependent variable is accounted for by the independent variable(s).

First we will test LIFMOD, the index score for degree of mental urbanisation, as a predictor of PHOVAR, the first of the linguistic scores, which was achieved by means of the picture list. First, the variable AGE will be entered, and the output examined. Next, the variable SEX will be entered, then the variable AGE x SEX, and finally, the predictor variable LIFMOD. This has the effect of 'smoothing out' the effect of the first three, and testing the last as a predictor of dialect maintenance. Simply finding that the oldest people in the community speak the dialect the most, or that men use the dialect more than women is not surprising. The research question requires that we find out which, if any, of the other social variables predict language maintenance.

7.3. *LIFMOD as a Predictor of PHOVAR*

The regression equation is
PHOVAR = 18.2 + 0.569 AGE

Predictor	Coef	StDev	T	P
Constant	18.168	2.625	6.92	0.000
AGE	0.56890	0.06742	8.44	**0.000**

S = 11.69 R-Sq = 53.9% R-Sq(adj) = **53.1%**

The P value is highly significant, and the adjusted r-squared value is reasonable. This confirms that AGE is a strong predictor of dialect use. Next we add the variable SEX:

PHOVAR = 21.1 + 0.573 AGE - 5.97 SEX

Predictor	Coef	StDev	T	P
Constant	21.067	2.912	7.23	0.000
AGE	0.57295	0.06569	8.72	**0.000**
SEX1	-5.965	2.869	-2.08	**0.042**

S = 11.38 R-Sq = 57.0% R-Sq(adj) = **55.5%**

The P value for sex is significant at the 0.05 level, showing that SEX is a reasonable predictor variable. The r-squared value has risen slightly, showing that the addition of SEX hasn't improved the model much. Next we add the variable AGE x SEX.

PHOVAR = 24.6 + 0.460 AGE - 13.2 SEX + 0.225 AGE x SEX

Predictor	Coef	StDev	T	P
Constant	*24.639*	*3.520*	*7.00*	*0.000*
AGE	0.45984	0.09151	5.03	0.000
SEX	-13.231	5.029	-2.63	0.011
AGE x SE	0.2255	0.1292	1.75	**0.086**

S = 11.19 R-Sq = 59.1% R-Sq(adj) = **57.0%**

This variable is not significant at the 0.05 level, and raises the adjusted r-squared value only marginally. There is no significant interaction between AGE and SEX. Next we add the first social variable that we want to test as a predictor of PHOVAR. LIFMOD is a test of the degree of mental urbanisation of a speaker, and the hypothesis is that a low degree of mental urbanisation will predict a high degree of dialect maintenance:

PHOVAR = 7.74 + 0.233 AGE - 11.5 SEX + 0.224 AGE x SEX + 1.02 LIFMOD

Predictor	Coef	StDev	T	P
Constant	7.736	3.584	2.16	0.035
AGE	0.23321	0.07570	3.08	0.003
SEX	-11.502	3.760	-3.06	0.003
AGE x SEX	0.22410	0.09638	2.33	0.024
LIFMOD	1.0218	0.1475	6.93	**0.000**

S = 8.348 R-Sq = 77.6% R-Sq(adj) = **76.1%**

LIFMOD is shown to be very highly significant, and its addition has greatly improved the r-squared value of the model. A low degree of mental urbanisation reliably predicts dialect maintenance. The earlier indication from the correlations and plots that this was so have been solidly confirmed by the multiple linear regression analysis. This is similar to the tests for the other two

linguistic scores.

7.4. *LIFMOD as a Predictor of SSSCOR*

The second linguistic index score is SSSCOR, which, the reader will recall, was achieved by means of non-linguistic tasks, where the speaker was concentrating more on the task, than on his or her language use.

SSSCOR = 0.225 + 0.0100 AGE

Predictor	Coef	StDev	T	P
Constant	0.22530	0.05703	3.95	0.000
AGE	0.010024	0.001465	6.84	**0.000**

S = 0.2539 R-Sq = 43.4% R-Sq(adj) = **42.5%**

The p-value is highly significant, and the r-squared value is reasonable. AGE is again a reliable predictor of dialect maintenance. Next we add the variable SEX.

SSSCOR = 0.292 + 0.0101 AGE - 0.138 SEX

Predictor	Coef	StDev	T	P
Constant	0.29218	0.06298	4.64	0.000
AGE	0.010118	0.001420	7.12	0.000
SEX1	-0.13759	0.06204	-2.22	**0.030**

S = 0.2461 R-Sq = 47.7% R-Sq(adj) = **46.0%**

The p-value for SEX is significant at the 0.05 level, and the r-squared value has risen slightly. Again, SEX is a reasonable predictor of dialect maintenance. Next we add the variable AGE x SEX:

SSSCOR = 0.351 + 0.00826 AGE - 0.257 SEX + 0.00370 AGE x SEX

Predictor	Coef	StDev	T	P
Constant	0.35075	0.07695	4.56	0.000
AGE	0.008263	0.002000	4.13	0.000
SEX	-0.2567	0.1099	-2.34	0.023
AGE x SEX	0.003697	0.002824	1.31	**0.196**

S = 0.2446 R-Sq = 49.2% R-Sq(adj) = **46.6%**

There is no significant interaction between AGE and SEX. Next we add LIFMOD:

SSSCOR = - 0.0034 + 0.00352 AGE - 0.221 SEX + 0.00367 AGE x SEX + 0.0214 LIFMOD

Predictor	Coef	StDev	T	P
Constant	-0.00336	0.08096	-0.04	0.967
AGE	0.003516	0.001710	2.06	0.044
SEX	-0.22051	0.08494	-2.60	0.012
AGE x SE	0.003668	0.002177	1.69	0.097
LIFMOD	0.021404	0.003331	6.43	**0.000**

S = 0.1886 R-Sq = 70.3% R-Sq(adj) = **68.3%**

The p-value for LIFMOD is very highly significant. The r-squared value has jumped by over 20%, showing that the addition of LIFMOD has greatly improved the model. The speaker's degree of mental urbanisation is again a reliable predictor of language maintenance.

7.5. *LIFMOD as a Predictor of LEXREC*

LEXREC is an index score achieved by testing the speaker's knowledge of fifty lexical items. As mentioned, this score is regarded with caution, as passive recognition of a word does not imply active daily use. The results of the analysis, however, show that LEXREC is highly correlated with the other two linguistic scores, and therefore may be an accurate measurement of dialect use.

LEXREC = 26.7 + 0.353 AGE

Predictor	Coef	StDev	T	P
Constant	26.694	1.487	17.95	0.000
AGE	0.35316	0.03820	9.25	**0.000**

S = 6.621 R-Sq = 58.4% R-Sq(adj) = **57.7%**

The p-value for AGE is highly significant and the r-squared value is quite high. AGE again proves to be a reliable predictor of dialect use. Next we add the variable SEX.

LEXREC = 26.7 + 0.353 AGE - 0.11 SEX

Predictor	Coef	StDev	T	P

Constant	26.748	1.708	15.66	0.000
AGE	0.35324	0.03853	9.17	0.000
SEX1	-0.110	1.683	-0.07	**0.948**

S = 6.676 R-Sq = 58.4% R-Sq(adj) = **57.0%**

The p-value for SEX is not significant at all, and the r-squared value has actually dropped slightly. There is no significant difference between the males and females in terms of lexical use. Next we add the variable AGE x SEX.

LEXREC = 26.9 + 0.349 AGE - 0.38 SEX + 0.0083 AGE x SEX

Predictor	*Coef*	*StDev*	*T*	*P*
Constant	26.879	2.117	12.69	0.000
AGE	0.34908	0.05504	6.34	0.000
SEX	-0.377	3.025	-0.12	0.901
AGE x SEX	0.00828	0.07771	0.11	**0.916**

S = 6.731 R-Sq = 58.4% R-Sq(adj) = **56.2%**

The p-value for AGE x SEX is not significant, and the r-squared value has again dropped slightly. There is no significant interaction between AGE and SEX. Next we add LIFMOD:

LEXREC = 19.0 + 0.244 AGE + 0.43 SEX + 0.0076 AGE x SEX + 0.475 LIFMOD

Predictor	Coef	StDev	T	P
Constant	19.020	2.489	7.64	0.000
AGE	0.24372	0.05257	4.64	0.000
SEX	0.426	2.612	0.16	0.871
AGE x SEX	0.00765	0.06694	0.11	0.909
LIFMOD	0.4750	0.1024	4.64	**0.000**

S = 5.798 R-Sq = 69.6% R-Sq(adj) = **67.5%**

The p-value for sex is still not significant, whereas that for LIFMOD is highly so. The r-squared value for the model has risen by over 11%, showing that LIFMOD has improved it significantly. LIFMOD has again proved to be a reliable predictor of dialect maintenance, even after the effects of age and sex have been statistically removed. We can now confidently say that, ignoring age and sex, *those speakers with a low degree of mental urbanisation have maintained their rural dialect more than those with a high degree of mental urbanisation*. Next, we build a model for SOCNET. The output for the model above will be used up to the point where AGE x SEX is added, with SOCNET being finally added as the predictor variable:

7.6. *SOCNET as a Predictor of PHOVAR*

The penultimate output from the PHOVAR model above was:

PHOVAR = 24.6 + 0.460 AGE - 13.2 SEX + 0.225 AGE x SEX

Predictor	Coef	StDev	T	P
Constant	*24.639*	*3.520*	*7.00*	*0.000*
AGE	0.45984	0.09151	5.03	0.000
SEX	-13.231	5.029	-2.63	0.011
AGE x SE	0.2255	0.1292	1.75	**0.086**

S = 11.19 R-Sq = 59.1% R-Sq(adj) = **57.0%**

Now we add SOCNET, in order to test its value as a predictor of dialect maintenance:

PHOVAR = 29.5 + 0.469 AGE - 13.1 SEX + 0.227 AGE x SEX - 0.829 SOCNET

Predictor	*Coef*	*StDev*	*T*	*P*
Constant	29.504	6.717	4.39	0.000
AGE	0.46920	0.09238	5.08	0.000
SEX	-13.106	5.043	-2.60	0.012
AGE x SE	0.2274	0.1295	1.76	0.084
SOCNET	-0.8288	0.9738	-0.85	**0.398**

S = 11.22 R-Sq = 59.6% R-Sq(adj) = **56.8%**

SOCNET is not a significant predictor of PHOVAR, even at the 0.05 level. The r-squared value of the model has been lowered by the addition of SOCNET. Next we consider SOCNET as a predictor of SSSCOR, the linguistic index score achieved during the non-linguistic tasks. Again, the model will be re-used from above, with SOCNET added at the end:

7.7. *SOCNET as a Predictor of SSSCOR*

SSSCOR = 0.351 + 0.00826 AGE - 0.257 SEX + 0.00370 AGE x SEX

Predictor	Coef	StDev	T	P
Constant	0.35075	0.07695	4.56	0.000
AGE	0.008263	0.002000	4.13	0.000
SEX	-0.2567	0.1099	-2.34	0.023
AGE x SEX	0.003697	0.002824	1.31	**0.196**

S = 0.2446 R-Sq = 49.2% R-Sq(adj) = **46.6%**

Here we add SOCNET to the model, to test it as a predictor of dialect maintenance:

SSSCOR = 0.446 + 0.00845 AGE - 0.254 SEX + 0.00374 AGE x SEX - 0.0163 SOCNET

Predictor	Coef	StDev	T	P
Constant	0.4462	0.1470	3.03	0.004
AGE	0.008447	0.002022	4.18	0.000
SEX	-0.2543	0.1104	-2.30	0.025
AGE x SE	0.003736	0.002835	1.32	0.193
SOCNET	-0.01626	0.02132	-0.76	**0.449**

S = 0.2455 R-Sq = 49.7% R-Sq(adj) = **46.2%**

SOCNET is not a significant predictor of SSSCOR, even at the 0.05 level. The r-squared value of the model is again lowered by the addition of this variable. Lastly we test SOCNET as a predictor of LEXREC, the linguistic score achieved during a test of knowledge of fifty lexical items.

7.8. *SOCNET as a Predictor of LEXREC*

The model from above was:

LEXREC = 26.9 + 0.349 AGE - 0.38 SEX + 0.0083 AGE x SEX

Predictor	Coef	StDev	T	P
Constant	26.879	2.117	12.69	0.000
AGE	0.34908	0.05504	6.34	0.000
SEX	-0.377	3.025	-0.12	0.901
AGE x SEX	0.00828	0.07771	0.11	**0.916**

S = 6.731 R-Sq = 58.4% R-Sq(adj) = **56.2%**

Now we add SOCNET in order to test its value as a predictor of lexical maintenance:

LEXREC = 24.6 + 0.345 AGE - 0.44 SEX + 0.0074 AGE x SEX + 0.387 SOCNET

Predictor	Coef	StDev	T	P
Constant	24.606	4.050	6.08	0.000
AGE	0.34471	0.05570	6.19	0.000
SEX	-0.435	3.041	-0.14	0.887
AGE x SE	0.00736	0.07810	0.09	0.925
SOCNET	0.3873	0.5872	0.66	**0.512**

S = 6.764 R-Sq = 58.7% R-Sq(adj) = **55.8%**

SOCNET is again not significant as a predictor of dialect maintenance, even at the 0.05 level. The r-squared value has again been lowered by its addition to the model. It can safely be said, therefore, that *social network strength does not predict dialect maintenance in this database.*

8. *Conclusion*

Urban and rural speech communities often differ from each other in marked ways. The structure of local social networks, people's attitudes, the direction of language change, and social class structures may differ radically, so as to have dissimilar effects on dialect maintenance. While social network strength indices have been shown to correlate highly with dialect maintenance in some urban areas, such as Belfast (Milroy 1980), the picture may be more complicated. The network has often been seen as an 'all-seeing eye', which exercises supervision over the community's social behavioural (including linguistic) norms. People with dense, multiplex networks are seen as being almost pressured into conformity with network norms. The Doric Study has shown that, at least for this rural community, there is no correlation between network indices and dialect maintenance. An individual's free choice in matters such as degree of integration into local social networks and dialect use must be an important factor. The data analysis has shown that such linguistic choices are highly correlated with the individual's degree of mental urbanisation. McIntosh's (1961) notion of 'resistant types' may be explained by this, in that this factor alone has proved a reliable predictor of dialect maintenance in this rural community. Understanding the social 'mechanisms' involved in language change in rural communities may be more complex than simply applying models developed in urban studies.

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Early Verbs in Bilingual Acquisition: a Lexical Profiling Approach*

Indra Sinka[1], Michael Garman[2] and Christina Schelletter[1]
University of Hertfordshire[1], Department of Linguistic Science[2]

Abstract. We extend our investigation of early grammatical development in two bilingual children acquiring English/Latvian and English/German, by turning the focus onto the acquisition of the category of main verbs, essential for the marking of Tense/Agreement. A lexical profiling approach is used, which controls for the effect of sample length on type-token ratio analyses of spontaneous speech samples. Results show that verb development is more advanced in Latvian than in German and least in English, consistent with grammatical development; verb types seem to be related to Tense/Agreement, but verb tokens are more reflective of age; consistent with our previous findings, main verb TTR is close to whole-sample TTR, reflecting a spectrum of TTR values within the class of main verbs; each of our bilingual children is developing the system of main verbs independently for each language; but each language has a verb that comes to be typical of Rank 1 - this is the 'be' verb; in our data it is already established as such only for the older child Sonja, in her lead language, German; the range of other verb types in the upper ranks is quite diverse; only Sonja's English shows what may be thought of as a restricted set of typically 'general, all-purpose' verbs.

1. Introduction

Previous analyses (Schelletter, Sinka & Garman 1999, Garman, Schelletter & Sinka 1999) have established an order of development for functional categories (FCs) in our longitudinal bilingual data on Sonja, acquiring German/English between 1;11-2;8, and Maija, acquiring Latvian/English, 1;3-1;11: Latvian leads German, and English is the lag language for each child, consistent with the degree of morphological marking in each language. We have interpreted these results in relation to the nature of early grammatical development.

We now explore possible links between the lexicon and syntax. Specifically, we ask whether the emergence of the grammatical categories of Tense/Agreement (T/A) is associated with appropriate vocabulary

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development, in the form of the category of main verbs. We concentrate on main verbs, as opposed to auxiliaries (Aux), because

(1) Aux is a closed class intimately linked to the grammatical system;
(2) Aux is not easy to compare across English, German and Latvian;
(3) Aux is later in development than our early samples.

The framework for our investigation is the lexical profiling approach developed in Garman (1995) which provides a format for displaying quantitative and qualitative aspects of the full vocabulary of expressive language samples. Among other measures, the lexical profile provides type-token ratios (TTRs) for these form classes, as well as the more traditional TTR for the whole vocabulary. To control for effect on TTR of sample size (Richards 1987), this profile uses fixed (and rather small) size samples that are realistic within a clinical linguistic context - 250 continuous word tokens.

This approach has revealed certain developmental patterns for English children, based partly on a re-analysis of the MRC Project data (Fletcher et al. 1986). Two of these expectations are:

(1) contrary to earlier findings (Fletcher & Garman 1988), language normal children show significant TTR development between the ages of 3 to 7 years, for both whole-sample vocabulary (TTR) and main verb vocabulary (VTTR);
(2) there is a tendency for VTTR to approximate whole-sample TTR, for each age group (and similar patterns have been found in adult data).

The data from Sonja and Maija should give us an insight into how verb vocabulary develops in relation to grammatical development considerably before 3 years, and how English, German and Latvian compare in this respect. It should also provide specific information on how far early bilinguals show separate development of their two languages (De Houwer 1990).

2. Method

2.1 Data

Tables 1a and 1b show the sampling distribution. Sessions were targeted on specific participants/languages, and relatively few non-target or mixed utterances were elicited.

For Sonja, practical difficulties meant that sampling in English was less continuous through the observation period than for German. Each child had equivalent, and considerable, exposure to each language.

Table 1a. Sonja, English and German complete and intelligible utterances by sessions

Age	English sessions			German sessions		
	English	German[a]	Mixed[b]	German	English[a]	Mixed[b]
1;11				75	9	3
2;0				226	13	18
2;1				177	5	16
2;2	113	13	17	191	7	14
2;3	150	8	6	207	7	12
2;4				264	10	2
2;5				274	0	5
2;6	229	7	7	180	0	3
2;7	247	4	20	196	0	2
2;8	110	0	4			
Total	849	32	54	1790	51	75

Table 1b. Maija, English and Latvian complete and intelligible utterances by sessions

Age	English sessions			Latvian sessions		
	English	Latvian[a]	Mixed[b]	Latvian	English[a]	Mixed[b]
1:3	132	11	1	123	6	0
1;4	131	53	4	128	2	0
1;5	96	40	5	199	13	3
1;6	167	81	3	314	16	8
1;7	150	19	5	201	4	2
1;8	180	39	0	202	2	0
1;9	153	52	7	207	5	2
1;10	221	17	7	252	2	1
1;11	251	3	3	205	0	4
Total	1481	315	35	1831	50	20

[a]non-target language utterances
[b]utterances showing lexical or syntactic mixing

Data were analysed in the Systematic Analysis of Language Transcripts programme (SALT: Miller & Chapman 1993). Table 2 shows types and tokens for all verb forms in SALT's category of complete and intelligible utterances, across all samples. We report on this in detail elsewhere (Garman, Schelletter & Sinka 1999), and use it here just to give an overall impression of the distribution of verb forms in the 2 languages for each child.

Table 2. Sonja, Maija: verb forms by language, complete and intelligible utterances

		Sonja		Maija	
		English	German	English	Latvian
Types		33	78	37	81
Tokens:	All	499	706	211	462
	Marked	284	488	115	457
	Tensed	200	427	54	385

We may summarise the main patterns in the data as follows:

(1) German/Latvian > English for both verb types and tokens. This is not obviously attributable to differential language exposure. It may possibly be linked to the earlier development of FCs including Tense and Agreement in German/Latvian, and hence to the acquisition of relevant lexical categories;

(2) Sonja > Maija for verb tokens, in the common language English. This also is not obviously attributable to differential language exposure, and may reflect the fact that Sonja is older, with consequently greater capacity for outputting language forms. Such a view is consistent with the observation that the same dominance is found in the children's other languages, German > Latvian.

(3) Latvian > German/English, in proportion of marked, and tensed verb forms; but German > English, for tensed. This order of precedence reflects the degree of morphological marking in the three languages.

2.2 Procedure

Using SALT, we first established cuts of the data samples that each consisted of 250 word tokens, starting from the first word, and finishing with the nearest word to 250 that concluded an utterance. Inflected forms are treated as tokens of a single type. So are alternative realisations of words such as yes, until and because. We excluded words in mazes, but included words from incomplete or partially unintelligible utterances.

We then tagged all main verbs, including those whose inflectional ending was incorrect (missing or the wrong form) but whose stem form was not in doubt. We entered all tagged verbs into a spreadsheet for calculation and display of types and tokens.

3. *Results 1 - General*

3.1 Latvian-English 250-word tokens

Tables 3a and 3b show that Maija reached the 250-word whole-sample criterion one session earlier for Latvian than for English. She also has more main verb types and tokens in Latvian than in English. This is consistent with her development of the FCs Tense/Agreement in the two languages.

Maija's Latvian verb types generally increase with age, while tokens show a fairly flat profile, 41-60, apart from the unusual sample at 1;6. VTTR, apart from 1;6, has range 0.27-0.44, with last 2 samples showing the upper end of this range; from 1;8, it is close to the value for whole-vocabulary TTR (within 0.05).

Maija's English verb types show a general increase with age, as do tokens, except for peaks at 1;8 and 1;11, causing VTTR to dip to 0.35-0.38. All but 2 samples (1;9, 1;10) show similar VTTR and TTR values (within 0.07), which is also reflected in their means.

We should also note that the English verb types cumulate to just 29 between 1;6-1;11, while Latvian verb types reach 65, for the same sampling points.

Table 3a. Maija, Latvian, 250-word samples, main verbs and whole sample TTR

Age	1;3	1;4	1;5	1;6	1;7	1;8	1;9	1;10	1;11	Mean (1;6-1;11)
VTypes	-	-	12	7	14	18	19	17	21	13.71
VTokens	-	-	41	13	52	47	60	40	50	37.43
VTTR	-	-	0.29	0.54	0.27	0.38	0.32	0.43	0.42	0.37
TTR	-	-	0.61	0.47	0.38	0.43	0.38	0.42	0.47	0.42

Table 3b. Maija, English, 250-word samples, main verbs and whole sample TTR

Age	1;3	1;4	1;5	1;6	1;7	1;8	1;9	1;10	1;11	Mean (1;6-1;11)
VTypes	-	-	-	7	7	11	9	12	12	9.67
VTokens	-	-	-	15	17	31	17	20	32	22
VTTR	-	-	-	0.47	0.41	0.35	0.53	0.60	0.38	0.44
TTR	-	-	-	0.50	0.43	0.42	0.38	0.40	0.33	0.41

3.2 German-English 250-word tokens

Tables 4a and 4b show the first German sample to reach the 250-word criterion is at 2;0, while Sonja's English reaches criterion at 2;3. Shaded cells in the tables indicate gaps in sampling.

In the German data, we observe that verb types and tokens increase steadily up to 2;3, after which they level off. Two peaks for tokens at 2;3 and 2;5 depress VTTR, which is otherwise in the range 0.29-0.33. TTR is within 0.05 of VTTR for half of the samples, and for the means.

Table 4a. Sonja, German, 250-word samples, main verbs and whole sample TTR

Age	2;0	2;1	2;2	2;3	2;4	2;5	2;6	2;7	2;8	Mean (2;3, 2;6-7)
VTypes	4	7	7	11	12	12	13	13		12.33
VTokens	12	18	24	49	41	52	42	40		43.67
VTTR	0.33	0.39	0.29	0.22	0.29	0.23	0.31	0.33		0.28
TTR	0.22	0.36	0.36	0.32	0.33	0.33	0.40	0.31		0.34

Sonja's pattern of verb types and tokens in English is consistent with her German, albeit with a slight lag. English tokens are slightly higher towards the end, with a peak at 2;6. VTTR is correspondingly lower than for German; TTR is within 0.05 of TTR for the mean, and for all samples except 2;6.

Table 4b. Sonja, English, 250-word samples, main verbs and whole sample TTR

Age	2;0	2;1	2;2	2;3	2;4	2;5	2;6	2;7	2;8	Mean (2;3, 2;6-7)
VTypes			-	9			10	11	11	10
VTokens			-	34			52	45	47	43.67
VTTR			-	0.26			0.19	0.24	0.23	0.23
TTR			-	0.28			0.30	0.26	0.28	0.28

Finally, we should note that English verb types cumulate to just 17 types across samples 2;3 and 2;6-2;7, while German has 29 in the same samples, consistent with early development of T/A in that language.

4. Results 2 - Main verbs

4.1 Internal class frequency distribution

We have seen that VTTR values are in the mid-to-low range, comparable to TTR. In each case, this reflects a compromise between high and low TTR items in the class of main verbs. TTR is basically a property of individual words, and so we now look at the main verbs themselves.

To illustrate, Sonja's English sample at 2;3 shows a VTTR of 0.26. Many distinct type-token distributions could yield this result, but Table 4c shows a striking frequency gradient among the constituent verb types:

Table 4c. Sonja, English, sample at 2;3: main verb types and tokens

Verb types	Tokens
want	16
sleep	5
be	4
put	3
swim	2
do	1
look	1
sit	1
go	1
Class TTR	0.26

We can then ask what proportion of verb class tokens each verb type accounts for. This allows us to compare verb class samples of different sizes in terms of their spectra of relative token frequency; in these terms, it is clear from the data that the first four frequency ranks contain most of the variation.

4.2 Verb profiles

We now ask: What verbs inhabit the higher-frequency ranks? For this we look just at the first four most frequent verbs for each sample: to the extent that there is comparability of verb selection across samples, we should find it here. See Tables 5a-b for Maija's Latvian and English verbs.

Table 5a has 16 verbs in all: these represent a quarter of all the types in the 250-word samples, but around three-quarters of the tokens.

Table 5a. Maija, Latvian, 250-word samples: proportion of main verb tokens, for the main verbs in first four frequency ranks, by sample

Age	1;5	1;6	1;7	1;8	1;9	1;10	1;11	Gloss	Total
Rank 1	būt 0.32	būt 0.46	zināt 0.54	sameklēt 0.17	būt 0.59	būt 0.35	būt 0.38	be know find	73 28 8
Rank 2	čučēt 0.29	atstāt 0.15	iet 0.10	iet 0.13	nākt 0.05	spiest 0.10	iet 0.10	go sleep press come leave	16 12 4 3 2
Rank 3	apgāztie s 0.10	gribēt 0.08 ēst 0.08	attaisīt 0.08	dabūt 0.09 būt 0.09	dabūt 0.03 lasīt 0.03	ēst 0.08 sadauz īt 0.08	gribēt 0.08	get want eat fall over open be read bang	6 5 4 4 4 4 3 3
Rank 4	apēst 0.05		gribēt 0.06				ēst 0.04	want eat eat	3 2 2

Rank 1 has *būt* 'be' as nearly the unique verb - in the last 2 samples, it accounts for one-third of all verb tokens;

Rank 2 typically accounts for around one tenth of all tokens; it is fairly diversely populated, with 5 verbs, but *iet* 'go' is dominant;

Rank 3 is even more diverse, but *ēst,* 'eat', *gribēt* 'want' and *dabūt* 'get' each occur in two samples; Rank 4, by contrast is sparse.

In Table 5b, there are 13 verb types in all, representing nearly half of all types in the data (29).

Table 5b. Maija, English, 250-word samples: proportion of main verb tokens, for the main verbs in first four frequency ranks, by sample

Age	1;5	1;6	1;7	1;8	1;9	1;10	1;11	Total
Rank 1	-	record 0.27 sit 0.27	be 0.29 scratch 0.29	be 0.29	be 0.24 record 0.24	be 0.20 go 0.20	be 0.53	39 8 5 4 4
Rank 2	-			come 0.16 want 0.16			come 0.09	8 5
Rank 3	-	stand 0.2	look 0.18		do 0.12 touch 0.12	look 0.10 climb 0.10	sit 0.06 go 0.06	5 3 2 2 2 2 2
Rank 4	-	come	come	get 0.10				3

		0.07	0.06					2

Rank 1 has 5 verbs, and most samples have more than one verb sharing the rank; but we may see *be* emerging strongly as a Rank 1 verb - accounting for over half the verb tokens in the last sample;

Rank 2, by contrast, is sparse;

Ranks 3 and 4 show much the same pattern as for Maija's Latvian, though they account for rather more of the verb tokens in each sample.

See Tables 5c-d for Sonja's German and English verbs.

Table 5c. Sonja, German, 250-word samples: proportion of main verb tokens, for the main verbs in first four frequency ranks, by sample

Age	2;0	2;1	2;2	2;3	2;4	2;5	2;6	2;7	Gloss	Total
Rank 1	sein 0.42	sein 0.33	sein 0.63	sein 0.41	sein 0.41	sein 0.40	sein 0.31	sein 0.33	be	110
Rank 2	kommen 0.33	essen 0.28	gehen 0.08 essen 0.08 putzen 0.08	schlafen 0.16	schlafen 0.10 kucken 0.10	malen 0.27	gehen 0.17	gehen 0.20	go draw sleep eat come look clean	17 14 12 7 4 4 2
Rank 3	schauen 0.17	setzen 0.17		essen 0.12		schlafen 0.12	machen 0.14	haben 0.08	eat sleep do put have look	6 6 6 3 3 2
Rank 4	essen 0.08			trinken 0.10	essen 0.07				drink eat	5 4

		geben 0.06				springen 0.04	geben 0.07	brauchen 0.05	give jump need	4 2 2

There are 16 verb types in all, just over one-third of the total (44):

Rank 1 has just *sein* 'be' as the unique verb, accounting for one-third of all tokens in the last 2 samples;

Rank 2 is quite diverse, with 7 verb types; *gehen* 'go', *essen* 'eat' and *schlafen* 'sleep' are important; accounts for around one-fifth of all tokens;

Rank 3 looks fairly diverse, but shares *essen* and *schlafen* with Rank 2; there is no typical verb;

Rank 4 also seems relatively well populated; *essen* and *geben* each occur in two samples, but *essen* is shared with Ranks 2 and 3.

Finally, Table 5d shows only 9 verb types in all; nevertheless, these are nearly half of all types in the data (20).

Rank 1 shows *be* emerging as the typical verb, accounting for two-fifths of all tokens in the last 2 samples;

Rank 2 is similarly focused on a single verb, *go*; just under one-fifth of all tokens; Ranks 3 and 4 are similar, with 3-4 verbs each, around one-tenth of all tokens; there is some sign that *want* is emerging as a Rank 3 verb.

Table 5d. Sonja, English, 250-word samples: proportion of main verb tokens, for the main verbs in first four frequency ranks, by sample

Age	2;0	2;1	2;2	2;3	2;4	2;5	2;6	2;7	2;8	Total
Rank 1			-	want 0.47			be 0.50	be 0.40	be 0.40	63 16
Rank 2			-	sleep 0.15			go 0.17	go 0.18	go 0.17	25 5
Rank 3			-	be 0.12			do 0.13	want 0.11	want 0.09 close 0.09	9 7 4 4
Rank 4							sleep			

			-	put 0.09			0.08	hold 0.09		4 4 3

5. Summary and Discussion

5.1 Summary

(1) We have seen that Maija and Sonja use a greater number of main verb types in Latvian and German respectively than their English. Maija's and Sonja's English are not different from each other in this respect. The difference between languages is consistent with the differential development of those grammatical categories that are marked on verbs, suggesting that syntactic and lexical development may be related.
(2) Maija's Latvian has greater use of tokens than her English, but Sonja's German and English tokens are even higher, and comparable to each other. Differences within these bilingual subjects appear to reflect the effects of language (development of T/A, on VTypes), and age (greater VTokens), rather than exposure to the languages, which was equivalent.
(3) As noted in Garman (1995), VTTR is similar to whole vocabulary TTR. This reflects the spectrum of verbs in upper and lower frequency ranks in each sample, mainly in the first four frequency ranks.
(4) Each of our bilingual children is developing the system of main verbs independently for each language.
(5) Nevertheless, the discontinuity between Rank 1 and other ranks is a shared developmental phenomenon.
(6) Additionally, each language has a verb that comes to be typical of Rank 1 - this is the 'be' verb; in our data it is already established as such only for the older child Sonja, in her lead language, German.
(7) The range of other verb types in the upper ranks is quite diverse; only Sonja's English shows what may be thought of as a restricted set of typically 'general, all-purpose' (GAP) verbs.

5.2 Discussion

Central to the issue of the relationship between lexicon and syntax, there is clearly special status for the verb *be* within the class of main verbs. Because of this, in studies of English it is typically either excluded from analysis as not a

'lexical verb', or undifferentiated as between main and auxiliary forms (e.g. Bates et al. 1988). In our view, neither of these solutions is appropriate. Garman (1995) assembled the essential facts in the form of an antilogism (Hockett 1961), a set of 3 propositions among which the truth of any two logically excludes the third:

(a) main verbs constitute an open word class;
(b) the class of main verbs includes the copula *be*;
(c) the copula *be* is a closed-class verb.

Our candidate for rejection is (a): it reflects an unjustified expectation that the partition between 'open' vs. closed' lexical classes should coincide with the boundary of a particular set of syntactic form classes. As such, it represents an interesting instance where lexicon and syntax are distinct.

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