The Speech of One Family:

a phonetic comparison of the speech of three generations in a family of East Londoners

by

Ph D
1967

J A M E S   R A Y M O N D   H U F F O R D

Abstract

A study of the speech of one family, obviously crucially important for an understanding of the nature of sound-change and variation, was first, and last, made at the end of the last century by Rousselot. With no knowledge of modern structuralism he could not make a comparative analysis which would satisfy modern descriptive linguists. This thesis proposes a new structural method for describing variation in pronunciation with a referential framework postulated on the basis of words. Various implications of this method are discussed. About one-third of the recorded speech of the informants is then compared in an extremely detailed manner, revealing a high degree of idiosyncratic variation both in and between individuals, such as has not hitherto been described with reference to any dialect. It is shown that certain specific words may and often do have quite characteristic pronunciations which differentiate them from other words which in a conventional phonemic analysis would probably be spelt with the same phoneme. Furthermore, it is shown that the basic phonological units which may differentiate words, can, and in fact often do, overlap phonetically. A fairly noticeable degree of difference between individuals was detected. There is a good deal of research which remains to be done before the fullest possible conclusions can be drawn from the material, but this thesis shows the way towards the conclusions both in the new method of description and the nature of the facts revealed by it. To the author's knowledge, no such detailed study of variation in speech has been made before and it is in the wealth of detailed statements about variation that hints at the answers to questions about the intimate mechanisms of sound-change are to be found. This study makes a start at collecting and organizing such hints.

Acknowledgements

In the effort which has gone into the production of this thesis, four parties have given me massive assistance, both moral and material, without which the thesis could never have become what it is, or possibly never have been undertaken at all. To these four parties I would like to express my sincere thanks. My indebtedness to them is awe-inspiring and the few words written here can only be a feeble token of my gratitude to them.

Mr. J.D. O'Connor has been my supervisor during my three-year course. He has patiently listened to my ideas and arguments, advised me on their soundness or lack of it, skilfully guided me away from dangerously irrelevant digressions and consistently encouraged me during the research work which was often tedious and monotonous.

My informants, Ben, Phil, Mark, Jenefer, Ada, Stevie and Nan are all fine, friendly, cheerful humorous people whom it has given me very real and great pleasure to meet and to work with. They have never grumbled at my pestering them with the tape-recorder and have always cooperated with me extremely willingly. They realized the purpose of my research and have done their best to make it a success. My visits to Bethnal Green and Stepney always left me feeling happy.

My wife, Sue, has constantly given me cheerful wifely encouragement for the last three years, supported me magnificently in morale and financially, sacrificing a couple of years of her own university career, and put up patiently with constant repetition of phrases of tape-recorded

Cockney and Daniel Jones' Cardinal Vowels.

The Department of Education and Science has paid my tuition fees over the whole of my course and provided me with three annual maintenance grants of £500. I could never have embarked on this course of study without such generous assistance.

I would like to thank members of the staff of U.C.L. for the good background in Phonetics and Linguistics which they have given me, in particular Professors D. Fry, A. Gimson and H. Halliday, Messrs. G. Arnold, R. Dixon and J. Wells and Miss O. Tooley.

My thanks are also due to the following for diverse help and services rendered in the research for and production of this thesis: Messrs. T. Legon, I. Cass, J. Haylitt, G. Fraser, G. Davies, D. Kleinschmidt, my parents, Mr. and Mrs J.H. Hurford, Miss J. Chisman, Miss K. Backhouse, Miss H. Boyes, Mrs. Helen Erk.

Contents.

The Informants

My informants were seven members of a family of East Londoners. Below is a diagram showing their relationships.

BEN M.
b. Stepney 1885

PHIL M.
b. Stepney 1923

1948

ADA M. (nee H.)
b. Bethnal Green 1929

NAN H.
b. Bethnal Green 1888

STEVIE H.
b. Bethnal Green 1924

MARK M.
b. Bethnal Green 1953

JENEFER M.
b. Bethnal Green 1949

All the informants have lived almost the entirety of their lives in the East End. Bethnal Green and Stepney, where they were born, are within two miles of each other, and belong to the working class area known as the "East End", the traditional home of the "Cockney" dialect.

This thesis is essentially a study in depth. It is not primarily an attempt to describe the Cockney dialect through a description of the speech of a "typical" family. Any such attempt would be, from a statistical point of view, unreliable. S.M. Sapon correctly warns of this in his article, "A Methodology for the Study of Socio-economic Differentials in Linguistic Phenomena" (Studies in Linguistics, 11, 1953). He writes, "...the fact that the assumption of essential homogeneity

> remains experimentally unverified seriously dilutes the value of his [the descriptive linguist's] observations, since he is attempting to describe the parameter by means of a scanty and frequently biased sampling, drawing macroscopic conclusions from microscopic examples.

We have reached a state wherein a degree of statistical awareness is no longer a luxury but a necessity, if we are to arrive at a valid understanding of mass behaviour through the study of a necessarily limited sample." (p. 58)

Glenna Ruth Pickford also makes a similar point in her article "American Linguistic Geography: a Sociological Appraisal" (Word 12, 1956).

Without losing sight of these warnings, however, it is of some value to note that the family whose speech is described in this thesis is in many respects a typical East End family. Although of a "microscopic" sample, the descriptions in this thesis may be used, in conjunction with other works, for example E. Sivertsen's "Cockney Phonology", to build up a "macroscopic" picture of the Cockney dialect.

Below are descriptions of the lives of the seven individuals dealt with in this thesis, from which it may be seen to what extent they are characteristic East Enders. My own impression is that they are a very typical family. On reading the sociological survey of Bethnal Green, "Family and Kinship in East London" by M. Young and P. Willmott, I was struck by the strong similarity between the individual East Enders of my acquaintance and those described by Young and Willmott.

Characteristics which my family of informants have in common with the general pattern of Bethnal Green inhabitants as described by Young and Willmott are as follows. Very large families in the older generations - Nan was one of twenty-two and had nine children herself. Phil was one of eleven. Smaller families now - Ada and Phil have two children, Stevie has one child. A deep consciousness of the difference between conditions in present-day and pre-war Bethnal Green. In the case of the older generation vivid memories of poverty went as far back as the turn of the century. Memories of fathers who spent more time in the pub than at home, as Nan's father. A strong ambition on the part of modern parents that their children get a good education. Ada, Phil and Stevie were all very concerned about and ambitious for the education of their children. Close proximity of members of a family even after marriage. Ada, Phil, Nan and Stevie all lived within a hundred yards of each other. Most of Ben's sons and daughters lived close to him. Frequent social contact between members of a family. Nan sees some of her children and grand-children daily. Ben is also visited daily by at least one member of his family. Brothers and sisters seem to visit each other regularly. Unskilled manual employment - both Phil and Stevie are or have been street-traders. Stevie has been a lorry-driver and a fish-porter. Continuity of employment in one family - Ben's father was a street-trader, so was Ben, so is Phil. Stevie works part-time for his father-in-law as a street-trader.

The reasons for choosing an East London family for this study were several. It was obviously more convenient from the point of view of meeting informants and arranging recording sessions that the family chosen should live near the place where the research was to be undertaken.

Furthermore, some degree of control was felt to be necessary regarding the possibility of dialectal interference. It was felt that a study of the variations in the speech of individuals who had all learnt to speak in a similar environment would be more rewarding than a study based on individuals who, though related, may have learnt to speak in different parts of the country or may have spent long periods of their lives in different localities. Bethnal Green is an area more likely to contain individuals who have spent most of their lives there, as the population has been decreasing steadily since the war. Many Bethnal Greeners have moved out, but very few people have moved into the area.

Ben's father moved to London from Manchester in his very early childhood. He grew up and married in Stepney. He worked as a fruiterer and kept his own stall in a street near where Ben has lived all his life. When he died the fruit stall was passed on to Ben.

Ben is of Jewish descent although not a practising Jew. He left school when he was twelve and worked all his life in Stepney, except for the years 1914-18 when he was in France with the Royal Artillery. He worked mainly as a street trader, but also on and off as a bookmaker's clerk and assistant. His son hinted that he had at some time been involved in some crime but, naturally enough, never elaborated on this. Phil told me that Ben had two brothers, both of whom turned out quite differently from him, leaving the East End and going to university. Apparently he didn't see much of them in later life. Ben was described by Ada as a "proper old character" and "cantankerous". Both these descriptions seem to me apt. I noticed that his name was usually mentioned with a smile or a chuckle. Ben's own accounts of his life are not too reliable as he tends to prefer colourful inventions to the truth. For a long time I believed his story that he had participated in the Boer War as a boy soldier, until I was disillusioned by his son. It is quite certain that he had no schooling past the age of twelve and that at the time of my first meeting with him, he had lived all his life in the same street in Stepney, except for the four years of the First World War. In 1909 he married a Stepney girl and they had a family of eight sons and three daughters. Two of his sons were living with him and his wife when the first recording of him was made. Between then and the time of the second recording his wife had died and he and the two sons had moved to another house a few hundred yards away. He is retired and spends his time attending meetings at horse- and dog-racing tracks, drinking in pubs with his friends and his sons, watching television and resting at home. His other sons and daughters visit him regularly.

Phil thought that his father's accent was not so "common" as that of his mother-in-law although this might have been no more than family partisanship. Ben certainly swore much more than any of the other informants and when rebuked by his wife on one occasion for this, he defended himself with, "That's the Cockney way of talking." One cannot deduce directly from the wide use of taboo words that Ben's accent is rough, but one can infer that he has a definite lack of concern for sounding "posh" which may be reflected in his accent.

Phil went to school until he was fourteen when he began work as a street trader, like his father. At eighteen, in 1941 he joined the Navy and served for four years, for most of the time in Scotland. These four years were the only time he has spent away from the East End, apart from the yearly fortnight's holiday at one Southern seaside resort or another, or working in the hopfields in Kent. In 1948 he married Ada. He still works mainly as a street-trader but also part-time as bookmaker's clerk at a number of horse- and dog-racing tracks in and around London. Jenefer and Mark are his only children. He sees much of his brothers, all of whom are also interested in horse- and dog-racing, and much of their conversation is on this topic.

He thinks having a Cockney accent is a social disadvantage and encourages his daughter to take the elocution lessons offered at her school. He sometimes chides his son mildly for talking roughly. Interestingly, two of his brothers whom I met had a rather different attitude. "Cockney?' they said, "That's a way of talking that'll never die out, never in a million years. Too much character about it." And they gave the impression that they approved of this.

Talking of how his mother-in-law sometimes spoke rather "common", Phil demonstrated by making a few protracted vowel sounds, about [Æ] in quality, accompanying them with grimaces. Aparently then, he thought that these were characteristic Cockney sounds and were ugly.

Nan's mother was born in Torquay, Devon, and came to London in her early 'teens to be "in service". In London she met and courted her husband, Nan's father. Nan thinks that he was a native Londoner, although she is not sure. Certainly all of his family of twenty-two children were born in London, and all the younger ones of these were born and brought up in and around the East End. Nan's father worked as an upholsterer.

Nan was the youngest but one of the seventeen who survived infancy and lived her childhood in great poverty, since her father took to drink and adultery in later life. She was educated up to the age of thirteen. She worked at first in a tobacco factory and then for most of her life as a seamstress. She married twice and had a total of nine children, six surviving infancy. Ada and Stevie are children of the second marriage, and her two youngest. She has never left the East End for any significant period except for the annual East Enders "holiday" picking hops in Kent, which she did every year until she was about forty. She is a widow and retired. She is not in good health, suffering from chronic bronchitis and rheumatoid arthritis. She does not go out much and her children and grandchildren visit her daily and keep her flat for her. She watches television, keeps potted plants and has her budgie for company when her relatives are not with her. On hearing her speech played back to her on the tape-recorder, she said she thought she sounded "very rough" (i.e. Cockney) and apologized to me for it. Phil said of her that on occasions she talked with a very "common" accent, and Ada admitted, with a certain reluctance that her mother did speak Cockney. At the end of the tenth recording session Jenefer said to me of her grandmother, apologetically, I thought, "She's very direct", possibly referring to Nan's "rough and ready" way of speaking.

Ada went to the same elementary school as her own children were to do later and left at the age of fourteen. She married Phil when she was nineteen, and has been a housewife ever since. She has lived in Bethnal Green all her life except for a four-year period during and just after the Second World War when she was evacuated to Whitstable, Kent, and annual family holidays to South Coast seaside resorts. In fact, in Bethnal Green she has always lived within a few hundred yards of where she now lives with Phil and their two children. As a housewife she has no occasion to leave the neighbourhood and spends her time shopping, chatting with neighbours and relatives and doing housework. She keeps in touch with those of her family who live locally, and associates socially with them, her husband's family, neighbours and her husband's business contacts, all, as far as I can gather, East Enders.

She thinks that "it is nice" for people to try to "speak properly" but admits that this is very difficult living in the East End all the time. Of her own speech she said, "I don't talk too common, anyway, do I?" to which her husband replied, "Not bad." From this and other remarks one may conclude that she speaks a form of English that is socially acceptable in the East End, avoiding certain pitfalls that would characterize her as excessively "common" or excessively "posh".

Stevie was also educated up to the age of fourteen. He worked first as a barrow-boy and then as a lorry-driver delivering goods in and around London. He served for six months in the Navy during the war, but left because of ill-health. He married a Bethnal Green girl in 1945 and has a daughter. They live with his wife's father in a house on the street where Stevie was born. Until recently Stevie helped his father-in-law to run their fruit and vegetable trade from a barrow in Bethnal Green Road. He now works as a porter in the Billingsgate fish market. Apart from six months in a hospital in Basingstoke when he was a boy, various short family holidays, and his time in the Navy, he has never lived out of Bethnal Green. He mixes socially with friends and relatives, all from similar backgrounds to himself.

His attitude to the subject of speech may be summarized by his remark

"I think it's lovely to hear a man or a woman speak the Queen's English. I do. Though I can't speak it myself." As examples of people whom he considered to have a "lovely speaking voice," he gave Laurence Olivier, Richard Burton, George Sanders and Basil Rathbone. He also said "I'm not proud of being a Cockney, or speaking like a Cockney. I wished I could speak the Queen's English." He did admit however that speaking the "Queen's English" had its disadvantages in the East End, and cited the example of the son of a friend of his who had gone to university and had had his leg pulled in the East End for speaking the "Queen's English". He and his wife both associated accent with social class and what they termed "breeding", of which they seemed to have a rather deterministic view.

Jenefer went to a local primary school, and from there to a local grammar school. She has been on holiday to one or two South Coast resorts and on school trips to Germany and Portugal. The school she attends takes its pupils for the most part from the East End and the same type of social background as Jenefer. At school she is very prominent scholastically, being top of her class in many subjects. In character she is very shy and unforthcoming. In a letter to me the Headmistress of her school described her as "very inhibited socially". Quite unlike her brother, she could hardly be brought to say more than a few words in front of the tape-recorder. All efforts on the part of her parents and her brother to make her converse naturally and unselfconsciously failed. At school she had taken elocution lessons for a short time, but had given them up because, she said, they were "rot". Arguing with her father about the desirability of trying to "speak proper", she said, "Why try to pretend to be something that you're not?" However, Ada said that Jenefer did try to "speak nicely" and that her speech was "not so rough" as Mark's.

Mark was eleven at the time the recordings were made of him. He is a boy of exceptional intelligence, and has an outstandingly extroverted personality. He is quite unselfconscious in the presence of other people, and extremely popular with other boys. He has many friends, all local boys, whom he sees very frequently. He has lived all his life in Bethnal Green. Ada said of the prospect of tape-recording him, "I should think he sounds horrible. I mean that, because he talks terribly to me." And later, she said, "He speaks proper Cockney." Phil's brothers agreed that Mark spoke "real Cockney" and that this was an illustration that the dialect was in no danger of dying out.

The Recordings

The following recordings were made:-

Dec. 14, 1964)) (39 mins.) Dec. 16, 1964)	Mark and four school-friends at Mark's school " " " " " " "
Jan. 21, 1965 (10 mins.)	" " " " " " " (Questionnaire)
Jan. 22, 1965 (15 mins.)	Mark, Ada, Jenefer at Phil and Ada's home in Bethnal Green
Feb. 1, 1965 (45 mins.)	Ada, Phil, Nan, Jenefer " " "
Feb. 22 ,1965 (45 mins.)	Mark, Ada, Phil, Jenefer and a friend of Mark's at Phil and Ada's home in Bethnal Green
May 25, 1965 (32 mins.)	Ben, his wife, Phil, three of his brothers at Ben's house in Stepney
Feb. 28, 1966 (64 mins.)	Stevie and his wife at their house in Bethnal Green
Aug. 3, 1966 (42 mins.)	Ben and two of his sons at their flat in Stepney
Feb. 9, 1967 (11 mins.)	Nan and Jenefer in Nan's bed-sitter in Bethnal Green

A description of the atmosphere in which these recordings were made is given below. This was thought to be necessary because of the fairly wide degree of variation which occurred between individuals. It was thought that some, at least, of this variation might be attributable to the particular style in which an individual spoke for most of the time during a recording session, that is whether or not the informant was completely at his ease, whether the style tended to be hurried or leisurely, whether the speech was mainly of a "narrative" type or consisted more of short, more immediately functional utterances such as "What time is it?", "Look at that", "Where's your mother?", "Don't be long."

There is not more than one-and-a-half hours of recording of any members of the family. This again is a "microscopic" sample and one should be careful of drawing "macroscopic" conclusions from it. The descriptions of the recordings have been made to give an idea of how typical they are of the informant's everyday speech although they only represent a minute fraction of each individual's total linguistic output.

The first two recordings were made at the boys' primary school in Bethnal Green. Mark and four classmates were left together in a room with the tape-recorder switched on and asked to talk. They sat in a circle round the microphone and conversed in what appeared to be a very natural and spontaneous way for the whole of the recording time. For most of the time I remained in a far corner of the room or outside it altogether in case my presence should inhibit them. Several times it was necessary for me to interrupt to ask them not all to shout at once or to stop playing with the microphone. The boys all knew each other well and there was no apparent selfconsciousness in their relationships with each other. Their dicussions were all extremely boisterous and fast-moving and covered a range of subjects in which most or all of them had a strong interest - soccer, T.V. programmes, comic strips, other boys, Christmas presents, pocket money, cricket, what they would do with a large sum of money, pop-groups and some recent experiences of individuals being the most prominent. Much of the time there was competition for the attention of the others, several boys trying to talk at once. Mark was the most enthusiastic and successful talker. His physical size - he was bigger than three of the others - undoubtedly commanded a certain amount of respect within the group, a respect enhanced by his sporting prowess, and his learning ability. He was captain of the school's soccer and chess teams and first in his class scholastically. On most topics of discussion he had a somewhat wider knowledge than the other boys and tended to dominate the conversation for that reason as well.

A topic would often undergo three separate phases. (1) Introduction by one boy, who might venture certain opinions or reminiscences on a topic. This generally led to (2) vociferous contradiction and/or support from the others, with confused and noisy argument. Finally (3) the matter might be settled either by one boy managing to shout the others down or impress and silence them by his wider knowledge, or by the abandoning of the topic and the introduction of a new one.

The constant battle for the floor resulted often in a rather fast form of speech, with very little pause between sentences. The boys' form-master, on hearing part of these two tapes played back, said that the boys' speech in them was "98% natural". This confirmed my own impression of the spontaneity of the recordings.

The third recording was also made at the boys' school, but in a different way. I had prepared a typewritten questionnaire to elicit from Mark certain words which had not occurred in the first two recording sessions. I first rehearsed Mark's four companions of the previous recordings in asking each other questions from the typewritten sheet, so that their reading of them should not sound too stilted and perhaps influence Mark in his pronunciation of the answers. Mark was then called in and his friends put the questions to him. The boys being only 10 or

11 years old, their reading was not too fluent and the situation could hardly have been called natural. However, the boisterous atmosphere of the previous two sessions again prevailed, with much rowdy comment, laughter and argument between questions.

I do not think that the fact that these recordings were made at school had any significant effect on the boys' pronunciation. All the boys associated with each other both in and out of school, living quite close together. In this particular school no pressure was put on the children to modify their pronunciation in any way. The attitude of the headmaster and the boys' form-master was that boys should not be inhibited in expressing themselves freely and naturally.

In the "questionnaire" recording it is likely that Mark felt himself obliged to give the one-word answers with a certain deliberateness and pronouncing "all the letters". Mark was of necessity the centre of attention during this session, which may have put him on his guard a little. His great self-confidence would not have allowed the situation to ruffle him much, however. In one-word utterances there is more need to articulate clearly and give one's listener every clue to the word being spoken, than in fluent speech where context may help to identify any one word.

In the "questionnaire" recording, which contains about one-eighth of Mark's recorded speech, there are four occurrences of [h], all in one-word answers to questions. In the remaining seven-eighths of the recorded speech of Mark there are only two occurrences of [h], one in the exclamation "Aha!", perhaps a special case.

The fact that in answers to a questionnaire [h] occurs at least fourteen times more frequently than in conversational speech is an indication that one should be very wary of accepting as normal pronunciations elicited in this way. [h] is, however, a well-known shiboleth and possibly susceptible to greater variation than other sounds. In all cases where a pattern of variation in the "questionnaire" recording differs from that in the rest of Mark's recorded speech, a note has been made to this effect.

The fourth recording was made on my first visit to Ada and Phil's house. Present were Ada, Mark, myself and intermittently Jenefer. Ada was at first rather nervous of trying to speak naturally and unaffectedly to a stranger with a tape-recorder. This was apparent from her manner and some remarks she made. Mark who knew me already was his usual extroverted self and this to some extent put his mother at her ease. The recording is short and is mainly of conversation between myself, Ada, and Mark. We talked of Mark's school, the schoolmasters there, Mark's progress at school, the subject of accents of various parts of the country, and similar topics of a general interest.

Ada realized that my purpose was to record her natural speech and curbed her instinct to talk more poshly to a stranger with a vaguely RP accent. Her nervousness seemed to me to be reflected in a certain amount of giggly laughter and a few rather self-conscious remarks about herself and her family. On a detailed comparison of her speech-sounds in this recording, and those in the other, later recordings of her, there seems to be no significant difference that might be attributed to her uneasiness or nervousness. In any case, she soon got used to my presence and at the end of the recording I had the impression that she was behaving and talking quite naturally.

Mark throughout this recording was his usual ebullient self, making various irrelevant interruptions about what he had just found on the floor, what he had done at school the day before, what he was going to do next day and so on. Such remarks often initiated brief conversational exchanges between him and his mother. There seems to be no difference between Mark's speech at home with his parents and his speech at school with his friends. Nor is there any difference in his rumbustious behaviour.

Jenefer hardly said a word all the time. Once she passed an essential message to her mother. "Those potatoes are nearly done, Mum," and that was about all.

The next recording session was a longer one. Present were Ada, Phil, Nan and Jenefer. Phil was only present for about the last half of this recording. It was made in the late afternoon, just before the family sat down to their evening meal and so there was a certain amount of activity going on to do with cooking the meal. From the point of view of catching natural speech this was ideal, as there was a wealth of short functional utterances of a very everyday nature. Nan was not feeling very well that day. She did ask a few questions about Stevie and whether he was coming to take her home and later, after having been asked a direct question about it, talked a little about her youth and the fruit-picking outings she had been on in Kent. Phil came in half-way through and there was a good deal of the usual type of evening conversation between husband and wife, discussing the experiences of the day, whom they had seen, what they had said and so on. Towards the end of the recording, conversation became less immediately functional. Various topics were discussed, including what seemed to be a favourite one - the good old days. Other topics were films which had recently been shown on television, America, Churchill's funeral, the price of beer. This last subject led Phil into what was virtually a monologue saying how strongly he disapproved of women buying drinks for men. Phil is somewhat irascible in temperament and got quite worked up on this issue. Ada now and again made diplomatically moderate interruptions.

In all the recording sessions I joined in the conversations with the object of suggesting topics on which the informants might talk. This worked well in that it gave them the opportunity to talk about things which were familiar to them all and which consequently they seldom talked about. I was a ready listener, a captive audience for explanations about the layout of local streets, the whereabouts of relatives, and similar details from their everyday lives. Especially in the case of Ben and Nan, I was someone who would listen to their old stories of pre-war experiences, tales of the good old days, jokes and anecdotes which everyone close to them had got tired of hearing.

Again in this recording Jenefer said virtually nothing, except in direct answer to questions.

The next, sixth, recording was made in similar circumstances to the fifth. Mark was present at this one and the atmosphere was consequently livelier. Again a meal was in preparation and there was some coming and going from and to the kitchen. Nan was not present. Before we started I had said to Phil and Ada that I would like it if they could get Jenefer to say a bit more. In the early part of the recording they both tried to draw her out by asking her questions about her school. These only drew very embarrassed and abrupt answers from Jenefer and after a while Phil and Ada gave up and just chatted to each other and to me. Mark, all this time was behaving very obstreperously, patching a football and giving a running commentary on it as if it were a surgical operation. Apparently this was no showing-off in front of me. His father commented rather bitterly, "Oh, he's always the same." Finally Mark became such a nuisance with his chattering and monkeying around that his father ordered him out of the room. He went, after making sure that he got the last word in before leaving. Phil and Ada continued to chat on various everyday subjects and tried intermittently to bring Jenefer into the conversation. This failing, Phil decided to go out to the betting shop around the corner before having his meal. He excused himself and Mark returned to the room, having heeded a warning that he was to behave himself. Ada and I talked and now Jenefer entered into the conversation slightly. Mark tried, with a little success to draw her out with questions, such as "D'you like the Beatles, Jen?" Some of the topics talked about in this session were pop music, certain boys at Mark's school, the height of people known to the family, a brother of Ada's who had been a professional footballer, and the like.

Phil returned and the recording session ended. At the end Jenefer flatly refused to be tape-recorded any more, even with a schoolfriend to talk to or at school.

These last two recordings at Phil and Ada's home were very successful in capturing a lot of very spontaneous everyday speech of a very immediately functional nature. Neither Phil nor Ada appeared to me to be particularly on their guard in the presence of the microphone. Mark tended possibly to talk a little more than usual, to hog the microphone, for some of the time, but I do not think that he modified his speech in any way for the sake of the tape-recorder. Attempts to record more than a handful of remarks in Jenefer's natural speech, were, I regret, failures.

The seventh recording was made at Ben's house in Stepney. Phil introduced me to his father, mother, and two brothers. A third brother came in later towards the end of the recording. As far as I could tell, all present were quite unruffled by the tape-recorder and microphone and talked together while they ate their tea. Ben's wife was working in the kitchen for most of the time and I only recorded a couple of sentences of hers. She died a few weeks after. Conversation was almost entirely on the subject of race-horses and racing of which all of Ben's family seem to be devotees. Their knowledge of race-courses, horses, odds, bookmakers, jockeys was very great. At several points there were digressions from the main subject on to that of Ben's First World War experiences, the bombing in the East End in the Second War, the Cockney dialect. Talking about how long he and his wife had been married, Ben broke into song and gave a classic Cockney rendering of "My Old Dutch". He liked to sing and later sang a few snatches from a Maurice Chevalier song.

Talk always returned in this recording to racing and gambling, a common consuming interest. With three brothers, a father and mother, my presence hardly made much difference and conversation went on easily without any enquiries from me. Once or twice Ben amused himself and us all by making harmless jokes at my expense. He rather enjoyed the thought that I should have sought him out to tape-record him. He used swear-words on a number of occasions and I had the impression that he did this at least partly to shock me and observe my reaction. Phil later said he thought this was so too. This demonstrates that if anyone should have been ill at ease during this recording it was not the informants.

The eighth recording was made at Stevie's home in Bethnal Green. Only he, his wife and for the first few minutes, his daughter, were there besides myself. I had met Stevie before and talked to him several times at his barrow. Both Stevie and his wife talked freely and easily and the whole conversation ranged over a great number of topics. Among them were the driving test, the local slum-clearance programme, the fire-bombing raids during the war, Stevie's brother who had been a professional footballer, the convivial atmosphere in the East End before the war, accents and whether or not a Cockney accent was desirable, various stage and screen actors, Stevie's daughter's school career, the social disadvantages of being a girl, religion.

Stevie's manner of speaking is generally a little on the ponderous side. He tends to hold forth in a rather teacher-like way. That this is so generally and not just in my recording is shown by his wife's remark "You speak slow. You do speak very slow, because you want to want to make sure all your words are coming out, I imagine." Stevie's defence to this was, "Yes, well, I watch what I say, don't I?" Wife's reply, "I don't. I just speak." Stevie's manner did give me the impression that he liked to reflect on his words before uttering them. In this recording there were very few utterances of the immediately functional "Do you want a cup of tea?" type. We discussed. For this reason the recorded speech of Stevie may have been somewhat less colloquial than that of Ada and Phil. This does not mean that it was unnatural however. It was a natural example of Stevie speaking in a certain style, a style he liked but did not often have the chance to adopt. I think that this style hardly affected Stevie's accent at all, more the length and complication of his sentences and some of the words he used. He knew that I wanted to record his natural accent and as far as I could judge made no attempt to speak "posh" in the sense of trying to affect an RP accent. He was quite at ease in the presence of the tape-recorder and made every effort to ensure that I in my turn was at ease with him and his wife. He and his wife took about equal shares in the conversation and showed definite interest in all the topics brought up, so that their utterances were not forced in any way.

The ninth recording was made at the flat to which Ben had moved after his wife's death. He and two of his sons were present. This recording again was more of a discussion than a series of very functional utterances. It opened with the inevitable subject - horses. The old man was in a less belligerent mood this time and talked pleasantly and humorously about a number of topics. He told a joke, sang a song, recounted tales of funny things that had happened during the war, complained about the redevelopment schemes under way in and around the East End, his experiences in France in the First World War, Cockney rhyming slang, the docks nearby, the deplorable shows to be seen on television and many similarly assorted subjects. One of the sons joined him in many of his reminiscences, the other remained mainly silent. At one point an argument flared up about the date the block of flats they were living in had been built. Voices were raised in derision, exasperation and incredulity. Again as far as I could see, Ben took no notice of the tape-recorder and appeared quite relaxed and natural throughout. He enjoyed listening to his tape-recorded speech and walked up and down chuckling to himself as it was played back to him. Again in this recording he expressed himself on a number of occasions with taboo words.

The final recording-session took place at Nan's bed-sitter in Bethnal Green. Nan and Jenefer were present, but Jenefer did not say more than two sentences during the whole session. Nan had met me before on several occasions and talked willingly to me. It was quite easy to start her talking on her experiences of thirty years ago and before. I had the impression that some of her family did not take her as seriously as she would like when she talked about "the olden times" and that she was glad to have someone to talk to who showed an interest in her reminiscences. I asked only a few questions and she talked at length about her life, her family, her courtship years ago in Bethnal Green, her work as a seamstress and in the tobacco factory. At one point she talked for a few minutes to her budgie to try to get it to talk. She showed me old photographs of her family, talked about her favourite son (the footballer), Stevie, Ada and some other relatives of hers. She showed me her potted plants and talked about them. She dwelt for a while on comparisons between prices now and in the old days. Jenefer assured me afterwards that her grandmother had been speaking quite naturally at this session.

Nan's speech in this recording is in what is best called a "narrative" style. It is an interesting fact that this style predominates in my recordings in those of the two old people, Ben and Nan. This may be partly due to a certain deference to old people in the social conventions regarding "floor apportionment", or to the fact that old people naturally tend to have a lot of stories to tell. Again it may have something to do with the often-lamented dying out of the "art of conversation". Possibly these old people have always had a tendency towards a narrative style of speech and have just not passed this characteristic on to their children.

The Theoretical Approach to the Subject

The only other study of the speech of one family, as far as I can discover, is Rousselot's work, "Les modifications phonétiques du langage étudiées dans le patois d'une famille de Cellefrouin (Charente)", published in Paris in 1891.

A description of Rousselot's approach to the subject is here given with an argument that his treatment would have benefited from the application of modern structuralist ideas.

Rousselot approached the subject with a view to discovering more about the fundamental mechanisms and causes of sound-change. The study of sound-change was of central interest to linguistic scholars of his day. The work is divided into three parts. Part I describes Rousselot's own speech, the patois of Cellefrouin as he had spoken it from childhood, and records many meticulously made instrumental measurements. Part II describes variations in the patois of other generations of his family and of other parts of the area around Cellefrouin, taken as indications of phonetic evolution in progress. Part III is a survey of certain new developments in the dialect and of the influence on the Cellefrouin patois of foreign elements.

In Rousselot's description of his own patois he gives inventories of his vowels and consonants and describes their articulation as discovered by him in a series of experiments using a wide range of apparatus. He uses palatograms to discover and describe articulations of both vowels and consonants, mechanical devices to measure the separation of the lips and the height of the tongue, the pressure and vibration of air passing through the nose, the amount of air used in articulating sounds, the movements of the chest caused by breathing, the vibrations of the larynx. He also uses an electrical device to measure laryngal vibrations and another to record the complete vibrations of the column of air produced in speech. He also uses an adjustable tuning fork to verify the vibrations recorded by his other devices.

Rousselot concerns himself solely with the description of sounds in their various environments, and does not make any analysis of sounds in terms of their function in the language. For this reason, when he lists his "consonnes" and "voyelles", we can only assume without being told so, that these are in fact sounds which function contrastively in his patois.

He emphasizes that sounds which, to the speaker of a patois, seem the same may, in reality, be very different and he illustrates this with instrumental evidence. "Nos lettres, en effet, représentent non des unités réelles, mais des unités d'impression." (p. 23). Nevertheless Rousselot uses these "unités d'impression" as points of reference in describing the varying sounds of his patois. "Dans un groupe, la première consonne

> a la tendance de s'accomoder à la seconde. Cela se montre surtout pour gy, ky. Le g et le k sont très avancés vers les lèvres et fortement palatalisés." (p. 26).

Rousselot still considers these sounds as g, k although they are so advanced and palatalised. "Les (voyelles) longues elles-mêmes atones peuvent être plus courtes que les brèves toniques". (p. 98). Rousselot did not have the benefit of modern structural theory. But he seems to be recognising something like phonemes in his "unités d'impression" and to be assuming a sort of phonemic norm for certain groups of vowels when he writes of "les longues" and "les brèves".

How can long vowels be shorter than short vowels unless "long" and "short" refer to length from a phonological point of view? Modern phonemicists speak in the same way of phonemically voiced plosives which may have voiceless allophones and vice versa. Using his "unités d'impression" as initial points of reference, Rousselot gives what may be interpreted as a phonological description of his own speech.

In his description Rousselot was at pains to emphasise the variation which could be discovered by instrumental investigation behind the "unités d'impression". He gives the detailed results of his experiments so that one does not get the impression that the generalisations he makes about his speech are founded on absolutely clear-cut evidence. For example, on his investigation of rhythm in groups of two syllables, he gives the following figures:- first syllable shorter than second . . . . . . 143 cases

first syllable longer than second . . . . . . 2 cases (p. 93)

And in the chapter on the amount of air used for different sounds, Rousselot writes, "Les moyennes des expériences faites sur moi-même donnent

les résultats suivants: i<í; u<ú, o<ó. Mais a>à 1 fois sur 3, é>è 5 fois sur 6; ɥ>ó 4 fois sur 6, ɥ>ú 2 fois sur 4; œ́>œ̀ 2 fois sur 4; é>a 1 fois sur 7." (p. 68).

Rousselot prefers to speak of tendencies rather than of fixed rules for his speech and he always mentions the exceptions to apparent tendencies.

Rousselot's insistence on the inconsistency of speech, on the small variations that may be found by investigating any aspect of speech believed by the speaker in his naive state to be stable and constant, is essential to his theory of phonetic change. On the figures concerning rhythm quote above, he write, "Les cas exceptionnels où la dernière voyelle est

> moins longue que la précédente sont précieux à noter comme de nouveaux indices de la tendance, faible encore, mais certaine, de l'accent temporel à se déplacer." (p. 93). And in another chapter he writes, "...il éxiste dans la sonorité de mes consonnes des variations dont je n'ai pas conscience, plus fréquentes dans certains cas que dans d'autres, et n'ayant à peu près dans aucun une fixité complète. Elles ont ce vague, cette indécision qui les rend impropres à être senties, et qui caractérise le point de départ d'une évolution phónetique." (p. 5'

Such a theory is widely accepted today.

Part II of Rousselot's work traces the evolution of sounds in the dialect of Cellefrouin and the surrounding area from their Latin and Germanic origins to their present forms. Rousselot uses as his sources certain mediaeval documents, pertaining to the area, in which words from the local patois were used and well over three hundred informants from all over the area round Cellefrouin, including a number of members of his own family, interviewed over a period of about ten years.

This part is not organised into sections on individual speakers, but rather into paragraphs, each dealing with a separate example of a particular type of sound-change. We do not therefore have the opportunity to compare the speech of any other speaker with Rousselot's own in any systematic way.

Rousselot gives a map and a description of the area of Cellefrouin and a list of his informants with details of their ages, origins and present residence. Most of his informants spent their lives in the same hamlets, but a few had moved to their present locations from elsewhere in the area. These details form the basis for Rousselot's thesis concerning the propagation of sound-changes. His argument is that, "La sphère d'action de l'évolution varie suivant les lieux. Circonscrite en d'étroites limites dans les pays de montagne, elle occupe de vastes territoires dans les plaines. Dans les zones limitrophes, comme la nôtre, elle prend la forme d'une ceinture qui remonte peu à peu des parties basses vers les hauteurs: elle est *progressive pour le lieu*." (p. 351). A typical passage describing this process in action in a particular instance is the following.

"Le *z* et le *s* sont restés dans leurs positions anciennes. Mais le *j* et le *ʃ*, continuant à s'affaiblir, sont en voie de se transformer en *h* et en *ç*.

Le changement est complet à Saintonge et dans la partie occidentale du Poitou et de l'Angoumois. Mais, sur la limite orientale du domaine il se présente comme morcelé et hésitant.

Les points extrêmes ou j'ai surpris le _h_ se montrant quelquefois accidentellement a cote de _j_ sont: dans la commune de Saint Claud, Chez-Chadiat;* _hur_ et _jur_ 'jour' (MM Desvergnes et Bernard, vers 1830),** le Maine-Michaud;* _rahav_ 'rangeait' (Mme. Prévotel, cousine germaine de ma mère, vers 1810).

Dans mes nombreux entretiens avec ma mère, j'ai relevé deux ou trois fois seulement _rahav_, _holi_ 'joli'. Une courte conversation avec une femme de Goutibert, fixée aux Ages* (environ 1825), a suffi pour me fournir _derahi_ 'dérangea'".

The fixed points of reference which Rousselot uses in describing the variations of his informants are not the "unités d'impression" of his own speech, but rather, words. Thus he tells us that his mother fluctuates between the vowel _è_ and the vowel _é_ in the word for "water". It is impossible to know exactly what Rousselot means by a statement of this sort. The set of symbols which he uses in Part II of his work to indicate variations in the pronunciation of vowels in certain words by different people, is the same set which he used in Part I to denote separate vowels of his own vowel system, with the addition of a few combinations of two symbols. For his own speech Rousselot described 21 vowels, which one assumes to function contrastively.

---

*Names of hamlets.

**Dates are approximate birthdates of informants.

Does Rousselot mean that the two sounds used interchangeably by his mother have the same phonetic value as the two vowels in his own system *è* and *é*? He cannot say that they have absolutely the same value, as he is not in a position to make measurements on his mother as he had on himself. The sort of information he has given on his own speech, based on instrumenta measurements, could not be given for the speech of others as he could not rely on them to the same extent as himself to be natural under laboratory conditions, possibly with an artificial palate in their mouth or a piece of apparatus strapped to their chin to measure the movement of their jaw. But Rousselot may mean that, as far as his ear can judge, the vowels have the same value as his own è and é. Or does he mean that his mother alternates between the two equivalents in her own vowel system of Rousselot's è and é? Whichever the case, we can glean nothing of Mme. Garnaud's system of vowel contrasts. Are è and é ever in opposition for her? Questions such as these are prompted by many of Rousselot's statements in Part II of his work.

Since the informants to whom Rousselot had most ready access were members of his family, much evidence of instances of the progress of particular evolutions is drawn from their speech and from such information it is possible to conclude that there are many small differences between individuals' speech and fluctuations within the speech habits of individuals But it is not possible to build up a comprehensive picture of the speech of any one person and therefore we have no means of comparing them in the totality of all their speech habits.

Although it is unlikely that there would be any great systemic difference between the speech, say, of Rousselot and his mother, of whom most mention is made, the structuralist is bound to wish that more information were given concerning the contrastive functions of the sounds involved in the sound-changes. What happens to the system, when, for example, "L'è, assez abondant dans les générations les plus anciennes, a presque entièrement disparu des generations nouvelles, remplacé par é et par ĕ?" (p. 273)

The failing, from a structuralist's point of view, is that Rousselot describes each sound with reference to its historic ancestors rather than to its contemporary fellow members of a phonological system. A valid objection which can be made to the type of statements Rousselot makes about the various varieties of the Cellefrouin patois is that formulated by Weinreich* - "The main objection raised by structuralists against dialectology as usually practised might be formulated thus: . . . existing dialectology usually compares elements belonging to different systems without sufficiently stressing their intimate membership in those systems."

Rousselot's interests and objectives did not lie in quite the same direction as those of the present thesis, as indeed the interests of the linguistic science of his day differed from those of today. He did not have the advantage of a knowledge of modern structuralist theories and was therefore to some extent working in the dark, describing language in a referential framework which we can now see to be imprecisely defined.

Under the heading "Lois générales de l'évolution" Rousselot shows (p. 268) <u>how it is possible</u> for vowels to change, for example, slight

---

*U. Weinreich, "Is a Structural Dialectology Possible?" Word X, 1954.

alter ations in the position of the tongue, the soft palate, the lips may alter the quality of a vowel and remarks that, "depuis la fin du siècle

dernier jusqu'à nous, des voyelles, qui étaient d'abord ouvertes et tendu sont devenues fermées en demeurant tendues, enfin moyennes et relâchées."

(p. 270). (Rousselot uses certain vowel qualities as cardinal points of reference. Thus he speaks of è as a "voyelle fermée" even though the tongu position is lower for this vowel than for i, which he describes as a "voyell moyenne". The adjectives, "fermé, moyen, ouvert" are used as modifiers of certain vowel qualities for which there are basic symbols.) But the neares to a cause which Rousselot can suggest for this change is "le brusque change

ment qui s'est fait vers le milieu de ce siècle dans le ton général de la conversation. Les générations antérieures, plus énergiques et plus fortes, plus habituées au plein air et à la vie en commun, s'exprimaient avec une vigueur qui m'a toujours paru un peu sauvage, elles ne parlaie que la bouche largement ouverte, elles huchaient. Aussi la conversatio des vieillards a toujours été pour moi une souffrance. Depuis, le ton a baissé, les syllabes se sont abrégées, la bouche s'ouvre comme a regret." (p. 270). We should quarrel with the ambivalence of Rousselot' terminology, tied as it is to phonetically arbitrary points of reference. And we would also not accept his explanation of the cause of this change. Vowel quality is not necessarily affected by a change in the amount of energy spent and in fact elsewhere we find Rousselot equating "abaissement de la barrière opposée au passage de l'air" with "relâchement des organes" (p. 69) in apparent contradiction to the observation that the greater energy of former generations made them open their mouths wider in speech.

I am reminded of some remarks I overheard at an athletics meeting. "Relax!" shouted a spectator to a runner, "relax!" "If he relaxes any more," retorted another spectator, "he'll fall flat on his face." A sound system cannot relax generally without breaking down or at least losing some of its efficiency. The efficiency of a sound system must be maintained and the probability is that if some vowels tend to relax, certain other compensatory changes in the sound system will ensue.

A. Martinet points out the folly of seeking a single cause for phonetic change in his "Economie des changements phonétiques", but Rousselot might have discovered an important cause, structural pressure of the kind described in Martinet's book, if he had thought more of sounds in relationship to each other and in terms of their functions for each of his informants. Successive generations of scholars after Rousselot, as they became more acquainted with the ideas of structuralism, became more aware of its relevance to the processes of sound change.

Rousselot's intrepid curiosity and ingenuity in the investigation of his own speech are greatly to be admired. For this thesis, as for Rousselot's study of his other informants, investigation by means of paraphernalia attached to the speaker's speech organs, is out of the question. But, given practice, the ear itself is capable of hearing many more distinctions and differences than any naive speaker is aware of in speech. Writing of his instrumental findings on the devoicing of voiced consonants, Rousselot called them "variations dont je n'ai pas conscience". (p. 59). This is a little surprising as it does not require much practice to be able to hear the devoicing of a normally voiced consonant. When instrumental analysis is impracticable, we may be justified in having more faith in a trained ear than Rousselot appeared to have had. Today we also have the distinct advantage, denied to Rousselot, of being able to make tape recordings of a high standard of reproduction. Speech is no longer ephemeral, lost the moment it is uttered, but can be studied at leisure, repeated indefinitely and compared with other speech. With our corpus of tape recordings of the speech of our informants, a comprehensive comparison of their speech habits is not difficult to make.

In the article quoted above, Weinreich proposes a rapprochement between traditional dialectology and structuralism and points out that it is desirable that both sides in this matter take certain steps towards the other's point of view. The step to be taken by dialectologists is to "consider the functions of the elements which they use in their comparisons. This will be done here with the comparison of the Cockney family. The step to be taken by structuralists is to move beyond certain self-imposed limitations, here described by Weinreich.

"The restriction of descriptive work to homogeneous material has led to the paradox not quite unlike that proposed by Zeno about motion. A moving arrow is located at some point at every moment of time; at intermediate moments it is at intermediate positions. Therefore it never moves." (p. 389)

An example of such a concentration on the homogeneity of language is E. Sivertsen's description of Cockney in "Cockney Phonology". It is convenient to use her work to illustrate some of the shortcomings of a strictly orthodox structuralism, since the material upon which it is based is very similar to my own material, the Cockney of Bethnal Green.

Sivertsen has at certain points to select certain facts from her material in preference to certain other facts. For example, from her vowel charts (pp. 36-7), one gets the impression that the vowel qualities described are found regularly and consistently among her informants. My own experience has shown this to be unlikely. There are quite striking differences, for example, between the performances of some of my informants of what in Sivertsen's system are the syllable peaks /aw/ and /a/. For such differences, see my description Ou and A (pp.362,403). Since she was dealing with more informants than I, it is unlikely that her material was more homogeneous than mine. She has this to say about her material.

> "The subject of this study is the speech form or forms used when the speakers are most off their guard, when they are least conscious of how they speak, in so far as it is possible to make such an abstraction. The abstraction of such a hypothetical speech form may be arbitrary, or at least difficult: the analyst must exercise his own judgement to decide whether the speech is natural and unaffected or not. However, one has to assume that it is possible."

Sivertsen's purpose in making this abstraction was to exclude any elements of pronunciation coming from other dialects than Cockney, particularly RP, and she admits that her material is a "hypothetical speech form". Her aim of trying to get at the "real" Cockney, free of prestige pronunciations, is legitimate, but the necessary process of eliminating certain material should not be carried out with a view to leaving a single, unified version of "real" Cockney. Her syllable peak /aw/ is a case in point. I have heard the pronunciation which Sivertsen describes for the peak of "now", "about", "how", etc., but I have also heard other pronunciati [a:] and [ʌ:], neither of which resemble RP, and which cannot be said to be any less "real" Cockney pronunciations. The variations I have heard differ far more widely than the slight allophonic variations she describes. Since many of these differences are differences between generations, they are probably chronological variants, evidence of a sound-change in progress There is no provision in Sivertsen's system for such variation.

Sivertsen is aware of this problem. In her discussion of the phonological problems arising from her description of Cockney, she writes,

> "Is a purely synchronic structural description, in phonemic terms, possible at all? What are we to do with problems like "feel" vs "fill", "fool" vs "full", "salt" vs "sort", "board" vs "bored", where there is obviously vacillation among the speakers? Sometimes these word pairs are identical, sometimes they are different. A linguistic system is subject to change; it is, to some extent, always in the process of development. At certain periods a language changes more rapidly than at other periods: some contrasts within the system may be dying out, while new ones are arising. Cockney seems to be in such a period now, and the result is fuzziness and erratic forms. If our ideal is neatness and compactness of description this may be deplorable, but it does not invalidate the description. One cannot expect to be able to set up, at any one point in the history of a language, a complete neat and finished description in terms of categories which never overlap, with no fuzzy borders. If this were so, there would be no

change, no development in the language. When we find fuzziness at a certain point, it may be a sign that change is going on in the system at that point, and at that point a completely synchronic description is then impossible: one may have to refer to certain trends and changes." (pp. 176-7)

Sivertsen's usage of the word "synchronic" seems to embrace in its meaning "compactness" and "neatness". This usage is a product of a too orthodox interpretation of structuralism. Such orthodoxy may be more of a disadvantage than an advantage when applied as a prerequisite to linguistic description, as Sivertsen's experience shows. Her aim was "to apply a certain line of approach in linguistic analysis to specific language material" (p. 1) and she found the line of approach, in her case, the phonological analysis worked out by C.F. Hockett in his "Manual of Phonology" and his "Course in Modern Linguistics", at certain points incompatible with the language material.

Other writers have argued for descriptive treatment of the variation in language material. W. Labov in "Phonological Indices of Social Stratification." (The Ethnography of Communication, American Anthropologist, 1964) writes,

"For many years the structural analysis of sound systems has enjoyed, and profited by, a kind of bold abstraction from such [small] differences [in language behaviour]. Small differences within a system have been explained away as 'free variation' or 'social variants' and we have concentrated on the abstract organization of constant features. But to understand the dynamics of such systems, the mechanism of their evolution and their role in community life, it is useful to reverse this attitude."

From this point of view Rousselot's work is admirable. He gives many tables and lists describing experiments performed on himself to measure features of his own speech. The examples quoted above are but a few of the many instances where he makes quantitative statements of the variations within his own idiolect.

Having once determined to recognize heterogeneity of material, a method for describing variation is easily devised. Where the structuralist who concentrates on homogeneity correlates to one phonological unit in a given environment only one phonetic reality, the describer of variation may correlate to it as many different phonetic realities as he observes. Furthermore, he may state the relative frequency of the occurrence of such variants. This may be done in a variety of ways, either by plain factual statements or, more economically, in tables or graphs. The material in this thesis is presented in the form of tables, vowel charts and statements.

I hoped to find a structuralism, suited to a situation where phonetic evolution and interference between dialects are occurring. The consideration of this depended on the finding of positive evidence of phonetic evolution and dialectal interference. Here we are faced with a kind of "chicken and egg" paradox. The nature of the dialectal interference and phonetic evolution at work may suggest certain methods of interpretation and description. But without actual interpretation and description one cannot formulate the nature of these phenomena. Language material must be analysed and described before conclusions can be drawn from it. But it is desirable that the methods of analysis and description used should be suited to a clear and precise formulation of these conclusions. For this reason, the method of description I have used in this thesis was not determined before I had made the acquaintance of the facts to be described, but rather while I was doing so.

This thesis is restricted to that part of a structural analysis which deals with "pronunciation", i.e., the phonology. The precise delimitation of the field of phonology will be discussed in more detail later.

The organization of the pronunciation of a language, the relationships between sounds and their function are conventionally and most conveniently stated within a framework consisting of a number of "phonological units" which are, to some extent, at any rate, abstractions, but which have significance for the language in that they correspond in some regular way to the sounds of it and are the basic bricks with which higher elements of structure, such as words, morphemes, etc., are built. In a complete phonological description, all the sounds of a language are correlated to one phonological unit or another. These general specifications for a phonology, I accept. But the model of description which I have used transgresses some of the narrower restrictions which have been demanded of a phonology by various schools of linguistic thought, since structuralism first appeared. Where these transgressions occur, they are dictated either by certain features of the recorded corpus itself or by certain inevitable aspects of my own approach to the subject. I will endeavour to show that, in the former case, these transgressions are all in the interests of a faithful and complete account of the phonetic facts, and that, in the latter case, they in no way detract from such an account and that the "phonological principles" violated are not fundamental truths about the way language works, but rather conventions adopted to suit particular approaches to language.

The basic phonological unit which I use as a point of reference for describing my material, I have called a "diaphoneme". My use of this term differs in certain ways from that of others who have used it, but the purpose in creating such an abstraction is the same, the comparison within a single framework of reference of partly similar varieties of a dialect or language (whether these varieties are merged in one and the same speaker or used exclusively by different speakers).

This thesis assumes that the social environment of the group of individuals whom I have studied is such that some dialect interference is to be expected. This assumption is based principally on the everyday experience that "It is true that in everyday life we generally say what the other fellow expects us, one way or another, to say." to quote J.R. Firth*. Furthermore, it is well-known that regional dialects, such as Cockney, are considered by many people, including regional dialect speakers themselves, to be socially inferior to RP. This fact is borne out by the remarks made by my informants and is of a general applicability

---

*J.R. Firth, "Personality and Language in Society", Sociological Review, Vol. 42. 1950.

as may be seen from the following quotations from a sociological survey of Bethnal Green, "Family and Kinship in East London" by M. Young and P. Willmott. In a list of facts cited to illustrate how a girl has risen from the social class of her mother, Young and Willmott write, "The mother speaks strong Cockney, her daughter without a trace of it." Again, "Most of the women know that they speak 'better' than their parents, and they are most anxious that their own children should speak better too." But that linguistic interfererce is more than a simple one-way process is indicated by the following, "The 'Ilford set' spoke differently

and although the Bethnal Green girls soon became bilingual (for they would have been as much criticised for speaking Cockney at school as they would for 'putting on airs' and speaking 'posh' at home) they were liable even so to feel awkward and inferior."

The fact of dialect interference as a common modern linguistic phenomenon is here considered to be established. I am concerned with describing the nature and extent of its operation, if any, in the speech of certain individuals. Where, for example, there is fluctuation in the speech of an individual between a pronun ciation characteristic of the East London area and a pronun ciation more similar to RP, I am predisposed, because of my knowledge of the social situation, to interpret this as an instance of the interaction of two dialects rather than as a case of free or stylistic variation within one.

Various proposals have been made for accounting for dialectal differences within a structural framework. In most of these, the criterion for allocating phonemes in different dialects to a common phonological unit in the comparative framework has been phonetic similarity. The best known proposals are those of the "Overall Pattern" approach, of which Sivertsen makes the following criticism.

> "There is an interesting attempt to account for differences in dialect in terms of an overall pattern or grid. The idea was first elaborated by G.L. Trager and H.L. Smith,[1] and it has been adopted by H.A. Gleason[2] and C.F. Hockett[3]. Nine vowels, occurring as peak nuclei, and three peak satellites are postulated, making a total of thirty-six combinations for syllable peaks, including the combination of vowel and zero peak satellite. All combinations are possible, and occur in some dialect or other, but no dialect has them all.
>
> The advantage of such an approach is that it gives a frame of reference for the comparison of dialects. However, it seems to me that a comparison on this basis is <u>phonetic</u> rather than <u>structural</u> or systemic. When analysing a particular dialect the analyst takes his grid, and fills the relevant boxes on the basis of phonetic similarity; no mention is made of distributional criteria. Thus, according to Gleason, <u>house</u> in one dialect has the peak /aw/, in another /æw/, in still another /ew/ or /əw/; <u>boat</u> is sometimes /ow/, sometimes /əw/, and the two forms may be found with the same speaker. Here there is

---

[1] An Outline of English Structure.

[2] An Introduction to Descriptive Linguistics.

[3] A Course in Modern Linguistics.

obviously no question of <u>contrast</u>, a criterion which so far has been considered essential for linguistic analysis. The phonological system of a dialect is not analysed according to its own internal laws and structure; extra-systemic considerations are imposed on the analysis." (Op. cit. pp. 178-9)

Sivertsen's criticism is quite correct, but she herself is not innocent of the failings she criticizes. In her book there are many passages like the following:- "Morphemes which end in /ejl/ in RP, but which have the form /al/ before consonants and junctures in Cockney...." (p. 58), "There are several occurrences of /i/ in unstressed position paralleling other syllable peaks in RP." (p. 52), "In words where RP may have /aj/ and /aw/ before unstressed /l/, Cockney regularly has /ahl/ (or /ajl/ or /al/) and /awl/ (or /al/)." (p. 70)

For such statements to have any significance, full information should be given on the phonemic structure of RP. This information can only be gleaned incidentally from Sivertsen's statements.

Other writers have propounded or elaborated the idea of the "Overall Pattern" approach to dialect description.*

These proposals are all directed towards devising a phonemic inventory applicable, in part at least, to every dialect of English.

---

*These are:- B. Bloch and G.L. Trager in "The Syllabic Phonemes of English" Language 17, 1941; M. Swadesh in "On the Analysis of English Syllabics", Language 23, 1947; H.L. Smith in his review of Jones' "The Pronunciation of English", Language 28, 1952, A.A. Hill in "Introduction to Linguistic Structures", 1958; R.P. Stockwell in "Structural Dialectology: a Proposal", American Speech 34, 1959.

Basically the criterion they all use for allocating phonemes in a dialect to phonemes in the overall pattern is phonetic similarity. For some, the requirements of "phonetic similarity" are less stringent and relatively more attention is paid to contrasts in each separate dialect before the dialect's incorporation into the overall pattern. Thus, Trager and Bloch write, for example,

"Midwestern speakers who have a short rounded back vowel in wash, watch, etc., and Eastern speakers who normally pronounce a rounded back vowel in all words of the type pot, pod, bomb, will have no difficulty in identifying this vowel with the prior element of the diphthong in boy. Accordingly we shall write Hoyt, Boyd, voice, noise, boy, toying as /hojt, bojd, vojs, nojz, boj, tojiŋ/. But in substandard New York City speech, where bird and Boyd are identical and where bide has a back vowel, the most satisfactory analysis is probably /bəjd/ for bird and Boyd, and /bojd/ for bide." (Op. cit. p. 237). It seems to me that E. Haugen and W.F. Twaddell are perfectly justified in their criticism that these are statements "of orthographic preference, not a contribution to linguistic knowledge." (Facts and Phonemics", Language 18, 1942)

Stockwell sets a limit to the tolerance of the criterion of "phoneti similarity":- "....we suggest that skewing of idiophonemic contrasts into an overall pattern is not likely to exceed one notch horizontally or vertically plus or minus a semi-vowel." (Op. cit. p. 267). Naturally a stricter interpreation of "phonetic similarity" leads to the postulation of more phonemes in the overall pattern. Bloch and Trager postulated 24 syllabics in the overall pattern, Trager and Smith, 36. If Stockwell's procedure were to be applied to all dialects of English, the number of phonemes in the overall pattern would probably be greater even than Trager and Smith's 36.

Stockwell uses the term "diaphoneme" and distinguishes it from "phoneme in the overall pattern". Thus:- "Diaphonemic inventory. - All contrasts in all dialects; i.e., by superimposing (idiolect) A on B on C . . . X so that all contrasts made in all dialects are included, one arrives at diaphonemes. A diaphonemic system incorporates all the contrasts that any speaker makes." and "Phonemic inventory.- The most parsimonious system of oppositions necessary to describe almost all dialects with maximum internal congruence and patterning; i.e., contrasts in the diaphonemic inventory are matched up (by phonetic skewing) in such a way as to retain only the minimum inventory, the overall pattern, needed to account for the oppositions within the dialect samples that are to be included without listing." (p. 262)

Stockwell points out a certain terminological confusion here, viz., that Hill's use of the term "diaphoneme" does not distinguish it from "phoneme in the overall pattern", and what Hockett calls an "overall pattern" is in fact Stockwell's "diaphonemic pattern". "Conflicts like these," he writes, "were what first led us to see if two different kinds of realities lurked behind the terminology." (p. 266)

Stockwell also claims that Weinreich's use of the term "diaphoneme" in "Is a Structural Dialectology Possible?" (Word 10, 1954) is precisely the same as his own. In fact I cannot see that Weinreich has used the term at all in the article referred to.

Weinreich finds the Trager and Smith analysis lacking in some of his requirements for a truly structural dialectology in that it "violates the principle that the phonemic systems of the varieties should be fully established before the diasystem is constructed." (p. 395) This, basically, is Haugen and Twaddell's objection to the "overall pattern" approach and also my own.

The failing of these proposals is that they do not take full account of the structure of each individual dialect. They remind one of the sort of remarks made by laymen about dialects other than their own. For example, an RP speaker may say, "Cockneys say 'spine' and 'fight' when they really mean 'Spain' and 'fate'." What, one may ask, does a Cockney say when he really means 'spine' or 'fight'? Can he distinguish between 'spine' and 'Spain', 'fight' and 'fate', and if so, how? Similarly, many Englishmen naively believe that some Irish accents merely substitute 'loif' for 'life' and 'foight' for 'fight'. Such naive observations make the mistake of correlating the sounds of one dialect with the phonemic structure of an entirely separate dialect. The "Overall Pattern" approach does something very similar in that it correlates the sounds of a dialect with a generalized phonemic structure devised to account for facts which may be quite irrelevant to the particular dialect in question.

In the introduction to his article, Stockwell gives a thumbnail sketch of the history of the proposals which may be grouped together under the banner of the "Overall Pattern" approach. "On the one hand, the analysis has provided the basis for an extraordinary surge of creative activity in applied linguistics, in historical linguistics, and in descriptive activity above the level of phonology. On the other hand, the analysis has been the focus of violent partisan controversy, of casual disdain, and of total rejection entirely or in part by several linguists of great competence." (p. 260)

It is not proposed here to survey the entire polemic generated by the "Overall Pattern" approach. I have found it unsatisfactory for the reasons given above.

Weinreich's article, unlike some of the works referred to above, is more prolegomenous to a structural dialectology than a concrete proposal for the construction of one. The most he specifies concerning a methodology for expressing differences between the sound systems of dialects is the following. For a diasystem comprising varieties 1, 2 and 3 of Yiddish he proposes the following statement of the vowel inventory.

$$// \frac{\begin{array}{l} 1/i\text{:} \sim i/ \\ \hline 2/i \sim I/ \end{array}}{3 \quad I} \approx e \approx \frac{1/a\text{:} \sim a/}{2{,}3 \quad a} \approx o \approx u //$$

(Single slant lines enclose oppositions in one dialect, single tildes indicate phonemic oppositions in one dialect, double slant lines enclose oppositions in the diasystem, double tildes mark them.) Here the grouping together of phonemes from separate dialects seems to be done on the basis of phonetic similarity. Weinreich goes on to point out that very often the phonemes thus bracketed together parallel each other in cognates in the separate dialects, but need not necessarily do so.

G.R. Cochrane in "The Australian English Vowels as a Diasystem" (Word 15, 1959) has carried Weinreich's proposal a step further. He suggests a technique for the bracketing together of phonemes from separate dialects in a diasystem. Phonemic inventories of dialects are matched up on a one to one basis where possible and where not, one phoneme may be matched with several (simple bracketing) or several phonemes with several (complex bracketing). This is done using the criterion of phonetic similarity. A phoneme in one dialect is matched with the most similar phoneme in another. If it falls phonetically between two phonemes of the other dialect, it is bracketed with them both, and so on. There are certain technical difficulties:-

"Complex situations may arise if the diasystem involves differences within a phoneme set which can be separated into various subsets, such as short vowel, long vowel, nasalized vowel sets, and it needs to be established whether such subsets should be regarded as independent or not, for the purpose in hand.

Thus in a hypothetical pair of varieties there will be two ways of analysing a difference within a nasal set of vowels:

(a) $1,2 /\!/ \; i \approx e \approx u \approx o \approx \dfrac{1/\tilde{\imath} \sim \tilde{e}/}{2 \quad /\tilde{e}/} \approx \tilde{\alpha} \approx \tilde{o} \; /\!/$

(b) $1,2 \; /\!/ \dfrac{1/i \sim \tilde{\imath}/}{2 \quad /i/} \approx e \approx \tilde{e} \approx u \approx \tilde{u} \approx o \approx \tilde{o} \; /\!/$

Solution (a) treats the nasalized set as having some structural independence while solution (b) does not, and it may be that both solutions are equally valid. If this is felt they can be amalgamated by complex bracketing:

$/\!/ \dfrac{1/i \sim \tilde{\imath} \sim \tilde{e}/}{2 \quad /i \sim \tilde{e}/} \approx \quad e.... /\!/$ " (pp. 74-5)

Cochrane's technique would also encounter a difficulty in matching up the phoneme inventories of RP and an /h/-less English dialect. What phoneme is phonetically nearest to /h/ is a difficult matter to decide.

Cochrane further proposes a method for stating correspondences between phonemes in cognate forms in the varieties comprising a diasystem. The correspondences are graded in "structural strength" thus:-

> "<u>First grade strength</u> if the corresponding phonemes are members of a diaphonemic pair. <u>Second grade strength</u> if the corresponding phonemes are members of a simple bracket. <u>Third grade</u> strength if the phonemes are members of a complex bracket. <u>Low grade strength</u> will be attributed to correspondences between non-matching phonemes, and such lower strengths can themselves be graded according to their proximity to each other, within the diasystem, of the phonemes involved. Thus if we have a diasystem ${}_{A,B}//i \approx e \approx ɛ \approx a//$, then a correspondence ${}_{A}/i/={}_{B}/e/$ will be structurally stronger by two stages than ${}_{A}/i/={}_{B}/a/$." (p. 78)

Cochrane also suggests a way of stating the reliability of such correspondences. There are <u>reliable simple</u> correspondences which may or may not be <u>reciprocal</u>, <u>reliable complex</u> correspondences, and <u>non-reliable</u> correspondences whose degree of probability may be stated as a percentage.

In the matter of lexical correspondences, the comparison of RP with an /h/-less dialect would again provide a difficulty. In whatever way one had bracketed RP/h/, whether with the voiceless fricative phonemes or with the semi-vowel phonemes of the other dialect - there are phonetic grounds for either choice - it would not be found to be in any type of correspondence with any of these phonemes, nor with any other. If the criteria for the bracketing of phonemes were to include a consideration of their distribution in cognates in each dialect, then we should probably bracket RP/h/ with zero. But such a consideration cannot be incorporated into Cochrane's scheme, the essence of which is that it proceeds deductively from phonetic evidence to statements about distribution. The "hindsight" (as it is from the point of view or Cochrane's proposal) gained by consideration of the distribution of sounds in cognate lexical items, may suggest bracketings and matchings which cannot be arrived at solely by consideration of phonemic inventories and the phonetic nature of their phonemic norms.

W.G. Moulton in "The Short Vowel Systems of Northern Switzerland" (Word 16, 1960) has commented on this defect of Cochrane's scheme.

> "In 'Is a Structural Dialectology Possible?', Weinreich discusses briefly the problem of lexical correspondences between two or more varieties of a diasystem. Cochrane treats the problem fully and gives a clear answer: the diasystem is set up without regard to lexical correspondences, these are handled later on. Unfortunately the problem is not as easily solved as this. If in constructing a diasystem for two or more varieties of a language we disregard lexical correspondences, then we are treating these varieties as if they were totally unrelated to one another. If, on the other hand, we treat them as related and hence take lexical correspondences into consideration, then the usefulness of the diasystem in dialectology becomes questionable." (p. 176)

Moulton illustrates this with an example from two Swiss German dialects, LU(zern) and AP(penzell).

LU,AP Diasystem if Lexical Correspondences are Disregarded.

$$LU,AP // i \approx e \approx \varepsilon \approx æ \approx a \approx ɔ \approx o \approx u \approx ü \approx ö \approx \ddot{ɔ} //$$

LU,AP Diasystem if Lexical Correspondences are Included:

$$// \frac{LU/I_0 \sim e_1 \sim \varepsilon_2 \sim æ_{3,4}/}{AP/i_{0,1} \sim e_{1,2} \sim \varepsilon_3 \sim æ_4/} \approx a_4 \approx \frac{LU/ɔ_2 \sim o_1 \sim u_0 \sim ü_0 \sim ö_1 \sim \ddot{ɔ}_2/}{AP/ɔ_2 \sim o_{1,2} \sim u_{0,1} \sim ü_{0,1} \sim ö_{1,2} \sim \ddot{ɔ}_1/} //$$

(Subscript numbers refer to tongue height of Middle High German phonemes from which phonemes in LU and AP are derived. Thus words which have /e/ in LU are derived solely from MHG words with a phoneme of one tongue height - close. Words having /e/ in AP are derived from MHG words with phonemes of two tongue heights - close and mid. Subscript $_0$ refers to vowels of "special" onomatopoeic or recent loan words.)

The term "diaphonemic" is used by Cochrane to describe the level of analysis at which the bracketing procedure is followed. He does not use the term "diaphoneme" and in fact does not attempt to specify or define any phonological unit with general validity for a diasystem, by reference to which the sounds of any of its component varieties may be described. The nearest he gets to such an abstraction is the matched pairs of phonemes or the "brackets". Cochrane's form of statement has the definite advantage that it never loses sight of the independent structures of each separate variety in the diasystem, which, as Weinreich has pointed out, is a fundamental prerequisite to a structural dialectology. But as a corollary to this merit, Cochrane's technique has the disadvantage that it can only be applied to a comparison of dialects which are entirely separable into discrete structural entities. Where one is concerned with a merged or transitional type of speech in which speakers may fluctuate between different pronunc iations of the same word, one can, as Sivertsen puts it, "vaguely perceive the outlines of several styles of speech, though one can by no means define them." (Op. cit. p. 4). In the subject of the present thesis, it would be a roundabout procedure to try to separate out the different "varieties" present in the speech of my informants and then to bracket them together again by Cochrane's method. In fact the first step would quite probably prove impossible. Cochrane's concluding sentence indicates the difficulty. "A2 and A3 (types of 'Broad Australian') are here treated as separate varieties, but it remains uncertain whether they are separate varieties or variants of the same variety." (Op. cit. p. 88). One might as well cut the Gordian knot posed by the question of "varieties" and determine to describe all the sounds in our material in a single framework which will in any case embrace whatever subgroupings of speech habits there may be. Since all my informants obviously share a common system of communication, I assume this to be possible.

It should be noted that the proposals which have been discussed above are directed towards two different kinds of statement. 1) A comparative statement of the similarities and dissimilarities of two or more dialects. 2) A generalized descriptive statement of the facts of two or more dialects within a single framework. A statement of the latter type will incorporate a statement of the former type, but is essentially of a more general nature. The proposals by the advocates of the "Overall Pattern" approach are aimed at statements of the second type. Cochrane's proposal stops short of this. His method for assessing lexical correspondences can only be applied to a comparison of two dialects at a time. Material like my own, of course, from which component varieties are inextricable as discrete structures, can only be described in statements of the generalized descriptive type.

There are a number of studies which have proposed or actually made statements of the comparative type, taking several discrete phonemic structures and comparing them one to another*. These studies are not discussed here as their approach is, as I have pointed out, inapplicable to the material on which the present study is based. Some of the convictions on which these studies are based are, however, relevant to certain aspects of the present study and are discussed at a later stage.

The distinction here made between different types of statement has been pointed out by C.F. Voegelin in "Phonemicising for Dialect Study, with reference to Hopi." (Language 32, 1956). Voegelin distinguishes between the "traditional point of reference system" which "gives an inventory of how other dialects diverge from the dialect first studied" and the "composite system" which "is interesting for its resemblance to transfer grammar." (p. 121). Voegelin proposes a third type of statement -

*These studies are: E. Stankiewicz, "The Phonemic Patterns of the Polish Dialects ", (For Roman Jakobson, 1956), E. Stankiewicz, "On Discreteness and Continuity in Stmctural Dialectology" (Word 13, 1957); J.C. Catford, "Scots Dialect Vowel Systems" (Transactions of the Philological Society, 1957) "alternative dialect phonemicization". Statements of this sort are of a provisional nature and are made in anticipation of the construction of a "diasystem". Judgement as to the most preferable phonemic solution of material from any dialect is suspended until it may be seen which solution is most suitable for incorporation into a general phonological statement of the several dialects.

> "Alternative dialect phonemicization attempts to be relativistic; its aim is to find an unweighted system for recording every Hopi dialect rather than to find one most efficient system for a few dialects which becomes a Procrustean model for the many." (p. 122)

Voegelin mentions some of the problems in the phonemicizing of various Hopi dialects and discusses alternative solutions. He shows how for the purposes of constructing a Hopi diasystem one solution may turn out to be preferable to others. Consideration of alternative phonemic solutions of particular dialects before incorporating them into a general scheme is obviously desirable. But it is difficult to see how Voegelin's pan-Hopi diasystem can hope to be entirely "unweighted" from the point of view of any particular dialect. If considerations not pertinent to a particular dialect are taken into account in constructing a diasystem, then the diasystem will be to some extent "weighted" in favour of dialects where these considerations are pertinent.

Voegelin's proposals are more concerned with the initial phonemicization of separate dialects than with methods for correlating their various structures after phonemicization and no detailed proposals concerning the latter are made. However, he does show a concern for first establishing several separate phonemic structures and does not mention the distribution of sounds in cognates in various dialects (as do several works discussed below). This seems to imply an approach broadly similar to the "Overall Pattern" approach and to Cochrane's, in that it takes discrete phonemic structures and superimposes them upon each other on the basis (probably) of phonetic similarity.

A possible solution to the problem of devising a general descriptive framework applicable to more than one dialect is suggested by Moulton's formulation of a diasystem (quoted above), which refers to the historical sources of the phonemes in each dialect. E. Pulgram has drawn attention to the similarity between a diasystem and a proto-language in his article, "Proto-Languages as Proto-Diasystems: Proto-Romance." (Word 20, 1964).

Can dialects which are largely derived from the same proto-language be described by reference to that language? For example, could one describe the short vowel systems of Moulton's two Swiss German dialects LU and AP by reference to MHG? One might take as basic points of reference the MHG phonemes /i_1,$\ddot{u}_1$,u_1,e_2,$\ddot{ɔ}_2$,o_2,$\ddot{e}_3$,$\ddot{a}_4$,a_4/. (Moulton, Op. cit. p. 175). (Here again subscript numbers refer to tongue height.) Statements such as the following could be made: MHG/i_1/ becomes LU/e/ and AP/ɪ/ or AP/e/; MHG/e_2/ becomes LU/ę/ and AP/e/. Statements of this type about a number of dialects could be combined in the form of a table. There is, however, an important objection. The vowels to which Moulton has given the subscript $_0$, that is, those in "special" onomatopoeic or recent loan words could not be related to any MHG phoneme. This would leave no less than three phonemes in LU unaccounted for.

The description would apply only to those parts of the sound system found in words derived from MHG and would leave unaccounted for the elements of the system coming from other sources since the divergence of the dialects began. Dialects which are the result of large-scale language mixture would be quite unsuited to this treatment. Furthermore, this approach presupposes that synchronically observed dialectal diversity is a result, diachronically speaking, of divergence rather than of convergence. It could not be applied to the extreme type of situation mentioned by E. Stankiewicz·* "The 'mixed' dialects of the border areas

> of Poland are excellent examples of speech communities which share their phonemic systems with one area and their grammatical systems and vocabularies with another." (p. 45)

Pulgram's article proposes the adoption of the conventions used for expressing diasystems (double slant lines, double tildes, etc.) for making statements about proto-languages. The type of formulations he proposes can be interpreted both diachronically and synchronically. Pulgram's formulations are, like the type of description discussed above, suited only to circumstances where there has been no large-scale language-mixing and where several dialects may be traced back to a sole common ancestor.

In the field of actual description rather than of theoretical proposals for methods of description, several works have appeared which have been confronted with similar problems to those confronting the present study.

---

*E. Stankiewicz, "On Discreteness and Continuity in Structural Dialectology" (Word 13, 1957)

J.J. Gumperz' article, "Phonological differences in three Hindi dialects" (Language 34, 1958) describes the phonology of three neighbouring village dialects of Western Hindi. "The phonemes of each dialect were determined separately. The three systems were then collapsed into a single statement for the area phonemic inventory." (p. 213). This was done in such a way as to give what in Stockwell's terminology is a "diaphonemic" inventory, i.e., all contrasts in all dialects. Since this inventory corresponds to the full inventory of one of the three dialects "phonetic skewing" to produce a reduced number of "phonemes in the overall pattern" is not possible and therefore the "diaphonemic" inventory is in this case the same as the inventory of "phonemes in the overall pattern". (Gumperz does not in fact use this terminology.)

Gumperz classifies the differences between the three dialects according to three main categories. 1) Phonemic, 2) Etymological; and 3) Phonetic. Phonemic differences may be either differences in inventory or in distribution stateable in terms of phonemic environment. Gumperz gives sets of words exemplifying such differences in the three dialects. The words meaning "webbing of a cot" and "rice" exemplify a difference at a particular point between the phonemic inventories of dialects K and R and that of dialect S. In the former two there is a contrast between the final consonants of these two words - K/bāṇ/ and /dhân/. R /baṇ/ and /dhan/. Dialect S has no opposition /ṇ/ ~ /n/ and the words are /ban/ and /dhan/.

In K and R only vowels of a certain type (Gumperz terms them Class I) may occur before a consonant and another vowel. In S there is no such restriction. Thus in the words for "whole" and "bad" K and R both have /pūra/ and /būra/. S has /pūrɔ / and /bʊ̄rɔ /. /ʊ/ is a Class II vowel which may not occur before an interlude in K and R but which may do so in S.

As examples of etymological differences, Gumperz lists cognate forms in which different dialects use different phonemes. Thus the word for "to teach" is in K /sәkhāṇa/, in R /sɪkʰāṇa/, in S /sәkhānɔ /. The word for "time" is in K /bә̄r/, in R /bar/, in S /ber/. Finally, he gives a few examples of phonetic differences in the allophones of a phoneme in different dialects. In one instance a difference is phonetic (allophonic) in one dialect and phonemic in another. Dialect S has one accent phoneme with one allophone; R has one accent phoneme with two allophones, level accent and glide accent, K has contrasting accent phonemes, level and glide. In a comparison of K with S or R these facts would be mentioned as differences in phonemic inventory. In a comparison of S and R they would only be mentioned as allophonic differences.

Gumperz' statements are essentially of the type I have called Comparative but a generalized descriptive statement might also be made of the facts he has described. Using his area phonemic inventory (which includes all contrasts in all dialects) as a framework of reference, the following type of statement could be made.

The word meaning "webbing of a cot" is in dialect K /bāṇ/, in R /bāṇ/, and in S /bān/. The same objection applies to such a statement as to the proposals of the "Overall Pattern" approach. /¯/ (level accent) is non-contrastive in dialects R and S and to say that words in these dialects have this phoneme is structurally irrelevant to them. Similarly, the statement that a word in K or R has /n/ would have a different structural significance from a statement that a word in S has this phoneme. The sounds of dialects S and R are correlated to the phonemic structure of K which has all their contrasts and more of its own.

This objection may seem equivocal in the present case, as the degree of distortion in our view of the structures of dialects R and S, when seen through the overall grid, is little. This is because the three dialects are quite similar in phonemic inventory and distribution. Treatment of more widely differing dialects in terms of such an overall pattern would produce greater distortion.

H. Kučera in "Phonemic Variations in Spoken Czech" (Word 11, 1955) describes the situation in Czechoslovakia where oscillation occurs between two types of speech which are apparently sufficiently well defined and stable to permit a full phonemic analysis of each. These speech types are the literary language and the "Czech Common Language", a widely used, "popular" type of speech which to some extent transcends boundaries of geography and social class. Between these two types of speech is another, transitional type, referred to as "Colloquial Czech". This is the language used commonly in everyday speech and includes a mixture of pronunciations from the literary language and the CCL. It is thus, "as far as its form is concerned - not a separate entity". (p. 578)

Kučera describes "the phonemic pattern of the CCL in comparison with the literary norm". He does this in a number of statements like the following: -

"CCL has /i:/ in place of every /e:/ of the literary language in all grammatical morphemes (adjectival desinences): e.g. /dobri:/, lit./dobre:/ 'good'." "In stems there are two non-literary alternants for the literary /e:/; 1) /i:/ e.g. /di:lka/, lit. /de:lka/ 'length' /mli:ko/, lit./mle·ko/ 'milk'; 2) /e/, i.e. shortening of vowel quantity, e.g. /meno/, lit. /jme no/ 'name'." (p. 579). The points of reference for statements about both styles are cognate forms, grammatical morphemes or stems.

Kučera does not give as full an account as one might wish for of the structural similarities of the literary language and CCL. He gives diagrams in which are compared the long vowel systems of both dialects, the systems of vowel phonemes found word-initially in both dialects. The two short vowel systems are identical. It is nowhere stated that the vowel phonemes he mentions comprise the total vocalic phoneme inventories of the two dialects. Are there any more diphthongs, such as the CCL /ou/ he mentions?

The central aim of Kučera's research is to study the patterns according to which speakers of Colloquial Czech alternate between the phonemes of the literary language and CCL. He conducted the following experiment.

"A number of simple utterances containing varied but highly common lexical material were submitted to each informant. Each utterance had the potentiality of containing two (rarely three) non-literary phonemic elements, but all were presented to the informants in the literary norm. The informants were then requested to adjust the utterance in such a manner as they would employ it in informal conversation. The spontaneous answers were recorded. As the second step, the informants were presented with the same utterances but this time not in the literary norm, but containing those possible combinations of literary and non-literary elements which they had not selected as their spontaneous answers. Their reaction to these suggested utterances were recorded and the degree of tolerance or rejection noted." (p. 386)

An order of the relative frequency of the variations from the literary norm was then calculated, together with a heirarchy of preference. It was found that certain variations were more frequent and that the absence of these variations in any utterance tended to preclude the possibility in the same utterance of any variation of a lower general frequency.

Kučera's subject is similar to that of this thesis. The speech of my informants is a transitional type of speech between the two extremes, RP and "pure" Cockney. One of these, RP, is fairly well defined and susceptible to a more or less full phonemic analysis. There is, nevertheless, quite a high degree of phonemic variation in one word even in RP, (as may be seen, for example, from D. Jones "English Pronouncing Dictionary").. "Pure" Cockney, on the other hand is a hypothetical speech form, no doubt valid as an abstract concept, but ill-defined as a reality. It would be difficult to abstract a speech-form from my material susceptible to such clear phonemic analysis as Kučera's CCL appears to be. Also, there are utterances in my material which it would be difficult to identify either as the phonemic norm of an RP phoneme or as an extreme Cockney pronunciation. For example, the initial element of the syllabic of "mate" is in the most characteristic Cockney pronunciation articulated much farther back and lower than the corresponding sound in an

RP pronunciation, and I have in my material diphthongs beginning at a number of points between these two extremes. It is hard to believe that in Kučera's material there were not sounds about which there was not some doubt as to their phonemic identity. For instance, judgement as to whether a number of [e]s are long enough to qualify as lit. /e:/ or CCL /e/ seems to me to be a very difficult exercise, especially since CCL employs no length contrast for a vowel of this quality. Kučera describes this particular difference as "shortening in vowel quantity" and does not mention any difference in quality. R.I. McDavid in "Structural Linguistics and Linguistic Geography" (Orbis 10, 1961) queries the sort of assumption Kučera makes here. "Does a speaker always have clear-cut phonemic boundaries, or does he sometimes straddle, as when he feels that /kɛč/ is vulgar but that /kæč/ is affected?" (p. 45) Might not some of Kučera's informants feel a similar conflict?

Moulton has reported an actual occurrence of a situation of this sort:-*

"... many words with /ā/ in the Lake Area show /ō/ in the Highlands. The great awareness of this difference in phonemic incidence has led at many points to the creation of a 'comprehensive vowel' /ɔ̄/: gar always with /ā/, Ohr always with /ō/, but Jahr either /jɔ̄r/beside /jār/, or /jɔ̄r/ beside /jōr/, or sometimes all three /jār, jɔ̄r, jōr/." (p. 179)

*W. Moulton, "The Short Vowel Systems of Northern Switzerland" (Word 16, 1960)

The difficulty of applying Kučera's approach to my material is the same as that discussed above, with reference to Cochrane's proposals, namely the inextricability from the material of the component varieties as discrete structures.

Kučera's diagrams of the phonemic structures of CCL and literary Czech are statements of the comparative type, but his statements of the variation between CCL and the literary norm (as quoted above) in Colloquial Czech may be seen as of the generalized descriptive type, with cognates, grammatical and lexical forms common to both modes of expression, used as initial points of reference for statements about both styles.

A.L. Davis and R.I. McDavid Jr. in "Northwestern Ohio: a transition area" (Language 26, 1950) also use cognates as points of reference. They give a table showing how ten informants differ in their pronunciation of certain words, but they are on safer ground than Kučera in not identifying the sounds they record with phonemic values. For instance, they show that some informants say the vowels of "fog, foggy, hog, frog, on, pa, grandpa, ma, grandma" with an unrounded vowel, some with a rounded vowel, some with both, some with either depending on the word.

However, the general approach of Davis and McDavid's article is that of the traditional dialectologists, who draw isoglosses on the basis of certain selected features of a language and do not take into account the relationships of these features to others in the structure of the language they are describing. Davis and McDavid show a small part of the picture of what is going on in this transitional area but their findings will not have full structural significance until the picture is completed.

The use of cognate forms as a basis for descriptive statements cannot be objected to on the same grounds as those on which the use of "phonemes in an overall pattern" was criticized. In describing several partially similar structures, it is logical to use the partial similarities as a point of departure for the description of the partial dissimilarities. In all probability, the stocks of lexical and grammatical items of any dialects which one is likely to consider together, will have proportionately far more in common than will their phonologies. This is certainly true of my material. One can, to some extent, tell a Cockney speaker by the words he uses, but to a far greater extent, by the sounds he uses and the way he uses them. Less violence is likely to be done to the structure of a dialect if one postulates for it a lexis compiled to suit several other dialects, than if one postulates for it a phonemic structure devised to fit other dialects.

It seems that in the two fields of phonology and lexis, language works in different ways. From the point of view of linguistic analysis, words and phonological units exist at different levels of abstraction. In this context one must think of both words and phonological units as entities distinct from their exponents in phonetic reality. In linguistic analysis words are further removed from phonetic reality than are phonological units. Phonological units have a direct relationship with this reality and it is only through this relationship that words may be related to phonetic reality. The relationship of words to phonological units may be expressed by saying that words are expounded by combinations of phonological units.

The relationship of phonological units to each other differs from the relationship of lexical items to each other. The inventory of words in a language is greater than the inventory of phonological units.

The phonemes of a dialect are limited in number and are related to each other contrastively. That is to say, the phonetic correlates of a phoneme mean (in a linguistic sense) something different from the phonetic correlates of another. If [a] and [a:] in the same environment in a given dialect do not mean different things (apart from having non-linguistic i.e. social or geographical significance) then they belong to the same phoneme. If [a] and [a:] in the same environment mean linguistically different things, they belong to different phonemes. The range of sounds from which phonetic correlates of phonemes are drawn is necessarily restricted by the articulatory capabilities of human beings, and in practice is restricted even further by linguistic habit so that certain types of sounds are difficult for speakers of some languages to produce and differentiate. Moulton* uses the term "phonological space" to describe this range. "Phonological space" is limited by the articulatory capabilities of human beings.

"....phonemes are opposed to each other within phonological space" (Moulton, Op. cit. p. 23). The number of phonemic oppositions in a language is conditioned in part by the number of articulatory and auditory distinctions one can expect people in everyday circumstances to

*W.G. Moulton, "Dialect Geography and the Concept of Phonological Space" (Word 18, 1962) be able to make. Different languages and dialects subdivide "phonological space" in different ways. A dialect with a three-vowel system divides it differently from a dialect with a five-vowel system and so on. The way in which a dialect divides phonological space, i.e. its phonemic and allophonic structure, may be quite different from the way in which other dialects divide it. A phonemic system is the particular way in which a particular dialect organizes phonological space. Our arguments above, regarding the Overall Pattern approach and Gumperz' treatment of the three Hindi dialects show that one's view of the structure of individual dialects is distorted by the superimposition or collapsing of various systems for the division of phonological space (i.e. phonemic systems) to form a generalized phonemic framework.

A similar objection is applicable only to a lesser extent to the superimposition or collapsing of the lexes of several dialects into a general lexicon. One cannot say that words function contrastively in the same way as phonemes do. Phonemes function contrastively by virtue of their direct relationship with phonetic reality. Words have no such direct relationship with phonetic reality. Indeed words do not depend for their independent existence on being distinguished in phonetic reality. "Read" (past participle) and "red" are, despite their homophony, separate words. To some extent words are distinguished by the context in which they occur. In "I have [rɛd] the book", the word used is definitely "read" and not "red". But the ambiguity of the riddle, "What's black and white and [rɛd] all over?" (Answer: "a newspaper") shows that even when they are homophonous and in the same context words may maintain their separate identity. In the riddle it will be generally recognized that there are two possible interpretations, "read" or "red". These are different words which remain separate regardless of their indiscernibility, either by their pronunciation or by their environment. Clearly words are not related to phonetic reality in the same necessary way as phonological units.

And yet words do contrast. "Red" means one thing and "read" something else. If we take all the words of a dialect, all of them mean something and a claim can be made that each means something different from all the rest. Assuming this to be so, we have a large inventory of items not necesssarily distinct in any "real" (phonetic) way, but distinct in so far as it seems that the speakers of the dialect have agreed that they shall be regarded as distinct. One may conceive of this inventory of items as existing in "semantic space".* This space may be regarded as bounded by the experience of the dialect speakers. The speakers employ a generally accepted system for dividing and subdividing their experience and hence also semantic space and allotting the subdivisions to lexical items. The number of these items is determined by the number of distinctions people in everyday life find desirable for the purposes of communication. Allowing that it is possible to compare phonological spacewith semantic space, one may say that in languages, the former is narrowly confined and the latter very extensive. A better way of expressing this would be to say that in languages it seems to have been

*This term is used by U. Weinreich in the discussion "Travels through Semantic Space" (Word 14, 1958) found expedient to divide phonological space into relatively few divisions and semantic space into relatively many divisions. For this reason the relationship of lexical items to each other is relatively less disturbed by the introduction of a new item into the system, than is the relationship of phonological units to each other by the introduction of another phoneme into the phonemic system. A change brought about in one part of a phonemic system may bring about a series of changes elsewhere in the system. A. Martinet in "Economie des Changements Phonétiques" gives a number of illustrations of this process. A change brought about in one part of the system of interrelationships of lexical items may result in a similar type of chain reaction, but since the number of items in the system is very large, equilibrium of the system may well be reached before the reaction has spread to the whole of it. For example, the introduction of the term "diaphoneme" into linguistic studies, modifies to some extent the meaning of "phoneme", but it is unlikely that the reaction goes much beyond this. The meanings of the vast majority of words in the vocabulary of those who use these terms, is unaffected.

In postulating a generalized lexical inventory, accredited with validity for several dialects, it cannot be said that there is no distortion of the interrelationships of lexical items within each separate dialect. The distortions are, however, likely to be less widespread and unlikely to affect one's general view of the whole system. It is admitted that local distortions may be brought about by such a procedure.

The relationships of items in a lexical system to each other do not directly affect the relationships of phonemes to each other in a phonemic system. Changes in the one set of relationships do not necessitate changes in the other. If a person learns a new word, he may rearrange his concepts in the area of that of the new word, but his phonological system is not affected necessarily or implicitly. Unassimilated loan-words might appear to be an exception to this, but it should be borne in mind that one must consider words as distinct from their exponents in phonetic reality. If an English speaker takes the word "Weltanschauung", pronounced in the German way, into his speech, then two independent changes take place in his language, and at two separate levels. The meaning of a few words like "philosophy", "belief", "attitude" will alter subtly and certain new sounds will be added to his phonetic repertoire, involving certain phonological rearrangements or reinterpretations. One must think of the intrusion of foreign words at one level and of foreign sounds at another level. Words may be added to a person's vocabulary with no coincidental addition to his sound system. This is the case with new words from his own language or with assimilated loan words. Or sounds may be added to a person's sound system with no coincidental addition to the lexis as in the case of imitation (conscious or unconscious) of another dialect. Or the introduction of new words may coincide with the introduction of new sounds as in the case mentioned above of "Weltanschauung".

The relationship between the lexis and phonology of a dialect is an arbitrary one. There is no necessary structural connection between the relationship of a word to others in the lexical system and that word's phonological "shape" and phonetic realization. F.W. Householder* concurs in this and gives an illustration.

"Most linguists will admit that the identity of a morpheme is independent of the particular morph shapes which happen to represent that morpheme. Suppose that every instance of the English morph-shape conventionally spelled <u>hand</u>, phonemically perhaps /hand/, were to be replaced now and forever by the new shape /θuk/, spelled perhaps <u>thook</u>, does anyone suppose that this would immediately in itself imply any difference in the morpheme inventory or morphological structure of English? The only immediate changes I assume in such a case are in the distribution and frequency of the phonemes /h/, /a/, /n/, /d/, /θ/, /u/, /k/, and (no doubt) some alteration ultimately in the punning, rhyming and alliterative habits of poets and others who work or play with morphshapes." (pp. 173-4)

For these reasons any local distortions in lexical interrelationships in individual dialects brought about by the postulation of a generalized lexicon do not imply distortions in the phonological interrelationships of those dialects.

In the present study, the existence of a common vocabulary is used as a basis for determining the nature of the "diaphonemes" postulated to account for the facts of my informants' speech. The words used in the corpus are drawn from the lexicons of any of the varieties present

---

*F.W. Householder, "On the Uniqueness of Semantic Mapping" (Word 18, 1962) there. In fact the lexicons of the component varieties overlap to a greatextent. Most words used by any Cockney speaker are also words that can be used by any RP speaker. Dialectal inteference results in oscillation in the pronunciation of these words. A person may pronounce a word in a characteristically Cockney way or in a way more like the RP way.

There are a few words which, though they are common to the lexicons of both RP and Cockney, have rather different meanings in each dialect. The word "governor" is an example of this. In RP it is used almost exclusively in connection with institutions such as schools, colonies, the Bank of England. In Cockney it has a wider applicability and may describe the proprietor or manager of a firm or shop or be used as a form of address to superiors. As has been shown above, this difference between RP and Cockney does not affect the field of phonology, which is our concern here. The word exists both in RP and in Cockney and is used by my informants in the recorded corpus. A lexical survey of its usage among my informants would probably reveal a usage covering both possibilities mentioned above. The pronunciation of the word is liable to oscillation due to dialectal interference, as other words found in both RP and Cockney.

There are also one or two words which belong to the lexicon of only one of the varieties present in the corpus. "Ain't" and "earhole" are not words which would be found in the active vocabulary of an RP speaker. It is therefore likely that these words will be liable to less oscillation than words common to both varieties. "Ain't" and "earhole" in an RP pronunciation would sound odd. One should not, however, prejudge these matters. The task of this study is primarily to record objectively variations in pronunciation. The purpose of the preceding paragraphs is to preface a proposal for the use of words as a basis for statements of such variation.

It would obviously be a tedious and rather ridiculous procedure to take single words, describe their pronun c iation the first time they appear in the corpus and then compare all subsequent appearances of the same word. We would get much fuller information on the more frequent words than on the others. The most convenient procedure is to speak of certain groups of words which behave in a similar way. For instance, one may group together the words "mark, laugh, half, car, father" since all these words contain vowels which are basically similar and which show similar small variations in articulation. Similarly "pen, pub, pass, pop" may all be grouped together since they have similar initial sounds, subject to similar small variations. The advantage of grouping words together in this way is that pronunciations which as far as one can see are arbitrary or "accidental" are balanced by more usual pronunciations in the statements of variations. Imagine that in the corpus the word "pen" occurred once, "pass" three times, "pub" twelve times and "pop" seven times. If by some accident (such as the speaker being very emphatic) the initial consonant in the one occurrence of "pen" was aspirated more heavily than the initial consonants in all the occurrences of the other three words, then it would be more economic, less trivial and no less accurate to record that in one case out of twenty-three the initial consonant of "pen, pass, pub, pop" was strongly aspirated, rather than to record that "pen" occurred once and its initial consonant was strongly aspirated and that "pass, pub, pop" occurred three, twelve and seven times respectively and their initial consonants were weakly aspirated.

Naturally this involves a judgement on the part of the analyst as to what is an "accidental" and what a "significant" connection between a particular word and a particular pronunciation of it. Two types of factor may influence such a judgement. 1) Facts observable elsewhere in the corpus. For instance, if [ʔ] alternates with [t] in a particular word in roughly the same proportion as in other words, then it is assumed that there is no significant connection between that word and a pronunciation with either [ʔ] or [t]. But if [ʔ] and [t] alternate in different proportions according to phonetic environment, then there may be a significant connection between one pronunciation and a group of words providing a certain type of phonetic environment. Again if, for example, [n] and [ŋ] in a given phonetic environment alternate in different proportions in different types of morpheme, then there may well be a connection between one pronunciation and a certain type of morpheme. 2) Circumstances which may be thought plausible reasons for a connection between a particular word and a particular pronunciation of it. Examples of this may be as follows:- The word itself carries a strong social significance - it may be a taboo word or one associated only with a very formal style. Or the speaker may pronounce a word in immediate repetition of the same word spoken by another speaker - here the second speaker may, consciously or unconsciously imitate the first speaker's pronunciation. This seems a plausible reason for assuming that the connection between the word and the pronunciation is "accidental" (unless factors subsumed under (1) indicate the contrary). If a passage of speech is in imitation of some other speaker, for example, a radio commentator, then the words in that passage are likely to have only an "accidental" connection with their pronunciation there, ("accidental", that is, as far as the actual speaker's speech is concerned - "significant", possibly in the speech of the radio commentator).

Our purpose should be to record both "significant" and "accidental" variations in pronunciation, since ultimately nothing is accidental - the ratio of "accidental" pronunciations one to another is itself significant, as Rousselot recognized - and we have already criticized orthodox structuralism for recording certain facts in preference to certain others. It should be noted that the terms "significant" and "accidental" are entirely relative, but it is reasonable nevertheless to think in terms of some sort of scale at one end of which are "significant" connections between a particular word and a particular pronunciation and at the other end "accidental" connections. It is convenient in setting up a descriptive framework, to describe first the "significant" connections between pronunciations and words or groups of words, since these have, by definition, a certain regularity, and then to proceed by degrees to "accidental" connections between certain words and certain pronunciations.

The initial step is to draw up lists of words which have in common some sound or feature which behaves in a fairly regular way. The groups of words given above, "mark, laugh ..." and "pen, pass..." are examples of such lists. Other examples are "when, why, where, weaver, water..." all of whose initial consonants behave in a fairly uniform manner, "saw, seven, sixty, see, so..." all of whose initial consonants again behave in a fairly uniform way, "kind, why, buy, five, like..." all of which have syllabics which vary roughly around the same point, and "same, way, take, make, say..." likewise.

Two things already make themselves apparent. The first is that as long as such groups of words do in fact behave in a fairly regular manner, one need not list them, but just refer to the sound or feature they have in common, and use a symbol for it. For example, instead of speaking always of the initial sound of "saw, seven..." and the syllabic of "kind, why..." it is more convenient to speak of <u>S</u> and <u>Ie</u>*.

---

*The symbols which are used in this thesis to denote the "diaphonemes", are based as far as is possible on the usual orthographic representations of the groups of sounds which are their phonetic realizations. Single capital letters and combinations of a capital and a small letter are used. This procedure facilitates typing and serves to remind one of the essential abstraction of diaphonemes, which are not, as will be seen from the following pages, tied to any rigid phonetic definition. Diaphonemic symbols are underlined, to avoid any possible confusion with orthography. Some further remarks on the symbolization of diaphonemes are made on p. 140 . On p. 146 after an exposition and justification of the way in which diaphonemes are postulated, a full list of diaphonemes is given, together with the symbols used to represent them.

The second thing that becomes apparent is that the groupings of sounds or features represented by such symbols are much the same as the clusterings of sounds around phonemic norms in many phonemic descriptions of English. For the examples given above this is true, except that the phonetic spread covered by the above groupings of sounds may sometimes overlap, whereas in a strict phonemic analysis the clusterings of sounds around phonemic norms may not overlap. For example, there are instances in my material of a monophthongal low back unrounded syllabic in the word "like,", identical to the syllabic observed elsewhere in the corpus in words of the group, "Mark, laugh...". "Like" nevertheless belongs to the group "kind, why, buy, five..." and cannot of course belong to more than one group, since it is the <u>same word</u>, however pronounced, and <u>words</u> are the basic point of reference of this study. The "mark, laugh..." group and the "kind, why..." group are treated separately because the syllabics of each have quite characteristic and different ranges of pronunciation, although these may overlap at some points.

D. Jones has drawn attention to the sort of abstraction made here. In "The Phoneme: its Nature and Use" he writes, "It is convenient to

> have a name for a family of sounds consisting of the sound used by one speaker in a particular set of words (said in isolation) together with corresponding though different sounds used in them by other speakers of the same language. Such a family may be termed a

'diaphone'." (p. 195)* Jones gives examples to illustrate the notion of diaphones:-

> "Another instance, which is noteworthy on account of the unusually large number of sounds included in the diaphone, is the case of the vowel sounds used by different English speakers in such words as <u>home</u>, <u>go</u>. These include a monophthongal oː (Scotland and Northern England), a diphthong of the ou type beginning with a sound nearer to cardinal o (Northern, Western), and (in the South) several other kinds of diphthong beginning with opener kinds of o and with lesser degrees of lip-rounding, extending as far as ɔu. In the South too there are yet other kinds of diphthong in common use in these words. Some of them start with spread or nearly spread lips and they include sounds of the types əu, ʌu, au (London) öü (clerical accent). All the above sounds can be grouped together as members of a single diaphone." (p. 196)

My groupings of sounds are postulated in exactly the same way as Jones' diaphones. Diaphones may overlap:-

> "Overlapping of diaphones is of common occurrence, i.e. a

---

*Although the concept I have used as a point of reference in describing the speech of my informants is almost exactly the same as D. Jones' "diaphone", I prefer to use the term "diaphoneme" for it. K.L. Pike's distinction between "emic" and "etic", terms coined by him in "Language", Ch. 2, p. 8, is a worthwhile one to preserve.

particular sound may be the one used in one set of words by one speaker, but in another set of words by another speaker. In Scottish English words like mouth, about are pronounced with əu, while, as we have already seen, əu is one of the variants of the ou diaphone. If a Londoner were to hear someone say ə'bəut, without knowing anything of the other sounds used by the speaker, he would naturally interpret it as a boat. But if a Scotsman heard the same utterance, he would take it to mean about." (p. 198)

On a minor point, my treatment differs from Jones'. He writes,

"Diaphones may comprise subsidiary members of phonemes without the corresponding principal members. For instance, the kind of t I use in position of weakest stress, as in 'betə (better), 'getiŋ (getting), is a weakly articulated sound without much aspiration - nearly d̥ in fact. But there are other speakers who use ʔ in this position and pronounce 'beʔə, 'geʔin, though their t's in other positions are similar to mine: the diaphonic variants are thus confined to subsidiary member of the t- phoneme." (p. 196)

Jones seems here to be restricting his notion of the diaphone to a dimension which the notion of the phoneme transcends. Phonemes are thought of as families of sounds found in different environments, but in "the pronunciation of a single individual speaking in one particular style" (op. cit. p. 203), whereas diaphones are thought of as families of sounds in the same environment but in the pronunciation of any individual in any style. I see no reason for this restriction on the use of the concept of the diaphone. Provided always that one is specific about the environment of a sound it may be regarded as a member of a family of sounds from other environments. Thus one may regard the syllabics of "kind, why ..." as members of the same diaphone whether these words are in stressed position or not. It must however be specified that the sounds used in these words vary not only "geographically" but also according to their linguistic environment. Jones' aspirated t^h in pre-stress position, his ḓ before an unstressed vowel, and the [ʔ] he observes before an unstressed vowel in other speakers may all be members of the T diaphoneme, so long as a statement of the environment in which each occurs is given. Moulton* makes a similar recommendation.

> "The term 'complementary distribution' customarily refers to a distribution that is phonologically (linguistically) determined. It is convenient to expand this concept to a distribution that is geographical (non-linguistically) determined. Beside 'geographical allophones' we have also positional allophones (in phonological complementation)." (p. 177)

Thus not only the initial consonants in "saw, seven ..." may be included in the group of sounds symbolized by S, but also the final consonants in "boss, likes, once ...", the medial consonant in "racing ..." and so on, provided that in any given environment, linguistic or geographical, they behave in the same way. Certain minor difficulties, none of them insurmountable, do in fact arise from this procedure. These are discussed later. (p.128)

---

*W. Moulton, "The Short Vowel Systems of Northern Switzerland" (Word 16, 1960)

Jones points out that if a dialect has two contrasts corresponding to only one in other dialects, then one must speak of two diaphones. For example RP has an opposition between the syllabics of "could" and "cud", "put" and "putt". For Northerners these word pairs are homophonou There are two diaphones here, the "could, put ..." diaphone and the "cud, putt ..." diaphone. In the speech of Northerners the sounds belonging to one diaphone are the same as those belonging to the other.

There is a similar example in my material. My informants fluctuate in the words, "thing, nothing, think, thank, thought, worth" between pronunciations with [θ] and with [f]. RP has a phonemic opposition here. The substitution of [f] in words where RP has [θ] is a characteristic feature of East London pronunciation, and one might say that in the hypothetical speech form, "pure" Cockney, there is no /θ/ phoneme. Since my informants sometimes use the prestige pronunciation [θ], this sound, as well as the more characteristic Cockney [f] is a member of the family of sounds found in "thing, nothing, worth ..." The family of sounds found in "fight, tougher, if ..." does not include [θ].

The examples given above of instances where a sound may belong to more than one diaphoneme, result from structural differences between the dialects in question. Northern English has no phoneme corresponding to RP /ʌ /, "pure" Cockney none corresponding to RP /θ /. It may be that in "pure" Cockney there is no contrast / ɑi/ / ɑ:/ as there is in RP. Sivertsen writes,

"The contrast between /ah/ and /aj/ is not too well established.

> ... the following words may rhyme. <u>farce</u> and <u>nice</u>, <u>darning</u> and <u>dining</u>, <u>Barton</u> and <u>Biting</u>, <u>laugh</u> and <u>life.</u> Several informants declared that such pairs rhyme sometimes." (op. cit. p. 70)

But since there is the potentiality of a distinction in the speech of my informants, one must postulate two diaphonemes.

It is possible that a sound may belong to more than one diaphoneme in instances where no structural difference between dialects is concerned. RP speakers, who have the same set of vocalic contrasts, pronounce "often" with either [ɔ:] or [ɔ], "room" with either [ʊ] or [u:]. Jones does not specify whether in such cases extra diaphones should be postulated, but in theory it is obvious that they should. Take the case of RP "room". There is one family of sounds found in words which all RP speakers pronounce [u:] i.e. "who, Sue, few ..." and another found in words which always have [ʊ], "book, look, good". The family of sounds found in "room" overlaps both of these completely and therefore cannot be said to be the same as either. The family of sounds found in "room" ranges from [u:] to [ʊ], whereas the families of sounds found in "who ..." and "book ..." are restricted to narrower areas around [u:] and [ʊ] respectively.

There are relatively few variations of this sort in my material. Several words which in RP have /ɛ / probably have /ɪ / in "pure" Cockney, for example "get". "By", which has / ɑi/ in RP would probably have /i:/ or /ɪ / (depending on the phonemicization) in "pure" Cockney. These are a few examples from my material.

Applied to a comparison of more widely differing dialects than

Cockney and RP (or to a description of speech in which more widely differing dialects are merged) the criterion of similar behaviour of families of sounds in cognates may lead to the postulation of a great number of diaphonemes. As an example, take a comparison of my own speech, itself a mixture of West country English and RP, with the speech of my wife, Californian American with some Southern influences. The speech of our children is likely to fluctuate between pronunciations characteristic of either one of their parents. There are structural differences, exemplified by my differentiation of "pin" and "pen", of "merry", "Mary" and "marry", of the stressed syllabics in "hurry" and "furry", of "cot" and "caught", which, in my wife's speech, are all groups of homophones. Then there are groups of words, some very large, some very small, in which we use different phonemes, although not for immediately structural reasons. The largest such group is "pass, laugh, half, dance, aunt ..." in which I use the same syllabic as in "father" and she the same syllabic as in "man". "Father" and "man" belong to groups of words which have a smaller phonetic range in our two varieties. This difference in pronunciation of a series of words may well have as its origin pressures of a structural kind, and probably the only distinctio one should make here is between variations in the pronunciation of words necessarily implied by differences in the structures of the dialects in question and those possibly brought about by structural pressures of some kind or other but not necessarily implicit in the fact of a structural difference. As an example, the fact that RP has the opposition /ʊ~ʌ/ whereas Northern English does not have it, necessarily implies that certain words pronounced with RP/ʌ/ are also pronounced with Northern /ʊ/*. "Gum", RP/gʌm/, Northern /gʊm/ is a popular example. But certain words show other variations, which although possibly related to this structural difference, are not necessarily implied by it. The words "book, look" rhyme in Northern English with "Luke", in RP with "hook". "Luke" in both dialects has the same syllabic as "who, Sue, few ..." There are only a few words in the "book, look" category which range from [ʊ] in RP to [ü.] in Northern English. Some of these are words in frequent use and also to be found in minimal pairs which illustrate the RP /ʊ∼ʌ/ opposition, e.g. "book" vs. "buck", "look" vs. "luck".

To return to the variations in pronunciation between my wife and me, there are, beside the major differences in the pronunciation of "pass, laugh ..." a whole host of smaller variations in relatively small groups of words. I say [tʰəmˈɑːtʰɐʊ] and she says [tʰəmˈɛɪdɜʊ], in "ate", I have [ɛ], she has [ɛi]; in "privacy" and "vitamin", I have [ɪ], she has [ai], in "shone", I have [ɔ], she has [ɐʊ]; There is an odd situation in the words "who, took, roof, tooth" "who" and "took" we both pronounce with [u] and [ʊ] respectively; in "roof", I have [u:], she [ʊ]; in "tooth", I have the West country [ʊ], she [u:].

---

*Note that RP/ʊ/ and Northern /ʊ/ are symbolized similarly only because the phonetic exponents of both are approximately [ʊ]. As may be seen, there is strictly no structural correspondence between them.

Such small groups of words should each, by our argument above, lead to the postulation of a separate diaphoneme. Imagine the situation if one were to set up a descriptive framework on this basis to account for all dialects of English. One would probably end up with almost as many postulated diaphonemes as words. This situation shows clearly that the concept of the diaphoneme is rather different from that of the phoneme in orthodox phonemics.

Both are "phonological units" in that they correspond in some regular way to the phonetic facts of a language, but the scope of each is quite different. The one may be postulated to account for the sounds of any number of dialects, from several to all the dialects of a language, whereas the other may be thought of only in the speech of one person speaking in one particular style. It is important to keep in mind this difference in the scope of the two abstractions. D. Jones does not appear to be wholly convinced of this necessary restriction on the concept of the phoneme. In "The Phoneme: its Nature and Use", he writes, "It is to be taken as axiomatic that one sound

> [in a given phonetic environment] cannot belong to two phonemes of a language. There are possibly some rare exceptions to this." (page 11)

Jones gives an example from Japanese of an instance where a sound in a given phonetic environment may be "assigned to one phoneme in some words and the other phoneme in other words." (p. 100) He gives several "reasons in favour of this exceptional procedure" (p. 102), one of which is the situation "in some dialects" (p. 102). This, if one respects the stipulation that phonemes may only be thought of in one homogeneous style of speech, is inadmissible evidence. Concluding this discussion, Jones writes, "When there are grounds for assigning a sound to either of

two phonemes it may perhaps be occasionally convenient to treat that sound as di-phonemic, but di-phonemic grouping of such a sound is never a necessity." It is always possible to assign it arbitrarily to one of the phonemes, and as a rule this is probably the best course"

(p. 107). The element of indecision here may result from some lack of conviction of the usefulness of the concept of the phoneme if it is limited to the speech of one person speaking in one style. Elsewhere, Jones insists on this limitation, "It has been necessary to deal at some

length with the theory of diaphones in order to make clear the distinction between the diaphone and the phoneme and to show why it is necessary to take as a basis of the definition of the phoneme the pronunciation of a single individual speaking in one particular style" (p. 203).

In this context it should be noted also that the great number of diaphonemes that would need to be postulated to account for all the dialects of English can only be called "phonological units" if the concept of "phonology" is understood to be applicable to such a vast and diverse body of linguistic structures as is embraced by the term "all the dialects of English." If the term, "phonology" is, like the term "phoneme", understood to be applicable only to the speech of one person speaking in one particular style, then perhaps we had better seek another term to describe the field in which our diaphonemes are valid. "Diaphonology" is a possibility, and diaphonemes may be said to be "diaphonological units." Subjectively such coinages are evil and unless they can be proved necessary evils, should be dispensed with. "The Phonology of English" is a common enough title for courses of lectures to enable me safely to assume that the styling of diaphonemes as "phonological units" will not be misunderstood.

If for a generalized descriptive statement of all the dialects of English, the number of diaphonemes needing to be postulated approached the number of words postulated in the overall lexicon (and it is probable), this should in no way confuse the essential distinction between them. The number of diaphonemes can of course never exceed the number of words, and is likely to be smaller. Diaphonemes are directly related to phonetic reality. Words are related to diaphonemes in that they correspond, arbitrarily, to combinations of diaphonemes, and only through this arbitrary relationship can they be said to have any connection with phonetic reality.

The definition of the phoneme as seen by Jones and by many other linguists who have elaborated on the use of the term and its implications (in particular scholars of the American, Bloomfieldian tradition) stipulates that a sound in a given environment may only be interpreted as belonging to one phoneme - "once a phoneme, always a phoneme." It is not intended in this thesis to discuss the various definitions that have been proposed for the term, "phoneme", but it will be useful to mention briefly the reasons for which a similar stipulation is not applied to the phonological units I have postulated to account for the sounds of my material. Here again it is convenient to use Sivertsen's work to illustrate the divergence between my own approach and that of linguists who have insisted on the formula - "once a phoneme, always a phoneme."

The actual framework for Sivertsen's description is the phonological analysis worked out by C.F. Hockett in his "Manual of Phonology" and "Course in Modern Linguistics". Hockett's work and that of the other American linguists, Bloch, Trager, Smith and Pike have similar approaches. They are all concerned with the process of decoding language. They approach language from the hearer's point of view and try to describe the way in which he analyses the sounds he hears into higher structural units.

Following the doctrine that no given sound in a given phonetic environment may be an allophone of more than phoneme, Sivertsen analyses [fIŋk] "think" as /fiŋk/, [mɜvə] "mother" as /mɘvə/, assimilations such as [ˈɛbwəd] "Edward" as /ˈɛbwəd/, [sɛmpbæk] "sent back" as /sɛmpbæk/ and all occurrences of [ʔ] except post-junctural ones, as /t/. Thus [rɛʔn] "reckon" is analysed as /rɛtən/, [pɛʔ məns] "peppermints" as /pɛtəməns/, [wUʔn] "wouldn t" as /wutən/.

If one is describing a language or dialect from the point of view of decoding the sounds heard, rather than from the point of view of encoding meaning into sounds, the American phonemicists' theories are well suited to one's description.

If, for example, [ʔ] is always interpreted as an allophone of /t/ and [rɛʔn] /rɛtən/ is analysed as an allomorph of "reckon" besides its other allomorph /rɛkən/, the decoder cannot fail to deduce "reckon" from hearing [rɛ̄ʔ n]. He "looks up" [ʔ] in his inventory of phoneme allophones and finds that it belongs to the /t/ phoneme. Then he looks up /rɛtən/ and finds that it belongs to the "reckon" morpheme. At no stage is he faced with a choice between interpretations. Only in cases where the allomorph with /t/ of a morpheme which can have some other phoneme such as /k/, is homophonous with some other morpheme which only has /t/ is there a possibility of more than one interpretation and therefore of ambiguity. Such a case would be [lɑɪʔ], /lait/ which could be "light" or "like".

If, on the other hand, it were possible for a sound to be interpreted as an allophone of more than one phoneme one would be faced with a choice between six* possible interpretations of [ʔ], /p, t, k, θ, f, d/. Six phonemic sequences are then possible as interpretations of [rɛʔn] and if one checked these six sequences in the lexis of English, one would find that only two of them existed as morphemes or morpheme sequences, /rɛkən/ "reckon" and /rɛdən/ "redden". Such a method of decoding the sounds of the dialect is obviously more cumbersome and less efficient than the method which interprets all occurrences of [ʔ] as /t/. There is no way of avoiding the ambiguity caused by asynonymous homophones.

A similar situation obtains in the case of [˜], nasalization of a vowel, found in forms synonymous with forms having [m, n, ŋ]. Sivertsen interprets this nasality as /m/ before a labial consonant, /ŋ/ before a velar consonant and /n/ elsewhere. I have recorded cases

*Six in my material. The phonemes or groups of phonemes in RP which may have [ʔ] as an equivalent in Cockney in Sivertsen's material are /p, t, k, d, v, pt, kt/.

of such nasality between two vocoid syllable peaks and utterance finally in forms where [m, ŋ] could also have been used. For the decoding of the dialect it is most practical to interpret these as occurrences of /n/ and the phoneme sequences they form as allomorphs of morphemes which may also contain /m, ŋ/.

It may likewise be shown that it is more practical from a decoding point of view to interpret Cockney [f] where RP has [θ] only as /f/ and to regard words containing [θ] in RP as having two allomorphs in Cockney. The same argument holds for instances of assimilation.

It may legitimately be suspected from the fact that Sivertsen has found the comparative distribution of Cockney and RP phonemes worth considerable attention, that her approach to Cockney was not strictly the deductive decoding of speech sounds into higher linguistic structures which is the basis of American phonemic theory. It is nowhere stated in "Cockney Phonology" that a knowledge of the phonological system of RP was of any relevance in the problem of working out a similar system for Cockney, but it is hard to imagine that this could have been ignored, especially when so much comparative data is also given. Sivertsen's presentation of the sound system of Cockney is a statement of the sounds of the dialect seen from the point of view of decoding them. But she also finds it worthwhile to make certain statements about the dialect from the opposite point of view, that of encoding meaning into sounds (or at least of "translating" RP phonemic sequences into Cockney).

My statement of the organization of the sounds of Cockney is not approached entirely or indeed mainly from the point of view of decoding speech sounds. There is thus no reason why one sound should not be interpreted as a realization of more than one phonological unit, nor why all realizations of one phonological unit should have certain phonetic features in common. I will demonstrate this, taking as examples those cases used above to show how Sivertsen's interpretation is suited to the approach taken by the linguistic theories she accepts.

If a speaker wishes to say "reckon", a word which uses in its middle a family of sounds which we may symbolize by K, one may say that he has a partly extralinguistically conditioned choice between members of this family, between variant pronunciations. The possible variants of K are [kʰ], [ʔk], and [ʔ̄].* All these variants are in fact used in the word "reckon".

Sivertsen's phonemic system will not work perfectly from the point of view of the speaker. If we say that "reckon" has two allomorphs /rɛtθn/ and /rɛkən/ and that /k/ has the allophones [kʰ] and [ʔk] and /t/ the allophones [tˢ], [ʔt] and [ʔ], then in theory the word "reckon" may be realized by a form containing any of these five allophones, but in practice [tˢ] and [ʔt] are not used. Such an arrangement would accredit the speaker with sound sequences he does not use. Of this problem, Sivertsen says, "This irreversibility raises interesting theoretical problems." (op. cit. p. 208). She entertains the idea of setting up [ʔ] as a unit phoneme, but dismisses it principally on grounds of systemic asymmetry, untidiness of pattern.

*For key to phonetic symbols, see below p.159

She concludes that "we shall have to consider it [the use of glottal stop in Cockney] a case of 'fuzziness' where there is no immediately obvious and completely satisfactory solution in the present stage of the language." (op. cit. p. 209). The truth may be rather that the fuzziness lies in the theories which try to combine "simplicity, economy and symmetry" with reversibility. In the present material reversibility is irreconcilable with a high degree of symmetry. One could probably construct a reversible system for Cockney with the loss of a certain amount of pattern symmetry.

I have heard the word "team" utterance finally rendered as [t^{s}əɪ̃]. Sivertsen would interpret this nasality as /n/, and /tijn/ as an allomorph of "team" which has another allomorph /tijm/. The same irreversibility may be found here. In theory a speaker has a choice between /tijm/ and /tijn/ and if he chooses the latter, a choice between [t^{s}əin] and [t^{s}əɪ̃]. In fact he never says [t^{s}əin].

With diaphonemes postulated as shown above, "team" may be said to be represented by the sequence <u>TEeM</u> and <u>M</u> may have variant realizations [m] or [̃], both of which may be heard in Cockney.

In words containing [θ] in RP, which are often rendered with [f] in Cockney, it makes no practical difference from an encoding point of view whether we regard, for instance, [fæŋk] and [θæŋk] as belonging to two allomorphs of "thank" or whether we regard "thank" as having only one allomorph containing the diaphoneme <u>Th</u> which has variant pronunciations [θ] and [f]. At some point the speaker has to choose between two possibilities.

Since I wish to record the alternation of [θ] and [f] and since this alternation is brought about in the same way, i.e. stylistically, by the influence of a prestige dialect, as that, say, between [t^s] and [ʔ], I interpret "thank" as containing the diaphoneme <u>Th</u> which has variants [θ] and [f] in just the same way as the diaphoneme <u>T</u> has the variant pronunciations [t^s] and [ʔ].

Such an interpretation is of course essential to the procedure adopted here, of using words as the basis for the postulation of phonological units. "Thank", even if pronounced with [f] is still one and the same word.

What the procedure of this thesis does is to stand conventional phonemic analysis on its head, so to speak. Phonemes may be regarded either as the tools by which a hearer breaks down the sounds he hears into meaningful utterances, or as the tools by which a speaker expresses himself in sounds.

C.F. Hockett in his "Manual of Phonology" discusses an example similar to that given above of "red" and "read". Hockett's example is "meet" and "meat" and he describes the technique by which an analyst should determine whether these two words are phonologically different or not. One native informant speaks the words and another tries to identify what he hears. The degree of his success in this decides the analyst regarding the phonological difference or identity of the two words. For almost all dialects of English these two words are, of course, phonologically identical.

The converse of this situation, as Hockett points out, is where, "for example, some speakers of English pronounce the word "root" sometimes with /uw/, sometimes with /u/." (op. cit. p. 146). The two pronunciations are "a case of free alternation between two distinct phonologic shapes."

The present thesis indeed turns this analysis upside down. Where Hockett sees identity in "meat" and "meet", I see difference. Where he sees difference, in /ruwt/ and /rut/, I see identity. And, in our own way, we are both right.

"Phonologic analysis," according to Hockett "is concerned with the way in which utterances are kept apart <u>by virtue of acoustic evidence and it alone</u>." (p. 145). The fact that we <u>know</u> "meat" and "meet" to be different is to Hockett inadmissible evidence in phonological analysis. Whether the hearer can tell them apart without anything but acoustic clues is the sole consideration.

In "A Course in Modern Linguistics" (1958) Hockett appears exactly to contradict his opinions of "A Manual of Phonology" (1955). In the later book he writes, "If the speaker says <u>time to go</u> but misses aim

> badly on the initial /t/, so that physically (as could be determined on a spectrogram) it is more like a /d/, the hearer will very often not even notice the discrepancy. ...... Some shots intended as /t/'s, and correctly so interpreted by the hearer, are physically closer to the /d/ bulls-eye than some intended /d/'s, and vice-versa. This does not mean that some intended and correctly understood /t/'s are 'really' /d/'s. We have two matters to compare: the <u>physical properties</u> of a given shot, as measurable by the spectrogram; and the phonemic classification of a given shot. The latter depends not

on what the physical measurements show, but on what the hearer makes of it." (pp. 440, 1, 2)

If Hockett means the same thing by "phonologic analysis" and "phonemic classification" (and he probably does), there is a serious contradiction here. That a scholar of Hockett's standing can within the space of three years make two such contradictory and mutually exclusive statements surely argues for the possibility of peaceful coexistence between differently oriented approaches to language.

Since language is communication between a speaker and a listener, the ability of a listener to keep utterances apart depends initially on the goodwill of the speaker to do the same, and moreover to do it in a way accepted by the listener. The business of "keeping utterances apart" has to be done by both parties to a conversation. Phonological analysis may legitimately be regarded from the point of view of the speaker.

Even from the point of view of the hearer, strict phonemics of the "once a phoneme, always a phoneme" sort does not always fulfil its function of "keeping utterances apart". In certain circumstances this function is suspended. A hearer, hearing, for example, [i] in the word "bead", may be said to use the phonemic oppositions /i~I/, /i~ɛ/, /i~æ/ etc. to keep this word apart from "bid, bed, bad" etc. But hearing the same sound initially in "economic", it can be argued that he suspends the opposition /i~ɛ/ since [íkənɔ́mIk] and [ɛ́kənɔ́mIk] mean the same thing and do not need to be kept apart. Neutralization of contrasts is usually thought of with reference to phonological environment. For example, the opposition /i~I/ is neutralized in some dialects of English before /r/; or the oppositions /p~b/, /t~d/, /k~g/ are neutralized after /s/. Might there not also be a case for referring to neutralization of contrasts in certain words, for example /i~ɛ/ in "economic, /u~U/ in "root", /ɔ~ɔ:/ in "often" and so on? The way in which a family of Cockneys keep words apart is studied in this thesis, and the point of departure for the study is the words themselves and not the mechanisms through which they are distinguished phonetically by the hearer.

The type of treatment proposed here has its precedents. In "The Status Significance of an Isolated Urban Dialect"* G.M. Putnam and E.M. O'Hern describe the speech ofsome poor inhabitants of Washington D.C. In their study the same sound in the same phonetic environment is on a number of occasions said to belong to different phonemes. For example: "The glottal stop [ʔ] had sporadic but fairly wide usage in

> the dialect. It was heard as an allophone of /r, t, d, g, ð/: married [mæʔId], carried [kæʔId], Saturday [sæʔədeI], gotten [gaʔən], grandson [græ̃ʔsən], dog [doUʔ], that [ʔæt], either [i:ʔə]." (p. 14)

There are many other examples of such statements. No theoretical justification is given for the procedure, but it can only be assumed that Putnam's and O'Hern's basis for assigning the same sound to different phonemes is the same as that of the present thesis, namely comparison of the pronunciations of what is known to be the same word.

*Language Dissertation 53, Supplement to Language 31, 1955.

At this point a basic objection may be raised. On what grounds can it be claimed that we know "meet" and "meat" to be different when they are phonetically identical, and [ru:t] and [rʊt] to be identical, when they are obviously different phonetically?

In as far as this thesis is necessarily based on a recorded corpus, and the information presented here has been gathered by listening and noting down what was heard, the subject may be said to have been approached from the point of view of the hearer. But this study does not attempt to reproduce the mechanisms by which the investigator decodes and understands the recorded Cockney utterances. It is taken for granted that he does this, and his presupposed comprehension of the utterances is used as a basis for his description of them.

This presupposition can be readily justified. The Cockney dialect and the investigator's own speech are so alike as to be easily mutually intelligible. The processes by which he understands Cockney are presumably similar to those by which he may understand any other dialect of English intelligible to him, and also to those by which the Cockney informants understand each other.

The utterances of Cockney speakers prove, on investigation, to be phonetically quite similar to sentences which the investigator might construct in his own speech, and since a response by him to such utterances often stimulates in the informants further utterances which are similar to sentences he himself might construct and which are understood by him to convey meaning pertinent to that of his own previous utterances, it is assumed that the investigator and his informants share a common understanding of the fairly similar sound sequences which they utter. The Cockney dialect is similar enough to the investigator's own speech to enable him to identify the great majority of words used by Cockneys with words in his own speech.

The kind of assumption made here is made regularly by linguists. Jones, in his definition of the diaphone makes it. He assumes that although the phonetic realizations of "boat" may vary geographically, the variant pronundations are all versions of the same word. Dialectologists, whether "structural" or "traditional", make the assumption. For example, H.A. Gleason, an advocate of the Overall Pattern approach and hence a committed "structural dialectologist" writes, in his "Introduction to Descriptive Linguistics": "House is

> /haws/ in most areas, in a few areas, however, it is regularly pronounced /hæws/. In still less frequent types of English, house may be /hews/ or /həws/." (p. 31)

And Rousselot, a dialectologist of the French tradition, writes,

> "En 1879, ma mère disait kõtüŋĕlrã 'continuellement', en 1886 kõtŭnyĕrmã, en 1890 kõtüŋérmã." (op. cit. p. 164)

Furthermore the techniques of lexicostatistics or glottochronology are based on the same kind of assumption as is made here, that is, that, in different languages or dialects, phonetically similar, though not necessarily identical sound sequences which have similar meaning, may be thought of as equivalents, and in some supradialectal sense as "same".

A combination of judgements thus based on the contexts and the phonetic realizations of words enables one to decide what word an informant is using in circumstances when either the contextual usage or the pronunciation of a word differs from the investigator's own. Thus in sequences such as [ˈʉː ˈsɪː ð ˈfɪʊm ˈlɑːs ˈnɑɪʔ], "Who see the film last night?" and [ɪʔ ˈdɛʊ ʔ ˈdʉː ˈnəfɪŋk̚], "It don't do nothing", [sɪː], [ˈdɛʊʔ] and [ˈnəfɪŋk̚] are interpreted as "see", "don't" and "nothing" even though the investigator would himself use "saw", "doesn't" and "anything" in these contexts. In Cockney it is common to use only one verbal form where RP speakers have two separate forms, the present and the preterite. The form in Cockney is phonetically similar to the RP present tense form. Again, Cockney speakers often use "don't" where an RP speaker would use "doesn't", and use two or more negative forms where an RP speaker would use only one. Such differences are best dealt with in grammatical statements about the dialect, and not in the phonology. Similar judgements to those involved here are presupposed by W.N. Francis in his article "Some Dialectal Verb Forms in England" (Orbis 10, 1961). In this article Francis discusses the geographical distribution of groups of forms such as "begun, began, begin", "saw, seed, seen, see", "doesn't, don't", "knew, know, knowed", and writes, "Our concern here is with morphology rather than phonology" (p. 8).

In making lists of words which contain sounds or features which are basically similar phonetically and which show similar slight variations from one speaker to another, or sometimes within the speech of one speaker, some clearly separate groups of words begin to appear. Some such groups have already been mentioned - "mark, laugh ...", "when, why ...", "saw, seven, see ...", "kind, why, buy ...", "same, way, take ..." There are other groups containing sounds which are less similar than the variant sounds in the above groups. Such a group is "round, about, how, now, sound ..." The degree of difference between the various syllabic sounds heard in these words is greater than that in the group "mark, laugh ...", but from the consonantal sounds surrounding these syllabics and the contexts in which such sound sequences are used, the investigator can be quite confident that he is dealing with the same words, even though the syllabics may differ fairly widely. Likewise from context, [bɛʔə] and [bɛtʰə] may safely be assumed to be the same word even though their medial consonantal sounds are quite dissimilar. Similarly, context indicates that [fɪŋk] and [θɪŋk] are the same word, despite the difference in their initial sounds, which in most dialects of English would be regarded as a phonemic opposition. Sometimes a comparison of two sound sequences, which are evidently realizations of the same word, may reveal a sound to be in alternation with no sound at all. [hɑːd] and [ɑːd] "hard" is an example. In such a case it is necessary to postulate zero as a possible realization of the diaphoneme in question. It soon emerges that there are marked correspondences between the pronunciation of words in RP and in Cockney. In words where RP has [tʰ] my informants often use [ʔ]; in words where RP has [θ], [ð] my informants often use [f], [v] and so on. On the strength of these correspondences it is assumed that a word which only occurs a few times in the material, and then with a characteristic Cockney pronunciation, may also be pronounced with the corresponding RP sound. For example, "letter" occurs a few times in the material and is always pronounced with [ʔ] between the syllabics. Elsewhere in the material the following words occur and are all pronounced at some time with either [ʔ] or [t^h] between syllabics: "better, bitter, forty, Saturday, fatter, Latin, latter, charity." These are by no means all. Since these words have [t^s] in RP and vary between pronunciations with [t^h] and [ʔ] in the speech of my informants, and since "letter" has [t^h] in RP and [ʔ] on the few occasions when it occurs in my material, I make the assumption that a wider investigation would reveal it pronounced with [t^h] by my informants. Thus "letter" can be said to contain the same diaphoneme as "better, bitter ..." There is no reason why this word should not behave in the same way as other similar words, although without questioning the informants there is no way to prove that it does in fact do so.

On similar grounds, it is assumed that all words which have [h], [θ] and [ð] in RP may also have these sounds in the speech of my informants, although in the material these sounds occur only sporadically in alternation with zero, [f] and [v] respectively. In the recordings [h], [θ] and [ð] are found only in words which also have them in RP.

A descriptive statement of the phonology of the corpus, from the point of view of a "pure" decoder would be similar to Sivertsen's statement, in terms of phonemes having no allophones in common in a similar phonetic environment. If this type of analysis were continued to a higher level, that of deducing morphemes and their allomorphs, the analyst would probably conclude, for example, that the morpheme "with" has allomorphs /wið/ and /wiv/, while "give" has an allomorph /giv/. But he would probably also record that the comparatively rare morpheme "smother" which occurs only twice in my corpus has one allomorph /smʌvə/. He might have to examine vast quantities of text before coming across another allomorph /smʌðə/ and indeed he might never come across it. But the fact that the analyst has not observed a particular allomorph does not mean that this allomorph has no place in the linguistic system of his informants. On the contrary it is highly probable that it and other similarly unobserved allomorphs have such a place, as may be seen from the frequency of pronunciations with [v] of words which in RP have [ð].

Thus, by observation of patterns of similar behaviour of sounds in groups of words and in certain cases by recourse to the investigator's own knowledge of RP, the relevant prestige dialect, many words could be postulated to be represented by sequences of diaphonemes.

In justification of the use of facts other than just those found in the material, in the postulation of a descriptive framework I quote the following remarks by I.A. Richards.* "A reader coming to linguistics

> from literary criticism or philosophy who notes what stern, self-denying ordinances the linguist lays upon himself as a scientist, will wonder about the price. Are not its rigors, its ideals of power, economy,

---

*I.A. Richards "Growing Pains," a review of R.H. Robins "General Linguistics: an Introductory Survey" and M.A.K. Halliday, A. McIntosh and P. Strevens "The Linguistic Sciences and Language Teaching", New York Review of Books, Vol. VI no.6 April 14, 1966.

simplicity in explanation, its refusals to use in its formulations so much that it knows safely enough in other capacities, precluding it from being as helpful as it might be to itself and to other studies? It seems likely, however, that a strong reaction to this defensive isolationism has begun." (p. 20).

Some more specific information on what is meant by the term "word" in this thesis should now be given. Besides the arguments already presented it should be pointed out that words are a useful point of reference in the description of a dialect for another reason. They lie halfway, as it were, between the phonology and the syntax of a language and provide a link by which these two may be related. Cf. C.E. Bazell in "Linguistic Typology", who writes, "Though linguists are

not agreed on the operations which should lead to word-division, they all face in principle the same problem. It is a question of finding a well-characterized class of segments above the class of simple segments suitable as a framework both for phonological and for syntactic statements." (p. 11)

J.R. Firth also comments on the usefulness of the notion ofthe "word". In "Sounds and Prosodies" (Transactions of the Philological Society 1948), he writes, "For the purpose of distinguishing prosodic systems

from phonematic systems, words will be my principle isolates ... It is especially helpful that there <u>are</u> things called English words and Classical Arabic words. They are so called by authoritive bodies; indeed English words and Classical Arabic words are firmly institutionalized." (p. 128)

That words exist is agreed. But as Bazell says in the quotation above "linguists are not agreed on the operations which should lead to word-divisbn." The difficulty is that in the words of Saussure:

"Language has the strange, striking characteristic of not having entities that are perceptible at the outset and yet of not permitting us to doubt that they exist and that their functioning constitutes it."*

Since words are to be used in this thesis as the basic point of reference from which to describe the sounds used by my informants, criteria for the definition of the "word" must not be phonological or we should be guilty of circular argument.

Some examples of previous attempts to define the "word" by syntactical criteria are reviewed below:

Bloomfield's classic definition is that "a word is a minimum free form" ("Language", p. 178). That this definition might be rephrased "minimum free immediate constituent" is shown by the following passage.

"We write 'the boy's' as though it were two or three words but strictly speaking it is only one word, since the immediate constituents are 'the boy' and [-z] possessive and the latter is a bound form; this appears clearly in cases like 'the king of England's' or 'the man I saw yesterday's' where the meaning shows that the [-z] is in construction with the entire preceding phrase, so that the two are united into a single long word" (op. cit. pp. 178-9)

Another criterion which Bloomfield uses for definition of the "word"

---

*F. de Saussure: "Course in general linguistics", p. 107.

is indivisibility. "The plant-name 'jack-in-the-pulpit' cannot be modified by putting the word 'little in front of pulpit, but the corresponding phrase permits of this and other expansions. This latter principle, namely that a word cannot be interrupted by other forms, holds good almost universally. The exceptions to this principle are so rare as to seem almost pathological." (op. cit. p. 180)

What then of 'the king of England's' where one may insert for example "late" and "George VI" to give "the late king George VI of England's"?

Bloomfield's criteria contradict each other in this example. Of these and other phonological criteria, Bloomfield writes, "None of these criteria can be strictly applied: many forms lie on the borderline between bound forms and words or between words and phrases." (p. 181)

Strang in "Modern English Structure" (p. 66) quotes the admittedly jocular usage "abso-blooming-lutely" from an advertisement in "The Times" as another example of an exception to Bloomfield's rule.

Strang accounts for the difficulty of defining the "word" by the nature of the structural model she is using. "We should also recall that our model for the analysis of English is not a set of pigeonholes, so that every form or pattern of the language must definitely be in or not in a given hole, but rather a series of continuous graded scales or clines - on which, to be sure, there are focal points at which many forms, units or patterns cluster, but at any point on which an entry may have to be made. In later chapters we shall sometimes come across forms concerning which we can say something for, something against, the view that they are words." (op. cit. p. 66)

Pike makes a similar point to Strang in his "Language" Part III and although his expression of the problem is in characteristically Pikean terms and his solution, the retention of the notion of "levels" in the structural model and the postulation of "portmanteau levels", differs from Strang's model of "a series of graded scales or clines", one can see that both are facing in effect the same difficulties.

Pike writes: "In setting up the word level as over against a lower or higher one, various general (etic) criteria are available. Not all these criteria are available in any one instance; nor do they always lead to the same results. Borderline instances occur between word and bound forms, and between word and phrase. That is, these are generalized etic criteria which may be used to provide initial starting evidences for the discovery of units at various relevant levels, but the preliminary results must be emically reworked before presentation of the system and - even then - there may be indeterminacy between the levels ..." (op. cit. p. 4)

Examples such as "the king of England's" present a particularly thorny problem in the search for an exact definition of the "word".

Cf. Robins in "General Linguistics: An Introductory Survey". "Still more marginal in regard to word status is English 's ..., usually called the "possessive suffix" or "'s genitive"; ... It has been variously analysed as a suffix of unique behaviour and as a word of unique form, the balance of evidence is probably in favour of its treatment as a peculiar suffix, not as a word, but with elements as marginal as this, where the relevant criteria that normally reinforce one another are in conflict, more than one analysis can be justified " (p. 196). Discussion of the '-'s' genitive form takes up a substantial part of the discussion of the definition of the "word" in the work of most authorities who undertake to review this problem.

Nida, in "Morphology: the descriptive analysis of words", gives a detailed discussion of "The Limits of Morphological Structures" (pp. 102-106). From his definitions, one can see that by "morphological structures" he is referring to some kind of "word-like" entities, although he himself points out that he does not regard "morphological structures" as synonymous with "words".

Thus Nida writes. "The limits of morphological structures may be defined as: <u>All single morphemes or combinations of morphemes of which one immediate constituent is a nonclitic bound form</u>" (p. 105)* This is the same definition, in different terms, as my own rephrasing of Bloomfield's definition of a "word" as a "minimum free immediate constituent". In a footnote to the above definition, however, Nida

---

*In an errata slip dated September, 1949, Nida alters the above 1946 definition of "morphological structures" to: "<u>All single morphemes or combinations of morphemes of which at least one immediate constituent is a bound form (including bound alternants of free forms) and of which the peripheral immediate constituent is not a clitic, or combinations of free forms in nonsyntactic arrangements</u>". This alteration is made to account for forms such as "outcast" and "sight-see" and does not affect the present line of argument.

writes, "The term 'word' cannot be conveniently used as an equivalent of 'morphological structures', for it has too many other traditional associations. In this text 'word' is used to define morphological structures which do not include phrases phonologically identical with parallel syntactic formations, but which may include clitics having no corresponding free forms (my underlining). Thus, 'the king of England's' would not be considered a 'word' ..."

For Nida's purposes of structural analysis, his own abstraction of a "morphological structure" which he defines, is a more useful concept than that of the "word" to which he devotes far less space. Note however that he does not deny the existence of the entity "word" and in fact gives a definition of it.

From the point of view of the present thesis Nida's definition of "word" seems ideal. In "the king of England's" the separate entities "the", "king", "of", and "England's" behave phonologically in just the same way as if they were used in, for example, "the cow", "a king arrives", "sing of Italy" and "England's green and pleasant land", and there is no phonological reason for describing these four entities as a composite. It is more convenient to treat them separately along with all their occurrences in other combinations. This is not a circular argument of the sort we intended to avoid. Phonological evidence is used here only to confirm our native speaker's intuition that these are separate words. Nida shows that his definition is in keeping with a native speaker's feeling about his language in the following:

"The Practical Limits of the Word

Because we discuss all the morphological structures under the morphology or because we write clitics together with the forms with which they are phonologically combined does not mean that in the practical orthography of a language for native speakers we should write all such structures as single undivided elements ... A great deal of essential research is lacking in this field but those who have dealt with the practical problems of language show a remarkable degree of agreement in their manner of writing words. In summary, the basic principles may be stated as follows:-

1. Clitics which are bound alternants of free forms are written separately. These would include English "a, the, of, will, would".

2. Clitics which are not relatable to free alternants are written in combination with others words, e.g. Quechua enclitics.

3. Nonclitics are combined but any included phrases are left separated, e.g. "the king of England's".

4. When there is doubt as to whether or not potential free forms constitute a single morphological structure, the forms are written separately" (op. cit. p. 106).

Bloomfield confirms the coincidence of spaces in writing and a native speaker's "feeling" for the boundaries of the basic units in his speech. "The fact that the spacing of words has become part of our tradition in writing, goes to show, ..., that recognition of the word as a unit of speech is not unnatural to speakers; indeed, except for certain doubtful cases, people easily learn to make this analysis" (op. cit. p. 178).

For these reasons the definition of "word" as understood in this thesis is "orthographic word" except in the following cases which go against Nida's four basic principles, quoted above.

All forms written with an apostrophe in English (except genitives and "n't") such as "I'm, you'll, he'd," etc. are considered as two words, "I am, you will , he would" or "he had" etc.

"Another" is considered as two words in accordance with Nida's principle 1.

"Hisself, myself theirselves, theirself" etc. are "phrases phonologically identical with parallel syntactic formations" and therefore excluded from Nida's definition of a "word". These are regarded as two-word sequences. "Himself" is however considered to be a single word, as it meets Nida's definition.

Forms generally spelt with a hyphen in orthography are regarded as word sequences. Such hyphenated forms as occur in the material are all, by Nida's definition, combinations of two words.

It has been found in the detailed investigation of the material that the number of "Clitics which are bound alternants of free forms" was greater than might at first have been expected and included, besides the well-known examples of "a, the, of, will, would, -n't, am, is, has" etc. examples such as the following: "think" [ðɪŋʔk] in "I think". [ð] is a far more common realization of Th in the phrase "I think" and several other similarly common phrases than elsewhere. The pronunciation [ðɪŋk̚ˀ] is therefore considered to be a bound alternant of the free form [θɪŋk̚ˀ] found elsewhere. In a similar way "at" [ətˢ] in "at all" is considered a bound alternant of the free form "at" [əʔ], the most common pronunciation found other than in "at all".

Nida has not specified any criteria for deciding whether or not clitics are "relatable" to free alternants. An obvious requirement is similar syntactic function and it is equally evident that "phonetic similarity" must also be considered. Even if there were no free form "body", I do not think any linguist would relate "... body" as in "nobody, anybody" to, for example, "person". The objection to this analysis would be on grounds of "phonetic similarity". It seems, however, that in linguistics, we are never able to escape the "borderline case".

Should [nɐ] as in "nothing" be considered a bound alternant of "no" [nɐʊ]? Should [ənz] as in "littl'uns" be considered a bound alternant of "ones" [wɐnz]? The degree of phonetic difference between [nɐ] and [nɐʊ], [ənz] and [wɐnz] is certainly no greater than that between [nt] and [nɔt], which two sequences Bloomfield was quite prepared to accept as alternants of one another. Cf. op. cit. p. 178 "The forms [z] in "John's ready", [m] in 'I'm hungry" or [nt] in 'Don't!' are unpronounceable in English, but we have to class them as words, for they are merely alternants of the pronounceable forms 'is, am, not'."

For the solution of this problem, we invoke Pike, and particularly some parts of the passage quoted above from his "Language", Vol. III,

"In setting up the word level as over against a lower or higher one, various general (etic) criteria are available ... these are generalized etic criteria which may be used to provide initial starting evidences for the discovery of units at various relevant levels, but the preliminary results must be emically reworked before presentation of the system ..." (p. 4)

We may regard Nida's definition of the "word" and his four principles for spacing in orthography as our generalized etic criteria for defining the "word". We may introduce elaborations on and qualifications of these "initial starting evidences" if such elaborations and qualifications seem to result in classifications more pertinent to the material to be analyzed.

There seems to be no point in considering the first vowel in "nothing" as a variant of the vowel in "no". There is in fact no variation in "nothing" between [ɛ̆]-like vowels and [ɜ̆ʊ]-like diphthongs, nor is any such variation likely to be found in an extended corpus. Considering "nothing" as a single word whose first vowel follows exactly the same pattern of variation as that in, for example "one, hut, run" is a more economic procedure than considering it as the two word sequence "no thing". The latter procedure would involve the postulation of two diaphonemes, one as in "no, go, so" etc. and one as only in "no" when followed by "thing". The pattern of variation of realizations of this latter diaphoneme would coincide exactly with that of the diaphoneme found in "one, but, run" etc.

We can elaborate on Nida's principle 2 by defining "relatable" thus. <u>A bound form and a free form are relatable if the free form may</u>

on occasions be used in the same syntactic environment as the bound form. Thus the first syllable of "nothing" is not relatable to "no", but [æm] and [m], pronunciations of "am" are relatable as both "I'm" and "I am" can be heard. Similarly the [l], [d], [z] pronunciations of "will, would, had, has, is" are relatable to [wɪl], [wʊd], [æd], [æz], [ɪz].

Unfortunately this definition of "relatable" still leaves a borderline case - that of the "...n't" forms. [nɔ̃ʔ] may be found in variation with [ənʔ] in some syntactic environments but not in others. Thus "he did not", "he didn't" and "didn't he?" are all possible but "did not he?"* is not possible. [nɔʔ] and [ənʔ] are in variation in statements but not in questions.

Here other considerations may be taken into account. These are that the choice, say, of [ənʔ] rather than [nɔʔ] often necessitates a further choice in the vowel and sometimes in the final consonant of the form preceding the negative form, e.g. "will" + "n't" → "won't". These mutations in the verb forms are entirely conditioned by whether or not the "o" in "not" is "dropped". [wɐʊnɔʔ]* and [wɪɨnʔ]* do not occur. Furthermore the vowels in "won't", "will" and "not" vary according to the same patterns as those in "boat", "Bill" and "hot" respectively, and may therefore be economically described with them. To regard "will not" and "won't" as "the same word" would necessitate

*The phrase "did he not?" is very stilted and it is highly improbable that my informants ever use it.

the postulation of three special diaphonemes - O* as only in "not", L* as only in "will not", and I* as only in "will not".* No special diaphonemes are necessary if one regards "won't" as one word, separate from the two word sequence "will not". The sounds in each of these three words vary according to patterns found elsewhere. As has been remarked "won't" and "will not" are not wholly interchangeable syntactically.

The above definition of "relatable" can then conveniently be altered to include the words "... used in all the same syntactic environments ..."

"Not" is regarded as a single word in this thesis. "...n't" is regarded as combining with certain verb forms to form single words.

The form "ain't" has in any case to be considered a single word as the [ɐɪ]-like diphthong found in it cannot be related to any free alternant.

There is one exception to Nida's principles which has been allowed in this work. By Nida's principles "nothing , something, anything, everything" are two-word sequences. A case has already been made out for considering "nothing" as a single word. Analogy of "something, anything, everything to nothing is a partial argument for considering the former three as single words also. A further argument is that special rules have in any case to be stated to account for the variation between [n], [ŋk] and [ŋ] at the end of these forms, a pattern of variation which does not occur in "thing" when not preceded by "no-, some-, any-, every-". It seems more credible that these latter forms should influence the pronunciation of the final consonant of "thing" if they are regarded as combining with "thing" to form single words than

*For explanation of symbolization of special diaphonemes see p. 137

if not. "Something, anything, everything" are then considered words.

Some remarks should also be made here concerning the reasons for using the word as a basic point of reference rather than the morpheme.

The structural model upon which the present thesis is based is very similar to that of the transformational grammarians. Chomsky's view of what a phonological description should comprise is as follows.

"The phonological component of the grammar can be regarded as an input-output device which operates on a string of formatives, provided with a structural analysis by the syntactic component and assigns to this string a representation as a string of phones" (Current issues in Linguistic Theory", p. 65). The present thesis is just such a "phonological component."

The string of formatives on which transformational grammar operates is however a string of morphemes rather than a string of words, e.g. # hiy + gow + PAST + howm # an example given by Bach ("An Introduction to Transformational Grammars", p. 130). The string of formatives on which statements are based in this thesis would be in the case of Bach's example <u>HEe WENT HOeM</u>.

Transformational grammarians include then in the "phonological component" of a grammar, statements such as # + g + o +w + PAST --> # +w + e + n + t (Bach, op. cit. p. 130), and " $\begin{Bmatrix} k \\ t \end{Bmatrix}$ --> s in the context: --[i, y] to account for 'opaque' - 'opacity', 'logic' - 'logicism', 'democrat' - 'democracy', 'pirate', 'piracy'" (Chomsky, op. cit. p. 71). This, quite simply, it was not desired to do in the present thesis. It is not denied that in a complete grammar of Cockney, morphophonemic statements such as the above would in many cases make for a more economic formulation of the facts of the dialect than the procedure adopted in this thesis of relating the phonetic facts to words. In the great majority of words comprising more than one morpheme it would be more economic in a complete grammar to relate morphemes, in environments described in terms of morphemes, directly to phonetic facts, thus by-passing the entity "word".

However since a convincing case can be made out for the existence and "reality" of the "word" as a linguistic phenomenon (such as I believe to have been made out above), it is worth considering whether a phonological description may legitimately be "cut off" at the level of the word if there are good reasons for enforcing such a restriction.

There are indeed reasons for doing so. It was never the investigator's intention to write a complete grammar of the Cockney dialect. To do so would take many more years than have been available for the present study. Furthermore, and more to the point, a complete grammar of Cockney would in its syntax, morphology and lexis be very largely, although not wholly, identical with a grammar of the English of RP speakers. There are a few very minor differences in the type of constructions used by Cockneys and RP speakers, for example Cockney "more higher" and "most nicest" (both in my material) vs. RP "higher" and "nicest", Cockney "she's not had nothing" vs. RP "she's not had anything", but such differences are very few indeed compared to the great numbers of differences between Cockney and RP pronunciation.

For the most part, then, to make morphophonemic statements such as those given as examples above, would be merely to repeat what has been said elsewhere in descriptions of many, probably most, other forms of English. There are in fact only six examples in my material of speakers using different allomorphs of a given morpheme from those used by RP speakers. These are:-

1. An allomorph "a-ing" of the present participle morpheme used once each by Nan and Ben in "I was only just a-saying" and "Everybody was a'waiting to go in there".

2. An allomorph with "...d" of the past participle morpheme used a few times by Nan in "borned" (RP "born").

3. An allomorph with "...n" of the past participle morpheme used once by Stevie in "proven" (RP "proved").

4. An allomorph with "..n" of the genitive, morpheme used once by Stevie in "a friend of ourn" (RP "ours").

5. A voiceless allomorph of plural morpheme used twice by Mark in "youths" [jY:fs].

6. The "...est" allomorph of the superlative morpheme used once by Mark in "horriblest".

The above six examples are the only instances from my material in which phonological rules having as input morpheme + morpheme would have as output sequences of non-corresponding phonemes in Cockney and RP (allowing, of course, for the "systemic alternation" where RP/θ/, /ð/, /h/ are involved). These instances can all be accounted for in the diaphonemic procedure used in this thesis by postulating special diaphonemes, such as. &* (as only in present participles), realized in all but the above-mentioned two cases as zero, D* (as only in "born"), realized in all speakers but Nan as zero, D* (as only in "proved") realized usually as [d] or [d̥] but once in Stevie as [ən] and so on.

All other structural differences between Cockney and the English of RP speakers can be accounted for by phrase-structure rules such as the following:

$$\text{adj. + superlative} \begin{array}{l}\nearrow \text{(in Cockney) adj. + superlative (+ superlative)}\\ \searrow \text{(in RP) adj. + superlative}\end{array}$$

$$\text{PAST in env.} \left\{\begin{array}{l}\text{"see"}\\ \text{"come"}\\ \text{"run"}\\ \text{"give"}\end{array}\right\} + \text{PAST} \begin{array}{l}\nearrow \text{(in Cockney) null}\\ \searrow \text{(in RP) PAST}\end{array}$$

Bach is prepared to condone the type of procedure adopted in this thesis. He writes (op. cit. p. 127) "It is clear ... that a breakdown

> into morphophonemic and 'phonemo-phonetic' rules is introduced only at the cost of extra complication in the grammar. As long as a grammar is viewed as a theory which will specify the grammatical strings in a language, there seems to be no particular reason for setting up a level of representation intermediate between the morphemic and the phonetic levels. It should be emphasised that such a division can be made within the framework of a transformational grammar. If there are independent reasons for doing so that seem to override the considerations of economy, then a phonemic level can easily be built in."

It is claimed that there are in the present case reasons sufficient to justify the word-based diaphonemic level postulated in this thesis, although it is admitted that the level at which the phonological statements in this thesis are made would not allow them to be readily incorporated into the optimum complete transformational grammar of English as envisaged for example by Chomsky. He writes (op. cit. pp. 69-70), "Sytematic phonemics would now generally be called

> 'morphophonemics' in one of the several senses of this term. This terminological innovation is justified if there is a third, intermediate level of systematic representation more closely related to sound and quite independent of syntactic structure, such as the system of representation now called 'phonemic'. However, as I will attempt to show below, the existence of an additional level is highly dubious ..."

In the argument which has been used to justify reference to "diaphonemes" rather than to phonemes, the term "phoneme" has been used in a somewhat particular (though fairly well accepted) sense. It is in this same sense that Chomsky has used the word in the above quotation, as also Bach (op. cit. pp. 127-8), "I am using the term 'phonemic' in

> one of the several ways in which it has been used in the last decades, that is, as a system of transcription which is 'biunique' [reversible] . . Further, the proper transcription for an utterance does not depend on 'understanding' the utterance or on being able to reconstruct its syntactic structure ... Something like this interpretation is probably still the most widespread view in American linguistics (as reflected in texts like Gleason, 1961)".

In terms of linguistic level, diaphonemes occupy a middle position between phonemes, as understood above, and morphophonemes. Below is a discussion of some of the differences and similarities between diaphonemes and phonemes.

The information presented in this thesis is in the form of number of statements about the pronunciation of words. For convenience, diaphonemes have been postulated, sequences of which may be said to represent words. The statements made in this thesis correlate words with their exponents in phonetic reality. In doing this, units at the level of phoneme are not necessary. The introduction of the concept of the phoneme would in some cases necessitate one more statement than is needed by a direct correlation of diaphonemes to phonetic reality. For example, "In environment X, <u>Th</u> $\rightarrow$ /θ/ or /f/, /θ/ $\rightarrow$ [θ], /f/ $\rightarrow$ [f]" is a less economic formulation than "In environment X, <u>Th</u> $\rightarrow$ [θ] or [f]."

Furthermore it has been suggested above that some sounds may not be easily susceptible to incorporation into a phonemic pattern. It has been mentioned that compromise pronunciations may exist of the type hinted at by R.I. McDavid Jr.* and actually described by W. Moulton**. Since there is a certain degree of redundancy in any language a speaker does not need to ensure that all the sounds he utters get through to the

*R.I. McDavid "Structural Linguistics and Linguistic Geography", p. 45 (Orbis 10, 1961).

**W. Moulton "The Short Vowel Systems of Northern Switzerland", p. 179 (Word 16, 1960).

listener as clear-cut phonemic contrasts. This study aims primarily at noting the sounds used by speakers in words, and judgement is suspended until after presentation of this data, as to whether all such sounds may be fitted into a conventional phonemic pattern, modelled on the mechanisms by which a hearer may be said to analyse utterances into meaning.

Although not using a phonemic system as a basic point of reference for statements about the material, one cannot and indeed should not totally ignore the presence of some sort of phonemic organization in it. The confining of descriptive statements to descriptions of the pronunciations of words alone would deny, in a way which has already been criticized in this thesis, the importance of the function of sounds and their interrelationships. The focussing of attention of the pronunciation of individual words and tracing the pronunciation of single words back through history and across geographical boundaries was the prime pursuit of "traditional" dialectologists. Criticisms of their methods have already been discussed and it has been concluded that some kind of rapprochement between their approach to language and the theories of structuralism is desirable

Already in this thesis, although it is based on words as a point of reference, two steps have been taken which resemble stages in a phonemic analysis, and which, like such an analysis, show an interest in the linguistic function of sounds and their interrelationships.

Both these steps are implicit in the postulation of diaphonemes as phonological units. The first is the step which enables one to assume that patterns of behaviour observed in sounds in individual words are repeatable in large groups of words, that, for example, the medial consonantal sounds in "letter, better, fatter, bitter, daughter," may be considered to be in some way the same.

The second step is that which allows one to postulate the identity, in some abstract, structural sense, of sounds found in different environments, for example of the initial sound of "saw, so..." and the final sound of "boss, likes ..." The criteria on which this identity is postulated are the same as those on which a similar step is taken in conventional phonemics, i.e. phonetic similarity and complementary distribution.

In the postulation of diaphonemes the terms "complementary distribution" and "phonetic similarity" have necessarily to be used rather more loosely than in conventional phonemics. Groups of sounds are deduced by observing recurrent patterns of variation in words. To a certain degree, complementary distribution of groups of words is presupposed by the grouping procedure Sounds are grouped together in the first place because they occur in variation in the same word or words. Therefore they are assembled into groups which are already to some extent in linguistic complementation. The sounds grouped together because they are found initially in "thing", for example, are by definition word-initial. Similarly the group of sounds found medially in "nothing" are by definition word-medial. Furthermore, the phonetic environments in which the sounds in these groups may be found are likely to be similar. It is probable, for example, that the medial sound in "nothing" will have a vocoidal sound on either side of it, that the initial sound of "think" will be followed by a vocoid and that the similar sound in "something" will be preceded by some voiced nasal sound and followed by a vocoidal sound. Thus the way in which the groups of sounds are drawn up results in some of them being in rough linguistic complementary distribution. These groups are then compared with each other for "phonetic similarity". The criterion of "phonetic similarity" must also be interpreted rather more loosely in the postulation of diaphonemes than in conventional phonemics, mainly because one is comparing not just individual sounds but <u>groups</u> of sounds.

A group of sounds found in the same word in a similar linguistic environment in a number of different geographical locations and social styles may itself be quite diverse, and in fact may have no feature that could be regarded as a common factor of all sounds in the group. This is the case, for example, in my material in the word "nothing". In the medial consonantal position I have recorded pronunciations with [θ], [ð], [f] and [ʔ] (glottal stop accompanied by a weak labiodental quality observable in the transition to the following vowel). In cases such as this sound-groups which are in complementary distribution are said to be phonetically similar on the basis of a comparison of the individual member sounds of each group. Thus the group [θ], [ð], [f], [ʔ] is phonetically similar to the group [θ], [ð], [f] found initially in "think" because each member of these two groups shows a close phonetic similarity to a member of the other group. [ʔ] which is the exception is found in only one group, i.e. in only one linguistic environment, but the close similarities which exist between the other members of the two groups are enough to overrule any doubt as to the legitimacy of their allocation to the same diaphoneme No such close correspondences exist, for example, between the group [θ], [ð], [f], [$\overset{\text{v}}{\text{ʔ}}$] and the group [f], [v], [$\overset{\text{v}}{\text{ʔ}}$], [ʔ] found finally in "if" or the group [f] found initially in "fish".

Phonetic similarity is, then, a relative matter. Two groups of sounds in complementary distribution are said to be phonetically similar if they are more similar to each other than to any other group. Such is also the case in conventional phonemics, but the limits of tolerance beyond which the analyst is not prepared to see "phonetic similarity" are necessarily wider in the procedure for postulating diaphonemes.

Since the interpretation of phonetic similarity is looser in the postulation of diaphonemes than in conventional phonemics, diaphonemic groupings may sometimes cut across phonemic groupings in individual dialects Take an example from German. In the Standard Language, the words "sein, Häuser, Preussen, las" are pronounced respectively with [z, z, s, s] /z, z, s, s/ /s/ does not occur word-initially and /z/ does not occur word-finally In other dialects the same words are pronounced with [s, z, s, s] /s, z, s, s/ /s/ occurs word-initially, -medially and -finally. /z/ occurs only word-medially. The diaphonemic groupings of the sounds would be made thus:-

<u>Word</u>	<u>Diaphoneme</u>	<u>Stand Lang.</u>		<u>Dialect</u>	
sein	<u>Z</u> or <u>S</u>	[z]	/z/	[s]	/s/
Häuser	<u>Z</u>	[z]	/z/	[z]	/z/
Preussen	<u>S</u>	[s]	/s/	[s]	/s/
las	<u>S</u>	[s]	/s/	[s]	/s/

Whether the initial sound of "sein" is allocated to Z or S the diaphonemic grouping will cut across the phonemic grouping of one of the dialects.

The examples given by W.S. Allen* of instances in which the phonemes of a reconstructed "Ursprache" would cut across the phonemic groupings of the languages from which the Ursprache was reconstructed, could also, translated into synchronic terms, illustrate conflicts such as the above between diaphonemic groupings and the phonemic groupings of individual dialects

Naturally the postulation of membership of a diaphoneme of sounds from different environments meets the same kind of problem as is met with in conventional phonemics. Should, for example, the bilabial plosive in "spy, spin ..." belong to the same phonological unit as the bilabial plosive in "pie, pin ..." or as that in "buy, bin . "?

A further aspect of the description of the pronunciation of words given in this thesis characterizes it as phonemic in approach. This is that it is based on material which is presumed to be suffiently extensive to contain examples of all possible contrasts in the speech of the informants.

Before investigating much of the material it soon became apparent that certain phonemic organization was present there. All the material fitted very well the hypothesis that two phonemic systems interact and conflict in the speech of the informants, the two systems being that of

---

*W.S. Allen, "Relationships in Comparative Linguistics" (Transactions of the Philological Society, 195?).

RP and the hypothetical dialect "pure Cockney". The idea that more than one phonological system may be relevant to a given dialect has been put forward by, amongst others, J.R. Firth. In "Sounds and Prosodies" (Transactions of the Philological Society 1948) he writes:- "At one of the

> 1948 meetings of the Linguistic Society of America, Mr. Kenneth Pike suggested that in certain Mexican Indian languages it would be convenient to hypothecate a second or phonemic subsystem to account for all the facts. Taking part in the discussion which followed, I pointed out my own findings in Tamil and Telegu, for both of which languages it is necessary to assume at least three phonological systems: non-brahman Dravidian, Sanskrito-dravidian and Sanskritic." (Footnote to p. 127)

Pike's suggestion, referred to by Firth, is contained in C.C. Fries' and K.L. Pike's article "Coexistent Phonemic Systems" (Language 25, 1949):-

> "Two or more phonemic systems may coexist within a single dialect, even though one or more of the systems may be highly fragmentary" (p.31).

No full statement of the phonologies of either "pure" Cockney or RP alone could be made solely from the present material. The interaction of the two dialects appears to have resulted in many compromise pronunciations which are not easily assignable to either phonemic system. Furthermore the characteristic Cockney pronunciations often themselves vary quite widely so that no clearly defined picture of "pure Cockney" can be drawn. Nevertheless it can be recognized from the material that the influences of two phonemic systems, definable in broad terms, condition the utterances of the informants. From a structuralist's point of view, these influences must be accounted for in a description.

As has already been remarked, interdialectal differences can be classified <u>either</u> as differences in the pronunciation of words which are necessarily implied by differences in the structures of the dialects <u>or</u> as differences in the pronunciation not necessarily implicit in the fact of a structural difference. By a natural analogy, fluctuations in the pronunciation of words by speakers of a "merged" or "transitional" dialect can be classified likewise, either as those directly involved in a structural difference between the phonemic systems in contact, or as those not involved.

Examples of such differences from my material are as follows. The hypothetical dialect "pure Cockney" would probably have phonemes corresponding to all RP consonant phonemes except /h/, /θ/ and /ð/. Words which have these phonemes in RP must therefore necessarily be pronounced in "pure Cockney" either with some other phoneme which the dialect possesses or with nothing at all corresponding to the RP phoneme. And this is in fact the case. E g RP [hɑ:d], Cockney [ɑ:d], RP [hɑ·t], Cockney [ɑ.t], RP [nɐθ ɪ ŋ], Cockney [nɐ f ɪŋk], RP [wə :θ], Cockney [wə f], RP [ɐð ə], Cockney [ɐvə]; RP [wɪð], Cockney [wɪv] or [w ɪ]; RP [ðæ t], Cockney [æʔ] or [dæʔ]. All these variant pronunciations occur in the material.

Examples of differences in the pronunciation of words not necessarily implicit in a structural difference are found in the words "by" and "waistcoat". These words are in RP [bɑɪ] and [wɛɪ sk ɐʊt] and in Cockney [bɪ] and [wɛ skət]. Almost all other words with [ɑɪ] and [ɛɪ] in RP have similar sounds in Cockney, the first group ranging from [ɑ :] to [ɔɪ] and the second from [ʌɪ] to [ɛɪ]. Likewise, almost all words with [ɪ] and [ɛ] in Cockney have similar sounds in RP, [ɪ] and [ɛ] Here the difference in the pronunciation of words is not the necessary result of a structural difference. It is rather that the two dialects use non-corresponding phonemes in several words, even though the phonemes which they use individually in these words may be said in some way to correspond to other phonemes in the other dialect.

Besides these differences, there are also of course differences between dialects in the way in which corresponding phonemes in each are realized phonetically. For example both Cockney and RP have a front vowel phoneme between half-open and half-close, which they use, generally speaking, in the same words The RP version of this vowel is usually slightly more open than its Cockney equivalent.

In the preceding paragraphs, it is assumed that there are certain criteria for judging whether a "correspondence" may be said to exist between phonemes of different dialects. Where dialects have identical phonemic inventories, the criteria for postulating such correspondences may be phonetic similarity or distribution in cognates These two factors may sometimes indicate different correspondences. In cases where phonetic similarity and distribution in cognates indicate the same correspondence, however, one may be justified in referring to "corresponding phonemes".

Where dialects do not have identical phonemic inventories it may be questioned whether one should properly speak of correspondences between individual phonemes. Nevertheless it is highly convenient to be able to do so, and provided that one makes clear the grounds on which two phonemes in separate dialects are said to correspond, be they grounds of phonetic similarity, distribution in cognates or both, it is reasonable to do this. That it is reasonable to speak of correspondences between phonemes in some cases does not imply that all phonemes in a dialect may be claimed to correspond to phonemes in another dialect. It is not intended to discuss here the problems involved in "bracketing" together whole phonemic systems, as Cochrane*, Moulton* and Pulgram* have tried to do. It is merely claimed that in certain cases there appear to be clear-cut correspondences between phonemes of separate dialects and that reference to these is justifiable.

The use in separate dialects of non-corresponding phonemes in the same word, where corresponding phonemes exist, ([ɛ́kʰənɔ́mɪk]~[í:kʰənɔ́mɪk] is referred to in this thesis as <u>phonemic alternation</u>. This is distinct from <u>systemic alternation</u>, such as occurs in areas of structural difference between dialects ([fɪŋk]~[θɪŋk]) and <u>allophonic alternation</u> which occurs when corresponding phonemes do not have identical phonetic realizations, ([bɛtʰə]~[bɛʔə])

These three categories correspond roughly to what Gumperz** has

---

*G.R. Cochrane op. cit.

*W. Moulton "The Short Vowel Systems of Northern Switzerland" (Word 16, 1960)

*E. Pulgram op. cit.

**J. Gumperz op. cit.

named "etymological", "phonemic" and "phonetic" differences between dialects. It will be useful here to digress briefly to discuss the differences between my terminology and Gumperz' and perhaps to clarify some of the issues involved.

Whereas all three of my terms describe differences in the pronunciation of words, only one of Gumperz' terms does this directly - "etymological". His other two terms "phonemic" and "phonetic" describe differences at two levels in phonological systems. Naturally these have an effect on the pronunciation of words. As Gumperz says, "Most phonemic differences have reflections also in phonetic and etymological differences" (p. 220) Note that for Gumperz "etymological differences" are differences in the distribution of phonemes in words Differences in the pronunciation of words at subphonemic level are subsumed under "phonetic differences".

Gumperz writes that his three categories of dialectal difference differ in rank. "Phonemic" differences rank highest, "etymological" next and "phonetic" lowest. The assessment of "etymological differences" on the same scale of rank as "phonemic" and "phonetic" ones seems to me to be suspect. According to Gumperz, "Differences in distribution which are statable only in morphemic terms are called etymological" (p. 220). Why should differences which are only statable in terms of structural units higher than phonemes, (i.e. morphemes) be ranked lower than phonemic differences? Words and morphemes rank higher in the structural hierarchy of a language than phonemes

Gumperz' terms "phonemic difference" and "phonetic difference" both describe differences between the phonemic allophonic systems of dialects These systems form the apparatus through which words are expounded physically as phonetic events, and therefore differences in them will effect differences in the pronunciation of words. The examples he gives to illustrate both these kinds of differences are cognate words from the three dialects. Strictly speaking words, as has been mentioned elsewhere in this thesis, are to be thought of independently from their phonetic or phonemic realizations. Gumperz need not have illustrated the systemic differences in the three dialects by reference to cognate words. He could have compared diagrammatic representations of the phonemic structures in the same way as Kučera* has compared CCL and Literary Czech. The phonetic or phonological shape which words may take is strictly irrelevant to a statement of a phonological system itself.

And yet, in a comparison of related dialects, the phonetic and phonological shapes of words have a disconcerting way of catching the analyst's eye and suggesting certain correspondences between phonemes which he feels he must not ignore. The comparison of the phonetic and phonological shapes of words in different dialects is indeed a worthwhile subject for study, but it should be remembered that such a study presupposes a different approach or orientation to language from that of the phonemic analyst or describer of phonemic systems. The comparer of words is in the same happy position as the present investigator in that he <u>knows</u> certain words to be the same, and the

---

*H. Kučera op. cit

statements he makes are directed downwards, as it were, through the hierarchical structure of language from words to their various pronunciations. Moreover he may study and compare pronunciations of the same word in different geographical areas and different social styles. The phonemicist, on the other hand, generally makes statements in an "upward" direction, paralleling the mechanisms by which a hearer decodes speech, and furthermore he restricts himself to an idiolect, the speech of one individual, speaking in one style. Gumperz has a foot in both these camps. He illustrates differences in phonemic and allophonic systems by reference to words. And he also mentions differences in the pronunciation of words which have nothing to do with differences in the phonemic systems he compares

Thus Gumperz' terms may be seen to presuppose different orientations to the subject of a comparison of dialects. The term "etymological difference" is therefore not strictly comparable with the terms "phonemic difference" and "phonetic difference" and the question of its rank in relation to theirs cannot be entertained

It seems difficult for dialectologists with a knowledge of structural theories to avoid having a foot in two camps, as Gumperz The articles mentioned above, by Weinreich, Cochrane, Moulton, Gumperz, Kučera, not only all attempt to compare structures, phonemic inventories, but also find comparative distribution of phonemes in cognate words to be of considerable interest. Sivertsen's work, of course, does this too, and it would be hard to think of a structurally oriented dialectological work which does not mention both whole phonemic systems and comparative distribution of phonemes in cognate words

In this thesis, while the main emphasis is on the description of the pronunciation of groups of words, attention has also been given to the indisputable influence on the pronunciation of words of certain phonemic systems. This influence is recognized in the classification of variations in pronunciation as those due to systemic alternation, phonemic alternation and allophonic alternation In the material most of the variations in the pronunciations of words are due to systemic alternation and allophonic alternation. There are relatively few instances of variation due to phonemic alternation.

Instances of phonemic alternation should lead to the postulation of diaphonemes specifically to account for differences or variations in the pronunciation of words in which such instances occur. For convenience, to avoid proliferation of diaphonemic symbols, diaphonemes postulated to account for instances of phonemic alternation have been arbitrarily written with symbols already adopted for other diaphonemes but with an asterisk and a note giving the word, or words, to which they apply specifically. For example, the diaphoneme postulated to account for the variations of "by, my" from pronunciations with [ɪ] to those with [ɑː], [ɑɪ] or [ɔɪ] is symbolized Ie* (as only in "by, my"). Ie is the symbol used for the diaphoneme found in a large group of words pronounced with [ɑː], [ɑɪ] or [ɔɪ].

There are instances of phonemic alternation which are not clearly attributable to dialectal interference. For example, the word "year" is generally pronounced [jəː] by older informants and [jɪə] by younger informants Neither of these could be said to be a prestige pronunciation as both are heard in RP It is probable that the pronunciation of the word is changing, one phoneme being substituted for another, in both dialects at the same time Again, since words involved in such instances of phonemic alternation are relatively few, the diaphonemes postulated to account for their variation are written with an existing symbol plus an asterisk and a note, in the above case Ia* (as only in "year").

My informants pronounce the final consonant in so-called "...ing" forms such as in "going, coming, morning, evening "etc. with sounds which vary in a very similar way to those found as realizations of N as in "sun, win, mine," etc. The only difference is in the very few examples of [ŋ] or [ɣ̃] found intervocalically in "...ing" forms. "...ing" forms are, of course, pronounced in RP with [ŋ].

It is difficult to know whether to regard this as an example of "systemic alternation" or "phonemic alternation". There seems undoubtedly to be in Cockney a strong antipathy towards the sound sequence [ɪŋ], as the unstressed final syllable of a polysyllabic word. The words "nothing, something, everything, anything" are frequently pronounced with [ɪŋʔk] finally, - further evidence of the antipathy to [ɪŋ]. I have never heard or read of a parallel antipathy to sequences formed of vowels other than [ɪ] and [ŋ] in this position. "Bilabong, charabanc, backslang" would, I think, be pronounced with [ŋ] in Cockney. One can only call this a case of "systemic alternation" if one's notion of a phonemic system is of a set of rules so detailed and specific as to include a rule proscribing the combination /ɪŋ/ "as the unstressed final syllable of a polysyllabic word" or some such formula. For many phonologists the notion of a phonemic system would not stretch to include such specific rules as this and indeed for many the concept of a "word" to which it necessarily refers would not be admissible as a term of reference for a phonemic rule Reference to the concept of a "word" is necessary to account for the difference between, for example, "I sing" and "icing" in the former of which Cockney would generally have [ŋ] and in the latter [n].

Most phonemicists would, I think, refer to the Cockney use of [n] where RP has [ŋ] in certain forms as what I have called a "phonemic" difference between the two dialects and not as a "systemic" difference. However the extent and the consistency of this feature of Cockney indicate a definitely "systematic" aversion to a certain pronunciation in a very specific environment.

This dilemma does not need to be resolved here. What would be a problem if one were analyzing the material in orthodox phonemic terms is by-passed by the present method of postulating diaphonemes.

There are here three separate groups of words whose pronunciations follow separate patterns of variation. There are the words of the group "bobbin, Robin, kitchen ..." which always have [n], (apart from assimilations), words of the group "going, coming, morning, evening ..." which almost always have [n] but occasionally [ŋ], and the words "nothing, something, everything, anything" which vary between [ŋ k], [n] and less commonly [ŋ]

Three diaphonemes have necessarily to be postulated to account for the three patterns of variation found in the final parts of the words in the three groups. One diaphoneme is written with the same symbol as one other, with the addition of an asterisk and a note. Thus the diaphoneme found finally in "sin, thin, Robin, kitchen ..." is written $\underline{\bar{N}}$ the diaphoneme found finally in "going, evening, morning, shouting ..." is written $\underline{\bar{N}}$* ("...ing" form); and the diaphoneme found finally in "anything, nothing, something, everything" is written $\underline{Ng}$* (as only in "nothing, something, anything, everything").

In transcriptions of passages and long words in diaphonemic symbols, the notes have been omitted, as they are somewhat cumbersome and it is evident from the rest of the passage what word, and therefore what diaphoneme, is intended. Note that the use of an existing symbol with an asterisk does not imply any judgement on the part of the analyst regarding the relative "rank" or importance of diaphonemes accounting for instances of phonemic alternation. Instances of phonemic alternation are comparatively rare in the present material and the step is take simply for convenience. In the case of a comparision of dialects more different than Cockney and RP, such as, for instance, RP and a specimen of "General American", where one large group of words in particular - "pass, laugh ..." shows alternation between non-corresponding phonemes, the treatment would probably be somewhat different.

The symbolization procedure adopted here is convenient on other grounds than mainly aesthetic ones It is desirable that any dialect should be described in such a way as to make easy an objective typological classification of it with other dialects or dialect groups.

On the criteria for the typological classification of dialects there seem to be two main streams of thought. Some scholars recommend that classification is best done by means of comparing phonemic systems. Others appear to place at least as much importance on the pronunciation of individual words as a measure of the relatedness of dialects.

Some prominent scholars recommending or accepting the comparison of phonemic systems are E. Stankiewicz, J.C. Catford, H Kurath and R.I McDavid Jr.

In "On Discreteness and Continuity in Structural Dialectology" (Word 13, 1957) Stankiewicz writes:-

"The classification of dialects on the basis of their phonemic inventories should be considered as the first step towards an exhaustive description of linguistic areas" (p. 45) and later, after considering the merits of classification on the basis of grammar, syntax and lexis, "Phonology, which is the most advanced branch of modern linguistics, suggests itself, finally as the most logical one within which we can determine criteria for the grouping of dialects" (p. 46). Developing this proposal:- "In search of an 'overall pattern', some linguists resorted to a graphic device in which 'cover symbols' stand for various phonemes or phonemic sequences.[23] It is obvious that loosely applied transcriptional symbols, which overdifferentiate or underdifferentiate phonemic distinctions, can be stretched to cover not only the dialects of "American English" or of "Russian", but a variety of highly differentiated languages Such a pattern is not an abstraction of features which are constant in a variety of closely

[23] G L. Trager and H.L. Smith Jr. "An Outline of English Structure" (p.53).

related dialects, but is a fictitious construct. ...It is, therefore, also insufficient to compare systems simply in terms of their inventories; such comparisons do not amount to more than listing.

Stankiewicz therefore suggests further - "One of the measures of similarity between local systems with partially different phonemic inventories lies in their utilization of the same ultimate phonemic components. For instance, all Polish dialects share the distinctive features of consonantality, continuity, compactness, gravity, voicing, nasality and stridency, but none of them utilize prosodic features" (p. 54 In "The Phonemic Patterns of the Polish Dialects" (In "For Roman Jakobson") Stankiewicz applies the views expressed above to a comparative statement of the inventories of a number of Polish dialects.

In "Vowel Systems of Scots Dialects" (Transactions of the Philological Society 1957) J.G. Catford gives examples from the files of the Linguistic Survey of Scotland to show how the stressed vowel systems found before t in various Scots dialects vary according to the number of units in the system - 8, 9, 10, 11 or 12 - and also according to the nature of their difference from the "Basic" 8-vowel system, if any. Concluding, Catford writes, "This illustration indicates that a map showing the distribution of systems may be as fruitful of historico-linguistic problems, and as suggestive of possible solutions, as the more customary type showing the distribution of words, or of particular phonetic features abstracted from the systems in which they belong. Indeed, the closeness of phonological similarity between the dialects of the three areas referred to here had previously been overlooked: comparison at purely phonetic level tends to conceal rather than reveal their similarity, since the phonetic realization of cognate words in the three areas is frequently very different" (pp. 115-116).

H. Kurath and R.I. McDavid Jr. in "The Pronunciation of English in the Atlantic States" write:- "Phonemic, phonic and incidental" [corresponding to my "systemic", "allophonic" and "phonemic" respectively] "heteroglosses are of unequal value in determining the degree of difference between dialects and in evaluating the relative importance of the boundaries between speech areas. Of the three types, phonemic heteroglosses obviously outrank the others" (p. 2).
Kurath and McDavid place more importance for the purpose of drawing dialect boundaries on differences in whole phonemic systems than on differences in the incidences of corresponding phonemes in words. They give a lot of information on the latter nevertheless. It is interesting that the two types of difference seem to have different significance. "In the major focal areas cultivated speech rarely diverges from the speech of the middle class, or even from that of the folk, in the system of phonemes or the phonic character of the phones ... . On the other hand, the folk and the middle group often use vowel phonemes in certain words that the cultured avoid" (p. 12).

There is, however, evidence that the use of non-corresponding phonemes in the same word may characterize and distinguish the dialects of fairly well-defined geographical areas. W.N. Francis in "Some Dialectal Verb

Forms in England" (Orbis 10, 1961) writes, "I cannot forbear commenting on the regional distribution of the pronunciation /kečt/ with the mid-front vowel. This pronunciation is confined in England to two well-marked regions, one corresponding precisely to the West Midland area of Middle English and the other including the Home Counties, Kent and Sussex and extending into East Anglia on one side and Hampshire and northern Wiltshire on the other. A narrow corridor through Oxfordshire joins these two /kečt/ areas, which separate Northern [katʃt] from Southwestern [kætʃt]. The difference between these last two is best considered subphonemic (or diaphonic) since [a] is the customary Northern form of the low-front vowel. But [kɛtʃt] definitely represents a phonemic variant since [ɛ] contrasts with [a] in the northern part of the West Midland and with [æ] in the southern part and the Home Counties" (p. 8)

D. DeCamp in "The Pronunciation of English in San Francisco" - second part (Orbis 8, 1959) uses a list of 46 test words for comparing the pronunciation of San Francisco with that of the eight dialect areas of the Eastern United States established on the basis of data from the Linguistic Atlas of the United States. Listing these words he states that the use of a particular phoneme or sequence of phonemes in a particular word "defines" a particular dialect area or areas, except in the case of four words in which subphonemic, allophonic features are said to define areas. Having observed the pronunciations of these words by twenty-five San Francisco informants, he comes to the conclusion that, "The similarities of San Francisco speech, as thus tabulated, are predominantly with Northern and North Midland areas. This correlates well with the settlement history" (p. 70).

The description of Cockney provided in this thesis will satisfy at least the basic requirements of both these streams of thought in dialect typology in that, while describing the pronunciations of individual words, or groups of words, which behave similarly, it permits an unobscured view of the phonemic patterns present in the dialect.

A list of the diaphonemes which have been postulated to account for the speech of my informants is now given, with some remarks on the labels which have been given to them. Then, after an explanation of the phonetic symbols and terminology used in this thesis, descriptions are given of the realizations of all diaphonemes. Certain detailed theoretical points which are raised by some of the facts of the material are discussed as and when they arise, in the discussions of the realizations of particular diaphonemes. In this way the details of the theoretical basis for this study can be shown alongside the material for which it is intended to account.

The Basic Diaphonemes

The following diaphonemes have been postulated. They are divided into three main classes: Consonants, Vowels and Semi-vowels. Although diaphonemes are abstractions and cannot be said to have any rigid phonetic definition it has been found convenient to characterize them loosely by the terms given with them in parentheses below.

Consonants

("voiceless")	("voiced")	
P T K	B D G	("stops")
F Th S Sh	V Dh Z Zh	("fricatives")
Ch	J	("affricates")
	M N Ng	("nasals")
H		

Semi-vowels

W L R Y

Vowels

I E A U O Oo	("short vowels")
Ou Ur Ar Au	("long vowels")
Ia Ea Ua	("centring diphthongs")
Ee Ay Ie Oi	("fronting diphthongs")
Oe Ue	("retracting diphthongs")
&	

Some reasons must be given for attaching phonetic labels to phonologica units of such a highly abstract nature as diaphonemes. It is emphasized that such labelling of diaphonemes has been done solely for convenience when writing descriptions, to save long circumlocutions such as, for example, "diaphonemes whose realizations are predominantly voiceless stops". There can be strictly no theoretical justification for such labelling since the basis for the postulation of diaphonemes is primarily the use of different sounds in the same word or words. The criterion of phonetic similarity of groups of sounds is taken into account when postulating diaphonemes (see p.127) but never has priority over the basic criterion of the distribution of sounds in the same word or words.

In order to emphasize the looseness with which such terms as "voiceless fricative" must be understood to be used when applied to diaphonemes, the reader is reminded of the following facts.

Of the labelled consonant diaphonemes, there is only one, Zh, which does not have in the material realizations other than those described by its label, i.e. in this case "voiced fricative". Zh is easily the least frequent of the consonant diaphonemes and an extended corpus would probably reveal realizations which contradict its labelling. All other consonant diaphonemes have realizations, often many, which are not of the phonetic type loosely attributed to them by their labels. Thus P, T, K all have realizations which are phonetically voiced and/or fricative, B, D, G all have realizations which are phonetically voiceless and/or fricative or frictionless continuant, F, Th, S, Sh all have realizations which are phonetically voiced and/or plosive or affricated. V, Dh, Z all have realizations which are phonetically voiceless and/or plosive or affricated. Ch has some realizations which are either voiced or fricative and J has realizations which are either voiceless or fricative. M, N, Ng all have non-nasal realizations.

Similar examples can be given for the vowel diaphonemes. Ou and Au, both labelled as "long vowels" have many realizations which are phonetically retracting diphthongs. Ia and Ea, labelled "centring diphthongs", Ee and Ie, labelled "fronting diphthongs" and Ue, labelled a "retracting diphthong" all have many realizations which are phonetically long monophthongs. E and A, labelled "short vowel" both have some realizations which, phonetically, are glides towards an [I]-like quality.

Due to the obvious strict invalidity of phonetic labels for phonological abstractions use of them has been avoided where possible. There have been occasions, however, when, the analyst has wished to make reference to, for example, the diaphonemes, F, Th, S, Sh collectively and it has been found useful, really more from the point of view of literary style than from any other, to have a label for such a group of diaphonemes.

It should be noted, however, that the characterizing of diaphonemes by certain phonetic labels is far from being wholly without foundation. All the labels given to diaphonemes describe the predominant realizations of those diaphonemes in the material, and in most cases the predominance of realizations of one particular phonetic category is very marked. Moreover, the grouping of diaphonemes under headings deduced from the predominance of a particular phonetic type of realization reveals a remarkably symmetrical arrangement of diaphonemes and groups of diaphonemes, and although the discovery of neat symmetrical arrangements of phonological units is not the sole or ultimate goal of a phonological analysis, it is certainly an interesting feature of any language that such arrangements can be shown to exist in it and the grouping and labelling of diaphonemes in loosely phonetic terms is surely thereby justified.

A note should be made on the reasons for including L and R under the heading "semi-vowels". Distributionally L and R have a great deal in common with W and Y. As a group W, L, R, Y are the only four diaphonemes which can occur in the onset of a word between a plosive and a vowel, as in "player, proper, pew, blind, Brighton, beautiful, twelve, try, tube, drive, during, quite, class, Christmas, cute, glasses, great," etc. A few combinations of plosive plus W, L, R, Y do not occur but in general it is true to say that these four diaphonemes have an important distributional characteristic in common, i.e. that they are the only diaphonemes which may be found in the onset of a word between a plosive and a vowel. Furthermore three of them are the only diaphonemes which may occur between F and a vowel in the onset of a word, as in "fly, freedom, few."

In many analyses of English, /w/ and /j/, which are phonemes corresponding to my diaphonemes W and Y, are said to occur finally in words such as "go" and "boy". In other words the second elements of the diphthongs which occur in these words are regarded as allophones of these phonemes. This is quite a satisfactory analysis. There are indeed in most forms of English at least two broad classes of syllabic, one charactorized by glides to a high front position and another characterized by glides to a high back position and it is quite a plausible interpretation of the phonetic facts to associate the latter parts of these glides with the phonemes /j/ and /w/ which have high front and high back vocoidal allophones respectively. Scholars who analyse English in this way usually say that such fronting and retracting diphthongs are in fact combinations of a short vowel phoneme, as in "bit, bet, bat, butt, pot, put" and a "semi-vowel" phoneme /w/ or /j/. Sivertsen's analysis of Cockney is an example of such a treatment. In her system "butt" is transcribed phonemically /bət/ and "boat" /bəwt/. "Pot" is /pot/ and "boy" is /bɔj/. Such an analysis necessarily entails some explanation of why the /ə/ in "butt" is pronounced differently from the /ə/ in "boat", and the /o/ in "pot" differently from that in "boy". Analysts of this school of thought give as their explanation the formula that it is not the actual vocoidal quality which is important in these cases so much as the relationship which appears to exist between a semi-vowel phoneme /w/ or /j/ and a vowel phoneme which may precede it. If, for instance, the vowel phonemes which are said to occur before /j/ as in "bee" /bɨj/, "bay" /bej/, "buy" /baj/, "boy" /boj/ (Sivertsen's symbolization) have allophones in this position which are in each case more retracted than their allophones before a consonant, then a consistent relationship can be said to exist between /j/ and any vowel phoneme which occurs before it. This is in fact the case in the present material except in the case of the vowel in "pot". This can hardly be retracted from its normal position which is on average in [ɔ]. Note that although a Sivertsen type of analysis has not been used in this thesis, it is accepted that many of its techniques, such as that referred to here of treating diphthongs as a combination of vowel plus semi-vowel, can be convincingly defended by argument.

In the material on which the present thesis is based, there is just such a consistent relationship between L and any vowel diaphoneme which may occur before it, as the relationship described above, in Sivertsen's terms, between /j/ and a preceding vowel phoneme. Most diaphonemes which occur before L have realizations in this position which are more open and/or more retracted than their realizations before a consonant.

Similarly R has an opening and retracting effect (though admittedly not so consistently) on the realizations of vowel diaphonemes which may precede it. (See descriptions of E and A). These seem to me to be good reasons for considering R and L to belong to a similar class of diaphoneme to W and Y, particularly when one bears in mind the distributional characteristics which all four have in common in word onsets.

The term "semi-vowel" rather than any other term such as "liquid" has been preferred because it was felt that W, L, R, Y constitute a separate class of diaphonemes in a strongly phonological sense, that is, judged on criteria other than the purely phonetic nature of their realizations.

In the descriptions which follow, examples of words in which diaphonemes occur are given in lists before each description. A description has been made of the realizations of each diaphoneme in the environments which condition them. Extremely full and detailed descriptions have been made of the realizations of some diaphonemes in which the variation is particularly interesting. Much less detailed treatment has been given to other diaphonemes. It would be impossible to give as detailed descriptions of the realizations of some diaphonemes as has been given for the more "interesting" diaphonemes. Some diaphonemes seem to be far more stable than others in that their realizations vary much less widely. The degree of variation of realizations of a diaphoneme does not appear to be related to that diaphoneme's relative frequency. T, S and N are easily the most common of the consonant diaphonemes. There is a very high degree of variation in realizations of T and a most detailed examination of this variation yields some very interesting results. Variation of realizations of this diaphoneme in over 60 different environments which were found to influence pronunciation has been described. In the case of N, however, a rough but comprehensive count was made of its realizations in at least as many environments as those in which realizations of T have been described and this count yielded very few patterns of variation which could be considered significantly different from patterns of variation in most other environments. Examples of the environments in which realizations of N were investigated are: before each separate consonant diaphoneme, to see whether assimilated nasal contoids were any more frequent before one than before another, and also whether [~], nasalization of a preceding vowel, was any more frequent before one consonant than before another. It was thought possible that nasal contoids might be more frequent before voiced consonants and [˜] more frequent before voiceless consonants, since in RP the length of [n] is conditioned by the voicing of a following consonant. [n] is longer in "lend" than in "lent". No significant differences were found in the speech of my informants here in their alternation between [˜] and nasal contoids. It was also thought possible that place of articulation of a consonant following N might affect the probability of an assimilation taking place. This was also found to be, in most cases, a red herring. Realizations of N were also investigated preceding any two consonants, the first of which was realized by [ʔ]. It was thought possible that different consonants might have varying degrees of "strength" in affecting assimilations in realizations of N "through" a glottal stop-another red herring. Word medial intervocalic realizations of N were investigated in various common words such as "any, many, anyone, anybody, anywhere, anything, enough," to find whether or not "lazy" realizations [n̊] were more common in these words - again a fruitless search. One cannot avoid the conclusion that for some reason there is far less variation in realizations of N than in, for example, realizations of T, and this leads to the more general conclusion that a scale exists at one end of which are diaphonemes whose realizations vary widely and are conditioned by a high number of different environments and at the other end of which are diaphonemes whose realizations vary little and are not greatly influenced by their environments.

It is possible without actual counting to tell which diaphonemes are more fruitful of interesting variation. Before the investigator began counting realizations and details of their environments from his transcriptions he had a very good idea of which diaphonemes would yield the most interesting results, and which would turn out to be relatively less interesting. Thus it was strongly suspected from the accumulation of the investigator's impressions while transcribing the material, that a detailed study of the diaphoneme N would not prove to be particularly fruitful of interesting information and this strong suspicion was confirmed by an actual count of the realizations of this diaphoneme. Similarly, it could have been predicted beforehand, from the investigator's acquaintance of the facts through transcribing the material that realizations of the diaphonemes Ch and Ng would prove to have relatively less interesting patterns of variation than realizations of some other diaphonemes. This point can be confirmed by comparing the tables and discussions of the realizations of Ch and Ng with, for example, the tables and discussions of the realizations of T and Th.

The investigator has seen this difference in the degree of interesting variation of realization of diaphonemes as a partial justification for not carrying out comprehensive counts of the realizations of all diaphonemes in all the environments in which they occur. It is freely admitted that the magnitude of such a task was a strong reason for restricting the very detailed descriptions of diaphonemes to mainly those whose realizations varied most widely and therefore most interestingly.

To give some idea of the enormity of the task of treating the whole material as completely and as comprehensively as some of the more interesting diaphonemes, consider what was entailed in the comprehensive treatment of just one diaphoneme, $\underline{T}^{(*)}$ for example. Realizations of $\underline{T}$ and of "special" diaphonemes $\underline{T}^{*}$ are shown in tables in this thesis in over 60 different environments which appear to condition them. Realization of $\underline{T}^{(*)}$ were, of course, counted in relation to considerably more than 60 different environments and those environments which appeared from the count to have the same influence on realizations as other environments were "amalgamated" with them. The statements made in the tables are in fact as general as the detailed intentions of this thesis will allow. Keeping an exact count of each possible realization of a diaphoneme in considerably more than 60 separate environments in 7 different individuals, particularly when, as in Ben on one occasion, there may be as many as 10 different realizations of the same diaphoneme in one environment, is an extremely complicated task. The total number of realizations counted for $T^{(*)}$ is in fact over 7,000.

Even allowing that $\underline{T}$ is one of the most common diaphonemes, I estimate that a comprehensive count of all realizations of all realizations of all diaphonemes in the material would render something like 200,000 realizations. Of course it is not merely a question of counting from 1 to 200,000, but of relating each one of 200,000 realizations to one of 44 diaphonemes, in anything up to 60 environments in 7 individuals. Estimating that there are an average of 20 different environments for all diaphonemes about which significant statements can be made, this means that there are something in the region of 6,160 different slots into which the roughly 200,000 realizations have to be fitted. And each placing of a realization into one of these slots must be done with care and precision, or the results of the study will be less valuable.

The task is of course not impossible, and will, I hope, one day be completed. The possibility of finding some way of feeding the entire transcription of the material into a computer and using the computer for high speed scanning to list and count realizations of a diaphoneme in any given environment is certainly one which ought to be investigated. It may turn out that the procedure for translating the phonetic and accompanying diaphonemic transcriptions into a computer "language" might take just about as long, an estimated 2 or 3 years, as the procedure of counting all realizations of all diaphonemes oneself. Such time as this has not been available for the research for and writing of the present thesis. The detailed transcribing alone of the material took the investigator over 18 months working every day, and there just has not been enough time to glean all possible information out of the transcriptions

An attempt has been made to cover in detail all of the more interesting diaphonemes and also at least one diaphoneme of each particular type. Thus, although the "voiced plosive" diaphonemes B, D, G are not in themselves as interesting as some others, a detailed description of realizations of G has been made, and some of the more general statements made about realizations of G are also applicable to B and D In some cases detailed counts have been made of realizations of diaphonemes in some, but not all, environments. This is so, for instance, with the environments in which realizations of F may be glottalized, or with L in the environment "word-finally intervocalically". The variation found in these diaphonemes in these environments was thought to be particularly interesting and worthy of a detailed count.

In the case of the vowel diaphonemes, detailed counts have been made of a series of vowels whose realizations are clustered around points in roughly the same area of the vowel chart. Realizations of the vowel diaphonemes treated in detail are for the most part monophthongal and front and/or open. This was done to give some idea of the extent to which realizations of diaphonemes overlap.

In the tables describing realizations of consonant diaphonemes, certain symbols have been used in the structural formulas for environments which ought to be explained.

All symbols representing individual diaphonemes have already been listed. It should be noted that diaphonemic symbols are always underlined and are the only symbols which are underlined.

An asterisk * following a diaphonemic symbol is to indicate that a "special" diaphoneme is being referred to, i.e. one that requires a special statement because of an example of "phonemic variation" or the peculiar behaviour of a specific word

Capital letters C, S and V represent any consonant diaphoneme, semi-vowel diaphoneme or vowel diaphoneme respectively.

A lower case letter x means "except". Thus SxY means in effect W, L, R.

The small letters p, s, b, z, m following the symbol C represent respectively consonants of the classes, "voiceless plosive", "voiceless fricative", "voiced plosive", "voiced fricative", "nasal".

Thus Cm means in effect M, N, Ng, Cps means in effect P, T, K, F, Th, S, Sh. The "affricate" diaphonemes Ch and J are included in the class of "fricatives" when they precede a diaphoneme about which a particular statement is being made and included in the class of "plosives" when they follow a diaphoneme about which a particular statement is being made. Thus N in env. NCp could be expanded to N in env N $\left(\begin{array}{l}P\\T\\K\\Ch\end{array}\right.$ and G in env. CzG could be expanded to G in env. $\left.\begin{array}{l}V\\Dh\\Z\\ZG\\J\end{array}\right)$ G

An oblique stroke / indicates a word-boundary. Thus L/ means "word-final" L

A comma , indicates the beginning or end of an utterance. Thus , W means "utterance-initial" W.

Brackets ( ) indicate that whatever is represented by signs within them is optional. Thus P(S)V means P before a vowel whether or not a semi-vowel comes between them. $T^{(*)}$ means the diaphoneme T and/or "special" diaphonemes T*.

An acute accent ʹ indicates stress on a vowel Thus $\acute{V}$ means any stressed vowel, $\overset{(\prime)}{V}$ means any vowel regardless of stress and V means any unstressed vowel.

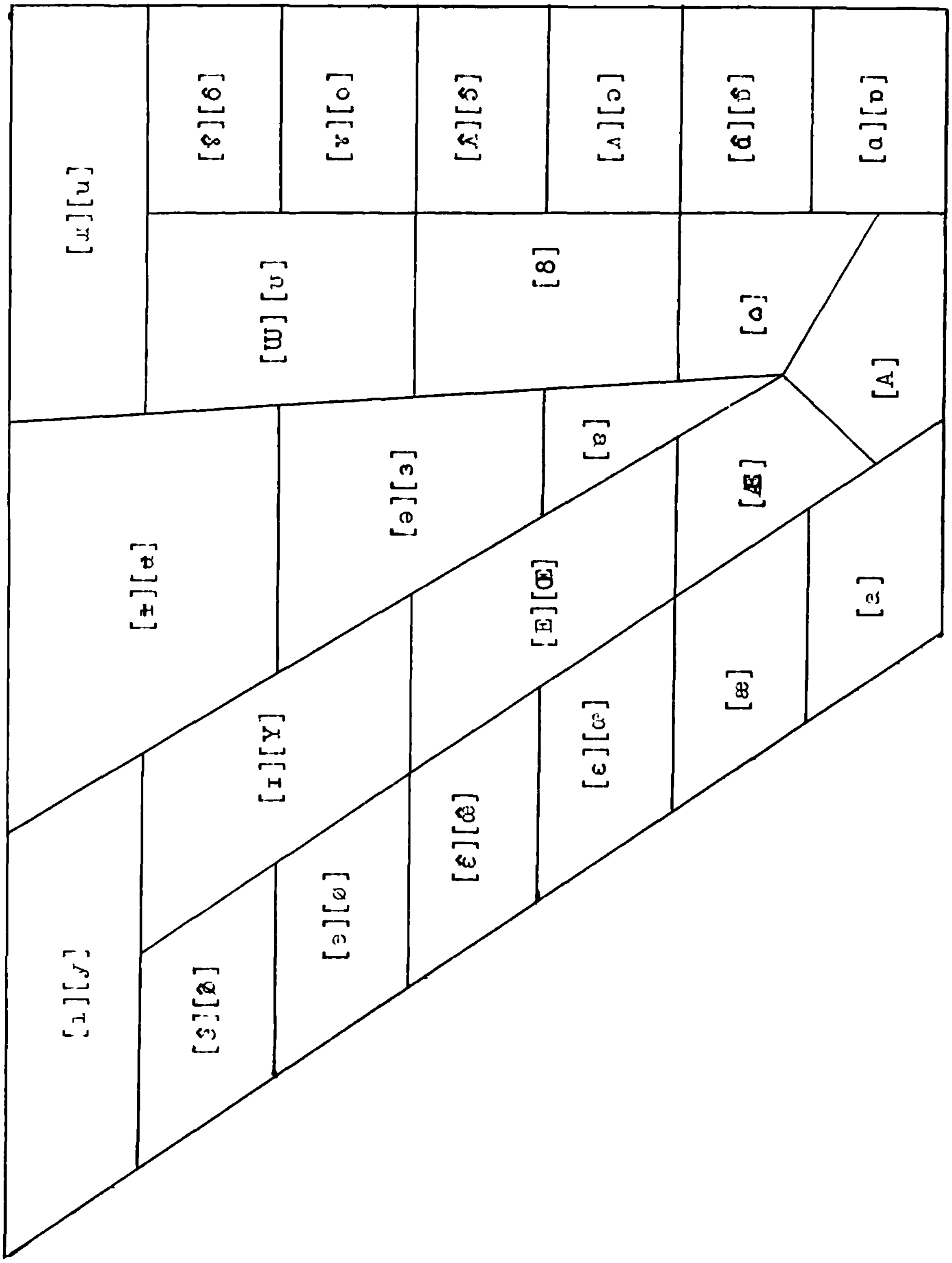
These are all the symbols used in structural formulas which need to be explained.

A description now follows of the actual sounds to which phonetic symbols are related and some matters relating to problems of transcription are discussed.

Phonetic Symbols - Vocoids

The qualities represented by the vowel symbols used in this thesis are shown in a version of the conventional vowel chart on the following page. The chart shows the maximum number of different vowel qualities which the investigator thought it possible to be able to distinguish consistently over the long period of time it took to transcribe the corpus. On the chart there are two symbols in most slots, the one on the left of each slot representing an unrounded vowel, the one on the right of each slot a rounded vowel. There is only one symbol in some slots because symbols for vowels of some qualities were not found to be necessary, like, for example, an unrounded version of [8]. There was thought to be no point in devising symbols for such qualities.

The basis of reference for correlating heard vowel qualities with positions on the chart was the Cardinal Vowels recorded by Daniel Jones. The symbols [i], [e], [ɛ], [a], [ɑ], [ɔ], [o], [u] represent vowels of the exact quality, as far as can be judged by ear, of Cardinal Vowels 1 - 8. [y], [ø], [œ] and [ɒ], [ʌ], [ɤ], [ɯ] represent vowels of the same quality as Cardinals 9 - 11 and 13 - 16. [ɨ] and [ʉ] represent vowels of the same quality as Cardinals 17 and 18. These vowel symbols, then, have the same value as that accorded to them in the leaflet accompanying the Linguaphone records of the Cardinal Vowels, with one exception, which should be noted. It has not been found necessary in this thesis to make reference to a vowel having the same tongue position as Cardinal 4 but said with rounded lips, and



therefore the symbol [Œ], used to denote such a quality in the Cardinal Vowel leaflet, has been put to work where it was needed more, to denote a vowel somewhat retracted from the positions of Cardinal 11 and a vowel between Cardinal 10 and 11. The symbols in the slots between those corresponding to Cardinal qualities, i.e. [æ], [A] and all symbols with [^] represent vowels judged to be "half way between" vowels of the same value as the Cardinals. Thus [ɔ̂] is half way between Cardinals 6 and 7.

The more central vowels [I], [E], [Æ], [ɑ], [8], [ʊ], [ə], [ɐ], [Y], [Œ], [U], [ɜ] are not directly related to Cardinal qualities and are perhaps therefore not so firmly established in the investigator's auditory memory as the vowels in the more extreme tongue positions. The slots here are, however, larger - they cover larger areas of "phonological space" and therefore the degree of precision demanded of the investigator's judgement in assigning symbols to the more central vowels is less. I do not think that the more central vowel qualities have been judged with any less consistency or reliability than the peripheral ones.

One other vocalic symbol [ɚ] has on a few occasions been used in this thesis. This symbol represents a vowel of a basically mid-central [ə]-like quality, modified by a slight amount of "r-colouring" or slight retroflexion of the tongue-tip.

During the period when engaged in transcribing the vowels in the corpus, the investigator listened to the Linguaphone recordings of the Cardinal Vowels every morning before starting work. This, it was hoped, helped to ensure consistency in judging vowel qualities.

Naturally there were many occasions when the investigator was poised between two opinions of what exact quality a vowel in the material had. He could not make up his mind, for example, whether to write [ɛ] or [æ] for some vowel in the corpus. To cope with situations such as this, a system of "reservations" was developed, allowing the investigator, on such occasions of doubt, to say that a given vowel was "on the borderline" between, say, [ɛ] and [æ]. Diacritics were used to modify the basic symbols on the chart and to express such "borderline" judgements. Thus a vowel judged to be on the borderline between [ɛ] and [æ] was written either [ɛ̦] or [æ̦]. Similarly a vowel on the borderline of [ə] and [E] was written either [Ë̦] or [ə̦], a vowel on the borderline of [ə] and [ɪ] either [ɪ̦̈] or [ə̦] and so on. If it could not be decided whether a vowel was rounded or not, or if it was felt that a vowel was only "somewhat" rounded then a symbol representing an unrounded vowel was used modified by the diacritic [̫]. Thus [ɑ̫] is "on the borderline" between [ɑ] and [ɒ]. These diacritics have not always been included when giving examples in this thesis. They have been excluded when not particularly relevant to the point which an example is illustrating.

The degree of confidence with which this system of reservations was used varied from one occasion to another. On some occasions the diacritics were written in with the firm conviction that the sound heard, did in fact lie more or less exactly on the borderline between two of the vowel qualities represented by basic symbols In such cases the system of reservations may be seen as a sort of fine precision instrument to pinpoint the quality of a vowel. On other occasions all that the investigator could be certain of was that a given vowel in the material had a quality somewhere within two slots on the chart and in such cases the system of reservations should be regarded more as a device for expressing the statistical probability that the actual quality of the vowel in question was somewhere near the borderline of the two slots. Factors which contributed to the investigator's conviction or lack of it in making judgements in particular cases were loudness, length and pitch. The most difficult vowels to judge were very quiet, very short ones on a high pitch. Louder, longer vowels on a lower pitch were easier to judge. It was also found that the end points of diphthongs were especially hard to judge with confidence.

There were, of course, occasions when the investigator felt he would like to make more than one reservation about the quality of a particular vowel. To take an extreme example, he might have felt that the exact quality of a vowel was somewhere between [Ɪ], [E], [e] and [ε̂] and also slightly rounded, i.e. between the four qualities already mentioned and their rounded counterparts [Y], [Œ], [ø] and [œ̂]. A system of reservations to cope with situations such as this would have introduced far too much complication into the business of judging vowel qualities, and in such cases a somewhat arbitrary decision was forced on the investigator. He had to choose some one borderline on which he felt the sound in question was more likely to lie and make that his final decision. In the above example he would have had a choice between eight different verdicts - [ɪ̫], [ɛ̫], [e̫], [E̫], [e], [ɪ̦], [ɛ̂̇]. or [e̦]. Happily, such tricky situations did not crop up frequently and a simple one-way system of reservations was found to be adequate for coping with the great mass of the vowels in the material.

When counting the actual examples of particular vowel qualities in use as realizations of various vowel diaphonemes a symbol with a diacritic was interpreted as representing "half an example" of the use of one vowel quality and "half an example" of the use of another Thus if, for instance, a given diaphoneme in a given environment was recorded as having realizations [e̦], [ɛ̂], [ɛ], [ɛ̇] and [E], then this would be counted as ½ [e], 1½[ɛ̂], 1½[c] and 1½[E].

Normally, however, actual counts of realizations were not so encumbered with "½" signs as this example. In the large charts with vowel diagrams for each individual informant monophthongal realizations of diaphonemes have been shown by a mark in the appropriate slot and a number indicating how many times such a realization occurred. A cross x represents an unrounded vowel and a round blob ● represents a rounded vowel. In some of the charts describing realizations of vowel diaphonemes of which less specific descriptions are made, a cross or a blob may be placed not only within a slot but also on a borderline if necessary to mark approximate positions of "average" realizations of diaphonemes.

In the transcriptions diphthongs were, of course, represented by sequences of two symbols and on occasions reservations were made about their starting and/or end points. For instance a diphthong would have been symbolized [ɔ̤̂Ẹ̈] if the investigator thought it began on the borderline of [ɔ̂] and [ɔ] and ended on the borderline of [E] and [ə]. In a case such as this the investigator is in fact suspending judgement between four different judgements of the quality of the glide. It could be [ɔE], [ɔə], [ɔ̂E] or [ɔ̂ə]. It was found that to mark examples such as this on the vowel diagrams by four separate lines each representing a "quarter of an example" of a particular glide was extremely cumbersome and usually in such cases a single line was drawn from one borderline to another to represent one example of a glide about whose starting and end points the investigator had reservations. Similarly glides about which the investigator had reservations about only one end, were represented by a single line connecting the middle of a slot with a borderline between two slots. This procedure was found considerably to simplify diagrams illustrating diphthongal realizations of diaphonemes. In one case, parodoxically, such a procedure would in fact have complicated a vowel diagram. This was the case of Ben's realizations of <u>Ou</u>. He uses a great number of diphthongs here and the "reservation" system of "half examples" and "quarter examples" of glides represented by lines from the centre of one slot to the centre of another turned out in this case to be a less complicated method of representation than one allowing lines to start or finish on a borderline. Mathematically the reason for this is of course that whereas there are on the vowel chart only 24 slots, there are 48 different borderlines between slots. A system of representation allowing only the centres of slots to be connected by lines permits a maximum of 24 x 23 lines to be drawn. A system allowing lines to begin or end at either centres of slots or borderlines permits a maximum of (24 + 48) x (24 + 48 - 1) lines to be drawn. The more diphthongs there are to be represented on one diagram the higher are the chances of the maximum number of lines being "used up", and where a great number of diphthongs occur, as in the case of Ben's realizations of <u>Ou</u>, the system of representation which permits a smaller maximum naturally leads to simpler diagrams The occurrence on the diagram of figures including "$\frac{1}{2}$" and "$\frac{1}{4}$" is the price one has to pay for a marked decrease in the number of lines

The end points of diphthongs are marked by a blob or a cross at one end of the line representing the glide. The beginning points of diphthongs are usually represented only by the beginning of the line. Lines beginning in the slots for [ɔ], [ɔ̂], [o , [ô], [u], [ʊ] and [8] should be assumed to represent diphthongs commencing with a rounded vowel quality. Lines beginning in other slots should be assumed to represent diphthongs commencing with an unrounded vowel quality. Where diphthongs commence with, for example, a rounded front vowel quality, then a blob is placed at the beginning of the line to indicate that this is so, and an arrow is marked at some point on the line to indicate the direction of the glide. There are no examples in the material of diphthongs commencing with back unrounded vowels closer than [ɑ̂].

There are a few instances in the material of diphthongs in which there is no change in tongue position but a change in lip position, as in for instance [ɑɒ] or [əɜ]. These examples are represented by a short line in an arbitrary direction within one slot with a blob at one end to indicate that the diphthong ends in a rounded vowel quality.

There are also a few instances in the material of sounds about which the investigator had reservations as to whether it was in fact a long monophthong or a very narrow diphthong. Such a sound might have been symbolized, for instance, [æɛ̩]. In this example the investigator was confident that the quality heard at the beginning of the sound was between Cardinals 3 and 4 but had doubts as to whether or not the end of the sound was very slightly more close in quality. On the charts a sequence such as [æɛ̩] has been represented either as a short line connecting the centre of a slot with an adjacent borderline or by a mark indicating "half an example" of a monophthong and a line connecting the centres of two adjacent slots indicating "half an example" of a diphthong, whichever procedure was most convenient in a particular instance. For the purpose of comparing frequencies of monophthongs and diphthongs such examples have in fact been counted as "half a monophthong" and "half a diphthong". This explains what is meant when for example 10 realizations of a diaphoneme are said to occur, "5½" of them "diphthongs and "4½" of them "monophthongs". There are in fact very few such doubtful instances.

It is even possible to have a sound which is said to be

" ¼monophthong" and "¾ diphthong". This happens on rare occasions when the investigator has expressed reservations about both the beginning and end of a diphthong and the result is a glide transcribed as beginning and ending on different borderlines of the same slot, e.g. [æ̨ɛ̨]. In this example the investigator is in fact suspending judgement between four different transcriptions ; [æː], [aɛ], [æɛ] and [aæ]. This explains the occasional occurrence of the figures "¼" and "¾" in statements of the comparative frequency of monophthongs and diphthongs. In such instances, which are very infrequent, the sound in question is represented on the vowel diagrams by a line connecting the two borderlines in question.

During the period while engaged in transcribing the vowels in the material a short experiment was conducted to find what degree of consistency was being achieved in judging vowel qualities. A passage which had already been transcribed about 8 months previously was transcribed again and the two transcriptions were compared. The number of pairs of identical judgements was counted, also the number of pairs of judgements which differed by one reservation (i.e. a diacritic) and the number of pairs of judgements which differed by 2 reservations (i.e. used different diacritics) or by one slot (i.e. used adjacent basic symbols). In cases where in one transcription a monophthong was recorded and in the other a diphthong, the monophthong was treated as a sequence of two identical vowels which were compared with the two elements of the diphthong. A total of 124 comparisons was made. In

40 of these vowels were found to have been transcribed identically (e.g. [ɛ] in both transcriptions). In another 50 instances transcriptions differed by only 1 reservation (e.g. [ɛ̧] and [ɛ], or [8] and [ɔ̈]). In a further 21 cases, pairs of transcriptions differed by 2 reservations or 1 slot (e.g. [ɛ̈] and [ɛ̧], [ȩ̂] and [ȩ̂] or [A] and [Æ].

Expressed in percentages these figures indicate that in this experiment 32% of judgements were completely consistent, 73% of judgements were consistent to within one reservation, that is to within about a quarter of the auditory "distance" between adjacent Cardinal Vowels and 90% were consistent to within one slot, that is to within about half the auditory "distance" between adjacent Cardinal Vowels.

In a further 7 instances pairs of judgements differed by a slot and a reservation (e.g. [ɪ] and [ɛ̈] or [ɛ̧] and [E]. In 4 instances pairs of judgements differed by 2 slots (e.g. [ɛ] and [ɪ] or [ɒ] and [ɑ̃]. This latter example counts [ɑ] and [ɒ] as occupying separate though superimposed slots. In 2 cases differences between the two transcriptions could not be quantified in terms of the vowel chart. In both these cases one transcription had "syllabic [n] and the other [ə].

It should be remembered that in cases where judgements differed considerably these may well have been cases of the very difficult nature mentioned above, where, for example, the investigator felt he had a choice between 8 possible slots [ɪ], [e], [ɛ], [E], [Y], [ø], [œ̀], [Œ] and of course the 8 borderlines involved here. Had the investigator, faced with a fairly arbitrary decision here, settled in the first transcription for [I] and in the second transcription, eight months later, for [ê], then this difference in judgement would have been quantified, in the above comparisons, as a difference of as much as 3 slots. In fact no difference as great as this was recorded but the example shows how the forcing of decisions about vowel qualities by the grid of the vowel chart can result in some apparently quite large inconsistencies. One can do nothing but accept that such inconsistencies may occur. The percentages given above for the consistency of judgement in a trial passage, are, I think, adequate for the purpose of comparing the speech of individuals.

The passage upon which the experiment was performed was first transcribed very early on in the period over which the informants' vowels were transcribed and I have the feeling, although it is impossible to say just how, that similar experiments, carried out on passages transcribed somewhat later, might yield higher figures for consistency of judgement. "Practice makes perfect" and the investigator had the feeling that as he transcribed more and more vowels, so judgements became easier to make and he became more and more familiar with the mental processes involved in relating sounds to symbols.

One feature of realizations of vowel diaphonemes which the investigator has made no attempt to describe specifically is length. Vowel length is notoriously difficult to judge consistently and in this matter general statements about the "average" length of vowel realizations must suffice.

This concludes my general remarks about the symbolization and diagrammatic representation of vowels.

Phonetic symbols - contoids.

Plosives.

In the material plosives articulated in seven different places occur. At six of these places of plosion the investigator has distinguished between two basic types, lenis plosives and fortis plosives.

	bilabial	labiodental	dental	alveolar
lenis	[b]	[V]	[d̪]	[d]
fortis	[p]	[F]	[t̪]	[t]

	post-alveolar	velar	glottal
lenis	[ɖ]	[g]	[ʔ]
fortis	[ʈ]	[k]	

Several facts about some of these places of articulation should be mentioned. The labiodental plosives are found only in Ben's and Nan's speech. A complete oral closure is made with the lower lip and the upper teeth. The closure is then released. The upper lip has no part in the articulation and seems to be kept out of the way.

The dental, alveolar, and post-alveolar plosives are very similar auditorily and some overlapping of judgements may have occurred here. For example, a few plosives which are in fact dental may have been judged to have been alveolar and so forth. "Post-alveolar" here means articulated with the tongue-tip only just behind the teeth-ridge, certainly not curled back as far as a retroflex position. [t] and [ʈ] , [d] and [ɖ] have not been differentiated before the phonetic segments [ɹ] , [ʂ] and [ʐ]. It is probable that most apical plosives before these sounds are in fact post-alveolar and the symbols [t] and [d] should in this environment be taken to represent post-alveolar plosives. The symbols [ʈ] and [ɖ] have been used to denote post-alveolar plosives occurring before vocoids, e.g. [ɖɚ]. In this position the difference between them and the alveolar plosives [t] and [d] may be clearly heard rather than inferred from the nature of the following sound. "Velar" means articulated with the back of the tongue against the soft palate. The exact point of contact may vary considerably, being quite far back before [ɑ] and quite advanced before [j].

[b], [v], [d̺], [d], [ɖ], [g] all symbolize voiced lenis plosives unless modified by [̥] in which case they symbolize voiceless ("devoiced") plosives. What is meant here by a voiced lenis plosive is defined as follows:- following a period of silence or any phonetically voiceless sound and preceding a voiced sound, voicing must seem to begin not later than the release of the plosive. It is not insisted that voicing be audible while the stop is held as this is very difficult to hear in this position. Occurring between two voiced sounds voicing must take place throughout the closure, hold and release of the plosive. Following a voiced sound and preceding a voiceless sound or a period of silence, voicing must be

heard during the closure and at least part of the "hold" period.

What is meant here by a voiceless lenis or "devoiced" plosive is defined thus:- Following a period of silence or any phonetically voiceless sound and preceding a voiced sound, there is a very brief interval between the release of the plosive and the commencement of voicing. This voiceless interval or "puff of air" is of much shorter duration than that following an aspirated voiceless plosive. Occurring between two voiced sounds, voicing takes place during the closure and at least part of the "hold" period, but there is the same brief interval of voicelessness immediately after the release as described above. Following a voiced sound and preceding a period of silence, voicing occurs during the closure and at least part of the "hold" period, but the release is voiceless. Between a voiced sound and a voiceless sound, voiceless lenis plosives have not been differentiated from voiced lenis plosives. Thus, in a word like "absolutely" [b] and [b̥] are not differentiated. All lenis bilabial plosives in this word would be written [b] .

[p] , [F] , [t̪] , [t] , [ṭ] , [k] all symbolize voiceless fortis plosives. When modified by $[^h]$, they are fairly strongly aspirated. "Aspirated" here means followed by a short period of voiceless friction not local enough or strong enough to be represented by a fricative symbol such as [s] , [ʃ] , [x] , etc. - "cavity friction"

as Pike describes it. Before a vocoid this voiceless cavity friction may be said to be a brief voiceless anticipation of the quality of the vocoid. Before [w] and [j] it is a voiceless anticipation of the labio-velar and palatal qualities of these sounds. Before [l] and [ɹ] it corresponds to some slight degree of local lateral and post-alveolar voiceless friction respectively.

In the case of realizations of T the symbols $[t^s]$ have been used to denote both the strongly aspirated and the slightly affricated realizations. The pronunciation of the initial sound of "talk" in Cockney is often slightly affricated, more so than in RP, the tongue often moving away from the teeth-ridge somewhat slowly, resulting in a very brief [s] like sound after the release of the [t]. This affrication is in general so slight in my material that it was found very difficult to differentiate consistently over a long period of time between it and the fairly strong aspiration also generally used in realizations of T. Thus, a "blanket" category, embracing both strongly aspirated and slightly affricated plosives has been referred to in the case of realizations of T. In both affricated and aspirated realizations of T the period of voicelessness following the aprical plosive is of about the same length.

In descriptions of realizations of T before Y and R the superscript $[^s]$ is used to represent only fricative manner of articulation. Before vowels and each of these two semi-vowels the actual <u>place</u> of the fricative element of affricated realizations of <u>T</u> is different. It was found convenient to have a "blanket" symbol for all places of affrication when describing realizations of <u>T</u>. In descriptions of realizations of <u>R</u> and <u>Y</u> after affricated realizations of <u>T</u>, the symbols [ʂ] and [ʃ] have been used to denote the fricative sounds found there. These symbols accurately represent both manner and place of articulation.

Ben has a few examples of slightly affricated realizations of <u>T</u> in which the fricative element is voiced although the stop itself is voiceless. These have been symbolized [tᶻ] .

Modified by [˚] the voiceless fortis plosive symbols represent weakly aspirated plosives. "Weak" aspiration means that the duration of the voiceless cavity friction described above is very short.

Modified by [’] the voiceless fortis plosive symbols represent ejectives, articulated with glottal closure and pharyngeal air. Modified by a superscript fricative symbol, they represent affricates. (Fricatives are described below.)

The closures and hold periods of these voiceless fortis plosives are never accompanied by voice. In the unaspirated varieties the voicing of a following sound begins simultaneously with or immediately after the release.

It is admitted that the distinction between lenis and fortis plosives has not been applied with complete consistency in this study. Without in any way casting doubt onto the possibility of distinguishing between weakly and strongly articulated plosives, it must be said that the investigator found difficulty in making this distinction with any real confidence in the consistency of his judgement over a long period of time. For this reason, facts other than purely auditory ones have in some cases been taken into account when assigning a symbolization to a particular sound.

A general tendency was noticed for plosive realizations of B, D, Dh, G, to be lenis and for plosive realizations of P, F, Th, T, K to be fortis. Faced with the difficult differentiation between lenis and fortis plosives over a long period of time the investigator allowed these general tendencies to influence his judgement in particular cases. Thus, in certain positions, except in instances of clear exceptions, he generally used the symbols [b], [d̪], [d], [ɖ], [g] (with or without the modifier [̣]) for realizations of B, D, Dh, G and [p], [F], [t̪], [t], [ʈ], [k] (with or without modifiers) for realizations of P, F, T, Th, K.

In effect then the categories [p], [t̪], [t], [ʈ], [k] may overlap to some extent with those of [b], [d̪], [d], [ɖ], [g] and those of [p^c], [$t̪^c$], [t^c], [$ʈ^c$], [k^c] may overlap with [ḅ], [d̪̣] , [ḍ] , [ɖ̣] , [ġ]. It is in general true that sounds represented by the lenis symbols are less strongly ploded than those represented by the fortis symbols, but it cannot be guaranteed that any one sound represented by a lenis symbol will be more weakly ploded than all sounds represented by a fortis symbol. It was found impossible in practice to enforce such a clear-cut division.

These qualifications only apply, of course, where a plosive follows a voiceless sound, when the criterion of voicing cannot also be used to differentiate between the lenis and fortis plosives.

Two types of "nasalized plosive" occur in the material [b̃] , [d̃] . In these there is complete oral closure at the lips and the teeth-ridge respectively, but incomplete velic closure allows a small amount of air to pass through the nose. Not enough air escapes through the nose to prevent a slight pressure being built up in the mouth. When the oral closure is released the auditory effect is like a combination of, or half-way stage between, a voiced plosive and its homorganic nasal contoid. Voicing takes place throughout the articulation.

"Incomplete" plosives.

There are a number of sounds, found in alternation with the plosives described above, in which there is no complete oral closure, but in which the articulators approach each other closely enough for there to be the auditory impression of some contoidal articulation. It is fitting, I think, to refer to these in a general body as "incomplete" or even "lazy" plosives, although strictly speaking they are fricatives or frictionless continuants. There are three categories

	bilabial	alveolar	velar
voiced	[β]	[ḋ]	[ɣ]
voiceless	[ɸ]	[T]	[x]

In [β] the lips are brought close together and separated without ever making contact. The lips are not rounded as for [w] but rather in a "neutral" position. The degree of closeness of the lips varies, sometimes being close enough to form a weak fricative; more often the lips do not come close enough to form a fricative and the result is a bilabial voiced frictionless continuant.

A similar process takes place in the articulation of [ḋ] . The tongue-tip approaches the teeth-ridge but does not actually make contact with it. The tongue-tip gets about as near to the upper articulator as it does in [ɹ] , possibly sometimes a little nearer, but is not at all turned back and moves to a point somewhat further forward than in [ɹ] . Again, it is about as far away from the upper articulator as in very weak varieties of [ð] , but, of course, more retracted.

[ɣ] is produced very similarly, with the back of the tongue approaching the velum but not making contact with it. This sound is best described as a velar voiced frictionless continuant.

[ɸ] only occurs twice in the material and is a quite strong voiceless bilabial fricative.

[x] is quite common and is a voiceless velar fricative.

[T] is a voiceless alveolar fricative occurring mainly in Nan's speech as a realization of T. It is very similar to [s] and probably the categories judged by the investigator to be [T] or [s] overlap phonetically very considerably. It was felt that some voiceless alveolar fricative realizations of T were possibly not as grooved as most examples of [s] and such realizations of T were generally transcribed [T] .

[β] , [ɣ] are used in conjunction with [ʔ] to represent some realizations of P, K. In these instances the approach of the two articulators is simultaneous with the glottal stop, therefore strictly not wholly voiced. In these instances, the articulators may sometimes only come close enough to each other to produce, for example, a labialized glottal stop, or a velarized glottal stop.

[β] , [ḋ], [ɣ] occur sometimes after [s] and other voiceless fricatives. In such a position it is difficult to say whether they are wholly voiced. These symbols are never used, however, to represent wholly voiceless sounds. After [s] and other voiceless fricatives, voicing may not commence until after the articulators have taken up the positions described above but by the latter part of the sound there is always voicing.

Auditorily, the impression given by these sounds before a vowel is that of the transition from a voiced plosive to a vowel, without any actual plosion being audible.

Nasals.

Nasal contoids are formed at all points of articulation where plosives also are formed, except, of course, in the glottis. The investigator has undertaken no differentiation, however, between an alveolar and a post-alveolar nasal. This is because post-alveolar nasal contoids are likely to occur only before [ɹ] and in this position they are often obscured by the labialization which often accompanies [ɹ] . It is difficult to be certain whether such contoids really are post-alveolar or not.

Five nasal contoids are differentiated then:-

bilabial	labiodental	dental	alveolar	velar
[m]	[ɱ]	[n̪]	[n]	[ŋ]

In all of these there is complete oral closure and air passes through the nose. Voicing takes place throughout. It is possible that there are a few occasions when some air escapes through the mouth in the case of [ɱ] but not enough to alter the nature of the resultant sound perceptibly.

"Incomplete" nasals.

Just as there are "incomplete" plosives, so there are "incomplete" or "lazy" varieties of nasal contoid, found in variation with them. These are:-

[β̃] bilabial [n̊] alveolar [ɣ̃]velar

The articulators take the same positions as for [β,d̊,ɣ] but the soft palate is lowered and there is a resultant nasalization.

Fricatives

Under this heading I have grouped sounds articulated at eleven separate places. There are voiced and voiceless varieties of each.

	labio-dental	dental	alveolo-dental	alveolar	palatalized alveolar
voiceless	[f]	[θ]	[s̪]	[s]	[ᶊ]
voiced	[v]	[ð]	[z̪]	[z]	[ᶎ]
"weak voiced	[v̊]			[z̊]	

	post alveolar	alveolo-palatal	palatal	palato-alveolar	lateral	glottal
voiceless	[ʂ]	[ɕ]	, [ç]	[ʃ]	[ɬ]	[h]
voiced	[ʐ]	[ʑ]		[ʒ]	[ɮ]	[ɦ]

In general, the voiced fricatives are weak lenis, and the voiceless fricatives are strong fortis.

There are slight variations in the strength with which the voiced varieties are articulated, some being so weak as to be hardly fricatives but rather voiced frictionless continuants. [v̇] the voiced labiodental frictionless continuant may occur simultaneously with [ʔ] as a realization of F, Th. Here it is, strictly speaking, not wholly voiced.

An attempt has been made to differentiate between such "weak" fricatives and those of the stronger variety. Here it must be emphasized that the investigator does not have complete confidence in the consistency of his judgement. There may be cases of overlapping, i.e. sounds judged to be "weak" which at another time might have been judged "strong". "Weak" voiced fricatives do not occur at all places of articulation where fricatives occur.

[v, f, ð , θ , z, s, ʒ , ʃ] are as the sounds in RP for which these symbols are generally used: [ʒ], [ʃ] are somewhat more labialized than in RP. Nasalized varieties of [θ], [ð] also occur. These are articulated as for [θ] ,[ð] but with a slight lowering of the soft palate. These sounds are represented thus [θ̃] , [ð̃] . In [θ̃] a very slight degree of voiceless nasal friction is heard. In [ð̃] a degree of nasalization is perceptible in the voicing.

[z̪] and [s̪] are, voiced and voiceless respectively, fricatives articulated at a place intermediate between that for dental fricatives and that for alveolar fricatives.

They could be described either as advanced varieties of [z, s] or as retracted versions of [ð], [θ]. The tongue is more grooved, however, than for [ð], [θ].

[ʂ], [ʐ] are symbols used to represent post-alveolar fricatives. In these sounds the tongue-tip is curled back somewhat to a position just behind the teeth-ridge. The auditory effect of these sounds could be classified as "hushing" rather than "hissing" i.e. more like [ʃ], [ʒ] than [s], [z]. The pitch of the friction is lower than in the case of [ʃ], [ʒ].

[z̧], [ş] are sounds of a "hissing" nature, quite similar to [z, s]. They differ in that the pitch of the friction is a little lower than in [z, s]. I am not clear exactly how these sounds are articulated. The effect of such [s, z]-like sounds with low resonance may be achieved in two ways, as far as I can tell by kinaesthetic experimentation. Either the tongue-tip is curled back and up very slightly from the position for [z, s], or the tongue-tip is lowered from the position for [z, s] which seems to have the effect of directing the current of air at the base of the lower front teeth. In both cases there is some slight retraction of the blade of the tongue from the [z, s] position. After [z, s], [z̧, ş] seem closer in auditory effect to [ʐ, ʂ] than to any other sounds.

In this thesis "alveolo-palatal" refers to sounds rather similar to [ç], palatal fricative as in the German "ich". The blade of the tongue is somewhat more advanced than for [ç] and the tip is somewhat lowered. The auditory effect is that of a sound quite like [ç] but with some hints of an [s] -like quality. The tongue is not grooved. The pitch of the friction is quite high.

[ɬ] occurs infrequently in variation with [s] . It is a voiceless alveolar lateral fricative as in the Welsh "Llanelly".

[ɮ] is a voiced alveolar lateral fricative.

In addition to the above, one other fricative sound occurs in the material. It has been represented thus [f̂θ] . It is a "compromise" realization of the diaphoneme <u>Th</u> . It does not occur often, but on those occasions when it does, the investigator was able to recognise it quite consistently. The sound is a co-articulated labio-dental and dental voiceless fricative.

The investigator found no difficulty in differentiating [θ] and [f] consistently. More difficulty was experienced with [z̺] , [s̺] and [z] , [s] and it is probable that there is a certain overlapping of judgement here. Again, [z] , [s] and [ʐ] , [ʂ] were somewhat hard to differentiate consistently, and overlapping of judgement probably occurs here to.

[h] and [ɦ] represent voiceless and voiced glottal fricatives respectively. A nasalized voiceless glottal fricative [h̃] occurs. In this sound, air escapes through the mouth and the nose and a certain amount of

both nasal and glottal voiceless friction is heard. A nasalized voiced glottal fricative [ɦ̃] occurs in which the nasalization is perceptible in the voicing.

The modifier [̥] placed below a voiced fricative symbol such as [z̥] , [v̥] etc., indicates a "devoiced" fricative or voiceless lenis fricative. In general, sounds represented by voiceless fricative symbols [f] [θ], [s] etc., and which are the predominant realizations of F, Th, S, Sh are articulated with more force than the sounds represented by [v] [ð] , [z] etc., the predominant realizations of V, Dh, Z, Zh. Thus, when "devoicing" of these latter sounds occurs before a voiceless sound or a pause, there is still some difference between them and the voiceless sounds. [v̥] [ð̥] [z̥] etc., are in general articulated more weakly than [f], [θ], [s] . However, the investigator has not had complete confidence in his ability to differentiate consistently between voiceless fortis and voiceless lenis or "devoiced" fricatives over a long period of time and hence impressions of general tendencies which appear to operate in the material have been taken into account when transcribing particular occurrences of such sounds. These general tendencies are that realizations of F, Th, S, Sh are on the whole fortis and realizations of V, Dh, Z, Zh are on the whole lenis. Realizations of V* in "have to" and Z* in "used to" are on the whole fortis. Realizations of Z* in "supposed to" are on the whole lenis. Only in cases of clear exception have realizations been transcribed with symbols which contradict these general tendencies as, for example, in the case of Nan's [y] in "have to". Thus, there may be in the material realizations of Z*in "supposed to" which are very slightly more, or no less, fortis than some realizations of Z* in "used to", but such very slight difference and overlappings are not reflected in the transcriptions.

The same fricative symbols have been used as superscripts placed after plosive symbols to represent affricated plosives. In general, there was found to be a tendency for the fricative elements of affricated plosives realizations of T to be shorter in duration than simple fricative realizations of this and other diaphonemes. Length of a sound is a difficult quality to judge with any consistency over a long period of time. Consequently, the impression of a general tendency for fricative elements in affricated plosives to be shorter than other fricatives was accepted as fact and, but for cases of clear exception, the former were represented with a superscript symbol and the latter with a symbol "on the line".

Exceptions to this practice were:- [tʃ] and [dʒ] which were found as realizations of Ch, TY and J, DY respectively. In these sounds there was no perceptible tendency for the fricative element to vary in length according to what diaphoneme or sequence of diaphonemes it was a realization of. In these cases, the affricates were always represented by a plosive symbol plus a fricative symbol on the line.

Another exception to the practice was [t̪θ] which occurred as a realization of Th. The fricative element seemed in general to be of about the same length as a simple fricative [θ] realization of Th. Hence, voiceless dental affricate realizations of Th were consistently judged to be, and symbolized as [t̪θ] .

"Liquids"

In this class of sound the investigator has listed the following:-

labio-velar	palatal	post-alveolar	lateral	labio-dental
[w]	[j]	[ɹ]	[l]	[ʋ]

For [w] the lips are rounded and the tongue is in a position as for a high back vowel.
For [j] the back of the tongue approaches the palate as for a high front vowel.

These two sounds, perhaps more than any others depend for their recognition on the transition between them and a following vowel. Produced in isolation they are no more than short versions of high back rounded and high front unrounded vocoids respectively.

Often they are so short in duration that it is difficult to judge precisely what vowel quality they have.

For this reason, the nature of the transition from these sounds to a following vowel has been taken into consideration when defining them. In the case of [w] the transition must be from a brief vocoid of a closer and/or more retracted quality than the following vocoid, but in no case a vocoid more open than [ɔ] or more advanced than [ʊ] , [u] in as far as it is possible to judge. Some degree of labialization must be present in the initial brief vocoid.

In the case of [j] the transition must be from a brief vocoid of a closer and/or more advanced quality than the following vocoid, but in no case from a vocoid more open than [ɛ] or more retracted than [i], [ɪ], again, in as far as it is possible to judge.

[ɹ] is a voiced frictionless continuant formed by the slight retroflexion of the tongue to a point opposite just behind the alveolar ridge. There is sufficient gap between the articulators for there to be no friction. Some varieties of [ɹ] are very markedly labialized and I have the impression that the quality of this labialization is more labiodental than bilabial, there sometimes seeming to be almost a co-articulation of [ɹ] and [ʋ], [ʋ] being a labiodental voiced frictionless continuant. No attempt has been made to differentiate the labialized and non-labialized varieties of [ɹ] . It was found difficult to define a point in the continuum between these two varieties of which a satisfactory auditory memory could be kept for the purpose of consistent judgement.

[ɾ] is included with the class of sounds termed "liquids" because it is to be found most frequently in alternation with [ɹ] as a realization of R.

[l] is an alveolar lateral voiced frictionless continuant.

This completes the explanation of basic symbols used in this thesis to represent contoids.

Four diacritics have been used to modify the basic contoid symbols. These are [ʷ] to indicate simultaneous labialization, [˜] to indicate nasalization, [˙] to indicate particularly "weak" varieties of sounds and [̥] or [˚] to indicate "devoicing".

P

This diaphoneme occurs in such words as "pen, pub, pass, pudding, pick, posts, pears, please, perhaps, props, people, paper, open, happen, applies, couple, hoping, report, support, rope, type, soap, hope" etc.

Line 1. The position in which P occurs the most commonly is word initially. In this position before a stressed vowel or a semivowel plus stressed vowel, and also word medially before a stressed vowel or a semivowel plus stressed vowel except after S, by far the most common realization is [p^h]. In Ada and Nan it is the only realization. Jenefer has one example of [Φ] to 25 of [p^h]. Ben also has one example of [Φ] to 107 other realizations. In Ben, Stevie, Phil and Mark some unaspirated realizations, [p], are found. These are quite common in Ben, who has them in a ratio of roughly 1:2½ to examples of [p^h]. Phil has them in a ratio of roughly 1:21 to instances of [p^h]. The corresponding ratio in Mark is about 1:36 and in Stevie about 1:53. The ratios given for Phil, Mark and Stevie are based on only 3, 3 and 2 examples of [p] for each respectively. Nan, Ada and Jenefer have no examples of [p] in this position. Mark has one example of [b]. This was used utterance initially in the word "Please", shouted somewhat. Phil has one example of [k^h]. It is hard to explain why this sound should have been used as a realization of P.

Line 2. P* as in "half-past" when "past" is stressed, occurs in Mark once and is there realized as [ʔp]. This realization fits in with the patterns of variation of realizations of P found word finally stressed between vowels (see below) rather than those found word initially (Line 1).

(In the corpus the F* in "half-past" is always realized as zero so that the P* occurs between vowels.)

Line 3. Word initially and before an unstressed vowel or a semivowel plus unstressed vowel, and also word medially before an unstressed vowel or a semivowel plus unstressed vowel after any consonant except S or M, there is some slight evidence to suggest that in Stevie and Phil [p] is more frequent than before a stressed syllable. In this position Stevie has [p^h] 4 times and [p] twice, Phil has [p^h] twice and [p] once. Ben, Ada, Mark and Jenefer have a few examples of [p^h] only in this position.

Line 4. P* as in "half-past" when "past" is unstressed is realized in Mark once as [ʔp], fitting in with the patterns of variation of realizations of P found word medially and finally between a stressed and an unstressed vowel. Such is not the case in Ada who has one example of [p^h], conforming to the word initial pattern (Line 3).

Line 5. P* as only in "potato(e s) occurs 3 times. In Ada and Jenefer it is realized by each once as [p^h] conforming to their word initial patterns. In Nan it is realized once as zero as is also the following ə. The whole first syllable is "dropped".

Line 6. After S except when a & has been "dropped" from between the S and the P, there is only one example of an aspirated realization. This is in Ben who has 1 [p^{c}], a slightly aspirated plosive. For all individuals an unaspirated bilabial plosive [p] is by far the most common realization in this position. Nan, Stevie and Jenefer have nothing but [p], Ben, Ada and Mark have 1,1 and 2 examples respectively of [β] an "incomplete" unaspirated bilabial plosive.

Line 7. Word medial P after S when & between them has been "dropped" (realized as zero) occurs only 3 times and realizations appear to follow the pattern of the principal realizations of P shown on line 1. Ada has one example of [p^{h}] and Mark has 2. Example:- "supports" [sp^{h}ˈɔo͡ʔs].

Line 8. P* after S in "suppose, supposed" when the & between them is "dropped" as it is every time the word occurs in the corpus, has in Stevie, Ada, Phil and Mark realizations which conform to the patterns of variation of realizations after S when no & has been dropped (shown in line 6). They have, for the most part realizations of [p] with a few examples of [β]. Nan, however, on the one occasion when she uses the word, uses [p^{h}], characteristic of realizations in words other than "suppose, supposed" when a & has been "dropped" between S and P (shown on line 7). If a wider corpus yielded figures confirming that the few realizations counted here are typical of each individual, then one might conclude that the words "suppose, supposed" and probably also "supposing" were

	P in env.	BEN	PHIL	MARK	JENNIFER	ADA	STEVIE	NAN
1)	P(S)V́	75[p^h] 1[p^c] 32[p] 1[Φ] 1[F]	104[p^h] 5[p] 1[k^h]	108[p^h] 3[p]	25[p^h] 1[Φ]	80[p^h]	106[p^h] 2[p]	25[p^h]
2)	V́/P*V́ in "half past"			1[?p]				
3)	{/, C}P(S)V	4[p^h]	2[p^h] 1[p]	3[p^h]	1[p^h]	5[p^h]	4[p^h] 2[p]	
4)	V́/P*V in "half past"			1[?p]		1[p^h]		
5)	P* in "potatoes"				1[p^h]	1[p^h]		1 zero
6)	SP	8[p] 1[β] 1[p^c]		14[p] 2[β]	9[p]	26[p] 1[β]	29[p]	3[p]
7)	S&[zero]P			2[p^h]		1[p^h]		
8)	S&[zero]P in "suppose(d)"		4[p] 1[β]	1[β]	13 p	13[p] 1[β]	5[p]	1[p^h]

undergoing a change from pronunciations with [səpʰ] to pronunciations with [sp] with an intermediate stage between these two of pronunciations with [spʰ].

Line 9. Word medially and between a stressed and an unstressed vowel or a stressed vowel and a semivowel plus unstressed vowel and also word finally between 2 vowels regardless of stress, realizations of P show far wider variation than in positions described above, in all speakers except Ada and Jenefer. In this position Ada has 46 examples of [pʰ] and no other realizations; Jenefer has 4 examples of [pʰ] and no other realizations. In other speakers glottalized realizations [ʔp], [β̉], [ʔ], [p̉] and [pʔ] and voiced realizations [b] and [β] are found. Nan has examples of [pʰ] and [pᶜ] in a ratio of roughly 3:1 to these glottalized or voiced realizations. In Stevie the corresponding ratio is roughly 2:1. In Ben, Phil and Mark glottalized or voiced realizations easily preponderate over aspirated realizations. In them the ratio of aspirated realizations to glottalized and voiced ones is in Ben roughly 1:12 and in Phil and Mark about 1:8. These ratios are based on only 3 examples of aspirated realizations in each of them.

In speakers who use them glottalized realizations are far more common than non-glottalized voiced ones. Mark has none of the latter to 22 of the former. Ben, Phil, Stevie and Nan have 2 to 33, 2 to 23, 3 to 8 and 1 to 3 respectively of non-glottalized voiced realizations to glottalized ones.

Of these glottalized and non-glottalized voiced realizations, those with complete bilabial closure and those with incomplete bilabial closure are found in about equal numbers in Phil. Ben and Stevie use realizations with complete closure in a ratio of about 2:1 to those with incomplete closure. In Mark the corresponding ratio is about 6:1. The ratios given for Stevie and Mark are based on only 3 examples for each of realizations with incomplete closure. Nan has 4 glottalized or non-glottalized voiced realizations and bilabial closure is complete in all of them.

Ben's one example of [pʔ] is noteworthy as the only instance of a glottalized sound between vowels in which the glottal closure is released after the non-glottal, in this case bilabial, closure.

Mark has one example of [ʔ] with no accompanying labial action. It occurs medially in "proper" in the sentence "I speak proper Cockney". He may have been trying to demonstrate here what he considered an extreme Cockney pronunciation.

<u>Line 10</u>. In some individuals somewhat different patterns of variation to those described immediately above are apparent in realizations of <u>P</u> found word medially between <u>M</u> and an unstressed vowel or a semivowel plus unstressed vowel and word finally between <u>M</u> and any vowel.

However the differences between patterns of variation found here and those described immediately above are not of the same type for each individual. Furthermore there is not a great number of examples from which to generalize.

In Ben the pattern of variation found in this position differs from the intervocalic pattern described above hardly at all. There is one example of [ʔm], a realization which is not found elsewhere. His other pronunciations fit in with his pattern of variation in intervocalic position (line 9).

Phil has one example of [$\overset{ʔ}{\mathrm{p}}$] here which fits in with his pattern of variation in intervocalic position (Line 9).

Ada, who has no glottalized realizations intervocalically (Line 9), but only [p^{h}], has in this position one example of [$ʔ\mathrm{p}^{h}$], the only example of this realization recorded. It may be a "compromise" pronunciation, being a combination of [ʔ] and [p^{h}]. Ada has, in addition 3 examples of [p^{h}].

Stevie has no glottalized realizations in this position. He has 2 examples of [p^{h}] and 2 of [p]. This fits in with his pattern of variation found word initially before an unstressed syllable and word medially before an unstressed syllable after any consonant except S or M (Line 3).

Mark has 2 examples of [$\overset{ʔ}{\mathrm{p}}$] and 3 of [ʔ]. This is a pattern of variation found only in him in this position.

Nan and Jenefer have no pronunciations of P in this position.

Line 11. After a vowel or M and before a semivowel at the end of a word, when & between P and the semivowel has been "dropped", as often in "couple of", Ben, Stevie, Phil and Mark have pronunciations which fit in with their patterns of variation found intervocalically (Line 9). Ada, however, in whom there are no glottalized realizations in Line 9, has 4 glottalized realizations in this position to 6 nonglottalized ones $[p^h]$ and [p].

Nan and Jenefer have no realizations of P in this position.

Line 12. Word finally, after a vowel, semivowel or M and before a semivowel, glottalized realizations predominate in all individuals. Only one other realization, a single example of $[p^h]$ in Ada, occurs. Ada also has 6 examples of [ʔp].

Stevie and Ben have a few glottalized realizations with incomplete bilabial closure. In Nan, Ada, Phil and Mark realizations are all with complete bilabial closure. The figures here are, however, too small for any generalizations to be made.

Line 13. Between a vowel or semivowel and a consonant all realizations in all individuals are glottalized, either [ʔp] or [ʔβ], with one exception. The exception is one example of $[p^h]$ in Stevie. This is possibly due to an attempt to articulate particularly precisely.

The ratios of realizations with complete bilabial closure to those with incomplete bilabial closure are roughly: for Stevie 1:1, for Mark 1½:1, for Ada 2:1, for Nan 3:1, for Ben and Phil 4:1.

There are no examples for Jenefer.

Line 14. Between M and a consonant all individuals who have examples have examples only of [ʔp].

<u>Line 15</u>. Utterance finally there is variation between [p^h] and [ʔp]. In addition Mark has 2 realizations in which inward plosion can be heard as he gasps for breath immediately after a bilabial closure. These have been symbolized [ƥ].

Stevie has in this position 2 examples of [p^h], none of [ʔp]. In all other speakers realizations of [ʔp] outnumber those of [p^h]. In Mark they do so by 10 to 6, in Ada by 6 to 3, in Nan by 2 to 1, in Ben and Phil by 7 to 1 and in Jenefer by 2 to none.

	Ṽ in env.	BEN	PHIL	MARK	JUNEFER	ADA	ST.VI	NAN
9)	$\overset{\varphi}{V}\underline{P}$ {(S)V / $\overset{\varphi}{V}$	3[p^h] 20[ʔp] 2[$\overset{ʔ}{p}$]1[pʔ] 10[ʔβ] 1[b]1[β]	3[p^h] 13[ʔp] 10[ʔβ] 2[β]	3[p^h] 19[ʔp] 2[ʔβ] 1[ʔ]	4[p^h]	46[p^h]	21[p^h] 6[ʔp] 2[ʔβ] 2[b]1[β]	11[p^h] 1[p^c] 2[ʔp] 1[$\overset{ʔ}{p}$] 1[b]
10)	$\overset{\varphi}{V}\underline{MP}$ {(S)V / $\overset{\varphi}{V}$	1[p] 4[ʔp] 1[ʔm]1[ʔβ]	 1[ʔp]	 2[ʔp] 5[ʔ]		4[p^h] 1[ʔp^h]	2[p^h]2[p]	
11)	$\overset{\varphi}{V}$(M)PL/	 1[ʔp]1[β]	1[p] 3[ʔp]2[ʔβ]	 5[ʔp]		5[p^h]1[p] 4[ʔβ]	1[p^h] 1[ʔβ]	
12)	$\overset{\varphi}{V}$(M)P/S	1[$\overset{ʔ}{p}$]2[ʔβ]	2[ʔp]	4[ʔp]		1[p^h]6[ʔp] 1[$\overset{ʔ}{p}$]	1[ʔp]3[ʔβ]	1[ʔp]
13)	$\overset{\varphi}{V}\underline{P}$(/)C	30[$\overset{ʔ}{p}$]7[ʔβ]	22[$\overset{ʔ}{p}$]6[ʔβ]	18[$\overset{ʔ}{p}$]11[ʔβ]		26[$\overset{ʔ}{p}$]14[ʔβ]	9[$\overset{ʔ}{p}$]10[ʔβ] 1[p^h]	10[$\overset{ʔ}{p}$]3[ʔβ]
14)	$\overset{\varphi}{V}\underline{MP}$(/)C	2[$\overset{ʔ}{p}$]	3[$\overset{ʔ}{p}$]	1[$\overset{ʔ}{p}$]		4[$\overset{ʔ}{p}$]		
15)	$\overset{\varphi}{V}$(M)P,	7[$\overset{ʔ}{p}$]1[p^h]	7[$\overset{ʔ}{p}$]1[p^h]	10[$\overset{ʔ}{p}$]6[p^h] 2[β]	2[$\overset{ʔ}{p}$]	6[$\overset{ʔ}{p}$]3[p^h]	2[p^h]	2[$\overset{ʔ}{p}$]1[p^h]

<u>T</u>

This diaphoneme occurs in such words as "tea, ten, twenty, time, attack, detective, between, true, stories, strength, stupid, matter, better, natural, lecturer, features, stopped, knocked, first, left, wished, not, got, hot, learnt."

<u>Line 1</u>. Word initially and medially, before a stressed vowel or <u>W</u>, <u>R</u>, <u>Y</u> plus a stressed vowel+ and after any diaphoneme except <u>S</u>, by far the most common realization of <u>T</u> is [t^s]++. In Phil, Mark, Jenefer, Ada and Stevie [t^s] is the only realization in this position. Nan has one [d] to 30 [t^s]'s and Ben has one [d] and 4 examples of [t^z] to 110 [t^s]'s.

<u>Line 2</u>. A special diaphoneme has to be postulated to account for the medial sound of "V́(N)téen" when the final syllable is stressed. Ada, Stevie and Nan have only [t^s] here and their pronunciations are thus consistent with those of <u>T</u> before a stressed vowel in other words, as shown in line 1. Ben, Phil and Mark however treat the

---

\+ No examples occur in the material of words such as "outrageous". If such words occurred they might well be pronounced with [ʔ] before the <u>R</u> and separate statements would have to be made to account for the probable difference in treatment between the <u>T</u> of, for example, "atrocious" and that of "outrageous". Such statements would probably involve reference to environment in terms of morphemic boundaries.

++ The symbol [^{s}] used either as a superscript to [t] or by itself is not an "ultimate" phonetic constituent in that it is intended to symbolize only fricative <u>manner</u> of articulation and not any specific <u>place</u> of articulation. The place of articulation is post-alveolar before <u>R</u>, palato-alveolar or alveolo-palatal before <u>Y</u> and alveolar elsewhere. For more detailed descriptions see under <u>R</u> and <u>Y</u>.

T* in V́(N)téen differently. In them glottalized realizations [ʔt] and [ʔ] easily preponderate and there is only one example of [t^s], in Mark. This one [t^s] occurred in somewhat unusual circumstances as Mark was at the time giving a commentary on an imaginary football match - "Quickest goal of the season - seventeen seconds!" Mark may here be imitating the pronunciation of a radio commentator. Mark's other 8 realizations are all [ʔ]. Ben's and Phil's realizations are all [ʔt]. For these three then, realizations of T* in V́(N) "téen" conform broadly to their patterns of variation found word medially between a stressed and an unstressed vowel (line 21) or between a stressed vowel plus N and an unstressed vowel (line 15). There are only three examples in the material of V́(N)"teen" (i.e. final syllable unstressed) and pronunciations in these conform to the normal intervocalic patterns and have been included with them on lines 15 and 21. There are no examples of "---teen" in Jenefer.

Line 3. Word initially or after any voiced, non-nasal consonant and before an unstressed vowel or a semi-vowel plus unstressed vowel, T is realized consistently by Phil, Mark, Ada, and Stevie as [t^s], in conformity with their patterns of variation before a stressed vowel (line 1). Ben, Nan and Jenefer have no examples of T in this position.

Line 4. Word finally after P or K and before a stressed vowel, as for example, in "baked up", Phil, Mark, Jenefer, Ada and Stevie use [t^s] consistently as a realization of T, just as in the environments shown in lines 1 and 3. Ben, however, has 4 unaspirated realizations

[t] in this position to 2 examples of [t^s], whereas he has only 5 unaspirated realizations [t^z] and [d] to 110 examples of [t^s] word initially and medially before a stressed vowel (line 1). Nan has no examples of <u>T</u> in this position.

<u>Line 5</u>. Word finally or medially after <u>P</u> or <u>K</u> and before an unstressed vowel as in "cooked a" or "captain", the tendency to use unaspirated realizations observed in Ben in line 4 above is very marked and there is some slight evidence of a similar tendency in Phil and Mark. Ben has 10 [t]'s to 2 [t^s]'s and 3 zero realizations in this position. Phil has one slightly aspirated realization [t^c]. Mark has one [t] to 5 [t^s]'s. Jenefer, Ada, Stevie and Nan in this position also have no realizations but [t^s].

<u>Line 6</u>. 14 of the 26 realizations recorded in this line occur in the word "actually" and 10 in the word "pictures". The other two occur in "fact you" (Stevie) and "lecturer" (Jenefer). Both of these are pronounced with affricates as are most of the examples of "actually". Ada has however 5 fricative realizations [^{s}] (see footnote to page 200) to 4 affricates [t^s] in "actually". [ˊæʔʃlɪ], [ˊˀakʔtʃəlEɪ]. Words spelt with "tu" in orthography, such as "actually, lecturer, feature, pictures, adventures" have been spelt diaphonemically with <u>TYUe</u> because it was felt that they might occasionally, though admittedly in rather "posh" pronunciation, be pronounced with [tj]. On the evidence of the present material they could just as well have been spelt diaphonemically with <u>Ch&</u>. The 10 examples of "pictures" occur in Mark and Phil. In 7 of Phil's 9 examples the <u>K</u>* is realized as zero, the word being

pronounced [p^hɪʧɪ z]. Here an arbitrary decision has been made concerning the ordering of the transformational type rules which are in essence comprised in the lines of these tables. The rule T in env. KTY - [t^s] precedes the rule for the "dropping" of the K. The facts would have been just as well accounted for if these two rules had been ordered the other way around. We should just have had to consider 7 of Phil's examples of TY in "pictures" as being in an intervocalic environment rather than being preceded by K.

The actual pronunciations recorded, [t^s] in every case, are consistent with the patterns of variation found in either environment (see line 23). Ben and Nan have no examples of T in this position.

Line 7. Word-medially after S and before a stressed vowel or semi-vowel plus stressed vowel (as in "strong, straight, Australia, stupid"), unaspirated realizations [t] predominate in all individuals. A few other realizations [t^s], [t^c], [d̊] and zero occur. Of these, zero occurs only in Ben, [d̊] only in Ben, Phil and Mark and [t^s] only in Mark. [t^c] is relatively more common, occurring in all speakers and in Nan, Ada and Jenefer more than half as many times as [t]. The approximate ratios of aspirated realizations [t^s], [t^c] to unaspirated ones [t] [d̊] and zero are:- in Ada and Nan 1:1½, in Jenefer 1:2, in Ben and Mark 1:7, in Phil 1:10 and in Stevie 1:23.

Line 8. Word-medially after S and before an unstressed vowel realizations of T̲ are in Ben, Jenefer and Nan not significantly different from their realizations before a stressed vowel. The approximate ratios of aspirated to unaspirated realizations are in them respectively 1:8, 1:1½ and 1:2½. In Phil, Mark, Ada and Stevie aspirated realizations are relatively somewhat more common than before a stressed vowel and in fact in Ada slightly aspirated realizations [t^c] outnumber unaspirated ones [t] in this position. The approximate ratios of aspirated realizations to unaspirated ones are:- in Ada and Mark 1:1, in Phil 1:2 and in Stevie 1:10. Nan has one example of [s], a continuation of the [s] realization of the S̲ in "sisters" [sIs.əz].

It should be borne in mind that in general the aspiration mentioned with reference to lines 7 and 8 is <u>slight</u> aspiration symbolized by [^{c}].

<u>Line 9</u>. Jenefer and Ada have 1 and 4 examples respectively of word-medial T̲ following S̲ when an intervening vowel has been "dropped". These are in "university" and "certificate". Of these 5 examples, 1, in Ada, is pronounced with [t], conforming to the general pattern of realizations after S̲; the others are realized as [t^s], fitting in with the intervocalic pattern of variation (lines 21 and 24) "university" [jÝnɪvə́:st^{s}ɛ] "certificate" [stɪ́vɨgɛʔ].

<u>Line 10</u>. This line shows pronunciations of the diaphonemic sequence <u>T*&*</u> as only in "yesterday". The realizations of S̲ and D̲ in "yesterday" are normal - [s] and [d] or [ḋ]. The sounds shown on line 10 occur between these realizations of S̲ and D̲. Where [s]

is given as a realization of <u>T*&*</u> this means that the word is pronounced with an especially long [s:] e.g. [jÉs:dƐ]. In this sequence the first half of the fricative [s] is interpreted as a realization of <u>S</u>, the second half as a "shared" realization of <u>T</u>* and <u>&</u>* and the [d] is analysed as a realization of <u>D</u>. Ben, Phil and Mark have only pronunciations of this kind, Ada has 2 and one with [t^c] which conforms to her pattern of variation shown in the environment <u>STV</u> in words other than "yesterday". (line 8). There are no examples in Jenefer, Stevie and Nan.

<u>Line 11</u>. shows word medial realizations of <u>T</u> after <u>F</u> and before an unstressed vowel, as in "after, fifty". Pronunciations of "fiftéen" (last syllable stressed) have also been recorded in this line as the patterns of variation found in it (Ben [t] twice, Ada [t^c] and [t] once each) are similar to the patterns found in other words between <u>F</u> and an unstressed vowel and not similar to the patterns found before a stressed vowel (line 1). It is interesting that <u>T</u>* before a stressed vowel in "thírtéen, fóurtéen, sévéntéen, éightéen, níneteén" (line 2) was also treated as if before an unstressed vowel by Ben, Phil and Mark.

Between <u>F</u> and an unstressed vowel <u>T</u> has realizations which are in general much less aspirated than between voiced non-nasal consonants and an unstressed vowel (line 3) and somewhat more aspirated than between <u>S</u> and an unstressed vowel (line 8). As after <u>S</u>, Ada has relatively more aspirated realizations than the other individuals, with 10 [t^c]'s to 1 [t]. In other speakers the approximate ratio's of [t^c] and [t^s] to [t] and zero are in Phil 3:1, in Mark 2:1, in Ben 1:1½ and in Stevie 1:2. Nan has 3 [t]'s and no other realizations. There are no examples in Jenefer.

Line 12 shows word-final realizations of T after F, Th, S, Sh, Ch and before a vowel regardless of stress. Many of these occur in past-participle forms e.g. "asked him". All speakers except Nan and Stevie have roughly the same number of aspirated as unaspirated realizations and their "average" realization is [t^c], since in the case of Phil, Mark, Jenefer and Ada, this is the most frequent realization and in Ben's case, though not the most frequent realization it lies phonetically between the more common realizations [t^s] and [t]. Nan has 4 [t]'s and 2 zeros to 1 [t^s] and Stevie, in whom unaspirated realizations are less common in many positions (see lines 7,8,11) has 22 [t] and 2 zeros to 1 [t^c]. Stevie and Nan are the only two speakers who have zero realizations of T in this position. Examples "almost applies" [ό:mɐʊsəp^h lɑ́əz], "East End" [ί:stÉnd] "missed about" [mίst^{c}əbέ:ʔ].

Line 13 shows realizations of T word-finally after F, Th, S, Sh, Ch and before Y. Again these are found frequently in past-participles, e.g. "asked you". Ben has one [t^s] and [t^s] is also the most frequent realization in Jenefer and Ada. [t^c] is the most common realization in Mark. Phil has 2 zero realizations. Zero realizations are found in Phil, Mark, Jenefer and Ada and are more frequent in this position, between a voiceless fricative and Y than between a voiceless fricative and a vowel. This comparative

T in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
V́(S), CxS } T(SxL)V́	110[t^s]4[t^z] 1[d]	119[t^s]	139[t^s]	39[t^s]	155[t^s]	106[t^s]	30[t^s] 1[d]
2) T* in V́(N)téen"	5[?t]	2[?t]	1[t^s]8[?]		2[t^s]	1[t^s]	1[t^s]
3) Cbz } T(S)V		4[t^s]	5[t^s]		9[t^s]	6[t^s]	
4) P/K } T/V́	2[t^s] 4[t]	1[t^s]	2[t^s]	2[t^s]	3[t^s]	2[t^s]	
5) P/K } T(/)V	2[t^s]10[t] 3 zero	1[t^c]	5[t^s]1[t]	1[t^s]	13[t^s]	11[t^s]	3[t^s]
6) P/K } T(/)YV		9[t^s]	1[t^s]	4[t^s]	5[t^s]5[^{s}]	2[t^s]	
7) ST(S)V́	4[t^c]24[t] 5[d̊] 1 zero	2[t^c]18[t] 2[d̊]	2[t^c]20[t] 1[d̊] 1[t^s]	5[t^c]11[t]	19[t^c]31[t]	1[t^c]23[t]	4[t^c] 6[t]
8) STV	1[t^s]5[t] 2[d̊]1 zero	1[t^s]1[t^c] 4[t]	1[t^s]5[t^c] 7[t]	1[t^s]1[t^c] 3[t]	11[t^c] 9[t]	1[t^s] 8[t]2 zero	2[t^c] 4[t]1[s]
9) $S_{[zero]}$ V́ TV				1[t^s]	3[t^s]1[t]		
10) T& in "yesterday"	1[s]	4[s]	3[s]		1[tə]2[s]		
11) FTV and T*V́ in "fifteen"	3[t^s]1[t^c] 5[t]1 zero	1[t] 3[t^c]	6[t^c] 3[t]		1[t] 10[t^c]	2[t] 1[t^c]	3[t]
12) CsT/V́	2[t^s]1[t^c] 3[t] 2[d̊]	1[t^s]3[t^c] 3[t]	1[t^s]5[t^c] 6[t]	1[t] 2[t^c]	1[t^s]5[t^c] 8[t]	1[t^c] 22[t]2 zero	1[t^s] 4[t]2 zero
13) CsT/YV́	1[t^s]	2 zero	4[t^s]7[t^c] 1[t]4 zero	3[t^s] 1 zero	2[t^s]1[t^c] 1[t]1 zero		

frequency of zero may possibly be attributable to some ambiguity which may be felt concerning the phonological status of Y. Should it be treated as a vowel or a consonant? (Forgetting for a moment the phonologist's on-the-fence category of semi-vowel.) It has been found that between a voiceless fricative and W, L, R T is realized on all occasions but one as zero and that these semivowels have the same effect on T preceded by a voiceless fricative as do consonants (see line 41). The zero realizations of T between voiceless fricatives and Y may represent a slight tendency towards treating Y as a consonant. The preponderating apical plosive realizations however may be interpreted as reflecting a still stronger counter-tendency to treat Y as a vowel. The apical plosives which occur are in general more aspirated and affricated than between a voiceless fricative and a vowel (line 12).

Examples: "next year" [néʔkst^{c}ɟɪ́ə], "last year" [lɑ́ːʃtʃəɹ], "first year" [fÉːʃ ɪ́ː].

Line 14 shows realizations of T between M and an unstressed vowel. Ben's 2 examples are in the word "empty" and Phil's, Mark's and Ada's examples are in the word "sometimes". Where the second syllable of "sometimes" is stressed T is realized consistently as [t^{s}] and these realizations of T have been included in line 1. An enlarged corpus might reveal differences between the treatment of T in "empty" and "sometimes". The two have been "collapsed" here to save space.

Ada's one [t^{s}] is consistent with both her pattern of variation shown in line 3 and that found between N and an unstressed vowel (line 15) and one cannot tell from this one example whether she treats T in the environment MTV similarly to T in the environment NTV or to T in the environment Cbz(/)TV. Mark's one example of [ʔ] fits in with his pattern of variation of T in the environment NTV (line 15). Phil has two examples, one of which, [ʔ], fits in with his NTV pattern (line 15) and not with his Cbz(/)TV pattern (line 3). His other realization, [t^s], fits in with the latter pattern, but not with the former. Ben has one pronunciation of "empty" with [mt^s] and one with [$m\text{ʔ}t^c$]. One cannot tell whether the [ʔ] in the latter pronunciation is a realization of a P in "empty" or part of a glottalized realization [$\text{ʔ}t^c$] of the T. On the one hand, aspiration, even slight, is rare in combination with glottalized plosives, but on the other hand Ben's other pronunciation with [mt^s] has no (or a zero) realization of P.

Line 15 shows the variation in the realizations of word medial T between N and a vowel. Realizations of T in "nineteen" (last syllable unstressed) have been included in this line as they conform to the same patterns of variation as those of T in a similar environment in other words. The variation shown in this line is between nonglottalized aspirated or unaspirated plosives, glottalized plosives, glottal stop and zero. There is no variation in Nan. She has only [t^s] 7 times. Of the three categories of realization, glottalized, non-glottalized and zero, Ada and Jenefer definitely favour the non-glottalized over the glottalized by about 4 to 1. Ada has one zero realization, Jenefer none. Ben favours glottalized and non-glottalized realizations about equally and zero about half as much as each. Of Ben's non-glottalized realizations only half are aspirated whereas in the other speakers in which they occur all non-glottalized realizations are aspirated. Stevie favours glottalized and non-glottalized realizations about equally and zero about twice as much as each. Phil favours glottalized and zero realizations about equally and has no non-glottalized realizations. Mark favours glottalized over non-glottalized and zero realizations by about 3 and 7 to 1 respectively. In all speakers except Phil and Nan, there are relatively far fewer glottalized realizations of word medial T between N and a vowel than of word medial T between two vowels (lines 21 and 24). In Phil and Nan, the patterns of variation are very roughly the same in each environment, Phil having predominantly glottalized realizations and Nan having only non-glottalized realizations.

Examples:- "twenty" [t^{s}wˈɛʔɪ], [t^{s}wˈɛ̃nʔte], [t^{s}wˈɛ̃nɪ] [t^{s}wˈɛ̃t^{s}ə̂].

Line 16 shows word-medial realizations of T between N and R plus an unstressed vowel, as in "country". The patterns of variation here differ from those found between N and an unstressed vowel chiefly in that here, between N and R plus an unstressed vowel, there are no zero realizations. Another, slight, difference is that in this position glottalized realizations are possibly less common in Mark, Jenefer, Ada and Stevie than in the environment referred to in the previous line. Mark, Jenefer and Stevie have only [t^s] in this position. Ada has 3 [t^s]'s and one unusual combination [ʔt^s]. Nan has only [t^s] as also in the position referred to in the previous line. In Ben and Phil the relative frequencies of glottalized and non-glottalized realizations are about the same in each environment. Ben has roughly the same number of each and Phil has no non-glottalized realizations in either environment.

Line 17 shows the variation in the realizations of word final T between N and a vowel. Here zero and glottalized realizations easily preponderate over non-glottalized realizations, of which there is only one example, [t^s], in Nan who also has one zero realization. Mark has 2 zero realizations only. Stevie and Phil have glottalized and zero realizations in roughly equal numbers, and Ben and Ada have only glottalized realizations. There are no examples for Jenefer.

Lines 18 and 19. A special diaphoneme T* has to be postulated to account for the variation between [ʔ],[t^s] and zero finally before a vowel in "went,want" and "---n't". In these forms zero is by far the most common realization in all individuals, outnumbering the other sounds by 213 to 4. Nan has 1 [t^s] and Phil, Mark and Jenefer 1 [ʔ] each.

Line 20 shows the realizations of word final T between N and Y. Realizations of T* as only in "went, want, ---n't" have also been included in this line and in fact account for the bulk of the figures. In general [t^s] is far more common in this environment than word-finally between N and a vowel (line 17), where glottalized and zero realizations are by far the most common. Here, in Phil, Ada and Ben [t^s] easily preponderates: in Jenefer and Mark [ʔ] is the most frequent realization, although Jenefer's one example is not enough to lead to any firm conclusions, and in Stevie zero is more common than other realizations. There are no examples for Nan.

Line 21 shows realizations of word medial T between a stressed and an unstressed vowel as in "bitter, better". An occurrence of "eighteen" (last syllable unstressed) has also been included in this line, as its pronunciation, with [ʔt] by Ben, fits in with the patterns of variation found generally between a stressed and an unstressed vowel.

Use of [ʔ] in this environment is a well-known characteristic of Cockney, and may, like the use or omission of [h] be very sensitive to subtle changes in a speaker's attitude to his speech, such as sudden self-consciousness or pretentiousness. The headmaster of Mark's school used the difference between [ˈbɐtˢə] and [ˈbɐʔə] to illustrate to me how the parents of boys at his school could, if they wished, speak "posh". In addition to the variants [ʔ] and [t^s], voiced realizations [d] and [ḋ] and glottalized realizations [ʔt] also occur in Ben, Phil and Stevie. Zero realizations, which may be regarded as the ultimate in "lazy" varieties of [ḋ] or [ʔ] occur in Ben and Mark. Nan has two voiceless alveolar fricatives [T].

Thus there is in Ben, Phil and Stevie what might be called "three-way variation", i.e. between 3 categories of realization, voiceless-[t^s], voiced-[d] and [ḋ] and glottal(ized)-[ʔ] and [ʔt]. Such three-way categorization is only a crude aid to comparison between speakers, and is based on the phonetic characteristic of realizations. Judging by distributional criteria [ʔt] might be said to "belong" with [d] and [ḋ] rather than with [ʔ] as the only 3 speakers who use [ʔt] are also the only 3 to use [d] and/or [ḋ]. All speakers except Nan use [ʔ]. As a compromise between categorizations on phonetic and distributional grounds we can halve the figures for [ʔt] and allot half each to the voiced and glottal(ized) categories. Seen in this way Phil and Stevie both strongly favour the glottal(ized) category over the others. Stevie has voiced and voiceless realizations in roughly equal quantities and Phil has about twice as many voiced realizations as voiceless ones. Ben has glottal(ized) and voiced realizations in equal numbers and realizations in each of these two categories are about six times more frequent than those in the voiceless category.

Mark, Ada and Jenefer have two-way variation, between [t^s] and [ʔ]. In Mark [ʔ] easily outnumbers [t^s] by 66 occurrences to 1. In Ada [ʔ] predominates by a narrower margin, about 7 to 5, and in Jenefer [t^s] predominates by 5 occurrences to 3.

Nan has no variation between these categories, only within one category, the voiceless one.

Mark's one example of [t^s] is in the word "Latin", which he elsewhere pronounces twice with [ʔ]. This is a word he is most likely to come in contact with in talk about his sister's school work and which consequently may have rather "posh" associations for him. 4 examples of [ˈɪtˢɑː] "ita", the Latin word for "yes", occur in Mark and have not been included in this line, constituting as they do a fine example of how words borrowed from other languages may be pronounced according to phonological rules quite different from those which normally operate in the speaker's own language. This is in fact an odd case of a Latin word, with an RP pronunciation, being borrowed into Cockney.

Examples: "matter" [ˈmatˢə], [ˈmɛə], "better" [ˈbɛʔtə], [ˈbɛ̈də], [ˈbɛ̈də], [ˈbɛtˢə], [ˈbɛʔə].

Line 22 shows realizations of T*ə* as only in "Saturday". This word has been treated separately from those above since in it the vowel after the T is frequently "dropped" and pronunciations such as [ˈsæd: ɪ], [ˈsaʔdɪ] occur. This frequent "dropping" of ə does not appear to have any effect on the realizations of the preceding T, in the speakers who have examples of "Saturday" in the material. Realizations shown on this line all fit in with the patterns of variation shown in the previous line.

Line 23 shows realizations of word-medial T between any vowel and Y or R followed by an unstressed vowel, as in "features, amateur, fortune, poetry". In fact only 3 of the examples included in this line occur before R. Ada's [ʔtˢ] is one of these. All the other 12 examples occur before Y. A wider corpus might reveal differences between the treatment of T before Y and T before R, but in the absence of any evidence of this the figures for both environments have been included in this line. In "amateur" there is variation between [ˈæmɪtʃə] (Stevie) and [ˈæməʔtə] (Ben). The word is spelt diaphonemically AM&TY& and the rule for the "dropping" or otherwise of the Y precedes the rules for the realization of T. Thus for Ben's pronunciation, realizations of T in "amateur" occur intervocalically and are recorded in line 24. For Stevie's pronunciation, realizations of T in "amateur" occur between a vowel and Y and are shown on this line.

In this position [t^s] is easily the most common realization. There is in fact only one other realization, [$ʔt^s$], in Ada. A wider corpus might reveal a few other realizations. There are no examples in Nan, only 1 each in Phil and Jenefer and only 2 each in Ben and Ada. Mark has 3 examples and Stevie 6. But even a comparison of these small figures with those in lines 21 and 24 shows how in all speakers (except Nan, for whom there are no examples) [t^s] is far more common in the environment $V\underline{T}\left\{\begin{matrix}\underline{Y}\\\underline{R}\end{matrix}\right\}V$ than in the environment $V\underline{T}V$, where voiced and glottal(ized) realizations prevail.

Line 24 shows realizations of word-medial T between two unstressed vowels as in "charity, hospital, property" and "little " (first syllable unstressed). In this environment there is again three-way variation, [t^s], [d], [ʔt] and [ʔ] all occurring. Comparison of these figures with those in line 21 shows a proportionately higher number of voiced realizations [d] in this position than after a stressed vowel, in Ben, Phil, Ada and Nan. In Ben, Phil and Nan [d] is the most common realization. Indeed in Ben [d] outnumbers the only other realization [ʔt] by 10 to 1. Ada has [t^s] and [d] in equal numbers, each outnumbering [ʔ] by 3 to 1. In Stevie the proportions of voiced, voiceless and glottal(ized) realizations are about the same as after a stressed vowel (line 21) with some slight decrease in the number of glottal realizations [ʔ]. Jenefer has 1 [ʔ], not enough evidence on which to base firm conclusions, but if this is a "typical" pronunciation, then Jenefer has relatively more glottal(ized) realizations in this position than between a stressed and an unstressed vowel (line 21). Mark's 2 instances of [t^s] beside only 4 of [ʔ] in this position are somewhat surprising as the tendency in other speakers (except Stevie) is to use less voiceless realizations [t^s] here than between a stressed and an unstressed vowel. (In Stevie distribution of realizations in both environments is roughly the same). Mark's 2 [t^s]'s both occur in "arithmetic". It may be that this word has the option of a stress on the last syllable, like "seventeen" and that this influences the choice of T̲ realizations. Or it may also be that the word is one which has rather formal, scholastic connotations for Mark, who has probably heard the word used more at school by his vaguely RP-speaking teacher than at home by his Cockney parents and friends. Compare the remarks made above about Mark's [t^s] in "Latin".

T in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
14) MTV	1[t^s]1[ʔt^c]	1[t^s]1[ʔt]	1[ʔ]		1[t^s]		
15) VNTV	4[t^s]3[t] 1[d]3 zero 3[ʔt]4[ʔ]	5 zero 3[ʔt]4[ʔ]	5[t^s] 2 zero 1[ʔt]13[ʔ]	4[t^s] 1[ʔ]	13[t^s] 1 zero 3[ʔ]	3[t^s] 7 zero 1[ʔn] 1[ʔt]2[ʔ]	7[t^s]
16) VNTRV	1[t^s]1[t^c] 1[ʔt]1[ʔ]	6[ʔt]	1[t^s]	1[t^s]	3[t^s] 1[ʔt^s]	2[t^s]	2[t^s]
17) VNT/V	2[ʔt]	1[ʔ] 1 zero	2 zero		3[ʔ]	2[ʔt]5[ʔ] 5 zero	1[t^s] 1 zero
18) "went" "want" } V	3 zero	6 zero	4 zero		10 zero	5 zero	2 zero 1[t^s]
19) "...n't V	35 zero	24 zero 1[ʔ]	27 zero 1[ʔ]	6 zero 1[ʔ]	62 zero	26 zero	3 zero
20) NT(*)/Y	7[t^s]1[d^z] 1 zero	7[t^s]	1[d^z]4[ʔ] 2 zero	1[ʔ]	15[t^s] 2 zero	1[t^s]1[ʔ] 3 zero	
21) VTV	3[t^s]15[ʔt] 11[ʔ] 7[d] 4[d]3 zero	3[t^s]5[ʔt] 16[ʔ]3[d] 1[d]	1[t^s] 66[ʔ] 3 zero	5[t^s] 3[ʔ]	25[t^s] 35[ʔ]	9[t^s]3[ʔt] 36[ʔ]4[d] 2[d]	12[t^s]2[T]
22) T& in "Saturday"	3[d]	1[ʔə]	1[ʔə]		1[t^sə]1[ʔə]1[ʔ]	1[ʔ]	
23) VT{Y/R}V	2[t^s]	1[t^s]	3[t^s]	1[t^s]	1[t^s]1[ʔt^s]	6[t^s]	
24) VTV	10[d]1[ʔt]	2[d] 1[ʔt]	2[t^s]1[d] 4[ʔ]	1[ʔ]	3[t^s]3[d] 1[ʔ]	2[t^s]2[d] 6[ʔ]	1[t^s]2[d]
25) VT/V	3[t^s]9[ʔ] 10[ʔt]8[d] 8[d] 1 zero	1[t^s]16[ʔ] 3[ʔt]6[d] 2[d] 2[ɹ]	54[ʔ] 1[ɾ]2 zero	1[t^s]10[ʔ]	3[t^s]67[ʔ] 5 zero	2[t^s]20[ʔ] 1[d]	1[t^s]1[ʔ] 4[d] 7[d]

Lines 25, 26 and 27, show word-final intervocalic realizations of T. No significant differences in patterns of variation are to be observed under different conditions of stress of the surrounding vowels. The lines have been kept separate in order to demonstrate the great influence on realizations of T of a word boundary before a stressed vowel. Realizations of T before a stressed vowel where no word boundary intervenes are recorded in line 1 and there all but 6 of the 704 realizations are [t^s]. Not all realizations shown on line 1 are intervocalic, but probably somewhere in the region of half of them are and there is no difference between intervocalic and other patterns of variation shown in line 1. Where a word boundary intervenes between intervocalic T and a stressed vowel (line 25) only 11 out of 254 realizations, over all speakers, are [t^s]. This influence of word boundary does not operate in the phrase "at áll" (second syllable stressed) (line 26). 5 examples of "at áll" occur and all are pronounced with [t^s]. This must be taken as an indication that my informants regard "at áll" as a single word, stressed on the second syllable, like "attack". A conclusion of this sort is an example of the type of "emic reworking" which is prescribed by Pike in a passage quoted in the theoretical introduction to this thesis (see p 110).

A similar paucity of examples of [t^s] is found word-finally and intervocalically before an unstressed vowel (line 27). Here, of course, the difference between realizations of word-medial (lines 21 and 24) and word-final T is less great as all speakers except

Nan and Jenefer favour other realizations, such as [ʔ], [ʔt], [d], over [t^s] word-medially between a vowel and an unstressed vowel. Word boundary nevertheless has an influence in this position in all speakers except Ben. He has aspirated realizations [t^s] and [t^c] in a ratio of roughly 17:1 to other realizations word-medially and in a ratio of about 14:1 to other realizations word-finally. This is not a significant difference. In all other speakers [t^s], [t^c] and [T] are relatively rarer word-finally than word-medially. The approximate ratios of these to other realizations word-medially are:- in Nan, 7:1, in Jenefer, 1:1, in Ada, 1:1½, in Stevie, 1:5, in Phil, 1:9, and in Mark, 1:25. Word finally, the corresponding ratios are:- in Nan, 1:10, in Stevie, 1.50, and in Mark, 1:122. No word-final ratios can be calculated for Jenefer, Ada and Phil as they have no examples at all of [t^s] or [t^c] word-finally between a vowel and an unstressed vowel. Mark's one example of [t^s] occurs in a sentence where I had the strong impression that he was mockingly affecting a "posh" accent - "Would you kindly leave it alone." [b wʊ́dʒʊk^{x} ɔ́ınlılíːvıt^{s} əlŒ́ʊn]. The unusually front starting point of the dipthhong in "alone" and the construction, "Would you kindly ---" are what principally gives me this impression.

Comparison of intervocalic word-final realizations of T (lines 25 and 27) with word-medial realizations between any vowel and an unstressed vowel (lines 21 and 24) shows quite similar distribution of voiced and glottal(ized) realizations in these environments. Using the device mentioned above of counting half of examples of

[ʔt] as "voiced" realizations and half as glottal(ized) realizations, the following ratios may be given:- glottal(ized) to voiced realizations in lines 21 and 24, glottalized to voiced realizations in lines 25 and 27. These are respectively and approximately in Ben 1:1½ and 1:1½, in Phil 2:1 and 1½:1, in Mark 70:1 and 27:1, in Stevie 4½:1 and 7:1 and in Ada 12:1 and 99:1.

Thus in Ben, Phil and Mark there is no significant difference in the distribution of these realizations in these environments, as far as the figures allow a conclusion, Mark's 70:1 ratio word-medially being based on one example only. In Stevie there is just possibly a slight tendency for glottal(ized) realizations to be relatively more frequent word-finally than word-medially and in Ada a similar tendency seems well established. Figures are insufficient for such conclusions in Jenefer and Nan. Each individual's preference between voiced and glottal(ized) realizations is as follows:- Ada, Jenefer and Mark favour glottal(ized) realizations very strongly. Nan and Stevie also favour glottalized realizations strongly but not quite as much as Ada, Jenefer and Mark. Phil favours glottalized realizations by about 2 to 1 over voiced realizations and Ben is the only speaker in whom voiced realizations outnumber glottal(ized) ones, which they do by about 3 to 2.

Phil has 2 examples of [ɹ] which may be regarded as intended [d̥], accidentally retracted somewhat. There are a few examples of [ɾ] in Ben and Mark. Ben has one [l] which may be thought of as an intended [d] in which the sides of the tongue are not raised quite enough to complete the oral closure.

Line 28. It is interesting that realizations of word-final T between any vowel and a prolonged vocoid of mid-central quality indicative of hesitation do not fit in at all with the above-described patterns of variation for other intervocalic word-final realizations of T. In this position [t^s] is easily the most common realization, there being 39 examples of it to 2 of [ʔ] and one of [ʔt^s] over all individuals. A possible partial explanation of this phenomenon is that at moments of hesitation speakers are somewhat more self-conscious and use the more prestigious [t^s] sound. This attempt at an explanation is not very satisfactory however as at other times of hesitation, when there is no voiced "hesitation signal", but just a silent pause, speakers use [ʔ] as they do also for the most part utterance-finally. Whatever the original reason for it this mannerism is most probably learnt and passed on in just the same way as the rest of the informants' speech habits.

Line 29 shows word-final realizations of T between a vowel and Y, as in "get you, that used to". Comparison of the figures in this line with those in lines 25 and 27 and lines 30 and 31 reveals a far higher proportion of [t^s]'s to other realizations than intervocalically word-finally or before a consonant or any of the other semivowels. Here, word-finally and between a vowel and Y, [t^s] is found in all speakers and, taken over all speakers, occurs about as often as all other realizations together. See the discussion of line 23 where it may be seen that _Y_ has a similar effect on realizations of a preceding _T_ word-medially also.

Nan has 3 [t^s]'s and no other realizations here. In Ben [t^s] is similarly predominant but he has also some examples of [d^z], [ʔ] and zero. Phil, Jenefer, Ada and Stevie all have [t^s] and [ʔ] in roughly equal numbers. In Mark [ʔ] is roughly 4 times more frequent that [t^s].

Examples: "get you" [gˈɛʔjʉ], [gˈetʃʉ]; "what you" [wˈəjɪ].

Lines 30 and 31 show realizations of _T_ after a vowel, semi-vowel or _N_ and before a consonant, _W_, _L_ or word-initial _R_. The two lines have been kept separate in order to account for the variation between [t] and [ʔ] before _S_ and _Sh_

Before _S_ and _Sh_ (line 31), Ada favours [ʔ] over [t] in a ratio of roughly 35:1. Jenefer, Nan, Mark and Stevie also favour [ʔ] over [t] in ratios respectively of about 10:1, 8:1, 8:1 and 7:1. The corresponding ratio for Phil is about 1½:1. Ben is the only speaker who favours [t] over [ʔ] which he does by roughly 5 to 3.

There is no significant difference between the proportion of voiceless stops [ʔ] and [t] to zero realizations in line 31 and the proportion of [ʔ] to zero realizations in line 30. Nor do the figures show any significant difference in the incidence of voiced sounds [d] and [d̊] in the two environments. In both environments the ratios for each speaker of zero realizations to others are quite similar, but since the figures involved are so large there may be some significance in the differences between them. These ratios are:- in Mark 1:10½, in Stevie 1:11½, in Ben 1:16, in Ada 1:17 and in Phil 1:18. Ratios of 1:53 and 1:75 may be deduced for Jenefer and Nan respectively but these are hardly reliable as they are based on only one example in each speaker of a zero realization.

Voiced realizations [d] and [d̥] occur in Ben, Phil, Mark and Jenefer. They are most common in Ben who uses them in a ratio of roughly 1:22 to voiceless stops [ʔ] and [t]. The corresponding ratio is about 1:40 in Phil. Jenefer and Mark have only 1 and 2 examples of [d] respectively and the ratios 1:52 and 1:154 obtained for them are scarcely reliable.

Examples: "it must" [ɛ̂ˈməs], "bit queer" [b̥ˈɪʔkʰˈwɛ̂ɛ], "carrots" [kʰɛɹɛdz] [kᶜˈæɹəd̥s] [kᶜˈaɹəts], "that football" [ðædfˈʊdbɔ̂:], [ðɛ̂ʔfˈʊʔbʊ].

<u>Lines 32 to 35</u> show realizations of <u>T</u>* as in "----n't" before a consonant, <u>W</u>, <u>L</u> or <u>R</u>. Lines 32 and 34 have been kept separate from lines 33 and 35 in order to account for a few instances of [t] in variation with [ʔ] which occur before <u>S</u> and <u>Sh</u>. Since, over all speakers, there are only 3 examples of [t] in "----n't" no conclusions of any reliability can be drawn concerning its use, except that it is, compared to [ʔ], very infrequent as is also the case in the environment described in line 31. Preconsonantally, as also prevocalically (line 19), zero is the most common realization of <u>T</u>* in "----n't". However realizations other than zero, [ʔ] and

[t] are relatively more frequent preconsonantally than prevocalically. Prevocalically (line 19) [ʔ] is outnumbered by zero in an approximate ratio of 1:61 over all speakers. Preconsonantally (lines 32 to 35) the corresponding ratio, over all speakers, is 1:2½. Preconsonantally the variation between voiceless stops [t] and [ʔ] and zero is conditioned by the stress or absence of stress on the vowel preceding "----n't". Thus in "dón't, cán't" etc. (stressed) followed by a consonant (lines 32 and 35) zero realizations of T* outnumber [ʔ] and [t] in an approximate ratio of 1½:1, over all speakers. The corresponding ratio in "don't, can't" etc.(unstressed) and "didn't, wouldn't" etc. before a consonant (lines 34 and 35) is roughly 6:1.

This general tendency to use zero more often when the "----n't" syllable is unstressed is not found in all individuals although an opposite tendency is not found in any individual. The tendency is marked in the only two individuals who use more voiceless stop realizations than zero realizations after a stressed "--́--n't" syllable, Mark and Ada. They have zero to voiceless stop ratios of 1:1½ and 1:2 respectively after a stressed "--́--n't" and corresponding ratios of 3:1 and 4:1 respectively after an unstressed "----n't". The tendency is also marked in Ben and Nan, who have approximate zero to voiceless stop ratios of 5:1 and 3:1 respectively after a stressed "--́--n't" but for whom no corresponding ratios can be given after an unstressed "----n't" as neither has any voiceless stop realizations in this position at all. By contrast Ben has 24 zero realizations here and Nan has 7. In Jenefer the zero to voiceless stop ratio

T in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
26) "at áll"		1[t^s]			3[t^s]	1[t^s]	
27) V́T/V	3[t^s]2 [t^c] 1[ʔt^s]18[ʔt]20[ʔ] 16[d]1[1]1[ɾ] 20[d̊]7 zero	51[ʔ] 24[d] 10[d̊]7 zero	1[t^s] 109[ʔ] 3[d]2[ɾ] 8 zero	14[ʔ] 2 zero	131[ʔ] 2[d] 8 zero	2[t^s] 2[ʔt]80[ʔ] 10[d] 4[d̊]4 zero	1[t^s]1[t^c] 1[ʔt]6[ʔ] 10[d] 4[d̊]
28) V́(N)T/[ə::]	7[t^s]	11[t^s]			6[t^s]1[ʔ]	14[t^s]1[ʔt^s]	1[t^s]1[ʔ]
29) V́T/Y	9[t^s]1[d^z] 3[ʔ]1 zero	10[t^s] 8[ʔ]	3[t^s] 13[ʔ]	1[t^s] 1[ʔ]	10[t^s] 10[ʔ]	6[t^s] 9[ʔ]	3[t^s]
30) V́(S)(N)T {Cr S Sh / L W / 7R}	206[ʔ] 8[d]15 zero	189[ʔ] 6[d]10 zero	254[ʔ] 2[d]23 zero	41[ʔ] 1[d]1 zero	300[ʔ], 1[d]19 zero	178[ʔ] 16 zero	66[ʔ] 1 zero
31) V́(S)(N)T {S / Sh}	24[t]14[ʔ] 1[d] 2[d̊] 1 zero	17[t]26[ʔ] 3 zero	3[t]53[ʔ] 7 zero	1[t]10[ʔ]	2[t]71[ʔ] 3 zero	5[t]34[ʔ] 3 zero	1[t]8[ʔ]
32) "..n't" {CxS Sh / L W / 7R}	3[ʔ]19 zero	2[ʔ]22 zero	21[ʔ]14 zero	2[ʔ]4 zero	37[ʔ]23 zero	1[ʔ]27 zero	3[ʔ] 11 zero
33) "..n't {S / Sh}	1[ʔ]	2 zero	1[t]	1[t]2 zero	9[ʔ] 1 zero	1[ʔ]2 zero	1[ʔ]
34) "..n't {CxS Sh / L W / 7R}	24 zero	17 zero 1[ʔ]	20 zero 7[ʔ]	6 zero 4[ʔ]	30 zero 3[ʔ]	27 zero 2[ʔ]	7 zero
35) "..n't {S / Sh}		1 zero 1[t]	1 zero	1 zero	6 zero 6[ʔ]	3 zero 1[ʔ]	1 zero

is the same in both environments, roughly 2.1, and in Phil and Stevie the ratios in each environment are similar enough not to permit the deduction of any significant difference. In Phil the zero to voiceless stop ratios after a stressed "----n't" and an unstressed "----n't" are respectively 12:1 and 9:1, and in Stevie they are respectively 14:1 and 10:1

<u>Lines 36 and 37</u> show realizations of <u>T*</u> in "----n't" as only in the phrase "don't know". These realizations vary according to different patterns from those found in "----n't" in all other phrases and the conditions of stress which appear to condition them are also somewhat different from those which influence realizations of <u>T*</u> in "----n't" in all other phrases. In "don't know" the conditioning environmental dichotomy is between "dón't knów" (both syllables stressed) and

(/)don't know
don't (/)know (one or neither syllable stressed). The former

pronunciation often gave the investigator the impression either of emphasis or of deliberate reservation. In this environment (line 36) [ʔ] outnumbers zero by 15 occurrences to 4, that is in a ratio of roughly 4:1 over all speakers, whereas in other phrases, after a stressed "----n't" and before a consonant (lines 32 and 33) [t] and [ʔ] are outnumbered by zero in a ratio of roughly 1:1½, over all speakers. [ʔ] is then relatively more common in "don't know" than in other phrases in a similar phonetic environment. Figures here are too small for conclusions of significance to be drawn concerning each individual's pronunciation. [ʔ] is used by all speakers except Nan, who uses 1 zero. The other zero realizations are used by Ben and Phil.

When only one or neither syllable of "don't know" is stressed (line 37), zero realizations outnumber [ʔ] by 58:2, that is in an approximate ratio of 29:1 over all speakers, whereas in other phrases, after an unstressed "----n't" and before a consonant (lines 34 and 35) the zero to voiceless stop ratio is, over all speakers, roughly 6:1. Zero is, then, relatively more common in {(ˈ)don't know(ˈ) / don't know} than in other phrases in a similar phonetic environment. All speakers have zero realizations and the only 2 examples of [ʔ] occur, in Mark.

Examples:- [dɛ́ʊnʔnɛ́ə], [d̥ɛ́ʊnɛ́ʊ], [d̥ənɛ́ʊ], [d̥ənʌ́ʊ].

<u>Line 38</u>. There is evidence to indicate that <u>T</u>* as only in "Saint", unstressed and followed by a proper name, as in "St Paul's", is realized as zero relatively more frequently than in other words and phrases in a similar environment. Compare the realizations given in this line with those given in lines 30 and 31. In unstressed "Saint" zero realizations outnumber [ʔ] by 10 to 1 whereas zero realizations recorded in lines 30 and 31 are outnumbered by other realizations in a ratio of roughly 1:15. The only example of [ʔ] in "Saint" is in Mark. There are no examples of Phil, Jenefer and Nan.

Examples:- "St Paul's" [səmpʰɔ́ːɫz], "St Dunstans" [sənʔdɐ́nstnz].

Line 39 shows realizations of T* in "what, that, it, let" as only in the phrases "what is, what has, that is, that has, it is, it has, let us"(imperative), when the vowels in "is, has, us" are realized as zero. In fact "let's" (imperative) only occurs 3 times in the material, in Mark, and on each occasion is pronounced with a zero realization of T*. In this environment zero realizations of T* are relatively more common in all individuals than are zero realizations of T before S or Sh (line 31). It is fitting to compare the patterns of variation in "what's, that's it's" with those of T before S rather than with those of T before other consonants including Z, even though "is" and "has" are spelt diaphonemically with Z*. Realizations of Z* in "is, has" have patterns of variation identical with those of S when the vowels in these words are "dropped" and Z* follows a voiceless consonant. This remains true even if the voiceless consonant itself is "dropped" in a subsequent rule, as is often the case in the present instance. E.g. "it is" [IʔIz], [Iʔs], [Is].

Below are given the approximate ratios of, first, zero realizations of T before S, Sh (as in line 31), and, second, zero realizations to other realizations of T* in "it's, that's, what's, let's". Phil - 1:14 and 1:2½, Ben - 1:41 and 1:2, Stevie - 1:13 and 1:1, Ada - 1:24 and 1:1, Mark - 1:8 and 7:1. Comparison of these pairs of ratios shows that in each case the first figure (i.e. that for zero) is relatively smaller in the first ratio (from line 31) and relatively considerably larger in the second ratio (T* in "it's, what's,that's, let's"). Ratios deduced from line 31 cannot be given for Jenefer and Nan as they have no zero realizations between a vowel or N and S or Sh. Both of them have, however, zero realizations in "it's" etc. Jenefer has zeros to other realizations in a ratio of about 2½:1 and Nan in a ratio of roughly 1:8. Thus the tendency to use more zero realizations in "it's" etc. operates in their speech as well.

The individual who uses zero relatively most often is Mark, followed by Jenefer, Ada and Stevie in that order. These four all use more zero realizations than other realizations. Ben, Phil and Nan all use zero less often than other realizations and Nan much less often, relatively, than Ben and Phil. For the actual ratios, in which there are quite considerable differences between individuals, see the previous paragraph.

Another difference between the realizations of T* ("it's" etc.) and those of T between a vowel or N and S or Sh (line 31) is that in the former environment, [t] is significantly more common relative to [ʔ] than in the latter environment. This is true in all individuals except Nan, for whom the figures are scarcely adequate. Below are given the approximate ratios of, first [t] to [ʔ] in "it's, what's, that's, let's". Ada - 1:35 and 1:11, Stevie - 1:7 and 1:2, Jenefer - 1:10 and 1:1, Mark - 1:8 and 1:1, Phil - 1:1½ and 15:1, Ben - 2:1 and 17:1. Note that in each of these pairs of ratios the first figure (that for [t]) is lower, often considerably so, in relation to the second figure (that for [ʔ]), in the first ratio (line 31) than in the second ratio ("it's, what's" etc.). In line 31 Nan has 1 example of [t] and 8 of [ʔ] and in "it's" etc. she has no [t]'s and 8 [ʔ]'s. In the two individuals who use the highest proportion of [ʔ] realizations, relative to [t] realizations, Ada and Stevie, the difference between the ratios of [ʔ] to [t] in the two environments is least.

Line 40 shows realizations of T* in the word "whatsaname", used fairly frequently by Ben and Phil, but by no-one else. On the zero/non-zero "axis" of variation, Ben's realizations appear to belong with those included in line 31, rather than with those of "it's" etc, since he has in "whatsaname" a very low proportion of zero realizations of T* - 1 example of zero to 22 of other realizations. In Phil who uses the word less, figures are not adequate to associate "whatsaname" with either "it's" etc. or the general environment described in line 31, on the basis of his variation between zero and other realizations.

On the [ʔ] vs. [t] and [ḋ] "axis" of variation, both Ben's and Phil's pronunciations of "whatsaname" appear to have more in common with their pronunciations of "it's" etc. than with their pronunciations shown in line 31, since they use in "whatsaname" a very low proportion of [ʔ] in relation to [t] and [ḋ], 1 to 21 in Ben and none to 4 in Phil.

Line 41 shows realizations of T between any consonant but N and any consonant, W, L or word-initial R. "Word-initial" R has to be specified because, although there are no examples in the material, words such as "directory" might well be pronounced with [t^s],not fitting in with the general pattern of variation in this line. Restrictions on the distribution of the diaphoneme T mean that in fact it can only occur interconsonantally after a voiceless consonant (except when after N), so in effect the environment described here is $C_{ps}\ \underline{T} \left\{ \begin{matrix} C \\ W, \underline{L} \\ 7\ \underline{R} \end{matrix} \right.$.

In this environment, by far the predominant realization is zero. There are a few examples of [t], all before S or Sh. The only other realization [t^c] occurs in Mark, before W in "just wanted" [ʤə́st^{c}wɒ́n?ɪd].

Examples:- "honestly" [ɔ́nɛslɪ] "kept going" [kɛ́pgʌ́ɛn] "must be" [mə́sbɛ].

Lines 42 and 43 show realizations of T utterance finally after a vowel, semivowel or N. The two lines have been kept separate since there is some slight evidence in them that in some individuals apical plosives with audible release [$^?t^c$] and [t^c] may be more common after a stressed syllable than after an unstressed one. This seems most likely to be the case in Phil and Ada. After a stressed syllable Phil has [?t^c] and [t^c] in a ratio of 1:5 to [?] and zero. After an unstressed syllable the corresponding ratio is 1:27. Ada has 3 examples of [?t^c] or [t^c] after a stressed syllable to 90 examples of [?] or zero. After an unstressed syllable she has 76 examples of [?] or zero only. There may also be a similar tendency in Ben and Stevie. Ben has these ratios of [ʔt^{c}] and [t^{c}] to [ʔ] and zero:- 1:5½ after a stressed syllable and 1:9 after an urstressed one. After a stressed syllable Stevie has 3 examples of [ʔt^{c}] or [t^{c}] to 49 [ʔ] and after an unstressed syllable he has 40 [ʔ]'s only. The figures for Mark, Jenefer and Nan are inconclusive.

Over both environments realizations with audible release are relatively more common in Nan, Ben and Phil who have them in approximate ratios of 1:6, 1:7 and 1:8 respectively to other realizations. Corresponding ratios for Jenefer, Stevie, Ada and Mark are considerably higher and less reliable, being based on very low figures for [t^{c}] and [ʔt^{c}]. These ratios are respectively 1 28, 1:30, 1:55 and 1:70.

The figures in this line are not sufficient to reveal any significant differences between individuals in their variation between [ʔ] and zero.

Line 44 shows realizations of T* in "----n't" utterance finally. In this environment there are more zero realizations than in lines 42 and 43. Zero realizations and [ʔ] are found in about equal quantities, over all speakers, but figures are not large enough to permit any conclusions to be drawn concerning differences between individuals. There are no examples for Ben. All other speakers have examples of [ʔ] and Phil, Mark and Ada have examples of zero. Phil has one example of [t^{c}].

Line 45 shows realizations of T utterance finally and after any consonant but N. In this environment [t^c] realizations are far more common than utterance finally after a vowel or N (lines 42 and 43). Over all speakers there are 25 examples of [t^c] to 16 of zero, but here again figures are too small to allow conclusions to be drawn about differences between individuals. Both [t^c] and zero are used by all speakers except Jenefer and Nan, who have 2 [t^c]'s and 1 zero respectively.

T in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
36)"dón't knów"	2 zero 3[ʔ]	1 zero 1[ʔ]	1[ʔ]	3[ʔ]	5[ʔ]	2[ʔ]	1 zero
37)"d(/)on't kn(/)ow"	6 zero	9 zero	10 zero 2[ʔ]	8 zero	10 zero	11 zero	4 zero
38) "St."+ C	7 zero		1[ʔ]		2 zero	1 zero	
39) "it's, let's what's, that's	28 zero 3[ʔ] 52 [t]	20 zero 3[ʔ] 44 [t]	41 zero 3[ʔ] 3 [t]	13 zero 2[ʔ] 2 [t]	45 zero 32[ʔ] 3 [t]	34 zero 27[ʔ] 16[t]	1 zero 8[ʔ]
40)"whatsaname"	1 zero 1[ʔ] 19 [t] 2[d]	1 zero 4 [t]					
41) CpsT {C, SxY}	36 zero 1[t]	26 zero 2[t]	41 zero 4[t] 1[t^c]	13 zero 1[t]	62 zero	38 zero 1[t]	8 zero
42) V́(S)(N)T,	60[ʔ]7[t^c] 5[ʔt^c]6 zero	34[ʔ]6[t^c] 1[ʔt^c] 1 zero	102[ʔ]1[t^c] 1[ʔt^c]6 zero	15[ʔ] 1[ʔt^c]2 zero	89[ʔ]2[t^c] 1[ʔt^c] 1 zero	49[ʔ]2[t^c] 1[ʔt^c]	20[ʔ]2[t^c] 2[ʔt^c]
43) V(S)(N)T,	46[ʔ]1[t^c] 4[ʔt^c] 1 zero	26[ʔ]1[t^c] 1 zero	33[ʔ]	11[ʔ]	75[ʔ] 1 zero	40[ʔ]	4[ʔ]
44) "..(/)n't",	-	1[ʔ]3 zero 1[t^c]	3[ʔ]3 zero	3[ʔ]	1[ʔ]3 zero	2[ʔ]	1[ʔ]
45) CpsT,	3 zero 1[t^c]	2 zero 2[t^c]	3 zero 7[t^c]	2[t^c]	1 zero 5[t^c]	6 zero 8[t^c]	1 zero

T*

as in "to"(unstressed) "today, tomorrow, tonight"

This special diaphoneme is postulated to account for differences in the patterns of variation found initially in "to (unstressed), today, tonight, tomorrow" and those found initially in all other words in similar phonetic environments. These differences may be seen by comparing lines in this T* ("to" etc.) table with line 3 of the tables for T generally, where all unstressed word-initial occurrences of T are recorded. The only realization of T which is recorded in unstressed word-initial position (T line 3) is [t^{s}].

Line 1 shows realizations of T* ("to" etc.) utterance-initially or after the consonants Ch, J, F, V. This is the only environment in which realizations of T* ("to" etc.) do not differ from word initial realizations of T in a similar environment. Here, as in T line 3, all recorded realizations are [t^{s}].

Example:- "manage to get" [mˈɛɪʒt^{s}gˈɛʔ], "love to" [lˈʌvt^{s}ɵ].

Line 2 shows realizations of V*T* as only in "have to". The combined statement made here in terms of 2 diaphonemes is made necessary because of [2] instances of [ʔ] in Mark. To account for all 26 other pronunciations separate statements in terms of V* and T* alone can be made. As is also mentioned in the description of V

V* in "have to" has realizations which vary according to almost identical patterns to those of F. In all but Mark's 2 examples of [ʔ], T* in "have to" has realizations which vary in part according to similar patterns to those found for T word-medially after F and before an unstressed vowel (T line 11) as in "fifty, after", and in part according to similar patterns to those found for T word-initially and before an unstressed vowel (T line 3) as in for example "out till, work too". Thus unaspirated and slightly aspirated realizations [t] and [t^c] are found in variation with [t^s]. All speakers except Nan and Mark favour [t^s] over less aspirated realizations [t] and [t^c]. Ben and Jenefer have only one [t^s] each. Stevie has 3 [t^s]'s to 1 [t]. Phil 2 [t^s]'s to 1 [t], Ada 5 [t^s]'s to 4 examples of [t^c] or [t]. Mark has 1 [t^s] and 1 [t] and Nan has 1 [t^s] and 5 examples of [t^c] or [t]. From these figures some tentative conclusions can be drawn concerning the status of "have to" as a word. Realizations [t] and [t^c] of T* in "have to" may be taken to indicate that when these pronunciations are used "have to" is treated as a single word, like "fifty" where these realizations predominate (T line 11). The use of [t^s] may be taken to indicate treatment of "have to" as two consecutive words, like "work too" in environments of which type [t^s] is used consistently (T line 3). Following these indications "have to" would appear to be treated as a single word more often than not by Nan, about as often as not by Mark and Ada and less often than not by Ben, Phil, Jenefer and Stevie. These conclusions remain tentative however since, of the realizations recorded in T line 3, none occur after F but after other consonants. The conclusions are based on the unproved assumption that T in environment F/TV has realizations varying similarly to those in the more general environment C/_T_V.

Mark's 2 uses of [ʔ], so unlike any of the realizations used by other speakers in this environment, are rather puzzling. See the discussion of realizations of _V_ (p 305) for a few further remarks on this. The use of [ʔ] by Mark seems to provide more evidence concerning the word-status of "have to". Such "collapsing" of the realizations of two diaphonemes seems more likely to occur word-medially than at a word boundary.

<u>Lines 3, 4 and 5</u> show realizations of _P_/_T_* ("to" etc.), _K_/_T_* ("to" etc.) and _T_/_T_*("to" etc.) respectively. Here again, in each line, realizations of the whole diaphonemic sequence have to be given in order to account for a few occurrences of "shared" realizations [ʔ], [ʔt] and [d] found in Ben, Phil and Mark. There are 15 such pronunciations and all the others may be described in terms of each diaphoneme singly. In these other pronunciations _T_* ("to" etc.) is realized in all individuals according to patterns of variation similar to those found for _T_ word-finally or medially after _P_ or _K_ and before an unstressed vowel (_T_ line 5). There is the same consistent use of [t^s] in Ada, Stevie and Nan, the same preference for [t] in Ben and roughly the same degree of fluctuation between aspirated and unaspirated realizations in Phil and Mark. Jenefer has no examples of $\left.\begin{matrix}\underline{P}\\ \underline{K}\end{matrix}\right\}$ _T_* ("to" etc.)

The realizations [ʔt] or _KT_* ("to" etc.) found in Phil and Mark occur in the phrases "like to" and "back to" respectively. Since both [ʔ] and zero can be realizations of K preconsonantally ("like that" [lɒ́ɪʔdǽ], [lɒɪðǽʔ]), and since [ʔt] can be a realization of T intervocalically, the intervocalic sequence [ʔt] is ambiguous diaphonemically and an arbitrary judgement regarding the allotting of realizations to K and T* ("to" etc.) separately is avoided by the device of calling [ʔt] a "shared"realization of the diaphonemic sequence.

Similar arguments apply to [ʔ], found once each in Phil and Mark in "up to", to [ʔ] found in Mark once in "like to", and to examples of [ʔ], [ʔt] and [d] used by Ben, Phil and Mark as realizations of T/T* ("to" etc.). The use of [ʔt] by Ben in phrases such as "eight to" "might to" is a particularly good example of the problem. Between P or K and an unstressed vowel (T line 5) he strongly favours [t] over other realizations of T. And between a vowel and an unstressed vowel (T lines 21, 24, 27) [ʔt] is a very common realization. Preconsonantally (T line 30), he sometimes uses zero realizations of T. Should the realizations of the two diaphonemes be regarded as zero plus [ʔt] or [ʔ] plus [t]? The device of "sharing" of [ʔt] by both diaphonemes avoids an arbitrary judgement here. Ben, Phil and Mark are the only speakers who use such "shared" pronunciations in these environments. The phrases "up to" and "like to" are perhaps particularly susceptible to this type of pronunciation. Phil's one example of "sharing" in "like to" is used the only time he uses the phrase. He has however 4 examples of "up to" where such "shared" realizations are not used. Mark has examples of "unshared" realizations in both "up to" and "like to", and Ada, Stevie and Nan all have examples of both phrases, with, of course, "unshared" realizations. "Shared" realizations are more common when <u>T</u>* ("to" etc.) follows <u>T</u> than when it follows <u>P</u> or <u>K</u>. Over Ben, Phil and Mark there are 10 shared realizations to 7 unshared when <u>T</u>* ("to" etc.) follows <u>T</u> and 5 shared to 12 unshared when it follows <u>P</u> or <u>K</u>. Over all three environments Ben has 3 shared to 1 unshared realization, Mark has 7 shared to 9 unshared realizations and Phil has 4 shared to 9 unshared realizations.

It should be noted that in the case of all "unshared" realizations, the realizations which can be allotted to either <u>T</u>, <u>P</u>, or <u>K</u>, i.e. [p̰ˀ], [β̰ˀ], [ḵˀ], [ʔ] have also been counted and included in the tables for realizations of those diaphonemes, in a preconsonantal environment.

Examples: "up to" [ᴁʔ ə], [ᴁp̰ˀtˢə], [ɐ́β̰ˀ tə]
"like to" [lɑ́ɪʔt ə], [lɑ́ɪ ʔə], [lɑ́ɪḵˀtˢ]
"that to" [ǽʔ tə], "it to" [ɪdə], [ɪ ʔtˢə], "get to"
[gɛ̂ʔə], "street to" [stɹɛ́ɪʔtˢ]

<u>Line 6</u> shows realizations of <u>T</u>/<u>T</u>*("to" etc.) in "got to" and "ought to". In this environment every realization is shared by the two diaphonemes. This applies to all speakers except Nan for whom there are no examples. Mark, Jenefer and Ada, have only [ʔ] realizations and Stevie has 3 [ʔ]'s and 1 zero. Voiced realizations [d] and [ḋ] predominate in Ben and Phil. Phil has 2 examples of [ʔ] to 6 of either [d] or [d̊] and Ben has 1 [ʔt] to 6 examples of [d] or [d̊].

These patterns of variation are partially similar to those found in realizations of T world-medially between a vowel and an unstressed vowel, as in "better, charity" (T lines 21, 24). There are differences however. In "got to, ought to" there are no examples of [t^s], whereas word-medially between a vowel and an unstressed vowel, all speakers use [t^s] to some extent and some to a considerable extent. Leaving aside the absence of [t^s] in "got to" and "ought to", the patterns of variation found in these words are quite similar to those shown in T lines 21, 24. There is the same marked preference for [ʔ] in Mark, Jenefer, Ada and Stevie and the same preference for voiced and glottalized realizations [d], [d̊] and [ʔt] in Ben. In Phil there is a difference between the two patterns of variation. In "got to", "ought to" he favours [d] and [d̊] over [ʔ] by 6 to 2. In the environments described in T lines 21 and 24 this situation is reversed and [ʔ] outnumbers [d] and [d̊] by 16 to 6.

Examples:- [ɣˈɔʔə], [ɣˈədə] [gˈɔə]

Line 7 shows realizations of T/T*("to" etc.) in the phrase "went to". Here again there are many shared realizations. Ben, Phil and Mark have only shared realizations, Jenefer has 2 shared realizations to 1 unshared and Ada has 2 shared realizations (counting the one zero) to 8 unshared. There are no examples in Stevie and Nan.

The 9 unshared realizations, 1 in Jenefer and 8 in Ada, are all [$ʔt^s$], conforming, as separate realizations, to the 2 patterns of variation found preconsonantally (T line 30) and word initially between a consonant and an unstressed vowel (T line 3).

Jenefer's 2 shared realizations and 1 of Ada's 2, are [tˢ]. Ada's other one is zero, the only example of this realization. Mark's 1 shared realization and 1 of Phil's 2 are [ʔ]. Phil's other shared realization is [ʔt] and Ben's is [d]. The figures are too small for reliable conclusions to be drawn from them, but what examples there are of shared realizations in Phil, Mark, Jenefer and Ada fit in with the patterns of variation found word-medially between any vowel plus N and an unstressed vowel as in "twenty" (T line 15). Ben's 1 shared [d] in "went to" is not the same as his most common realizations of T in "twenty" etc. but he does have 1 example of [d] in such words (T line 15).

Examples:- [wέʔtˢə], [wέtˢʊ] [wέnə] [wέnʔʊ], [wέnʔtE], wέndə].

Line 8 shows realizations of T/T*("to" etc.) in "want to". Here by far the predominant realization in all individuals is zero. There are, in fact only two other realizations, 1 shared [d] in Ben and 1 unshared [ʔtˢ] in Ada. Ada seems in general to favour shared realizations a little less than the other speakers.

The patterns of variation found here are almost identical to those found in T/V in "want, went" (T line 18). It is interesting that whereas the T in both "want" and "went" is normally "dropped" before a vowel (T line 18) only the T in "want" is "dropped" with this same consistency before "to". In "went to" there is always, with Ada's 1 exception, some realization of T in "went" even if a "shared" one.

Examples: [wɔ́nə], [wɔ́ndə], [wɔ́nʔtˢ].

Line 9 shows realizations of T*("to" etc.) after N as in "gone to, trying to". Here there are different degrees of variation in different individuals. In Jenefer, Ada and Nan there is no variation at all. They use [t^s] consistently. In Stevie, although [t^s] is easily the predominant realization, there is "fourway" variation between these voiceless realizations [t^s], voiced realizations [d] and [d̥], glottal(ized) realizations [ʔ] and [ʔt] and zero. Of each of these latter realizations there is 1 example. There are 11 examples of [t^s].

In Ben the predominant realization is zero of which there are 6 examples. He has also 3 [ʔt]'s, 2 [d]'s and 2 [t^s]'s. In Phil and Mark glottal(ized) realizations [ʔt] and [ʔ] easily predominate. They have only 1 other realization each, [t^s] in Phil and zero in Mark. Mark favours [ʔ] over [ʔt] by 9 to 2 and Phil favours [ʔt] over [ʔ] by 4 to 3.

Ada's Jenefer's and Nan's consistent use of [t^s] in this environment conforms to their patterns of variation in T word initially and before an unstressed vowel (T line 3) where they also use [t^s] consistently. The patterns of variation found here in Ben, Phil, Mark and Stevie do not conform well with any patterns of variation found elsewhere. They are somewhat similar to those found for T word-medially between a vowel plus N and an unstressed vowel, as in "twenty" (T line 15) There are however significantly more examples of [t^s] than in N/T*("to" etc.) in Ben and Mark, and significantly more examples of zero in Phil and Stevie.

Examples:- "gone to" [gɔ́nʔʊ], "going to" (not auxiliary) [gɘ́:ndʊ], "trying to" [tˢɹɑ́ :nə], "gone tomorrow" [gɔ́.nʔtəmɔ́rə], "down to" [dA:ntˢə].

<u>Line 10</u> shows realizations of <u>T</u>*("to" etc.) after <u>N</u> as only in "going to" (auxiliary). In this environment <u>T</u>("to" etc.) is realized with complete consistency by all individuals as zero. These patterns of variation show the treatment of <u>T</u>*("to" etc.) here to be identical with that of <u>T</u> in "went, want" before a vowel (<u>T</u> line 18) in all individuals except Nan, who has 1 [tˢ] in "went" plus vowel, and Jenefer who has no examples of "went, want" plus vowel.

Example:- [gə́nə]

<u>Line 11</u> shows realizations of <u>D</u>/<u>T</u>*("to" etc.). Here again there are some realizations which are said to be shared by both <u>D</u> and <u>T</u>*("to" etc.). Such shared realizations [ʔt], [ʔ], [dʔ] and [d] occur most of all in Phil by whom they are used consistently, with no examples of unshared realizations. They are next most frequent in Ben who has 4 shared to 3 unshared realizations. Ada has 2 shared realizations to 4 unshared ones. 4 particular phrases are perhaps more susceptible to pronunciations with shared realizations, although the figures are hardly large enough for a judgement to be made. Ada's two shared realizations occur in "wanted to" [wə́ntˢədə] and Phil's example of a shared [d] is in "wanted to" as well. 3 of Phil's shared realizations and 2 of Ben's occur in "said to"

$\underline{T}$* as only in "to"(unstressed)"today, tomorrow, tonight."

$\underline{T}$*("to", etc.)in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
1) $\underline{Ch}$ $\underline{J}$ $\underline{F}$ $\underline{V}$; } $\underline{T}$*	2[t^s]	3[t^s]	3[t^s]	1[t^s]	10[t^s]	11[t^s]	4[t^s]
2) "have to"	1[ft^s]	2[ft^s]1[ft]	1[ft^s]1[ft] 2[ʔ]	1[ft^s]	5[ft^s]2 ft^c 2[ft]	3[ft^s]1[ft]	1[ft^s]4[ft] 1[vt^c]
3) $\underline{PT}$*		2[$\overset{ʔ}{p}$t^s]2[$\overset{ʔ}{p}$t] 1[ʔ]	2[$\overset{ʔ}{p}$t^s] 1[ʔ]		2[pt^s]1[$\overset{ʔ}{\beta}$t^s]	1[$\overset{ʔ}{p}$t^s]1[$\overset{ʔ}{\beta}$t^s]	1[$\overset{ʔ}{p}$t^s]
4) $\underline{KT}$*	1[kt]	2[$\overset{ʔ}{k}$t^s] 1[ʔt]	2[kt^s] 1[ʔt^s] 1[ʔt] 1[ʔ]		5[$\overset{ʔ}{k}$t^s]2[ʔt^s]	8[$\overset{ʔ}{k}$t^s]	3[$\overset{ʔ}{k}$t^s]
5) $\underline{TT}$*	3[ʔt]	3[ʔt^s] 1[ʔt]1[ʔ]	4[ʔt^s] 4[ʔ] 1[d]	2[ʔt^s]	2[ʔt^s]	1[ʔt^s]	3[ʔt^s]
6) "ought to" "got to"	1[ʔt] 4[d]2[ḋ]	2[ʔ] 3[d]3[ḋ]	10[ʔ]	2[ʔ]	8[ʔ]	3[ʔ] 1 zero	
7) "went to"	1[d]	1[ʔt]1[ʔ]	1[ʔ]	2[t^s]1[ʔt^s]	1[t^s]8[ʔt^s] 1 zero		
8) "want to"	6 zero 1 d	7 zero	4 zero	4 zero	2 zero 1[ʔt^s]	8 zero	3 zero
9) $\underline{NT}$*	2[t^s]3[ʔt] 6 zero 2[d]	1[t^s]4[ʔt] 3[ʔ]	2[ʔt] 9[ʔ] 1 zero	9[t^s]	18[t^s]	11[t^s]1[ʔt] 1 [ʔ] 1 zero 1[d] 1[ḋ]	3[t^s]
10) "going to"	18 zero	12 zero	9 zero	1 zero	7 zero	6 zero	1 zero

[sə́ʔtə], [sÉʔəʊ], [sɛ́dʔə], [sEdə]. Ben's 1 [ʔ] and 3 of Phil's occur in "hundred to" [ə́nəʔə]. 2 of Phil's [ʔt]'s occur in "afford to" [əfɔ́:ʔtə]. The only other shared realization not mentioned above is an example of [ʔt] in "tried to" in Ben.

All realizations in Mark, Jenefer, Stevie and Nan, and all unshared realizations in Ada are [dt^s] and conform to the separate patterns of variation found in D preconsonantally and in T word initially before an unstressed vowel (T line 3). Ben's 3 unshared realizations are [d:]. The first element [d] of this realization conforms with the preconsonantal pattern of variation for D. Whether the second element [d] conforms to the pattern found word initally after a voiced consonant and before an unstressed vowel (T line 3) cannot be stated as Ben has no examples of T in that environment.

Line 12 shows realizations of D*/T* as only in "had to". Here there are relatively more examples of sharing of realizations than in the environment described above, in Ben and Mark. In Phil there is relatively the same number of shared realizations, i.e. all his realizations are shared in both lines. In "had to" Ben and Mark also have nothing but shared realizations. Jenefer, Ada and Stevie have only unshared realizations. There are no examples for Nan. 2 of Ben's shared realizations are[d], 1 [ʔ], Phil has 1 [d] to 1 [ʔ] and Mark has 3 [ʔ]'s. These patterns of variation conform roughly to those found in "got to, ought to" in these 3 speakers. There is the same preference for [d] in Ben and for [ʔ] in Mark and a mixture, albeit in different proportions, of both realizations in Phil.

Of the unshared realizations, occurring in Jenefer, Ada and Stevie, all conform to the separate patterns of variation found for <u>D</u>* as only in "had to" and for <u>T</u> word initially or after a voiced consonant and before an unstressed vowel (<u>T</u> line 3).

Examples:- [ˈædt^{s}ə], [ˈæʔt^{s}ʊ], [ˈɛʔə], [ˈæ dɛ̃].

<u>Line 13</u> shows realizations of <u>T</u>*("to" etc.) after <u>S</u>. In this environment Jenefer, Stevie and Nan have only [t^{s}]. The figures are small and they have only 2, 1 and 1 examples respectively. Mark has a tendency to use less aspirated realizations, having 3 examples each of [t^{s}] and [t^{c}] and 1 of [t]. In Ada there is a similar tendency - she has 2 examples each of [t^{s}] and [t^{c}] and 1 of zero. Phil has 2 zero realizations only. There are no examples in Ben.

The examples of [t^{s}] found here fit in with the patterns of variation found for <u>T</u> word-initially before an unstressed vowel (<u>T</u> line 3). The examples of [t^{c}] and [t] fit in with the patterns of variation found for <u>T</u> word-medially after <u>S</u> (<u>T</u> lines 7 and 8). In this latter environment Ben and Stevie have zero realizations of <u>T</u> whereas in the environment <u>S/T</u>*("to" etc.) it is Phil and Ada who have zero realizations of <u>T</u>*("to" etc.). The figures here are too small for any particular significance to be attached to this, and one may well suspect that these examples of zero in Phil and Ada would fit in with their patterns of variation in the environment <u>ST</u> (ˈ)V (<u>T</u> lines 7 and 8).

Thus from the limited data in the material it may be seen that

Jenefer, Stevie and Nan treat T*("to" etc.) after S like word initial T after any consonant, Ada and Mark treat it partially that way and partially like word-medial T after S, and Phil treats it wholly like word-medial T after S. Over all speakers, exactly half of the realizations of T*("to" etc.) conform to each of these patterns of variation for T.

Examples:- "wants to" [wɔ̃ʔstə], [wɔ̃ ʔsɪ], [wɔ̃ stˢʊ].

Line 14 shows realizations of T*("to" etc) after Z. In Mark and Jenefer only [tˢ] is found. In Phil, Ada and Stevie, [tˢ] predominates over other realizations, occurring in them, 3, 3 and 2 times respectively. Phil, Ada, and Stevie all have 1 zero realization, and Phil has 1 [d̥]. Nan has 1 [d̥] and 1 zero realization. There are no examples in Ben.

The examples of [tˢ] fit in with the patterns of variation found for T word-initially before an unstressed vowel (T line 3), and the examples of [d̥] and zero fit in, in the same approximate way as the zero realizations of T*("to" etc.) after S, discussed above, with the patterns of variation found for T, word-medially after S (T lines 7 and 8). The realization of Z which precedes all these realizations (including zero) of T*("to" etc.) is [z̥] which, phonetically is not far removed, if at all, from [s], the predominant realization of S. See the discussion of the realizations of Z and also the "phonetic" section describing [z̥] and [s]. Thus all realizations in Mark and Jenefer and the majority of realizations in Phil, Ada and Stevie are the same as for T word initially before an unstressed vowel (T line 3). The minority of realizations in Phil, Ada and Stevie and all realizations in Nan fit in with their patterns of variation for T word medially after S (T lines 7 and 8). Over all speakers, the ratio of realizations which fit in with the /TV (T line 3) environment to those which fit in with the ST V (T lines 7 and 8) environment is roughly 2½:1 (compared with 1:1 for S/T* ("to" etc.)).

Examples.- "goes to" [gˈɵ ʊ̣zt^{s}], [gˈɵʊ zḍ ə], "seems to" [sˈeː mẓə], "fellows today" [fˈɵ l ə z̥t^{s}əd^{ˈAE}], [fˈɵl ə z̥ ədˈÆɘ], [fˈə l ə ẓd ə dˈÆɘ].

Line 15 shows a realization of Z*T* in "has to". Although there is only one example of this phrase in the material, it was felt worthwhile to treat it separately, bearing in mind how special diaphonemes have been found necessary for both "have to" and "had to". The realization of the T*("to" here) as [t] in Ada conforms to the pattern of variation found for T word-medially after S (T lines 7 and 8).

Line 16, shows realizations of T*("to" etc.) as only in "used to" and "supposed to". Treatment of T*("to" etc.) in these two phrases appears to be more or less the same. As in the cases of T*("to" etc.) after S and Z (lines 13 and 14), there is variation between [t^{s}], [t^{c}], [t], [ḍ] and zero. The examples of [t^{s}], which, over all speakers are in a ratio of 1:3 to other realizations, fit in with the patterns of variation for T word-initially and before an unstressed vowel (T line 3). The only speaker who has more $[t^s]$'s than other realizations is Stevie who has 4 of them to 2 zero realizations. Approximate ratios of $[t^s]$ to other realizations in other speakers are.- in Jenefer 1:1, in Mark and Ada 1:2, in Phil 1.4½ and in Nan 1:5½. Ben has no $[t^s]$'s and 7 other realizations.

All of these "other" realizations fit in with the patterns of variation found for word medial T after S (T lines 7 and 8) in all respects except one. The characteristic of realizations (other than $[t^s]$) of T*(used to, supposed to) which differentiates them from those of word medial T after S is the high proportion of zero realizations found in "supposed to, used to". Stevie has 2 examples of zero to no other realizations, excluding $[t^s]$. The rough ratios of zero realizations to other realizations, except $[t^s]$, in other speakers are:- in Phil 3½:1, in Nan 1.1, in Jenefer 1:2, in Ben 1:2½ and in Ada 1:5. Mark has no zero realizations and has 2 other realizations, bar $[t^s]$.

Of the realizations of T*("used to, supposed to") other than zero and $[t^s]$ all conform more or less to the ST$\overset{(\prime)}{V}$ patterns (T lines 7 and 8). There is the same preference for [t] in Ben, Phil and Mark, the same approximate balance between [t] and $[t^c]$ in Ada. Jenefer has proportionately a somewhat higher number of $[t^c]$'s than for T in the environment ST$\acute{V}$, and Nan has proportionately a higher number of $[\dot{d}]$'s. The figures however are not large and these differences are probably not significant.

Examples:- [ʃÝ:st^{s}], [ɟý:st^{c}ɯ], [ʝý:st ɘ], [ʝYsḋə], [ɟǿ:s ɪ], [spʉ́ʊz̥ ə], [spʉ́ʊz̥t^{s}ə], [spɐ́ ʊz̥tə].

Line 17 shows realizations of T*("to" etc.) after a vowel, semivowel or nasal consonant other than N. Jenefer's Ada's and Nan's realizations here are consistently [t^{s}] and thus conform to their patterns of variation for T word-initially before an unstressed vowel (T line 3). Ben's Phil's, Mark's and Stevie's realizations conform to their patterns of variation found for T word-medially between a vowel and an unstressed vowel (T lines 21 and 24). There is the same strong preference for glottal(ized) realizations in Phil, Mark and Stevie,and the same preference for voiced realizations in Ben.

Examples:- "go to" [gɘ́ ʊt^{s}ə], [g̊ɛ́ʊʔə], [gɐ́ʊʔ̥ə], [gɜ́:də], "you to" [ɟɶ:].

T*("to")etc. in env.	BEN	PHIL	MARK	JENNIFER	ADA	STEVIE	NAN
11) DT*	3[d:]1[d] 2[ʔt]1[ʔ]	1[d] 1[dʔ] 3[ʔt]4[ʔ]	1[dt^{s}]	1[dt^{s}]	4[dt^{s}]2[d]	2[dt^{s}]	1[dt^{s}]
12) "had to"	2[d] 1[ʔ]	1[d] 1[ʔ]	3[ʔ]	1[ʔt^{s}]	1[ʔt^{s}]	1[dt^{s}] 2[ʔt^{s}]	
13) ST*		- 2 zero	3[t^{s}]3[t^{c}] 1[t]	2[t^{s}]	2[t^{s}]2[t^{c}] 1 zero	1[t^{s}]	1[t^{s}]
14) ZT*		3[t^{s}]1[ḋ] 1 zero	7[t^{s}]	1[t^{s}]	3[t^{s}] 1 zero	2[t^{s}] 1 zero	1[ḋ] 1 zero
15) "has to"					1[ẓt]		
16) "supposed to" "used to"	1[t^{c}] 3[t] 1[ḋ] 2 zero	2[t^{s}] 2[t] 7 zero	1[t^{s}] 2[t]	3[t^{s}]2[t^{c}] 1 zero	6[t^{s}]5[t^{c}] 4[t] 1[ḋ] 2 zero	4[t^{s}] 2 zero	2[t^{s}] 3[t]3[ḋ] 5 zero
17) V(s) / M Ng } T*	1[t^{s}]10[d] 1[ḋ] 6[ʔt]	1[t^{s}]6[d] 2[ḋ] 3 zero 21[ʔt]7[ʔ]	2[t^{s}] 2[ʔt]8[ʔ]	6[t^{s}]	28[t^{s}]	8[t^{s}]1[d] 2 zero 6[ʔt]	8[t^{s}]

K

This diaphoneme occurs in such words as "care, come, class, Christmas, cute, quite, Baker, Mickey, take, make, fix, ask, asks, pictures, worked" etc.

The environments which condition realizations of K are broadly similar to those which condition realizations of P and T.

Word-initially, and word-medially after any consonant but S, Ng or between a vowel and a stressed vowel, easily the predominant realization in all individuals is [k^h]. There are a very few unaspirated realizations [k] in Ben. None are found in this position in other individuals. Apart from Ben's use of [k], individuals do not differ in their realizations of K in this position.

In certain very common words "can"(vb.) "because" (last syllable stressed), "could, come, can't" realizations other than [k^h] are found. Such realizations may be assimilations to a voiced environment [g], or voiceless velar fricatives [x], or glottalized realizations more usually found word-finally. Special diaphonemes K* must be postulated to account for such variation. I am not aware of any significant differences between my informants in their realizations of these diaphonemes, except that [x] is possibly slightly more common in Stevie than in other speakers, and Mark has more glottalized realizations in "can" in which he frequently "drops" the A*.

Examples:- "see Keith" [sí:kʰé:f]; "Moishe Cohen" [mɔ́EʃEkʰ ɵ́ʊEn]; "we cooked" [wɪkʰ ʊ́ˀkts]; "ice cream" [ɒ́ɪskʰɹ í:m]; "you can" [ɟɨxən] [ɟý gəŋ] [ʒɪˀkŋ] [ɟʉ́:ʔn] [ɟYkʰən].

Word-medially or -finally after S and before a vowel or semivowel [k] is the rule in all speakers. There are one or two very slightly aspirated realizations [kᶜ] in Stevie, Nan and Jenefer. Phil has one example of [x] in "waistcoat" [wɛ́sxəd].

Examples:- "square" [skwɛ́ə] [skᶜwÉ:], "biscuits" [bískɪʔs].

A special diaphoneme K* must be postulated to account for 2 occurrences of [tᶜ] in "ask her" in Stevie [ɑ́:stᶜə]. No other speakers use this realization in "ask" before a vowel.

Word-medially between a vowel, semivowel or Ng and an unstressed vowel, and word-finally between a vowel, semivowel or Ng and any vowel, glottalized realizations [ʔk], [ˀɣ] and [ʔ] are more common. There are still plenty of aspirated realizations [kʰ]. Especially in Ben, voiced realizations [g], [ɣ] are found here. I have the impression that variation in this position follows patterns roughly parallel with those found in a similar position for T. That is to say that aspirated realizations [kʰ] are most popular in Jenefer, Nan and Ada, glottalized realizations [ʔk] most common in Phil, next in Ben, Stevie and Mark, glottal stop [ʔ] is most common in Ben, next most common in Phil and Stevie. All this being true, the parallel between T and K at this point is nevertheless only a rough one.

In general aspirated realizations of K [k^h] in this position are a good deal more common than aspirated realizations of T [t^s] in a similar position. Fortis voiceless fricative realizations [x] of K occur in this position in all speakers but Mark, Jenefer and Ada, whereas for T there are only 2 such realizations [T] in.Nan.

Certain realizations other than [k^h] appear to be more frequent in a few common words than in other words. Thus [x] [g] [ɣ] are relatively more frequent in "because" (both syllables unstressed) and possibly also in "talking, making, taking". [x], [g], [ɣ], [ʔk], [ʔ] are relatively more common in "like" (vb. and prep.) than in other words.

Glottal(ized) realizations [ʔk] and [ʔ] are more common after Ng than after a vowel.

Examples.- "market" [mɔ́ːk^hɪ ʔ]; "Newmarket" [nɨ́ʉmɑ́ːxɪ t^s]; "looking" [lʊ́xɪŋ] [lʊ́ʔken]; "like a" [lɔ́ːɣə] [lɔ́ɪxɨ] [lɑ́ɪʔə] [lɑ́ɪgə] [lɔ́ɪʔkə] [lɑ́ːk^hə]; "monkey" [mə́ŋk^həɪ] [mɔ́ŋʔkɪ].

Word-medially before a semivowel realizations of K follow roughly the same patterns of variation as those found medially and finally between vowels. There is variation between [k^h] and voiced and glottalized realizations. Word-finally, however, before a semivowel, realizations of K follow patterns of variation more or less identical to those found before a consonant, as described below.

After a vowel, semivowel or Ng and before any consonant but S realizations of K are in all individuals predominantly [k̰]. There are no significant individual deviations from the general very strong preference for [k̰]. A few voiced realizations [g] and [ɣ] occur. Again, I have the impression that [ʔ] is more common in "like" preconsonantally than in other words in a similar environment. It is also possible that [ʔ] is relatively more common in "actually" than in a similar environment in other words. In Mark, in "reckon(s)", where the & is frequently "dropped" and the K consequently precedes the consonant N, [ʔ] is also more frequent than in a similar environment elsewhere.

Examples:- "Victor" [vˈɪk̰tˢ]; "take the" [tˢˈæɛk̰ də]; "nickname" [nˈɪk̰ nˈæɛm]; "take them" [tˢˈɛ ɪgm]; "like that" [lˈɒ ɪʔðˈæʔ]; "like the" [lˈɒ ɪk̰ð ə]; "actually" [ˈæ ʔtʃələɪ] [ˈæk̰ʃələɪ]; "reckon" [ɪˈɛ k̰ŋ] [ɹˈɛ ʔ n].

A special diaphoneme K* has to be postulated to account for pronunciations of "pictures". Phil uses this word 9 times and Mark once. In 7 of Phil's pronunciations the K* is realized as zero. In the other 3 examples in the material the K* is realized as [k̰] or [ʔ].

Word-medially before S I have the impression that voiceless fricative realizations [x] are more common than before other consonants. I am not aware of any differences between individuals in this respect.

Examples:- "sixty" [sˈɪ xstɪ]; "six years" [sˈɪ xʃˈə z]; "six" [sˈek̰ s]; "speaks" [spˈɪ:k̰ s]. Nan has one example of [ç] in "aches' [ˈæ e çs].

A special diaphoneme must be postulated to account for the 3 occurrences of [ˀk] in "escape" [ɪˀks kˈɛ ɪ ˀp], 2 in Ada and 1 in Stevie. The word is not used by other speakers.

A special diaphoneme must be postulated to account for pronunciations of "think(s)" in which the K* is frequently realized as zero in all individuals. I do not think this type of pronunciation is more, or less, common in any individual.

Examples:- "think that" [fˈɪ ŋ ð̃ æ ʔ]; "think there" [fˈɪ ŋ ˀk ð ə] "think it" [vˈɪ ŋɪ ʔ] [f ˈɪ ŋ ˀk ɪ ʔ].

Another special diaphoneme K* is needed to account for pronunciations of "nothing, something, everything, anything". These words are sometimes pronounced with [ʔk] [ˀk] or [k^h] and sometimes without any of these sounds. In Ben and Jenefer zero realizations outnumber others by 11 to 4 and 2 to 1 respectively. Nan has 3 zero realizations and 3 others. In Phil, Ada, Mark and Stevie realizations other than zero outnumber zero realizations by 12 to 7, 13 to 4, 14 to 3 and 30 to 2 respectively.

Between 2 consonants, an environment which in my material occurs only in "ask(s) (ed), K is invariably realized as zero.

Examples.- "asked me" [ˈɑ:sm e]; "asked you" [ˈɑ: ʃ ə].

B

This diaphoneme occurs in such words as "boy, Bill, body, bounce, beautiful, bridge, black, Wisbech, husband, number, believe, baby, trouble, cabinet, algebra, hobnailed, subject, objection, pubs, pub, lob," etc.

The predominant realizations of this diaphoneme are [b] and [b̥] in all individuals. These two sounds are found in variation prevocalically. Only [b], and in one case [β], occur preconsonantally. Prepausally there are a few instances of [b̥], but [b] predominates.

The variation between [b] and [b̥] prevocalically appears to some extent to be conditioned by word-boundaries and the stress of the following vowel. I have the impression that [b̥] is more likely to occur before a stressed vowel and also more likely to be found word initially than word medially and least likely to occur word finally. I have not formed the impression that the nature of the sound preceding B has any significant influence on its realizations.

In Ada, Ben, Jenefer, Phil and Stevie there is a far greater number of [b] realizations than [b̥] realizations. In Mark and Nan the numbers of [b] and [b̥] realizations are very roughly the same.

In all individuals except Nan there are examples of [β]. These are more frequent in certain common words and one common morpheme than elsewhere. These words are "but, about, because, before, be, been" and the morpheme is "...$\left.\begin{smallmatrix}i\\a\end{smallmatrix}\right\}$ble" as in "terrible, laughable". In all speakers instances of [β] which occur in these forms outnumber those which do not - in Stevie by 3 to 2, in Mark by 3 to 1, in Phil by 15 to 6, in Ben by 15 to 5, in Ada by 10 to 2, and in Jenefer by 2 to none.

B* as only in "because" is on a number of occasions realized as zero in Stevie, Nan and Jenefer. Stevie has 5 examples of this, Nan 3 and Jenefer one. In all these cases Ee*(because) is also realized as zero, the whole first syllable being "dropped". Mark and Phil have one example each of B* as only in "before" realized as zero. In one of these cases (Mark's) the Ee is not dropped, but realized as a vocoid and in Phil's example the Ee is "dropped".

Examples: "No because you" [nˈɐʊ kᶜəʒˈʉː], "times because" [tˢˈɒː β̃zβəkʰəz] "fair because" [fˈɛːbə kʰ əz], "years before" [jˈɪːz əfˈɔː], "out before" [ˈʌː ʔfˈɔː ɹ], "long before" [lˈɔŋb əfˈɔ ə].

Ben has a habit of using the word "absolutely" as a one-word utterance to reinforce opinions just expressed by himself or others. In such a usage he often "drops" the first syllable of the word which is pronounced [s əlˈəuʔlɪ]. He has 8 examples of the word pronounced in this way. A special diaphoneme B* has to be postulated here which may be realized as zero in Ben.

B* in "absolutely" is realized once in Ben and once in Ada as [p̊ˀ]. - [aˀp̊slˈʊuʔlɪ]. These are the only instances of [p̊ˀ] as a realization of B*.

<u>D</u>

This diaphoneme occurs in such words as "Downing, door, drive, during, window, Sunday, Daddy, pudding, Dad's, good," etc.

The overwhelming majority of realizations of this diaphoneme in all individuals consists of alveolar plosives, either fully voiced [d] or partially devoiced [d̥]. The environments which condition variation between these sounds are very similar to those which condition realizations of <u>B</u> and <u>G</u>. Only fully voiced realizations are found preconsonantally. Prevocalically both [d] and [ḍ] occur and I have the impression that variation between them is conditioned by the stress or lack of it on the following vowel by the position of <u>D</u> in the word, i.e. whether it is initial or not, and to a lesser extent, by the voicing or lack of it of the previous sound. I have the impression that [ḍ] is relatively more frequent word initially, before a stressed vowel and after a voiceless sound. Conversely, [d] appears to me to be more frequent word-medially or finally, before a stressed vowel and after a voiced sound.

Some very rough ratios can be given for each individual's use of these sounds over all environments. Nan and Jenefer have [d̥] and [d] in roughly equal quantities, i.e. in ratios of about 1:1, all other individuals prefer voiced realizations over devoiced ones, Ada in a ratio of roughly $1\frac{1}{2}$:1, Mark 2:1, Stevie 3:1, Phil 4:1 and Ben 5:1.

All individuals have some examples of [ḋ]. These tend to be far more common intervocalically, word-medially and finally than in other positions. [ḋ] is more common in Ben, Phil and Stevie than in the other speakers. There are also a very few examples of [ɾ] in Ada, Mark and Ben.

D after N in the same word is sometimes realized as zero before a vowel. I am not aware of any significant difference between speakers in this respect. Zero realizations may possibly be more common in "and" before a vowel than in other words in a similar environment.

Examples:- "mind his" [m ó:n e z]; "round on" [ɹ á:nd 8 n].

Between consonants and between a semivowel and a consonant, as for example in many past participle forms, D is almost invariably dropped by all individuals.

Examples:- "told me" [t^{s}ʌ́ʊ mɪ]; "seemed to" [s ɪ́: mt^{s}ə].

A special diaphoneme D* is necessary to account for variation in "didn't, wouldn't, hadn't, shouldn't", in which [ʔ] is often used. [ʔ] is used extensively in these words by Ada, Phil, Stevie and Mark, probably more than [d], and somewhat less by Ben, Jenefer and Nan. Some examples of zero also occur in these words, but I do not think that individuals differ significantly in their use of zero.

Examples:- "couldn't" [k^{h} ʊ́ ʔ n] [k^{h} ʊ́ dn]; "didn't" [d ɪ́ n ʔ] [d ɪ́ ʔn] [d ɪ dm] [d ɪ́ ʔə n ʔ].

G

This diaphoneme occurs in such words as "ghost, good, grammar, glasses, ago, together, bigger, giggles, language, English, angry, Ringo, rugby, big, ugly" etc.

The great majority of occurrences of $\underline{G}^{(*)}$ are utterance-initial and in this position, all of the variation in realizations is between voiced and devoiced plosives and "incomplete" plosives [g], [g̊] and [ɣ]. There appear to be three principal factors which condition this variation and all to some extent operate together which complicates a statement about the variation. The three factors are (1) the word in which $\underline{G}^{(*)}$ occurs, i.e. whether in "go, goes, going, gone, get, gets, getting, got" or in some other word. (2) whether the vowel following $\underline{G}^{(*)}$ is stressed or not; and (3) the nature of the diaphoneme preceding $\underline{G}^{(*)}$, i.e. whether this is a voiceless consonant or pause, a voiced consonant or a vowel or semivowel.

It is convenient to illustrate this conditioning by showing all word-initial realizations of $\underline{G}^{(*)}$ in three separate tables, one table for each conditioning factor, rather than by showing realizations in one table having a separate line for each different combination of conditioning factors. The latter procedure would entail a table of 12 lines in which in many cases the figures would be too small for conclusions to be drawn from them and furthermore the effect of each conditioning factor would in some cases be less clearly visible as the factors may exert opposing influences on realizations of $\underline{G}^{(*)}$.

Table A shows word-initial realizations of $\underline{G}^{(*)}$ in terms of their variation conditioned by the words in which they occur. The first line shows realizations in words other than "go, goes, going, gone, get, gets, getting,gone", and the second line shows realizations in these words. The figures below these lines are ratios deduced from the figures above. For each individual four ratios are given. The first (top left) is that of devoiced to voiced realizations, [g̊] to [g] and [ɣ] in words other than "go, get," etc. The second ratio (top right) is that of "complete" to "incomplete" plosives, [g̊] and [g] to [ɣ] in words other than "go, get" etc. The third ratio (bottom left) is that of [g̊] to [g] and [ɣ] in "go get" etc. and the fourth is that of [g̊] and [g] to [ɣ] in "go get" etc.

There is not a great deal of difference in the individuals' ratios of devoiced to voiced realizations in words other than "go, get" etc. In Stevie and Jenefer these ratios are about the same, 1.6 and 1:5, and these two speakers favour voiced realizations somewhat more than Phil, Nan, Ada, Ben and Mark, all of whom have similar ratios - 1:3, 1:2, 1:2, 1:1$\frac{2}{3}$ and 1.1 respectively. The chief difference between individuals shown by the left-hand ratios in this table is in the special treatment given by Ben, Phil, Jenefer and Ada to realizations of $\underline{G}$* in "go get" etc.

Comparison of the left-hand ratios shows that in Ben, Phil, Jenefer and possibly Ada voiced realizations are significantly more common in relation to devoiced ones in "go,get" etc. than in other words. There are very marked differences in the ratios in Ben, Phil and Jenefer. In Ada the difference is not so marked, but may yet be considered significant. In Mark, Stevie and Nan there is no significant difference in the voicing of realizations of $\underline{G}^{(*)}$ depending on the words in which they are used.

In words other than "go get" etc. "complete" plosives easily outnumber "incomplete" plosives in all individuals. The ratios, in order of individuals' preference for "complete" plosives, are. Ada - 53.1, Mark - 22.1, Ben - 12.1, Phil - 10:1, Stevie - 9:1. Nan and Jenefer have no examples of [ɣ] in the material. In "go, get" etc. [ɣ] is relatively much more common, in all individuals who ever use the sound, than in other words. In Phil the difference is very striking. [ɣ] is in him approximately 17 times more common relative to [g̊] and [g] in "go, get" etc. than in other words. In other speakers the difference is marked, but less so. In Ada [ɣ] is about 5 times more common in "go, get" etc. than in other words, in Mark, about 4 times, in Stevie about 3 times and in Ben about twice as common. In "go, get" the ratios of "complete" to "incom-plate" plosives, in order of individuals' preference for the former, are approximately:- in Ada - 10:1, in Ben and Mark 5:1, in Stevie 3:1, and in Phil 1:1? .

Table B shows word initial realizations of $\underline{G}^{(*)}$ in terms of their variation conditioned by the stress, or lack of it, on the following syllable. The first line shows realizations preceding a stressed syllable and the second line shows realizations before an unstressed syllable. The ratios beneath are:- top left - [g̊] to [g] and [ɣ] before a stressed syllable, top right - [g̊] and [g] to [ɣ] before a stressed syllable, bottom left [g̊] to [g] and [ɣ] before an unstressed syllable and bottom left [g̊] and [g] to [ɣ] before an unstressed syllable.

Before a stressed vowel Mark and Nan both have devoiced and voiced realizations in rough ratios one to another of 1 1. In Ada, Stevie, Ben, Phil and Jenefer devoiced realizations are outnumbered by voiced ones in ratios of roughly 1:2½, 1:4, 1·6, 1.7 and 1:11 respectively. Before an unstressed vowel voiced realizations are a good deal more common relative to devoiced ones than before a stressed vowel in all individuals except Jenefer, for whom there are insufficient figures. In Phil and Stevie they are 7 and 6 times as common respectively, in Mark 3 times as common and in Ada and Nan twice as common. Ben has no devoiced realizations before an unstressed vowel to 30 voiced ones, compared to his ratio of 1:6 before a stressed vowel. The ratios of devoiced to voiced realizations before an unstressed vowel, in order of individuals' preference for the former, are approximately:- in Nan - 1:2, in Mark 1:3, in Ada 1.6, in Stevie 1:26 and in Phil 1:45. The ratios for Stevie and Phil are based on one occurrence only in each of a devoiced realization.

Except in Phil, the ratios of "complete" to "incomplete" plosive realizations do not differ significantly according to whether the realizations precede a stressed or an unstressed vowel and composite ratios may here be given covering realizations in both environments. They are, roughly, in order of individuals' preference for "complete" realizations:- In Ada 12:1, in Mark 7:1, in Ben 6:1, and in Stevie

TABLE A

Word-initial	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
G	15[ġ]22[g] 3[ɣ]	8[ġ] 22[g] 3[ɣ]	46[ġ]41[g] 4[ɣ]	1[ġ] 5[g]	17[ġ]36[g] 1[ɣ]	6[ġ]31[g] 4[ɣ]	4[ġ] 7[g]
G*	5[ġ] 10[g] 22[ɣ]	12[ġ]90[g] 60[ɣ]	56[ġ]64[g] 24[ɣ]	1[ġ]20[g]	39[ġ]120[g] 16[ɣ]	11[ġ]36[g] 15[ɣ]	20[ġ]17[g]
Ratios	1:1⅔ 12:1 1:25 5:1	1:3 10:1 1:12½ 1:1⅔	1:1 22:1 1:1½ 5:1	1:5 1:20	1:2 53:1 1:3½ 10:1	1:6 9:1 1:5 3:1	1:2 1:1

TABLE B

_G(*) in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
/G(*)(S)V́	20[ġ]99[g] 20[ɣ]	19[ġ]91[g] 39[ɣ]	92[ġ]79[g] 22[ɣ]	2[ġ] 22[g]	48[ġ]114[g] 13[ɣ]	16[ġ]48[g] 12[ɣ]	21[ġ]18[g]
/G(*)(S)V	25[g] 5[ɣ]	1[ġ]21[g] 24[ɣ]	10[ġ]26[g] 6[ɣ]	3[g]	8[ġ]42[g] 4[ɣ]	1[ġ]19[g] 7[ɣ]	3[ġ] 6[g]
Ratios	1:6 6:1 5:1	1:7 3:1 1:45 1:1	1:1 8:1 1:3 6:1	1:11	1:2⅛ 12:1 1:6 12:1	1:4 5:1 1:26 3:1	1:1 1:2

4:1. Phil prefers "incomplete" realizations more than the other individuals and particularly before an unstressed vowel. Before a stressed vowel, he has "complete" and "incomplete" realizations in a rough ratio, one to another, of 3:1 and before an unstressed vowel the ratio is about 1:1. Jenefer and Nan have no examples of "incomplete" plosive realizations of $\underline{G}^{(*)}$.

Table C shows word initial realizations of $\underline{G}^{(*)}$ in terms of their variation conditioned by the nature of the preceding diaphoneme. The first line shows realizations after a "voiceless" diaphoneme or a pause, the second shows realizations after a "voiced" consonant diaphoneme and the third line shows realizations after a vowel or semivowel. The ratios are:- top left - [g̊] to [g] and [ɣ] after a voiceless consonant or pause, top right - [g̊] and [g] to [ɣ] after a voiceless consonant or pause, middle right - [g̊] and [g] to [ɣ] after a voiced consonant, bottom left [g̊] to [g] and [ɣ] after either a voiced consonant or a vowel, and bottom right - [g̊] and [g] to [ɣ] after a vowel.

In all individuals except Ada and Nan, voiced realizations are significantly more common, relative to devoiced ones, after a voiced consonant or a vowel than after a voiceless consonant or pause. After a voiceless consonant or pause the ratios of devoiced to voiced realizations are roughly in order of individuals' preference for the former:- In Mark 2:1, in Phil and Stevie 1:1, in Nan 1:2, in Ada 1:3, in Ben 1:3½ and in Jenefer 1:8. After a voiced consonant or vowel the corresponding ratios are roughly:- in Mark 1:1¾, in Nan 1:2, in Ada 1:3, in Ben and Stevie 1:9 and in Phil and Jenefer

1:18.

In all individuals who have examples of [ɣ] except Ada, this realization is least common after a voiceless consonant or pause, more common after a voiced consonant and most common after a vowel. This may be seen by comparing the right hand ratios in Table C. In all individuals except Ada, the first figure is proportionately largest in the bottom ratio and proportionately smallest in the top ratio. Ben and Stevie have no examples of [ɣ] after a pause or a voiceless consonant and only 2 ratios can be given for them. The same tendencies operate in their speech as well, however. In Ada no such tendency can be observed. She has relatively fewest examples of [ɣ] after a vowel, relatively most after a voiced consonant. This is almost a complete reversal of the tendency noted in other speakers.

Word-medial and final realizations of G are shown in Table D. Lines 1,2 and 3 show the effect a semivowel may have on word-medial realizations of G following Ng. Different semivowels influence realizations of G in this position differently. Before W as in "language" G is realized 5 times as zero and 5 times as [g] over all speakers. Before L as in "English", G is realized once as zero and 11 times as [g] over all speakers, and before R as in "angry, hungry", never zero and 3 times as [g]. The figures are not large enough here to allow meaningful comparison between individuals. Word-medially between Ng and a vowel, as in "Ringo" (line 4) Phil, Mark, Ada and Stevie have only a few examples of [g]. Nan has 1 [g̊] and 1 [g] and Jenefer has 2 [g̊]'s.

Lines 5 and 6 show realizations of G word-medially after a vowel and before a vowel or semivowel and word-finally before a vowel. Here there is some degree of conditioning of realizations according to the stress on the following syllable. In Mark, Ada and Stevie there is evidence to suggest that devoiced realizations [g̊] are more common before a stressed syllable. In Ben, Phil, Jenefer and Nan there is no evidence of this. In Nan, devoiced realizations are most frequent, outnumbering voiced ones by 3 to 1, over both environments. Mark has relatively more examples of [ɣ] than the other speakers. In all speakers but Nan, [g] is the predominant realization. Ada's 1 example of [g ə] occurs before L in "giggler" [g ˈɪ g əl ə].

Line 7 shows realizations of G between an unstressed vowel and Z followed by a stressed vowel, as in "example, exams, Alexandra". There is evidence of "phonemic alternation" here between /g/ and /k/. Stevie has 1 zero realization and 2 [g]'s. Phil and Ada both have 1 example each of [g] and [k̰]. Mark has only 2[k̰]'s.

Line 8. Before any consonant or a word-boundary followed by a semivowel or a consonant, only voiced realizations occur. Phil, Ada, Stevie and Nan have only [g] here. Ben and Mark have 3 and 1 examples respectively of [ɣ] to 7 and 14 respectively of [g]. Mark's one [g ə] occurs in "Magnus", a surname familiar to the family [m ˈæg ə n ɪ s].

TABLE C

G(*) in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
Cps} G(*)	7[ġ] 26[g]	11[ġ]13[g] 1[ɣ]	35[ġ]15[g] 2[ɣ]	1[ġ] 8[g]	13[ġ]35[g] 4[ɣ]	9[ġ]11[g]	3[ġ]5[g]
CbzmG(*)	2[ġ] 36[g] 2[ɣ]	2[ġ] 29[g] 7[ɣ]	24[ġ]32[g] 6[ɣ]	6[g]	16[ġ]36[g] 6[ɣ]	5[ġ]25[g] 2[ɣ]	6[ġ]4[g]
℘VG(*)	11[ġ]62[g] 23[ɣ]	7[ġ] 70[g] 55[ɣ]	43[ġ]58[g] 20[ɣ]	1[ġ]11[g]	27[ġ]85[g] 7[ɣ]	3[ġ]31[g] 17[ɣ]	15[ġ]15[g]
Ratios	1:3½ 1:9 19:1 3:1	1:1 24:1 1:18 4:1 1½:1	2:1 25:1 1:1⅔ 9:1 5:1	1:8 1:18	1:3 12:1 1:3 9:1 18:1	1:1 1:9 15:1 2:1	1:2 1:9

TABLE D

G in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
℘VNgWV		1 zero	1[g]1 zero	2[g]	2[g]	3 zero	
℘VNgLV			4[g]1 zero	1[g]	1[g]	4[g]	1[g]
℘VNgRV			1[g]		2[g]		
℘VNgGV		2[g]	2[g]	2[ġ]	5[g]	2[g]	1[ġ]1[g]
℘VG(s)(/)V́	10[g] 1[ɣ]	4[g] 1[ɣ]	3[ġ] 3[g] 4[ɣ]	1[ġ]1[g]	2[ġ]8[g]	1[ġ]8[g] 1[ɣ]	3[ġ]1[g]
℘VG(s)(/)V	8[g] 1[ɣ]	5[g]	6[g] 5[ɣ]	1[g]	7[g]1[gə]	4[g]1[ɣ]	1[ġ]
VGZV́		1[g] 1[$\overset{2}{k}$]	2[$\overset{2}{k}$]		1[g]1[$\overset{2}{k}$]	2[g]1 zero	
℘VG{/s (/)C.	7[g] 3[ɣ]	8[g]	14[g]1[ɣ] 1[gə]		8[g]	1[g]	2[g]

<u>Ch</u>

This diaphoneme occurs in such words as "church, Churchill, chocolate, charges, Richard, teaching, watch, French, question, congestion" etc.

There is little variation in the realizations of this diaphoneme. The predominant realization in all environments except one is [tʃ].

<u>Line 1</u>. Word-initially and after any consonant but <u>N</u> and <u>S</u>. [tʃ] is the only realization in Nan, Stevie, Phil and Jenefer. Ben and Ada have 1 example of [tɕ] each to 19 and 18 of [tʃ] respectively. Mark has 1 [tɕ] and 2 [ʃ]'s to 10 [tʃ]'s. Mark, after 1 of the 2 [ʃ] realizations, pauses and repeats the word in question [əʃˈəɪp̚ tʃˈɪip̚] "a cheap-cheap". This suggests dissatisfaction for some reason or other with the [ʃ] realization, and a preference for [tʃ].

Examples:- "to church" [ʔətʃəːtʃ], "what chocolate" [wˈɔʔtɕˈɔkʰlɪʔ], "he charges" [iʃˈɑːdʒɪz].

<u>Line 2</u> shows realizations of <u>Ch</u> in the only environment where [tʃ] is not the predominant realization. The environment is word-medial after <u>S</u>. <u>Ch</u> in this environment only occurs in the material in two words - "questions" and "congestion". The latter word only occurs once, in Ada, who pronounces it with [d̥ʒ]. An analogy might conceivably be drawn between this realization and those of <u>P</u>, <u>T</u>, <u>K</u> after <u>S</u> found in all speakers, which are generally

more lenis than realizations elsewhere.

Mark pronounces "questions" 3 times with [tɕ] and once with [ɕ] and Jenefer pronounces the word once with [tʃ].

Examples: "congestion" [kʰənd͡ʒέʃ d͡ʒ ə̃], "questions" [kʰwέst nz] [kʰwɛsɕənz] [kʰwέ ʃtʃə nz].

<u>Line 3</u> shows realizations of <u>Ch</u> word-medially or finally between <u>N</u>, a semivowel or any vowel but <u>I</u> or <u>Ee</u> and a vowel or <u>Y</u>. Here, as in line 1, Nan, Stevie, Phil and Jenefer have only [tʃ]. 1 alveolo-palatal realization again occurs in both Ben and Mark, who also have 6 and 10 examples of [tʃ] respectively. Their alveolo-palatal realizations are fricatives [ɕ], not affricates [tɕ] as in line 1. In line 1 Mark does, however, have 2 fricative realizations [ʃ] and there is probably no significant connection between fricative manner of articulation and alveolo-palatal place of articulation. These two factors are probably independent variables which may or may not combine in any one realization.

Ada has in this environment 7 examples of [tʃ], 1 fairly strongly aspirated realization [tʃʰ] in "Churchill" and an example of [ˀʃ], a realization found in her only in this environment, and in her and Mark in some other environments.

Examples:- "watch it" [wɔ́ɕɪʔ], "such a [s ɨtʃ ɨ], "watch the" [wɔ́ʔʃðə], "Churchill" [tʃə́: tʃʰəʊ].

<u>Line 4</u> shows realizations of <u>Ch</u> word-medially and finally between <u>I</u> or <u>Ee</u> and a vowel or <u>Y</u>. Here alveolo-palatal realizations may be relatively somewhat more common than after other vowels. <u>N</u>

or a semivowel (line 3). In line 3 the ratio of alveolo-palatal to palato-alveolar realizations is, over all speakers, roughly 1.22. After <u>I</u> or <u>Ee</u> and before a vowel or <u>Y</u> the corresponding ratio is 1:8. The figures for alveolo-palatal realizations are in both environments small and it is uncertain what significance can be attached to these ratios.

In this environment Nan and Phil have only [tʃ]. Ada has 11 [tʃ]'s to 1 [tɕ], Mark has 5 [tʃ]'s to 2 [tɕ]'s and Stevie 2 examples of both [tʃ] and [ʃ]. There are no examples in Ben or Jenefer.

Examples:- "Richard" [ɹ ɪ ʃ ə d], [ɹɪtɕ ɪ d], "teacher" [t^{s}´əɪ tɕ ə ɹ], [t^{s}´ɪi tʃ ə].

<u>Lines 5 and 6</u> show realizations of <u>Ch</u> word-medially or finally between a vowel, semivowel or <u>N</u> and a consonant or <u>W</u>, <u>L</u>, <u>R</u>. The two lines have been kept separate to demonstrate that the 2 occurrences of [dʒ] are before voiced diaphonemes. Since there are more than 3 times as many examples of <u>Ch</u> before voiced diaphonemes than before voiceless ones, these 2 examples of [dʒ] may have no more than an "accidental" connection with their environment.

The two lines also show different patterns of variation for Mark who has 6 [tʃ]'s and 1 [dʒ] before voiced diaphonemes and 2 [ʔʃ]'s before voiceless ones. There is no "phonetic reason" for this difference and it may have no significance although, on the basis of the present figures, it cannot be disregarded. In all other respects, the patterns of variation shown in lines 6 and 7 do not differ from one another in any way that can be called significant.

Over both environments there is the same preference for [tʃ] and the same occasional examples of [ʃ] and [tɕ] as found elsewhere. In Ada, however, there are more examples of realizations with [ʔ], either [ʔʃ] or [ʔtʃ'] preconsonantally (these lines) than prevocalically (lines 1,2,3,4). Prevocalically she has 1 example of [ʔʃ] to 40 realizations without [ʔ]. Preconsonantally she has 5 examples of either [ʔʃ] or [ʔtʃ'] to 10 realizations without [ʔ]. A similar tendency is observable to a lesser degree in Mark, who has 2 [ʔʃ]'s preconsonantally to 7 realizations without [ʔ] and no realizations with [ʔ] prevocalically. No speakers besides Ada and Mark have such realizations with [ʔ] in any environment.

Examples:- "much better" [mˈɐ tʃbˈɛ tˢə], "which one" [wɪ dʒwˈɐ n], "teach these" [tˢˈeêʔʃðˈɛ̌êz], "much because" [mˈɐ ʔtʃ'kəz].

<u>Line 7</u> shows utterance final realizations of <u>Ch</u>. Here Ben and Nan have 1 [tʃ] each and Phil has 4 [tʃ]'s. Affricates with a prolonged fricative element occur in Stevie and Ada. I had the impression of a degree of hesitancy or nervousness in the speaker when such sounds were used. Stevie has 3 [tʃ]'s to 2 [tʃ:]'s. Ada has 1 [tʃ:] to 5 [tʃ]'s and 2 ejective [ʔtʃ']'s. Mark has 6 ejectives [ʔtʃ'] to 6 examples of [tʃ], 1 of [d̥ʒ] and 1 of [ʔtʃ] ([tʃ] preceded by [ʔ] but articulated with lung air, not ejectively). Mark's [d̥ʒ] occurs in "watch!" shouted very loud.

Examples:- "much" [mˈɐtʃ:], [mˈɐ ʔtʃ'], [mˈɐtʃ].

Ch in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
CxN, S} Ch	19[tʃ]1[tɕ]	12[tʃ]	10[tʃ]1[tɕ] 2[ʃ]	2[tʃ]	18[tʃ]1[tɕ]	20[tʃ]	4[tʃ]
VSChV			3[tɕ] 1[ɕ]	1[tʃ]	1[dʒ]		
VxEe, I/N} Ch(/)(Y)V	6[tʃ] 1[ɕ]	8[tʃ]	10[tʃ]1[ɕ]	1[tʃ]	7[tʃ]1[tʃʰ] 1[2ʃ]	8[tʃ]	2[tʃ]
Ee/I} Ch(/)(Y)V		3[tʃ]	5[tʃ]2[tɕ]		11[tʃ]1[tɕ]	2[tʃ]2[ʃ]	1[tʃ]
V(N)Ch(/){SxY, Cbzm}	8[tʃ]	3[tʃ]1[dʒ] 1[ʃ]	6[tʃ]1[dʒ]	1[tʃ]	8[tʃ]1[tɕ] 4[2ʃ]	7[tʃ]	1[tʃ] 1[ʃ]
V(N)Ch(/) Cps	1[ʃ]1[tɕ]	2[tʃ]	2[2ʃ]	1[tʃ]	1[tʃ] 1[2tʃ']	1[tʃ]	2[tʃ]
V(N)Ch,	1[tʃ]	4[tʃ]	6[tʃ]1[dʒ] 6[2tʃ']1[2tʃ]		5[tʃ]1[tʃ:] 2[2tʃ']	3[tʃ]2[tʃ:]	1[tʃ]

J

This diaphoneme occurs in such words as "George, judge, just, Jewish, jaw, 'Midgie', wages, lodging, Edgeware, Belgium, changes, challenge, village, sausage, knowledge, bridge, objection, subject" etc.

Easily the most common realizations of this diaphoneme are the affricates [dʒ] and [d̥ʒ]. Relative frequency of voiced and devoiced affricates varies according to environment and also from one individual to another. This may be seen from the following table.

J in env.	ADA	MARK	NAN	JENEFER	STEVIE	PHIL	BEN
{V, S, Czbm} J {V, S, Czbm}	19[dʒ] 32[d̥ʒ]	20[dʒ] 26[d̥ʒ]	3[dʒ] 3[d̥ʒ]	5[dʒ] 6[d̥ʒ]	26[dʒ] 8[d̥ʒ]	22[dʒ] 8[d̥ʒ]	26[dʒ] 6[d̥ʒ]
elsewhere	 21[d̥ʒ]	3[dʒ] 31[d̥ʒ]	 3[d̥ʒ]	6[dʒ] 6[d̥ʒ]	5[dʒ] 14[d̥ʒ]	4[dʒ] 6[d̥ʒ]	6[dʒ] 3[d̥ʒ]

Wholly voiced affricates [dʒ] are relatively more common between two voiced diaphonemes than elsewhere. Elsewhere i.e. before or after a voiceless diaphoneme or a pause, devoiced affricates [d̥ʒ] are relatively more common. This general statement is true of all speakers except Jenefer. In her, voiced and devoiced realizations are in about equal proportions in both environments. The figures for her are, however, not as large as those for other speakers, except Nan, and an extension of the corpus might reveal that Jenefer, too, followed the general trend in the matter of voicing her realizations of J.

In the table above the individuals are entered in order of their preference for devoiced realizations. In Ada the ratio of voiced realizations to devoiced ones is roughly 1:3, in Mark it is about 1:2½, in Nan about 1:2, in Jenefer roughly 1:1, in Stevie approximately 1½:1, in Phil about 2:1, and in Ben roughly 4:1.

After the affricates [dʒ] and [d̥ʒ] the next most common realization of J̲ is a fricative [ʒ] although compared to [dʒ] and [d̥ʒ] this is relatively infrequent.

[ʒ] is most common word medially after a vowel. Only on 4 occasions does it occur word initially. On 3 of those occasions it is in the word "just", once each in Ada, Jenefer and Phil. On the other occasion [ʒ] occurs initially in "Jen" in Mark's speech.

Word medially or finally and after a vowel, Stevie has 7 examples of [ʒ], Ben 3, Jenefer and Mark 2 each and Phil 1.

Phil and Stevie have 3 and one pronunciations respectively of [dj]. These are in "wages" [wˈæɪdjɪz̥], "it jumped" [ɪʔdjˈɐmp̚], "they just" [ðedjɨsth] and "prejudiced" [phɹˈɛdjɨdɪs].

The only other realization recorded for J̲ is [dz] in Stevie's speech in "stage sort" [stˈɛɪdz sˈo:ʔ].

F

This diaphoneme occurs in such words as "first, farm, father, French, five, fifty, frightened, fly, few, Stratford, Oxford, conform, wife, life, laughs, shift, coffee, before", etc.

By far the most common realization of F in all positions and in all individuals is [f].

Word initially, postconsonantally and word medially before a stressed vowel Phil, Stevie and Jenefer have [f] only. Ada has all [f]'s except for one instance of [v̥] in "she feels" [ʃv̥ə́ʊz̥]. Nan has all [f]'s except for one [v̥] in "Mansford" [mæ̂: sv̥ əd]. Mark has all [f]'s except for three cases of [ʔ̌]; these are in "Daneford" [dɛ̃́ɪʔ̌əd], "Clark five" [kʰlɑ́ʔk̚ʔ̌ɒ́ɪv] and "five" [ʔ̌ɑ́ɪv] chanted loudly and rhythmically in a sequence of numbers.

In this position Ben has a number of plosive realizations [Fʰ] and [F] and one instance of [pʰ] in "in France" [ɪmpʰɹɒ̂:s].

Ben has 99 labiodental fricatives [f] and [v] to 17 labiodental plosives [Fʰ] and [F]. The incidence of plosive realizations does not appear to be conditioned by any particular environment. Ben is the only speaker who has such plosive realizations of F, although Nan has two labiodental plosive realizations of F* as only in unstressed "for, from". Of Ben's 99 labiodental fricatives, 4 are lenis [v̥], the rest fortis [f]. The 4 [v̥]'s are all utterance initial e.g. "four" [v̥ ɔ :], "finished" [v̥ɪ́d ɪʃtᶜ]. Of his 17 plosives 2 are unaspirated [F] e.g. "you fart" [ʒəF ɒ́:ʔ],

and the rest are aspirated [Fʰ] e.g. "before" [bəFʰɔ́:ɹ], "Stratford" [stɹǽʔFʰəd], "France" [Fʰɹɒ̀:s]

F* as only in unstressed "for, from" has realizations which vary according to somewhat different patterns from the above in some speakers. Ada's, Stevie's and Jenefer's realizations of F* ("for, from") do not differ from their realizations of F. Nan, as has been mentioned above has 2 plosive realizations of F* in "for" whereas she has no plosive realizations of F. Nan's 2 plosive examples are in "work for" [wə́:k̚ʔFʰə] and "this for" [z̑ɪsʔəɹ].

Ben's Phil's and Mark's realizations of F* as only in "for, from" are shown in the following table

F* ("for, from") in. env.	BEN	PHIL	MARK
Cx, {Cm, [ʔ]} F*	20[f] 1[Fʰ]	7[f]	14[f] 1[ʔ̌]
{Cm, [ʔ], S, V} F*	8[f] 1[Fʰ] 1[v] 4[ʔ̌]	10[f] 20[ʔ̌] 1[v] 2[ʔ]	20[f] 1[ʔ̌] 1[v]

What emerges from this table is the following: After a pause, or any consonant not realized as [ʔ] or any consonant other than M, N, Ng, F* as in "for from" has realizations which vary according to the same pattern as realizations of F word initially, post-consonantally and word medially before a stressed vowel. Mark's one example of [ʔ̌] is in utterance initial "for God's sake" shouted very loud.

However, after a vowel, a semivowel, a nasal consonant or a consonant realized as [ʔ], many glottalized realizations of F* ("for, from") occur. In cases where the F* follows a consonant realized as [ʔ] and the two-diaphoneme sequence is realized as [ʔ̰] as in "not for a " [nɔ́ʔ̰ə], [ʔ] is analyzed as being "shared" by both diaphonemes. Where there is definite labiodental friction as in "went for a " [wɛ̃ ʔfɹə], F* is not regarded as having a glottalized realization.

In Phil glottalized realizations outnumber non-glottalized ones in a ratio of roughly 2:1, in Ben and Mark the situation is reversed; they have glottalized realizations in ratios of roughly 1:2½ and 1:2 respectively to non-glottalized realizations. Two of Phil's 22 glottalized realizations have no labiodental quality, being solely [ʔ]. This does not occur in Ben or Mark.

In this position Ben, Mark and Phil have one voiced, non-glottalized realization [v] each. Ben has a plosive [Fʰ].

Examples: "him for" [əɱfəɹ], [ɪ mFʰ ə], "came from" [kʰǼɪmfɹəm]. "come from" [kʰɐ́mʔ̰ɹm], "off from" [ɔ́:ʔ̰ɹm], "pay for" [pʰǼEʔ̰ə], "pound for" [pʰÃ: vɹ], [pʰÁɱʔ̰ə], "boy for" [bɔ́ɪʔɹ].

Word medially between any vowel or semivowel and an unstressed vowel or a semivowel plus unstressed vowel and also word finally between a vowel or semi-vowel and a vowel or semivowel, glottalized and voiced non-glottalized realizations also occur. Again these are far more common in Ben, Phil and Mark than in the other speakers and again they are far more common in certain specific words for which special diaphonemes F* have to be postulated. These facts are illustrated by the table on the next page.

Word medially between a stressed vowel and an unstressed one (with or without intervening semivowels) [f] is the only realization of F in Phil, Jenefer, Stevie and Nan. In Mark and Ben there are glottalized realizations [ˀ̌] in a ratio of about 1:3 to [f]. Ada has two instances of [v]. These same patterns of variation are also found, as far as the figures allow a judgement, in realizations of F* as in "differen(ce/t" in Ben, Jenefer, Ada, Stevie and Nan. In Phil and Mark, however, glottalized and/or voiced non-glottalized realizations are much more common. In Mark [ˀ̌] and [ʔ] together outnumber [f] by 4 to 1. Phil has 3 voiced realizations and a glottalized one to 4 voiceless fricatives [f].

Examples:- "coffee" [kʰɔ́ fɪ], [kʰɔ́ˀ̌əɪ], "differen{ce/t" [dɪ́fɹəns], [dɪ́ˀ̌ ɹənʔ] [dɪ́ˀ̌ən], [dɪ́ˀ̌ɹən], [dɪvɹənts].

Word medial F* occurs between two unstressed vowels most commonly in the words "beautiful, wonderful, Jenefer". Apart from in these words it occurs a few times in "before" when the final syllable is unstressed, and in "Spitalfields", the name of the market where Stevie buys his fruit wholesale and once in "qualifications". In these latter two words, the predominant realization of F in this position, is, in the individuals in which it occurs - Mark, Ada and Stevie, [f]. There is only one instance of another sound, [v], in Stevie. In the words "wonderful, beautiful, Jenefer", this same pattern of variation is repeated in Ada and Stevie, who have only [f] realizations. In Mark, Phil and Ben [f] is far less popular as a realization of F* ("wonderful" etc.) than [ˀ̌] and [v].

F(*) in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
$\overset{/}{V}$(S)F(S)V	6[f]2[$^{Y}_{?}$]	2[f]	8[f] 3[$^{Y}_{?}$]	2[f]	16[f]2[v]	3[f]	2[f]
"differen{ce / t"	1[f]	4[f] 1[$^{Y}_{?}$] 3[v]	1[f] 3[$^{Y}_{?}$] 1[?]	1[f]	4[f]	5[f]	1[f]
VFV			3[f]		1[f]	5[f] 1[v]	
"wonderful" "beautiful" "Jenefer"	1[f] 4[v]	4[f] 4[$^{Y}_{?}$] 1[v]	1[$^{Y}_{?}$] 1[v]		4[f]	4[f]	
$\overset{(/)}{V}$(S)F/(S)$\overset{(/)}{V}$	6[f]2[$^{Y}_{?}$] 2[v]	1[f] 3[$^{Y}_{?}$]	1[f]	1[f] 1[$^{Y}_{?}$]	6[f]	5[f]	2[f]
"if" "off" } +(S)$\overset{(/)}{V}$ "self"	4[f]4[$^{Y}_{?}$]	7[f] 9[$^{Y}_{?}$]	14[f]8[$^{Y}_{?}$]	4[f]	22[f]1[$^{Y}_{?}$]	21[f]1[$^{Y}_{?}$]	6[f]1[F^{h}]
"half a"	6[v]	2[v] 1[?]	2[v]1[?]		1[v]	2[v]	

Mark in fact has no example of [f], only one each of [ʔ̌] and [v]. Ben has 4 [v]'s to 1 [f] and 4 [ʔ̌]'s and one [v] to 4 [f]'s.

Jenefer and Nan have no pronunciations of any of these words.

Examples: "before" [bəfɔ́ː], "Spitalfields" [spɪ́ʔə fɪʊdz], "wonderful" [wə́n̩əvʊ], [wɐ́ndəfo], "beautiful" [bjǿːdəfʊ], [bjʊ́dəʔ̌ʊ̃], [bjŒ́ːʔɪvo].

Word final F between vowel or semivowel and vowel or semivowel is realized only as [f] in Mark, Ada, Stevie and Nan. Jenefer has one instance of [ʔ̌] to one of [f]. In Ben 2 [ʔ̌]'s, and 2 [v]'s occur, but [f], of which there are 6 examples, is still the predominant realization. Phil has 3 [ʔ̌]'s to 1 [f]. As far as the figures allow a judgement, these patterns of variation are repeated in the realizations of F* ("if, off, self, half a ") in Jenefer, Ada, Stevie and Nan. Jenefer has only [f]'s (I think it may safely be assumed that her one [ʔ̌] mentioned above is something of a statistical freak). Nan has 6 [f]'s and a plosive [Fʰ] in "if". Ada and Stevie have 1 [ʔ̌] each, 1 and 2 [v]'s and 22 and 31 [f]'s respectively.

Again in Ben, Phil and Mark there are relatively many more instances of [ʔ̌] and [v]. As in "wonderful, beautiful, Jenefer", Phil has the most glottalized realizations and Ben the most voiced, non-glottalized ones. Phil, Ben and Mark have glottalized realizations in approximate ratios of 1:1, 1:2½, and 1:2 to non-glottalized (voiced or voiceless) ones. Of the non-glottalized realizations [f] and [v] are in approximate ratios of 1:1½ in Ben, 1:3½ in Phil and 1:7 in Mark.

Examples:- "half of" [ɑ́:fəv], "half a" [ɑ́:fə], [ɔ́:ʔ̌ə], [ɑ́:ʔə], "if you" [ɪfjY], [ɪʔ̌jə], [ɪʔjʊ́:].

Prepausally and preconsonantally there is much the same sort of variation as word-finally before a vowel or semivowel. There are quite a few glottalized realizations in "if, off, self", especially in Mark, Ben and Phil. The predominant realization of F in this position is however [f] for all individuals.

F* as only in "half-past" occurs twice in Mark and once in Ada and is realized as zero on all three occasions [ɑ́:ʔpɑ́:s].

In Ben the sequence F*T* as in "after" is realized once as [ʔ̌], [ɑ́.ʔ̌tə] and once as [ʔt], [ɑ́:ʔtə]. Elsewhere in Ben and in all other individuals "after" is pronounced with [ft].

Th

This diaphoneme occurs in such words as "thing, thought, thimble, three, thirty, thousand, third, myths, birthday, breath, health, healthy, Matthew's, atheist, enthusiastic," etc.

The variations found in realizations of this diaphoneme and of the various Th*'s indicate an instance of "systemic alternation". Where RP has 2 phonemes /θ/ and /f/, "pure Cockney" would probably be analysed as having only one /f/. Words which are pronounced with apico-dental sounds in RP very often have labio-dental sounds in Cockney.

The degree of this alternation varies between individuals. Stevie and Mark strongly favour labio-dental realizations. In word initial position and also word medially before a vowel or semivowel, Stevie and Mark have ratios of labiodental to apico-dental realizations of roughly 5:1. The other speakers favour apicodental realizations equally strongly. Ada has apicodental realizations in a ratio of roughly 13:1 to labiodental ones. For Jenefer the figure is about 15:1 and for Phil about 30:1. The ratios given for Jenefer and Phil cannot be taken too exactly as they are based on only one and two examples respectively for each speaker of a labiodental realization. In Nan the ratio is about 5:1, but this figure is based on only 3 examples in her of labio-dental realizations. Ben has no labiodental realization in this or in any other position. The systemic alternation does not appear to operate in his speech. For his brand of Cockney one would analyse (at least from the present corpus) that /θ/ was a fully established phoneme.

Ada, Phil and Jenefer, all of whom strongly favour apicodental realizations word initially, appear to do so not at all or at least less strongly word finally and word medially before a consonant although the figures here are scarcely adequate for firm conclusions. In this position Ada has 3 apicodental realizations to 7 labiodental ones; Phil has 1 apicodental realization to 2 labiodental ones and Jenefer 3 apicodental realizations to 1 labiodental. In Nan this tendency cannot be observed. She has 6 apicodental realizations and no labiodental ones. In Mark and Stevie who word-initially strongly favour labiodentals, there is some slight evidence that Stevie does so more strongly and Mark less strongly word finally. Mark has 3 apicodental realizations to 7 labiodental and Stevie has 2 apicodental realizations to 15 labiodental ones. In Ben, of course, there are no labiodental realizations.

In Ada and Stevie a very few "compromise" pronunciations of [fθ] have been recorded word initially and word finally.

The realizations termed broadly "apicodental" above vary according to their environment and also from speaker to speaker. Apicodental affricates [t̪͡θ] or [d̪͡ð] are quite common in Ben and Nan. Word initially and word medially before a vowel or semi-vowel, Ben has 15 affricates to 35 apicodental fricatives. Nan has 7 examples of [t̪͡θ] to 9 apicodental fricatives. Phil has 1 [t̪͡θ] to 58 apicodental fricatives and Jenefer has 1 voiced affricate [d̥ð] to 14 apicodental fricatives. Ada, Stevie and Mark have no affricate realizations.

In Ben the majority of these affricates are found after N in which position he has 8 of them and 1 fricative.

Nan has 2 affricates and 2 fricatives after N. In Nan the majority of affricates are utterance initial. She has 4 affricates and no fricatives utterance initially. Ben has no affricates and 2 fricatives in this position. Both Phil's and Jenefer's affricates occur utterance initially.

Word finally or word medially before a consonant there are no examples in any individual of affricates.

After S and Z Ben has 2 examples of [s̯] and no other realizations. In this position Mark has [f] twice, Ada [θ] twice and Stevie one example of [f].

Of the realization~ termed broadly "labiodental" above, all but four are fricatives [f], [v] or [v]. Nan has one voiceless labio-dental plosive [F^h]. It occurs in the word "nothing". Mark has 2 glottalized realizations, [ʔ̬], one occurring in "nothing" and the other in utterance initial "three" chanted rather loudly while counting from 1 to 10. Phil has one [ʔ̬] word finally in "pennyworth of".

The above paragraphs refer both to Th and to the various diaphonemes symbolized Th* to which specific reference will be made below.

Between 2 consonants Th may have some realizations other than those mentioned above. In "months" and/or "lengths" it is realized in Phil as [t] twice and also in Ben as [t] twice. Jenefer has one example of [f] and Ada and Nan one example each of [ʔ]. In "sixth" before a consonant or a pause Ben, Phil, Jenefer and Ada all have zero as a realization of Th. Ada also has zero as a realization of Th in "fifth Avenue".

The realizations of Th* in "something, nothing, anything, everything, I think, you think, don't think, didn't think, shouldn't think, wouldn't think (when the T* in the negative "--n't" is realized as zero), no thanks," show a wider degree of variation than those of Th and also some variations of a different kind. The statements made above about the variation between apicodentals and labiodentals, affricates and fricatives are not affected in any way by this difference. The additional kinds of variation, found almost exclusively in realizations of Th* are between voiced and voiceless, nasalized and non-nasalized, apico- or labiodental and glottal sounds.

The phonetic environments provided by the words and phrases in the above list are quite uniform, being either:- nasal consonant plus Th* plus vowel plus nasal consonant as in "something, don't think, didn't think, shouldn't think, wouldn't think" or vowel plus Th* plus vowel plus nasal consonant, as in the remainder of the above list.

In "something" the M* may be realized as [m], [β̃], [˜] (a non-labialized nasalization of the adjacent sounds) or zero.

After [m] and [β̃] zero is the most common realization of Th*. Mark uses it 10 times out of a possible 10 in this position. Stevie uses zero 7 times to 1 use of [ð]. Phil uses zero twice, [ð] once and [ð̃] once. Ben and Jenefer both have 1 use of zero each as their only examples of realizationof Th* in this position. Ada has 1 example of [ð] and 3 of [θ]. Nan has no recorded pronunciations of "something".

M* in "something" is realized as [~] or zero only in Ben, Phil and Mark. After these realizations of M* Ben has 1 example of [ð], Phil 2 of [ð] and one of [ð̃] and Mark one of [ð̃].

It can be seen from this that the realizations of M* and Th* in "something" are to a large extent interdependent. When one is realized as zero the other never is. Of the 32 occurrences of "something" in all speakers, only 7 have realizations other than zero for both M* and Th*. (Interpreting, for this purpose [ð̃] preceded or accompanied by no labialization, as a realization of Th* only.) Of these 7, 4 are in Ada.

Treatment of the diaphonemic sequence M*Th* in "something" varies, then, from speaker to speaker. In the corpus Stevie, Jenefer and Mark have a strong tendency to "drop" the Th* but not the M*, Ben "drops" each once, Phil "drops" each about an equal number of times but uses a few pronunciations where neither is "dropped" and Ada never "drops" either.

The zero realization of Th* which is widespread in "something", is rare in other words (except, as stated above, in "sixth") It occurs twice in Ben in "nothing" and once in Phil in "anything".

It does not occur (apart from in "somewhere" and "sixth") in other speakers.

Realizations other than zero of <u>Th</u>* in the words and phrases listed above vary in the matter of voicing. In Phil voiced sounds outnumber voiceless ones by about 2:1. In all other speakers voiceless sounds preponderate over voiced ones and in the following approximate ratios.- Stevie 2:1, Jenefer and Ben 4:1, Ada 15:1, Mark 29:1. The ratios given for Jenefer and Mark are based on only one example for each of a voiced sound. Nan has 10 voiceless sounds and no voiced ones.

Realizations of <u>Th</u>* also vary in the matter of nasalization. In Ada there is the highest proportion of nasalized sounds. She has them in a ratio of roughly 1:3 to non-nasalized sounds. The corresponding ratios for the other speakers are roughly:- for Phil 1:5, for Nan 1:9, and for Ben, Stevie and Mark 1:22, 1:26 and 1:29 respectively. The ratios given for Nan, Ben and Mark are based on only one example in each of a nasalized sound. The ratio given for Stevie is based on only 2 examples of nasalized sounds. Jenefer has no examples of nasalized rounds and 5 of non-nasalized ones.

In some speakers there is evidence that voiced sounds are more often nasalized than voiceless ones. The figures are not adequate to indicate reliably such a tendency but in Ben, Phil, Mark and Stevie they seem to point in that direction. Of Ben's 4 voiced sounds, one is nasalized; of his 19 voiceless sounds, none are nasalized. In Phil 5 out of 22 voiced sounds are nasalized, only one out of 11 voiceless sounds is nasalized. Mark's one voiced sound is also his only nasalized sound. Of Stevie's 20 voiced sounds, 2 are nasalized; of his 34 voiceless sounds none are nasalized. This tendency is not apparent in Ada in whom nasalized sounds are in a rough ratio of 1:3 to non-nasalized sounds in both voiced and voiceless sounds. Jenefer has no nasalized sounds and Nan no voiced sounds and one cannot tell whether this tendency operates in their speech or not.

In Ada and Stevie there are a very few instances of glottal fricatives used as realizations of <u>Th</u>* in the above listed words and phrases. These may vary, like the other realizations, in the matter of voicing and nasalization. Ada has one voiced and one voiceless glottal fricative, both nasalized, and Stevie has a voiced, nasalized glottal fricative.

In <u>Th</u>* as only in "Bethnal" Nan has one example of [h̃], 2 of [θ̃]. Mark and Stevie have one and 2 examples of [f] respectively and Ada has one example of [θ].

Besides the sounds already referred to above, several others occur as realizations of <u>Th</u>* in "something ....I think...." etc.

Ben has 1 [ʃ], probably a "slip of the tongue". He may have been confused as to whether he wanted to say "should" or "think".

Mark has one example of [ʔ]. In <u>F</u> as well a few realizations of [ʔ] are to be found in Mark's speech.

Stevie has 1 example of [h̊] probably a case of "bad aim".

This sound is not dissimilar to [$\tilde{ð}$]. Stevie also has 2 examples of a particularly weak voiced labiodental fricative [$\mathring{v}$] and one of [w], again probably a case of "bad aim". [w] is not dissimilar to [$\mathring{v}$].

In <u>Th</u>* as only in "youths" Mark has 3 realizations of [f].

In <u>Th</u>* as only in "height", Ada has one realization of [f] and Jenefer has 2 of zero.

"Walthamstow" only occurs twice in the corpus. Nan pronounces it once with [t^s] between the first and second syllables and Phil pronounces it once with [ʔ] at the end of the first syllable followed by a syllabic [m]. This would seem to indicate that "Walthamstow" should be spelt with <u>T</u> rather than <u>Th</u>, as in RP, as [t^s] and [ʔ] are the two commonest realizations of <u>T</u> and either vary rare or unheard of as realizations of <u>Th</u>. Without further evidence no conclusion can be reached on this. The investigator would be surprised not to discover realizations of [θ], however, and for this reason the word has been spelt diaphonemically with <u>Th</u>. A. Lloyd James "Broadcast English" Vol.II spells the word with /θ/ and his chief objective is "that the names [English Place-Names] shall be pronounced in a way that is clearly recognized by the inhabitants of the places named." (p.5) Pronunciation with /t/ is the older pronunciation and that with /θ/ a newer "spelling" pronunciation.

Th in env.	BEN	PHIL	MARK	JENNIFER	ADA	SYLVIE	NAN
,Th	2[θ]	6[θ]1[t̪θ] 1[f]	1[θ]3[f] 1[ʔ]	2[θ]1[d̪ð]	4[θ]1[f]	2[f]	4[t̪θ]
N/Th	6[t̪θ]	2[θ]	3[θ]6[f]	1[θ]	1[θ]		1[θ]
N/Th* in "..n't think"	1[t̪θ]1[d̪ð] 1[ð̃]	1[θ]1[θ̃] 2[ð]2[ð̃] 1[f]		1[ð]	2[t̪θ] 1[θ]1[θ̃]	2[f]2[v] 1[ɸ]1[w]	1[t̪θ]1[t̪θ̃] 1[θ]
S/Z/Th	2[s̪]		2[f]		2[θ]	1[f]	
C/Th	4[θ]1[t̪θ]	2[θ]	11[f]	1[θ]1[f]	14[θ]2[f]1[fθ]	1[θ]2[f]	1[ð]
M[m] or[β̃]Th* in "something"	1 zero	1[ð]1[ð̃] 2 zero	10 zero	1 zero	3[θ]1[ð]	1[ð]7 zero	
M[~]or zero Th* in "something"	1[ð]	2[ð]1[ð̃]	1[ð̃]				
V(s)/Th	9[θ]1[t̪θ]	13[θ]1[ð]	3[θ]16[f]	4[θ]	13[θ]1[θ̃] 2[fθ]2[f]	1[fθ] 6[f]1[v]	2[θ]
V/Th* in "I think, you think" & "no thanks"	3[θ]2[t̪θ] 1[ð]1[ʃ]	6[θ]5[ð]	5[θ]18[f]	2[θ]	26[θ]9[θ̃] 2[ð]1[h] 1[fθ]2[f]	5[θ]14[f] 1[ð]3[v]	1[θ]

Th in env.	BEN	PHIL	M[illegible]K	J[illegible]	[illegible]D[illegible]	ST[illegible]VI[illegible]	[illegible]AN
V(S)(N)Th(S)V	3[θ]	1[ə]		1[ə]	2[ə]	2[ə]4[ɨ]	1[f]
VTh* in "nothing"	2[ə]2[t̪ə] 2 zero	1[θ]3[ð]	2[f]1[ʔ]	1[ə]	1[ə]3[ə̃] 1[ɦ̃]	2[ð]1[ɦ] 10[f]1[v]	2[θ]1[t̪ə] 1[f]1[F]
VTh* in "any / every} thing"	7[ə]1[t̪ə]	2[θ]4[ð] 1[ð̃]1 zero	4[f]	1[θ]	6[θ]1[ə̃] 1[f]	3[f]5[v] 1[v̊]1[ɦ̃]	1[θ]
V(S)Th/V		1[ʔ]	1[ʔ]	1[ə]	2[θ]1[fə] 1[f]	1[f]	1[θ]
V(S)Th{/S, (/)C	1[ə]	1[f]	3[ə]6[f]	2[ə]1[f]	7[f]	2[ə]11[f]	2[θ]
Th* in "Bethnal"			1[f]		1[θ]	2[f]	2[θ̃]1[h̃]
V(N)Th,		1[θ]			1[f]	1[f]	1[θ]
VNg/VN} ThS	2[t]	2[t]		1[f]	1[ʔ]		1[ʔ]
VKSTh{;, C	2 zero	2 zero		2 zero	1 zero		
VFTh/V					1 zero		
VThS* in "youths"			3[f]				
Th* in "height"				2 zero	1[f]		
Th* in "Walthamstow"		1[ʔ]					1[t^s]

S and Z* ("is, has") in env. CpsZ*

The diaphoneme S occurs in such words as "so some, six, slow, switch, sport, stories, pass, ghost, listened, sister, suicide, kisses, asks, hats," etc.

The diaphoneme Z* ("is, has") in the environment"immediately following a voiceless consonant", has patterns of variation which are identical with those of S in a similar environment, and it may be assumed that any statement about realizations of S also applies to realizations of Z*("is, has") in env. CpsZ*, except of course when the particular environment of S to which reference is being made specifically excludes S after a voiceless consonant. In this connection the rule for the "dropping" of T* in "what's, it's, that's" (see T line 39) comes after the rule stating that Z* ("is, has") in env. CpsZ* has the same realizations as S. However, the rule for the "dropping" of T* in "what's, it's, that's" precedes rules relating S and Z* ("has, is") directly to their phonetic realizations. Thus the following set of transformations might take place in the derivation of the phrase "it is a"

I T* I*Z* & ⟶ I T*Z* & ⟶ I T* + X + &

(X represents an abstraction made necessary by the theoretical basis of the procedure for postulating diaphonemes. No word may have more than one diaphonemic shape. This precludes the possibility of a rule such as Z → S (rewriting one diaphoneme as another). Such a rule would be tantamount to saying that "is" had 2 diaphonemic shapes, one with Z and one with S.) The derivation continues:-

<u>IT</u>* + X + <u>&</u> ⟶ <u>I</u> + X + <u>&</u> ⟶ [ɪ] + X + [ə] ↗ [ɪs ə] (frequently) ↘ [ɪzə] (rarely)

In Ada, Jenefer, Nan and Phil all realizations in all environments are voiceless. Stevie has 2 voiced realizations and Mark has 1, alongside relatively extremely large numbers of voiceless realizations. The diaphonemes <u>S</u> and <u>Z</u>*("is, has") in env. Cps<u>Z</u>* occur about as frequently as <u>T</u>(*) or <u>N</u>. Voiced realizations are more common in Ben, who has 19 of them alongside roughly 21 times that number of voiceless realizations. To ascertain the environments in which voiced realizations in Ben are relatively more common, a comparison was made between the environments in which all 19 voiced realizations were found and the environments in which a random sample of voiceless realizations were found. The following figures were obtained:-

Between 2 voiced sounds	11 voiced realizations - 35 voiceless (roughly 1:3)
Between a voiced and a voiceless sound	1 voiced realization - 7 voiceless (roughly 1:7)
Between a voiceless and a voiced sound	7 voiced realizations - 12 voiceless (roughly 1:2)
Between 2 voiceless sounds	no voiced realizations - 1 voiceless

These figures show no significant connection between the voicing of realizations of <u>S</u> and the voicing or voicelessness of the environment. The ratio of 1:7 obtained from the figures in the second line is not reliable, as it is based on only one example of a voiced realization. Nevertheless one can safely assume (though it <u>is</u> only an assumption) that at least no voiced realization of <u>S</u> is likely between two voiceless sounds. There appears to be a significant connection between the voicing of realizations of S and the position of S in a word, i.e. initial or medial or final. Word-initially Ben has 3 voiced realizations to 23 voiceless ones - giving a ratio of about 1.7. Word-medially or -finally he has 16 voiced realizations to 32 voiceless ones - a ratio of about 1:2.

It must be remembered that these ratios are not the same as the ratios of voiced to voiceless sounds in Ben's speech, as the figures for voiced sounds refer to all voiced realizations of S in his recorded speech, whereas those for voiceless sounds refer only to the voiceless realizations of S in a small random sample of his recorded speech. Comparison of one ratio to another is nevertheless a valid method of discovering the factors conditioning voicing of realizations of S.

Sometimes not only S but also another, contiguous voiceless diaphoneme may be realized by a voiced sound, resulting in a voiced phonetic sequence corresponding to two diaphonemically voiced diaphonemes. This is rare however. For remarks on what is meant by such terms as "voiceless diaphoneme" see p 147 ff

Utterance-initial and -final examples of S were excluded from the above figures. In these environments Ben has some lenis voiceless realizations [z̥]. Comparing again with a random sample of fortis voiceless realizations, he has utterance initially 3 lenis voiceless realizations and 7 fortis voiceless realizations - a ratio of roughly 1:2. From these limited figures it appears that the relative frequency of lenis voiceless and fortis voiceless realizations utterance initially is about the same as the relative frequency of voiced and voiceless realizations word-medially and finally, utterance-medially. Utterance-finally Ben has 1 lenis voiceless realization and 5 fortis voiceless ones. No reliable ratio for the purposes of comparison can be obtained here.

Examples:- "bastard he must be" [bˈɑːzədɪβ̃ əz bˈɛe]; "that is going to" [æzgˈəː]; "he says" [ɛ̂sˈɨz]; "he said" [ɪzəd]; "shops are" [ʃɒˀpzə]; ",so" [sˈɐo], [zˈʊʊ]; "puts a " [pʰˈʊdzə];

Mark's 1 and Stevie's 2 examples are respectively:- "let's all" [ˈɛz8]; "takes a" [tˢˈɛɪgzə]; "places with" [pʰlˈɐɪzːwɪ].

All realizations in Phil, Mark, Jenefer, Ada and Nan, all but 5 in Ben and all but 1 in Stevie are fricatives. The exceptions are affricates [ts]. 3 of Ben's 5 examples occur after N. Of the others 1 is utterance-initial in "sawdust" [tsˈɔːdˈɐs] and the other occurs in "absolutely" [ˈÆbtsəlˈuːʔlɛ]. Stevie's 1 example occurs after N in "than some" [ð əntsˈʌm].

All the above statements concern the manner of articulation of realizations of S , the variation between voiced and voiceless sounds, fricatives and affricates. Voiceless fricatives are by far the most common realization of S in all individuals. And in their place of articulation these voiceless fricatives are in all individuals predominantly alveolar. Thus the most common realization of S is [s]. Certain diaphonemes following S have an affect on its realizations. These diaphonemes are Dh, Th (when realized as [θ]) Sh, Zh, Ch, J, R, Y.

Before Dh and Th (realized as [θ]) realizations of S tend to be advanced somewhat from the usual prevocalic type of realization.

The sound thus produced is "halfway between " [s] and [θ] and has been symbolized [s̪]. I am not aware of any difference between speakers in their use of this sound.

Before Sh, Zh, Ch, J, palato-alveolar realizations [ʃ] are very common, more so in fact than [s]. Again, there is, as far as I can tell, no significant difference between individuals in their realizations of S here.

The sequence SY is, more often than not, realized as [ʃ] in all individuals. Other realizations [ɕ], [ʃɹ], [ɕɹ] also occur a few times. A voiced realization [ʒ] occurs in Ben. The effect of Y on realizations of S may also take place "across" another diaphoneme. Thus STY in "stupid" may be realized as [ɕt^cɹ] and SKY in "excuse" may be realized as [ʃkɹ]. I am not aware of any difference between speakers in their treatment of S in these environments.

Before R realizations of S may be somewhat retracted from the position of the usual prevocalic type of realizations, giving [ʂ]. This type of pronunciation is far more common in Stevie than in other speakers. Here again the semivowel, in this case R, may exert an influence on realizations of S even though another diaphoneme may come between them. I have the impression that this occurs far more often in Stevie than in other speakers.

Examples:- "this the" [z̪ ɪ́s̪ ɨ]; "first thing" [fə́ɜsθɪ́ŋ]; "makes you" [mέɛ̃ˀkʃə] [mɛ́ɪɣʒə]; "Maurice Chevalier" [mɔ́ɹɪ ʃ ə vǽɪlj ə]; "it's cheap" [ɛ̃ʔʃtʃɛ́ ep^h]; "at Stratford" [ə ʔʂt ɹáʔf əd]; "that's right" [ɛ́t ʂɹ ɔ́əʔ].

In environments other than those just described, i.e. before a vowel, a consonant other than Th realized as [θ], Dh, Sh. Zh, Ch, J, or W, L (and before a consonant plus R or Y when these semivowels do not exert an influence on the realizations of S), the predominant realization in all individuals is [s]. There are a few minor variations in tongue position, slight advancing towards [s̪] or slight retracting towards [s̢]. In Phil, Mark, Jenefer, Ada and Nan there are only a very few such deviations from the norm of [s]. In Ben and Stevie, however, I have the impression that many of their S realizations are somewhat retracted from the position of [s]. This results in a sound which is more "hushing", having a rather deeper resonance than [s] and this sound has been symbolized [ʂ]. There are also some instances of alveolo-palatal realizations [ɕ] in Ben, i.e. realizations considerably more palatalized than the "normal" [s]. There are also 3 examples of voiceless lateral fricatives [ɬ] in Ben.

S* as only in "yes" is very frequently realized as zero. Where not realized as zero, its realizations vary according to the same patterns as those of S described above. I have the impression that Stevie uses zero realizations of S*("yes")somewhat less often than other speakers. "Dropping" of the S in "yes" is often regarded as uncouth and this may cause Stevie to try to remember to pronounce it wherever he can. Nevertheless, I have the impression that for Stevie, as for the other speakers, zero realizations of S* ("yes") are more common than other, voiceless fricative realizations.

Examples.- "absolutely" [ábʂ əlɛ́ʊʔləɪ] [áʔpsl:ʊ́uʔl ɪ]; "Boots is" [bɜ́ʊtɕɪz]; "yes" [jÉɬ] [jɛ́s] [ɹɛ́:].

Sh

This diaphoneme occurs in such words as "she, should, shy, sure, shrink, shrivel, Schwartz, Moishe, station, profession, fashioned, specially, mention, distinction, English, Spanish, fish, finished" etc.

There is very little variation in the realization of Sh. By far the predominant realization in all positions and for all speakers is [ʃ]. Ada and Mark have no realizations other than [ʃ].

There are a few affricate realizations [tʃ]. These are especially common utterance initially and after N realized as [n]. Stevie has 4 [tʃ]'s utterance initially and one in "fact she" [fǽʔt ʃɪ]. Ben has 2 [tʃ]'s utterance initially and 2 after N realized as [n]. Nan has 1 [tʃ] after N realized as [n]. Phil has 1 [tʃ] after N realized as [n]. These are the only examples of Sh being realized as [tʃ]. It should be mentioned that Ben's and Phil's examples of [tʃ] after N realized as [n] occur after the words "didn't" and "wasn't" in the diaphonemic spelling of which there is a T finally. It was found that the T in negative "--n't" forms is almost invariably realized as zero or as [ʔ] before a consonant. T has been analyzed as being realized by zero here, although there is a case for interpreting the [t] in [tʃ] as a realization of T and [ʃ] as a "normal" realization of Sh. A similar analysis has been made in Stevie's example of "fact she". T between 2 voiceless consonants is almost invariably realized as zero and the [t] in [fæ̃ʔktʃɪ] has been interpreted as part of the realization of Sh.

Ben and Stevie have one example of each of [pʃ] after M realized as [m]:- "I'm sure" [a:mpʃɔ́:] and "them shows" [ðǽmpʃéʊz].

There are 3 examples of voiced realizations [ʒ], two in Ben and one in Phil. All come between voiced sounds. "I should think" [ɑʒəθɛ́ŋkʔ], "them shops" [ðɛ̃́mʒɒ́ʔpz].

There are a few minor deviations in place of articulation. Ben has 5 realizations which were deemed sufficiently fronted and palatalized to be symbolized [ɕ] rather than [ʃ]. Phil also has 2 such realizations. These realizations do not appear to be conditioned by phonetic environment.

Stevie has one realization of [s] in "profession" [pʰəfɛ́sən]. This is perhaps a "slip of the tongue", a confusion with the word "professor".

V

This diaphoneme occurs in words such as "victor, vote, very, value, Stevie, Rover, driver, average, evening, seven, seventy, avenue, drives, saved" etc.

The realizations of V vary hardly at all between different environments or different speakers. By far the predominant realizations in all positions and all speakers is [v].

Realizations of V are somewhat "stronger" or easier to hear preceding a vowel than preceding a consonant. On occasions realizations of V before consonants are very weak. Two zero realizations occur, one utterance finally in "twelve" in Ben and one in "you have another tea" [jˈɐ:nɐð̆ətˢˈəɪ], in Stevie. The first of these may be regarded as a case of the weakening of a realization of V into inaudibility. Stevie's example is in a very functional utterance and one furthermore that is probably in quite common use.

Partially devoiced realizations [v̥] occur in positions adjacent to voiceless sounds and also utterance initially and finally.

None of these variations appear to be characteristic of any individual speaker. They are found in about the same proportions in all speakers.

Examples:- 'Victor" [vˈɪktᵊ], "seven" [sˈɛvən], "drive a" [ˈd͡ʒɑ:və], "the value" [g̊əvˈæljŒ], "favourite" [ˈfÉɪwɪʔ], "seventy" [sˈɛ̃vnʔɪ], "leaves you" [lˈəɪv], "it's very" [ɪʔsvˈɛɾe], "positive she" [pʰˈɔzətˢəv̥ʃɪ], "speaks very" [spˈɪɪ̰ksvəɪɪ].

Nan has one example of a voiced labiodental plosive intervocalically in "shrivel" [ʃɹɛ́vʊɫ].

The one variation in place of articulation of realizations of V which appears to be related to phonetic environment is that found before [m] when ə or some other vowel diaphoneme between the V and the diaphoneme realized by [m] is realized as zero. In this position realizations [b], [ʔ] occur in Nan and Mark. Nan has "seventy" [sɛ́bmtˢɪ] and [sɛ́bmtˢɪ] and "seventeen" [sɛ́ʔmtˢɛ́en]. Mark has "seven" [sɛ́bm], "heaven" [ɛ́bm] and "give him" [gɪbm]. Both Mark and Nan also have examples of [v] in this position. Other speakers have only [v].

Special diaphonemes V* have to be postulated to account for the patterns of variation found in a few specific words.

V* as only in "of"(unstressed) and "have" (in constructions 'should have, would have, might have' etc.) has many realizations of zero. Such zero realizations all occur (with one exception) before a consonant or semivowel. Before a consonant or semivowel in Ada, Ben, Jenefer, Nan and Stevie zero realizations occur in a ratio of roughly 4 or 5 to 1 to realizations of [v]. In Mark and Phil the corresponding ratio is roughly 16:1. The use of [v] rather than zero in this position often struck the investigator as a rather "careful" pronunciation.

Before a vowel [v] is easily the favoured realization. There is only one zero realization of V* as in "of" before a vowel. That is in Phil, in the phrase "all of a sudden" [óləsə́dn].

[v] is used in all other instances.

V* as in "never mind" seems from what little evidence there is to be particularly liable to have "weak" [v̇] or zero realizations. The phrase only occurs twice, once in Phil, where V* is realized as [v̇] and once in Nan where V* is realized as zero (like the presumably once pronounced /v/ in the word "ne'erdowell" in English generally).

By comparison "ever" and "never" when not in the phrase "never mind" occur over 60 times in the corpus and the V in them is only once realized as [v̇], in Ben. All the other times the V is realized as [v].

Ben has one zero realization of V* as only in "over", reminding one of the poetic form "o'er". He also has one pronunciation of "over" with [v̇]. He has 17 pronunciations of "over" with [v]. No other speaker has any pronunciations other than [v] in "over".

V* in "give" is in certain usages particularly susceptible to zero or "weak" realizations. When "give" is used as an imperative this is so.

Stevie has one example of imperative "give", in "give him" pronounced [gɪ́v̇əβ̃]. Phil's 1 example of imperative "give" has a zero realization of V* "give me" [gɛ́mE]. Of Mark's 2 examples of imperative "give" one has a zero realization of V* "give us" [g ɪ́s]. The other has [v] in "give'em". Ben has one example of imperative "give", pronounced with [v]. Ada, Nan and Jenefer have no examples of imperative "give".

Ben has one example of "gives you" pronounced [gˈɪʒɨʊ]. Mark has [gˈɪʒɨ] for "give you" once. These are the only other examples of zero realizations of V* in the "give" morpheme.

V* as only in "have" in the construction "have to" is realized in Ada, Ben, Jenefer, Phil and Stevie as [f] on every occasion when used (respectively 9, 1, 1, 3 and 4 times). On each of these occasions [f] is followed by an apical plosive realization of T*. Nan has 5 pronunciations with [f] and one with [v̥], all followed by an apical plosive realization of T*. Mark uses the phrase "have to" on 3 occasions, once pronounced [ɛftᵊ] and twice [ˈæʔə] or [ˈɛʔə]. One cannot help being surprised at these latter pronunciations. I have heard this pronunciation from other Cockneys in London. The reduction of VT to [ʔ] strikes one as a little drastic. I have in fact heard FT in "stuff to last" reduced to [ʔ], [stˈɐʔˈɑːs] in the speech of another Cockney. This may possibly be explained as the "collapsing" of two [ʔ] realizations, one of F and one of T* in "to". The patterns of variation of realizations of V* in "have to" are, except for Nan's one [v], the same as those of F and not at all like those of V. The symbol V* has been used here so that the word "have" in all its usages may be spelt consistently with the same basic symbols.

Dh

This diaphoneme occurs in such words as "this, though, other, weather, mother" etc.

Here, as in the case of Th, variation is in patterns which suggest a case of "systemic alternation". All individuals except Ben use [v] in alternation with [ð], in the same way as all individuals except Ben use [f] in alternation with [θ] as realizations of Th. There is an important difference, however, between the variation found in realizations of Th and realizations of Dh. Whereas [f] is possible word-initially, -medially and -finally as a realization of Th, [v] does not occur word-initially, but only word-medially and -finally as a realization of Dh. Thus, only alveolar, dental or zero realizations of Dh are found in the very common words "the, they, them, their, this, that, those, these, than, then, there".

Word-initial realizations of Dh may vary according to the nature of the preceding diaphoneme and its realization. Thus, after S or Z, Dh may be and most frequently is realized by a dental quality of the fricative realization of the S or the Z, the phonetic segment [s̪] or [z̪] being "shared" by both the S or Z and Dh.

Similarly the sequences DDh and NDh are very often realized by "shared" realizations [d̪] and [n̪].

After M, N or Ng, Dh may have a nasalized or completely nasal realization [ð̃] or [n̪].

After these consonants [ð], [d] and zero realizations may also occur. I am not aware of any large differences between my informants in their use of these various realizations.

In other environments, i.e. after a consonant other than <u>S</u>, <u>Z</u>, <u>D</u>, <u>N</u>, <u>M</u>, <u>Ng</u> and after any vowel or semivowel, word-initial realizations of <u>Dh</u> vary principally between [ð], [d̪] [d] and zero. The most frequent realization in all individuals in easily [ð]. [d] and [d̺] are found in all speakers but are relatively infrequent except in Ben, who uses very roughly half as many [d]'s as [ð]'s. Zero is used by all speakers about as often as [d] except in Ben, who uses it less often than [d]. Zero realizations are more frequent in the word "them" than in other words. A few examples of [ɾ] and [ḋ] occur word-initially intervocalically in Ben, Mark, Phil and Stevie.

Word-medially and finally there is variation between [ð] and [v]. I have the impression that Stevie uses [v] a good deal more often than the other speakers. Ben does not use [v] at all. Without counting, Phil, Mark, Jenefer, Ada and Nan all appear to me to use [v] to about the same extent and roughly about as often as [ð]. I also have the impression that [v] is relatively more common word-finally than word-medially. Before a consonant zero may sometimes be found as a realization of <u>Dh</u>, particularly, it seems in "with". A very few examples of [d] [d̺] may also be found word-medially and finally.

Z

This diaphoneme occurs in such words as "zero, goes, lives, husbands, houses, amazing, scissors" etc.

The predominant realization of this diaphoneme in all individuals is [z]. The factors conditioning the place of articulation of realizations of Z are similar to those conditioning realizations of S. Before Th realized as [θ] and before Dh, advanced realizations [z̪] are found with about the same frequency in all speakers. Before Sh, Zh, Ch, J, palato-alveolar realizations [ʒ] are found regularly and far more often than [z] in all speakers. The sequence ZY is almost always realized as [ʒ] by all speakers. Before R there is, in all speakers about the same degree of retraction to produce a fricative with a deeper resonance as in their realizations of S before R. Such "hushing" realizations [ʐ] are much more common in Stevie than in other individuals, and possibly somewhat more common in Ben than in the others, except Stevie.

Examples:- "is this" [ɨz̪ ˈɪ s̪]; "she is shy" [ʃiʒʃˈɑ E]; "was younger" [wəʒˈʌŋgəɹ]; "these jockeys" [dˈiiʒdʒ ˈɔ kʰɪ z]; "trains running" [tˢɹˈɜɛn ʐ ɹ ˈɜ nɛn]; "Norwegians rowed" [d ˈɔːwˈeːdʒ ə̃ z ɹ ˈʊʊd].

In environments other than those referred to above, i.e. before a vowel, a consonant other than Th realized as [θ], Dh, Sh, Zh, Ch, J, or W, L, the predominant realization is in all individuals [z]. There are the same small deviations in tongue position as in realizations of S in a similar environment. Thus Ben has quite a few somewhat retracted realizations, symbolized [ʒ] and also some alveolo-palatal realizations [ʑ]. Other speakers have far fewer, or no, such realizations.

Some very weak alveolar fricatives [ż] are found in all speakers with about the same relative frequency. Such weak realizations seem to be particularly common in a wholly voiced environment, i.e. between two voiced diaphonemes.

Examples:- "was at" [wəzəʔ]; "amazing [əmˈɛɪzɪn]; "as it" [ˈæżɪʔ]; "always been" [ˈɔːwəżbɛn].

Most realizations of Z are wholly voiced. Partially devoiced realizations [z̥] [ʒ̊] are, however, normal before voiceless consonants and utterance-finally. There is no significant difference in the use of such devoiced realizations from one speaker to another.

In certain phrases, to account for which special diaphonemes Z* have to be postulated the devoicing of realizations is complete or almost complete. These phrases are "used to" and "supposed to" YUeZ*DT*Ue* and S&*P*OeZ*DT*Ue*. In these phrases the D is invariably "dropped" as is normal between 2 consonants and the Z* then precedes the voiceless consonant T*. Realizations in "used to" are invariably completely voiceless [s] and I have the impression that those in "supposed to" are almost always completely voiceless as well. Some partially voiced realizations [z̥] do occur in "supposed to". The patterns of variation of realizations of Z*("used to") are the same as those of S. The phrase has been spelt diaphonemically with

Z*D so that the word "used" may, in all its usages, be represented with the same basic symbols. A similar procedure has been followed in the case of "have to" (see p. 305). Note that here again the ordering of phonological rules is important. The above rules for the devoicing of realizations of Z* before T* must precede the rules stating the realizations of T* which may often be zero (see T* ("to" etc.) line 16)

Examples:- "was funny" [wəz fˈɐnəɪ]; "used to" [j ˈʏːstə]; "supposed to" [spˈɜʊztˢə].

Special diaphonemes Z* have also to be postulated to account for the patterns of variation found in "hasn't, isn't wasn't doesn't". In these words weak voiced alveolar fricatives [ż] are more common than elsewhere and a number of zero realizations are also found. When Z*("hasn't" etc.) is realized as zero, the vowel diaphonemes found in these words may sometimes have realizations which are not used when the Z* has some realization other than zero. Thus there may occur neutralization between "hasn't", "isn't" and "ain't" and between "doesn't" and "don't".

Examples.- "hasn't she " [ˈæżn̩ ʔʃɛɪ]; "hasn't he" [ˈɛ n e]; "isn't it" [ˈɪznɛ ʔ] [ˈən eʔ].

Zh

This diaphoneme occurs in such words as "television, occasion, treasures, pleasure, usually, division, barrage" etc.

Zh is the most infrequent consonant diaphoneme. It does not occur in the corpus in the speech of Ada, Stevie and Nan. In Phil, Mark, Jenefer and Ben Zh is realized as [ʒ] 3, 3, 2 and 4 times respectively. There are only two other pronunciations, strangely enough both in the word "treasures", pronounced once [tˢɹɛ́zəz̥] by Phil and once [tˢɹɛ́ʑəz] by Ben. These two pronunciations were recorded at different recording sessions. Neither Phil nor Ben were present at both of them. I think this must be regarded as a coincidence of no significance. Phil's realization [z] may be a "slip of the tongue" of the same kind as Stevie's [s] for Sh in "profession". Ben's realizations of Sh include some examples of [ɕ], paralleling his [ʑ] realization of Zh here.

"Barrage" only occurs once in the corpus, in the phrase "barrage balloons" and is on that occasion pronounced, by Ben, with [ʒ]. This seemed to justify its being spelt diaphonemically with Zh. An extension of the corpus might reveal "phonemic alternation" between /ʒ/ and /dʒ/ in this word.

M

This diaphoneme occurs in such words as, "me, much, money, my, more, Midgie, Mary, jam, name, some, him, woman, women, amateur, pamphlet, comfortable, jamjar, sometimes, trumpet", etc.

This diaphoneme has realizations which vary very little. By far the most common realization in all positions and in all individuals is [m]. The second most common realization in all individuals is [β̃]. Jenefer, Ben and Mark have perhaps the most examples of [β̃] in proportion to their examples of [m]. Nan has perhaps the fewest. There seems to be no particular phonetic environment which makes one of these realizations any more likely to occur than elsewhere. They both occur word initially, medially and finally, intervocalically and pre- and post-consonantally as is shown by the following examples. "My mother" [mɑ́ .mɐ́və], "I mean her Mum and Dad" [β̃ɪː ɹə́β̃ɐ́β̃ əndǽd], "Christmas [kʰɹ́ɪsməs] and [kʰɹɪ́sβ̃əs], "women" [wɪmɪn] and [wɛ̃́β̃ə̃], "times" [tˢɑ́əβ̃z] and [tˢɑ́ːmz]. It is possible that in certain rather colloquial words and phrases [β̃] is more likely to occur than elsewhere. One such phrase may be "I mean" used to introduce a sentence which will clarify something already said, or in the phrases "you see what I mean" or "you know what I mean". Another may be "come on" (imperative). "I am" might also be more likely to have [β̃] than other words with M. There are not enough examples to be able to generalize about this however.

It is fairly certain that in some individuals M* as only in "something" is more liable to be realized as [β̃] than M in other words. When the Th* as only in "something" is realized as zero. Mark has 10 examples of [β̃] and none of [m]. Ben and Jenefer have one example each of [β̃] to none of [m]. Stevie has 5 [β̃]'s to 2 [m]'s. Phil has 2 realizations of [m] and none of [β̃]. Except in Phil, then, [β̃] is more common intervocalically in "something" than [m]. This is a reversal of the situation in all other words. Ada never in the corpus "drops" the Th* in "something". Before it she has 4 examples of [m] and none of [β̃]. Phil has 2 examples of [m] and 2 of zero - [sʌ́ðeŋʔ] and [sə́ðẼʔ]. Stevie has one realization [β̃] before Th*. Mark and Ben have one example each of a nasalization either of the realization of Th* or of the preceding vowel. Thus before a realization of Th* in "something" [β̃] or [~] are favoured over [m] as realizations of M*. In Phil "complete" bilabial realizations are used about the same number of times as zero. Ada always uses [m].

In occurrences of M in words other than "something" [m] is always favoured over "incomplete" realizations, such as [β̃] or [~].

[~], a general nasalization of adjacent sounds, occurs on a few occasions. This is most common in Mark and Ben in whom there are 4 and 6 examples respectively. They have one example each in "I'm ", "I'm coming" [ɒ̃́ðkʰə́β̃ɛ̃ŋ] and "I'm very" [ɒ̃:vɛ́ɪɪ]. It is a coincidence, perhaps significant that 5 of these examples occur between A and a consonant, in "jam jar" [dɛ̃́:dʒɒ́:] and in "champion(s)" [tʃɛ́̃:ʔpɪə̃], [tʃɛ́:ʔpɛ̃n] [tʃɛ́:ʔβ jɛn] and [tʃ ǽ:ʔpeɪn z]. Phil has one example of zero between A and a consonant in "camps" [kʰɛ́:ʔps]. Ben has one unusual pronunciation of "how many" [ǽ :lɪ]. It is evident from the context that he means "how many". Here the M of "many" must be interpreted as having a zero realization. Apart from pronunciations of "something" these are the only zero realizations of M in the corpus.

Nan has one example of [˜] in "come on" [kʰɐ́̃ɒ m].

Ben has two examples of [b], 4 of [b̃] and 2 of [β]. These all occur word initially or after a consonant, but not in phonetic environments which one would particularly suspect of influencing realizations of M in this way. Phil has one example of [b], utterance initially when shouting at his son - [b ʌ́:kʰ]. No other speakers have such denasalized realizations.

Some assimilated realizations occur [m][n] and [ŋ]. Phil, Mark and Ben have 1, 2 and 1 realizations of [ŋ] respectively, all occurring in the phrase "I'm going". One of Ben's 2 [n]'s is in "I'm talking. The other is in "Epsom next". Phil has one example of [n] in "him drinking".

N

This diaphoneme occurs in words such as "night, nice, needles, snow, Nanny, enough, find, pins, dances, mention, congestion, Stepney, Cockney".

Word initially, word medially after a consonant and word-medially between a vowel and a stressed vowel, (as in "name, national"[nˈæʃnʊ], "enough") by far the predominant realization in all individuals is [n]. The diaphoneme N is about as common as S or T, i.e. one of the most frequent diaphonemes, and realizations other than [n] in these positions are very few indeed in all individuals. What other realizations there are appear to be conditioned by the nature of a preceding consonant.

Word-medially after S and before an unstressed vowel as in "Arsenal, whatsaname" Phil and Mark have 1 and 2 examples respectively of [d], [ˈɑːsdʊ]. In this environment Mark and Ben also have 2 and 3 examples respectively of [n̥] and Phil has an example of [˜]. [wˈɐdsn̥ʌ̃ɛβ̃] [wˈɐ̃sʌ̃β̃]. [n] is, however, more frequent than such realizations.

Word-medially after P, B, K, G, as in "Stepney, Cockney, Dagenham", a few partially assimilated realizations occur [m͡n] and [ŋ͡n]. I have the impression that such assimilations are more common when a vowel between the N and the stop consonant is "dropped" as in "reckon he" [ɹˈɛk̰ŋe]. Even in this position, though, [n] is the most common realization in all individuals "reckon it" [ɹˈɛʔnɪ]. Ben has a rather odd pronunciation of "Cockney" [kʰˈɒk̰ːe] where there is no nasal articulation at all, but only an unusually long glottalized velar stop. Apart from this oddity in Ben I am aware of no significant differences between speakers in their realizations of N in this position.

Other examples.- "Stepney" [stέ pmn̂Eɪ]; "happening" [ǽpn ɛ̃].

A special diaphoneme N* needs to be postulated to account for pronunciations of "no". This word occurs almost exclusively utterance-initially and in it I have the impression that realizations of N* other than [n] are somewhat more common than utterance-initially in other words. Phil has an example of [ŋ]-[ŋɐ́ə] and 2 examples of [ṅ] - [ṅA:]. Ada and Ben have one example each of [ṅ] and Ben has 3 [d]'s and 1 [d̃]-[dɞ́], [d̃áʊ].

Word-medially between a vowel and an unstressed vowel or -finally between any two vowels, the predominant realization is again [n] in all individuals, easily outnumbering all other realizations. In this position, however, [ṅ] and [˜] are more common than word initially or after a consonant. It is possible that [ṅ] and [˜] are relatively more frequent in certain common words such as "any, only" and the "---n't" forms, but I am not sure whether this is the case or not. I have the impression that [ṅ] and [˜] are somewhat more common in Phil, Ben and Mark than in other speakers.

Examples:- "channel tunnel" [tʃ á n o tˢ ɐ́ṅ o]; "adjoining" [ədʒɔ́əṅɛ̂n] [ədʒɔ́ ən ən]; "one of" [wɐ́˜ə]; "don't know" [də́ n ə] [dɐ́˜ə].

A special diaphoneme N* has to be postulated to account for pronunciations of the morpheme "---ing" found in present participles and other words. Intervocalically realizations of this diaphoneme have almost identical patterns of variation to those of N, the majority of realizations being [n] with some examples of [n̊] and [˜]. The only difference is a few examples of [ŋ] and [ɣ̃] which occur in Mark, Jenefer and Phil. Such velar realizations are only in a very small minority compared to alveolar realizations.

Examples:- "going out" [gɘ́ ɜ En ʌ́ː ʔ] [g ɛ́ e ɣ̃ ʌ́ː ʔ] [gǽ ɛ ŋ ǽ ə ʔ].

Between a vowel and a consonant, a semivowel or a pause, there is variation in realizations of N between [n], [n̊] [˜] (nasalization of the preceding vowel and/or the following contoid) and various nasal contoids articulated homorganically with the contoid following N i.e. [m], [ɱ], [ŋ].

I have the impression that [˜] is relatively more common before S, Sh, Z, Zh then before other consonants. Before all consonants except T, D, N, Dh and Th realized dentally, [˜] and the assimilated contoids [m, ɱ, ŋ] are, I think, more common than [n] or [n̊]. [˜] and the assimilated contoids occur with roughly equal frequency. [m] is found before W, P, B, M, [ɱ] is found before F, V, Th realized as [f] and [ŋ] is found before K, G. I am not aware of any significant differences between my informants in their use of these realizations.

Examples:- "months" [m ɘ́ ɱ fs] [m ɘ́ nts]; "mansion" [m ɛ̃́ː ʃən]; "mention" [m ɛ́ n ʃ ə n]; "ten bob" [tˢ ɛ́ mb ɔ́ b]; "train one was" [tʂ Ɛ́ ɪmw ɘ́ mw ə z]; "and got" [əŋg ɔ́ ʔ]; "fine weather" [f ɑ́ ː mw ɛ́ və].

Before consonants and semivowels the patterns of variation of realizations of N*("---ing") are the same as those of N. Before a pause there are 2 examples of [ŋ] as realizations of N*("---ing") in Jenefer. "swimming" [swˈemeŋ], "talking" [tˢˈɔɔ̃kʰeŋ].

Realizations of N occur between consonants or between a consonant and a semivowel only when a vowel diaphoneme preceding it is realized as zero. In such an environment realizations of N are generally nasal contoids homorganic with the preceding contoid.

Examples.- "happens" [ˈʔɛpmz]; "happened to" [ˈʔapmtˢʊ]; "you can take" [jˈʔʏkŋtˢˈʔɛɪk]; "seven when" [sˈɛvm̩wɛn]; "wouldn'tleave" [wˈʊʔn l̃ˈeɪv].

I am not aware of any differences between individuals in their use of these realizations.

<u>Ng</u>

This diaphoneme occurs in words such as "angry, hungry, language, English, Ringo, sing, song, blanket, things" etc.

<u>Line 1</u> of the table shows realizations of <u>Ng</u> word-medially or finally and before a vowel or semivowel. The predominant realization here in all individuals except Jenefer is [ŋ]. This sound is in alternation, in all speakers except Ben and Nan, with [ɣ̃]. The figures for [ɣ̃] are inadequate for firm conclusions, but it is possible that this sound is more common in Jenefer, Stevie and Phil than in Mark, and least common in Ada. Nan has only [ŋ] in this position and Ben has 5 [ŋ]'s to 2 [ŋg]'s. He is the only speaker who uses [ŋg].

Examples:- "thing as" [θéŋəz], "bring a" [bɪɛ́ ɣ̃ə], "bung it" [bə́ŋgɪʔ].

<u>Line 2</u> shows realizations of <u>Ng</u>* as only in "think" when the <u>K</u>* in the word is"dropped" and <u>Ng</u>* precedes a vowel or semi-vowel. In this word "lazy" or incomplete realizations are more common than in other words in a similar environment (line 1). Ben and Mark have only such realizations [ɣ̃] or [˜] (a general nasalization of the adjacent sounds). In Stevie [ɣ̃] and [˜] outnumber [ŋ] by 3 to 1. Ada has 3 [ɣ̃]'s to 4 [ŋ]'s, Jenefer has 1 [ɣ̃] to 2 [ŋ]'s, and Nan has just 1 [ŋ]. Note that a pronunciation in Ben [t̪θɛ̃́ gəv] "think of" has been analysed as an example of <u>Ng</u>* followed by <u>K</u>* realized as [g] and not counted in this line. The

[g] could also have been regarded as a realization of Ng*, the K* having been "dropped".

Examples:- "think of" [θ éŋ ə] [θ í ɣ ə]; "think you are" [θéɣjó:].

Line 3 shows realizations of Ng* as only in "something nothing, anything, everything" when the K* in these words is "dropped" and Ng* precedes a vowel or semivowel. The only difference between the patterns of variation shown on this line and those on the previous lines is the 1 example of [n] in Ben. Comparison of this line and line 7 with line 6 shows that the K* in these words is in fact "dropped" relatively infrequently in all speakers except Ben and Nan who "drop" it more often than they use it. On the occasions when the K* is dropped the remaining intervocalic Ng is not treated in the same way as the consonant of "---ing" in present participles and other words, except in Ben's 1 example of [n]. The figures here are very small however and a larger corpus might reveal examples of [n] in other speakers than Ben.

Examples:- "everything has " [ɛ́vɹɪθɪŋǽz] ; "nothing about" [n ʊ́ θ ɪɣ ə b Á. ʔ], "nothing you" [nÁtθe nj ʉ].

Line 4 shows realizations of Ng before a consonant or pause. Here the predominant realization by far is [ŋ]. In Ben and Nan [ŋ] is the only realization. Other speakers have a few examples of [ɣ] or [~]. Phil's 1 example of [n] occurs in "lengths" on the only occasion when the word appears in the material.

Examples:- "languages" [l ǽŋ gw ɪ dʒ ɪz]; "brings" [bɹ ɪ́ɣ z]; "along the" [ə l ɔ ŋ n ə]; "lengths" [lɛ́nts].

<u>Line 5</u> shows realizations of <u>Ng</u>* as only in "think(s)" preceding a consonant (normally, of course, <u>K</u>* but not necessarily.) "Lazy" or "incomplete" realizations are more common in this word than in other words in a similar environment (line 4). The ratios of [ŋ] to [ɣ̃] and [˜] are roughly as follows:- In Ben 1:1, in Phil and Ada 2:1, in Nan 3:1, in Stevie 5:1 and in Mark 6:1. There are no examples in Jenefer.

Examples:- "think she went" [θ ɛ̃́ k̚ʔ ʃ w ɛ́ n ʔ]; "think it is" [θ í ŋ g ɪ s]; "thinks" [f í ŋs]; "think that" [f í ŋ ð̃ E ʔ].

<u>Line 6</u> shows realizations of <u>Ng</u>* in "nothing" etc. when the <u>K</u>* is not dropped. Here Ben, Nan and Jenefer have no examples [ŋ], only [˜] and in 1 case in Nan, zero. In all other speakers [ŋ] predominates over [ɣ̃] and [˜], in Mark by 8 examples to 6, in Phil by 7 to 5, in Ada by 9 to 4 and in Stevie by 20 to 10.

Examples:- "nothing" [n ɐ́ f ɪ ŋ kʰ], [n ɐ́ f ɪ̃ k̚ʔ], [n ɐ́ θ ɪ k̚ʔ].

<u>Line 7</u> shows realizations of <u>Ng</u>* in "nothing" etc. when the <u>K</u>* is dropped and <u>Ng</u>* precedes a consonant or a pause. Here Stevie, Ada and Jenefer have 1, 1 and 2 examples respectively of [ŋ]. Ben has 3 [ŋ]'s and 1 [ɣ̃] to 2 [n]'s and 2 [˜]'s. Phil has 2 examples of both [ŋ] and [n]. Nan has 1 [d̃] and 1 [˜] and Mark has just one [n]. This appears to be a case of "phonemic alternation" between /ŋ/ and /n/. In our present limited sample Stevie, Ada and Jenefer use only /ŋ/, Ben and Phil fluctuate between the two and Nan and Mark use only /n/.

Examples:- "nothing to" [n ɐ́ θ nd ʏ]; "something" [s ɐ́ m ɪn]; "nothing" [n ɐ́ f ɪ d̃], [n ʌ́ t̪ θ ɛ̃]; "nothing natural" [n ɐ́ θ ɪŋn ǽ tʃ o].

Ng in env.	BEN	PHIL	MARK	JENEFER	ADA	STEVIE	NAN
Ng(/)(s)V	5[ŋ] 2[ŋg]	10[ŋ]2[γ̃]	8[ŋ] 1[γ̃]	1[ŋ] 1[γ̃]	17[ŋ]1[γ̃]	14[ŋ]3[γ̃]	5[ŋ]
Ng*/(s)V in "think"	1[γ̃] 2[~]		2[γ̃]	2[ŋ] 1[γ̃]	4[ŋ]3[γ̃]	1[ŋ]2[γ̃] 1[~]	1[ŋ]
Ng*/(s)V in "nothing" etc.	2[ŋ]1[n]	1[ŋ]2[γ̃]	1[ŋ]1[γ̃]		3[ŋ]	1[γ̃]	1[ŋ]
Ng(/){C	24[ŋ]	27[ŋ]5[~] 1[n]	26[ŋ]1[γ̃] 1[~]	9[ŋ] 1[~]	35[ŋ]2[γ̃] 1[~]	21[ŋ]2[γ̃]	10[ŋ]
Ng*(/)C in "think(s)"	4[ŋ]3[~]	10[ŋ]5[~]	17[ŋ]3[~]		33[ŋ]16[~] 1[γ̃]	20[ŋ]2[~] 2[γ̃]	3[ŋ]1[~]
Ng*K* in "nothing" etc.	4[~]	7[ŋ] 5[~]	8[ŋ]5[~] 1[γ̃]	1[~]	9[ŋ] 4[~]	20[ŋ]4[~] 6[γ̃]	2[~] 1 zero
Ng*/{C in "nothing" etc.	3[ŋ] 1[~] 2[~]2[n]	2[ŋ] 2[n]	1[n]	2[ŋ]	1[ŋ]	1[ŋ]	1[~]1[d̃]

H

This diaphoneme occurs in such words as "he, him, how, who, her, house, Helen, horse, horrible, hungry, sparrowhawk, behind, behave," etc.

Easily the most common realization of this diaphoneme is zero. The "dropping" of H is probably the best known social class dialect marker in British English, and consequently realizations of this diaphoneme are particularly sensitive to "context of situation". A good example of this sensitivity has already been given in the description of the "Questionnaire" recording made at Mark's school. In it [h] realizations of H were at least (roughly) 14 times more common than in the other recordings.

What seems to me to be another indication of this sensitivity is the fact that in general [h] realizations are relatively more frequent utterance initially than elsewhere. This is particularly noticeable in Ben, Jenefer, Mark and Phil whose [h] realizations are few compared to Ada's. (Nan and Stevie have no [h] realizations). Jenefer's one [h] is in utterance initial "how"; of Phil's five, two are utterance initial; of Mark's six, three are utterance initial in one-word answers in the "Questionnaire" recording, one is medial in "sparrowhawk" in the same recording, one is in utterance initial "how" and the other is in "Aha!".

In Ben it was sometimes a little hard to decide whether he was using [h] or not utterance initially. In general, many of his utterances which commence with some voiced frictionless continuant, such as a vowel or for example [l], are preceded by a slight "wheeze", a breathy anticipation of the following voiced sound. This is in many cases strong enough to be counted as [h], but where it corresponds to no H in the diaphonemic spelling it has been ignored. There are two clear instances of [h] as a realization of H, both utterance initial, in "have" and "here". There are three other less clear instances, all utterance initial, where the amount of voiceless friction is so weak as to raise doubts about whether Ben actually intended an [h] or just gave his habitual utterance initial wheeze. Ben has no examples of utterance medial [h] as a realization of H.

Ada, in whom [h] realizations are more frequent, has three examples utterance initially and eleven medially.

As further evidence of my informants' sensitivity to [h] as a shiboleth, one can cite a number of instances of its occurrence in sentences which seem to reflect some degree of pretentiousness or unease on the part of the speaker. Two of Ada's [h]'s occur in the very first sentence of the first recording of her. It is a very self-conscious remark about her own and Mark's speech. "Well I know that I don't sound too well on it and I should think h̲e sounds h̲orrible." On another occasion she uses [h] in "a slight h̲eart wotsit", when talking about what a doctor had said of her mother's illnesses. She is possibly remembering the actual words and pronunciation of the doctor, who probably would have used an [h].

One of Phil's utterance initial [h]'s is in "He was the greatest man that ever lived". (of Churchill) It could not be often that my informants utter such resounding historical judgements and Phil possibly felt that the occasion demanded the use of a "posh" [h].

One of Ben's clear instances of [h] occurred when he was having a joke at my expense. As I got up to switch the tape recorder off, he produced a couple of pound notes and offered them to me with the words, "Here you are, you better ... have a drink when you go out". The point of the joke is in the reversal of the customary social roles. Ben had probably been offered "tips" by RP speakers in the past and was now pretending to offer me one. He paused between the words "better" and "have" and pronounced the latter with [h]. He might in this situation have been trying to affect a posh accent although the rest of the utterance is not significantly different from his speech elsewhere.

Three of Ada's instances of [h] occurred in proper names, "Helen", Van-Heusen's", "Harry".

<u>H</u> occurs most often in the frequent words, "he,him,his, her, have, has, had". In these words however <u>H</u> is relatively less often realized as [h]. This is particularly true in Ada and Mark. Ada has only one example of [h] in "he", her other 13 [h]'s are in words other than these. None of Mark's 6 [h]'s occur in these words. 5 of Phil's [h]'s occur in these words, 2 in other words. The same figures as for Phil also apply to Ben if one counts

his "doubtful" instances as examples of [h].

A diaphoneme _H_* has to be postulated to account for instances of "over-correction", that is, instances in which a Cockney speaker uses [h] in a word where an RP speaker would not use it. There is only one example of this in the material and even that is a dubious one. Ben pronounces "in an air raid" [ɪnəhɛ́ːɹɛ́ɪd]. It is possible that the [h] here is the manifestation of a slight laugh, a chuckle, as this phrase comes in the preamble to a funny story. I have however heard at least two definite cases of such "over-correction" in unrecorded conversation with my informants. Stevie once said [ɪnəhɔ́fɪs] "in an office" and Jenefer once used [h] in the word "aitch" [hɛətʃ].

_H_* must be postulated word initially in every word which in RP begins with a vowel.

For the sake of convenience this special diaphoneme _H_* has not been included in diaphonemic transcriptions.

W

This diaphoneme occurs in such words as "water, whistle, went, when, why,we, what, away, Norway, quarter, quart, quiz, twenty, sweet, swimmer, always."

The most common realization of this diaphoneme in all positions in which it occurs and in all speakers is [w].

For reasons stated in another section (p.187), it was found impractical to differentiate precisely in terms of vowel quality between the various voiced frictionless continuants found as realizations of W. There is, therefore, only an indistinct borderline between [w] and "weak" varieties [ẇ].

Realizations of [ẇ] tend to be found in unstressed "was, what, when, we, with, well" more than elsewhere. This appears to be the case in all individuals.

There are a few cases of zero realizations of W in all individuals. These again are most likely to occur in unstressed "was,what, when, we, with, well".

W* as only in unstressed "would" and "will" is almost invariably realized as zero by all speakers.

There appears to be no significant difference between each individual's use of [w], [ẇ] and zero as realizations of W.

Variation between [w], [ẇ] and zero appears in only one instance to be conditioned by phonetic environment. After [m] "weak" and zero realizations are more likely to occur than elsewhere.

This appears to be the case in all speakers except Stevie and Jenefer, who have no examples of [ẘ] or zero after [m]. An extension of the corpus might reveal some examples in the case of Jenefer.

Partially devoiced realizations occur after voiceless consonants as in "twenty", "quarter", "she went" [ʃwɛ́nʔ]. This partial devoicing seems to occur to about the same extent in all speakers. No special symbol has been used to transcribe partially devoiced realizations of W. The partial voicelessness may be assumed whenever [w] follows [kʰ], [tˢ], [s], [ʃ] etc.

Utterance initially there are found many more realizations of [bw], [mw], [b] than elsewhere and also a case of [gw]. For a rough comparison, incidences of [w] and [ẘ] utterance initially and utterance medially (word initially and except after [b] or [m]) were counted in Ben and Ada.

Utterance initially Ben and Ada had approximately 120 and 125 examples respectively of [w] or [ẘ]: utterance medially they had approximately 340 and 440 examples respectively of these realizations. There is no reason to suspect that corresponding figures for the other speakers would differ very greatly in proportion from these. The proportion of utterance initial to utterance medial (word initial and not after [b] or [m]) examples of [w] or [ẘ] is then in the region of 1 to 3 or 1 to 3½.

By comparison Jenefer has 1 utterance initial [bw] as a realization of W and no examples utterance medially. Phil has

[bw] 3 times and [m] once as realizations of utterance initial W. He has no such realizations utterance medially.

Stevie has [bw] 9 times and [mw] once utterance initially and one example of [β̃] utterance medially. Ada has 6 [bw]'s and one [mw] utterance initially and one [bw] utterance medially. Mark has 11 [bw]'s, 2 [mw]'s and one [gw] as utterance initial realizations of W and 4 [bw]'s and one [b] as utterance medial realizations. Nan has 10 [bw]'s and 3 [b]'s utterance initially and 7 [bw]'s and one [b] utterance medially. Ben has 3 utterance initial examples of [bw] and 4 [bw]'s utterance medially. All recorded examples of utterance medial [bw], [b], [m] as realizations of W are word initial. They do not appear to be conditioned by any particular phonetic environment.

In the above figures for utterance medial [bw] etc., examples of [w] following [b] or [m] realizations of B, D or M, N have not been included. In such cases [b] or [m] is interpreted as a part or the whole of the realization of B, D or M, N.

The frequency of realizations with [b] or [m] utterance initially may be attributed to speakers "beginning to talk before they open their mouths". Realizations of [bw], [b], [mw] and [m] utterance initially may be regarded as examples of assimilations following the bilabial closure of a period of silence.

I have the impression that the "norm' for the Cockney sounds which I have transcribed as [w] involves a somewhat closer bilabial constriction than the "norm" for equivalent sounds in RP. As a child I remember thinking for a long time that my Londoner P.T. instructor was referring to the bars on the walls of the gymnasium as "boar bars" and often wondered how they got that name. One day I realized he was saying "wall bars".

L

This diaphoneme occurs in such words as "lucky, love, life, blind, please, glasses, class, slow, fly, silly, telly, will, Phil, results, tales, apple, couple", etc.

Word-initially and word-medially before a vowel, easily the predominant realization in all individuals is [l]. All other realizations found in this position are comparatively very infrequent. Some consonants may sometimes, however, have an influence on the realization of a following L and the result may be a sound other than [l]. One such consonant is N. After N, L may be realized as [l], [l̃] or zero, as may be seen from the following examples. "done like" [d ɐ́ n l̃ɑɪ]; "don't like" [dɐ́ʊn lɑ́ɪkʰ] [dɛ́ʊn ɑ́ɛkʰ] [dɐ́ ʊ̃ lo: ʔk]; "certainly" [s ə́: ʔ l̃ɪi] [s ə́: ʔ n e]. I am not aware of any difference between speakers regarding their treatment of L after N.

A special diaphoneme L* must be postulated to account for the high incidence of zero realizations in the word "only" pronounced very frequently [ɐ́ʊnɪ]. I have the impression that such zero realizations of L*("only") are possibly somewhat more common in Ben, Phil and Nan than in the other speakers. Examples of [l̃] and [l] are sometimes found in "only" [ǽɜlê] [ɐ́ʊnlɪ].

A special diaphoneme L* may also be necessary to account for variations in "unless". I have found zero realizations in this word, but am not sure if they are significantly more common than in other words. [ən ɛ́ s] [ənlɛ́ s] [ən l̃ ɛ́s].

L may sometimes be realized as [ĩ] after M or Ng but [l] is more frequent. "come let" [kʰəm l̃ɛ́ ʔ]; "family" [f ɛ́ː m l ɪ] [f ã́β lɪ].

Voiceless fricatives and aspirated plosives before L also appear to have an effect on its realizations. In this environment significantly more zero realizations occur and I have the impression that this treatment is more frequent in Ben than in the other individuals. Examples:- "this last" [ɪ s ɒ́ːs]; "useless" [ʃə́ʊs əs]; "place" [pʰɛ́ɛs]; "specially" [spɛ́ ʃ e].

A special diaphoneme L* may be necessary to account for the incidence of zero realizations in "actually" which is possibly higher than in other words after a voiceless fricative. [ǽ k̚ʔ tʃ e] [ǽʔʃ l ɪ].

Ben and Nan have one example each of [ɹ] as a realization of L in "flyover" [fɹɑ́əɐ́ʊv ə] and "pleurisy" [pʰɹ ʊ́ː ɹə s ɪ]. One cannot tell whether such realizations are "mistakes", "slips of the tongue" or whether the voiceless labial sounds may possibly be exerting some influence on the realizations of L. Immediately after Nan said [pʰɹʊ́ːɹəsɪ] Ada repeated the word, pronouncing it with [l], as if to correct her mother. Ben has a number of other pronunciations of "flyover", all with [l].

Ben has 2 examples of [ɾ] as realizations of L, again following labial sounds.- "bleeding" [b ɾéːd ŋ̆]; "flats" [frá ts]. This realization does not occur in other individuals.

Ben has 3 examples of [d] word-medially between a stressed and an unstressed vowel. "silly" [sɪ́de]; "village" [vɪ́dɪʒ]; "pulling" [pʊ́d əd]. No other speakers have such realizations. Between two unstressed vowels word-medially Mark has 2 examples of L realized as a high back vocoid. "horriblest" [ɔ́ɹəbʊɪ s]; "footballer" [fʊ́ ʔbɒ́ ɐ]. These are the only examples in the material of such realizations found word-medially intervocalically. Intervocalically word-finally they are quite common in all individuals.

Ben has one example of [ɮ] in "a lot" [əɮɔ́ʔ].

Between vowels word-finally there is variation between [l] [ɫ] and a high back vocoid realization. [ɫ] only occurs in this position in Ben, Ada and Nan. Ben has 8 [ɫ]'s to 58 [l]'s and 2 vocoidal realizations. Ada has 1 [ɫ] to 68 [l]'s and 16 vocoidal realizations, and Nan has 1 [ɫ] to 19 [l]'s and no vocoidal realizations. The figures for each individual's use of [l] and a high back vocoid (symbolized, for convenience [ʊ], although not all high back vocoidal realizations of L are of exactly this quality) are given here, together with the rough ratios of one to another:- Mark 24 [ʊ] and 22 [l] 1:1, Jenefer 5 [ʊ] and 8 [l] 1:1½, Stevie 8 [ʊ] and 29 [l] 1:3½, Ada 16 [ʊ] and 68 [l] 1:4, Phil 5 [ʊ] and 30 [l] 1:6, Ben 2 [ʊ] and 58 [l] 1.29, Nan no examples of [ʊ] and 19 [l] no ratio calculable.

Examples:- "Michael Edwards" [mɔ́ɪʔko ɛ́d w ədz] [mɑ́:kʰəlɛ́ dw ʊdz]; "well it" [wɛ́ ʊEt] [w ə lə?].

Word-medially and finally before any consonant or a pause high back vocoid realizations predominate in all individuals. In Ben [ɫ] is roughly half as frequent as high back vocoids in this position and in Nan [ɫ] is very roughly one sixth as frequent as high back vocoid realizations in this position. In all other individuals [ɫ] is far less frequent but all speakers have a few examples.

Examples:- "tell me" [tˢɫʊ mɛ́ɪ]; "still there" [stᶜɨʊðɛ́:]; "all these" [ɔ́:ɫdí:z].

I have the impression that before a semivowel, lateral realizations of L are relatively more frequent than before a consonant or a pause, and probably particularly frequent, relative to vocoid realizations, before Y.

Special diaphonemes L* need to be postulated to account for some pronunciations of "well" (used as a conjunction, often introducing a sentence) and "will" (future auxiliary) in which a vocoid central rather than high back in quality is used. I do not think that my informants use of such realizations differs significantly.

Examples.- "this will pick" [ðɪ́ səpʰɪ́ kʰ]; "well she" [w ə ʃɪ].

R

This diaphoneme occurs in such words as "rough, ready, writing, read, wrong, trying, train, drink, brings, crown, grammar, strength, Australian, very, worry, terribly, horrible, bar, car, beer, more, where, now, saw."

The most common realization in most positions in all individuals is [ɹ].

Word initially the predominant realization is in all individuals [ɹ] or [ɹ̫]. There is a greater degree of lip rounding in Mark and Ada than in the other speakers. The auditory impression one has of this lip rounding is that it is on the whole labio-dental rather than bilabial and in fact a few realizations of [vɹ] and [v] occur in some speakers. Word initially Mark has 3 examples of [vɹ]. Phil and Stevie both have an example each of [ɹᶹ].

In Mark word initial *R* is on three occasions realized as zero, twice in the phrase "do you reckon" [dʒɾɛ́ʔm] and once in the phrase "I remember" [ɑmɛ̈b]. Stevie has one zero realization in the phrase "all right" [ɵɐ́əʔ]. No other speakers have word initial zero realizations of *R*.

Word medially and between two vowels [ɹ] or [ɹ̫] are again the predominant realizations in all speakers. Again Mark and Ada tend more towards rounded realizations than the other speakers.

Ben has a number of flapped realizations [ɾ]. These are a good deal more common in him than in the other speakers. Phil and Nan have one [ɾ] each, both in the word "very". Realizations of [ɾ] have not been recorded for the other speakers. In "very" Jenefer has an example of a "weak" realization [ɹ̆]. Pronunciations of "very" may be heard in some brands of RP without any /r/ in the middle. Ben has 4 examples of the word "during" pronounced with zero realizations of R in the middle. The word is pronounced with one long [ə:]-like vocoid. These are the only examples of zero realizations of R between vowels word medially. Phil has an example of a weak realization [ɹ̆] medially in "during".

The word "perhaps" provides an interesting example of the derivation of sound sequences from diaphonemic shapes. The shape P&RHAPS has been postulated for it.

Before a consonant R is almost invariably realized as zero: before a vowel, especially word medially, almost never. Since H is generally "dropped" in Cockney, R in "perhaps" finds itself most usually realized as [ɹ]. It is not inconceivable, however, that the H in "perhaps" may sometimes not be "dropped" but realized as [h] and in this situation R, coming before a consonant, is realized as zero. The latter case does not in fact arise in the corpus.

R has been postulated to occur at the end of words such as. "beer, here, dear; where, hair, square; her, were; car, bar, are; now, how; for, floor, saw, law; poor, tour; Mister, teacher, younger". When these words are followed by a vowel they are very often pronounced with [ɹ] at the end of them, or with some other sound which may be a realization of R, [ɾ], [ɹ̫] or [v]. When they are followed by a consonant, no such sound is heard (unless of course the following consonant *is* one of these sounds).

Word final R following Ia, Ea, Ur, Ar, Au, Ua, & and preceding a vowel is sometimes realized as zero, but not often. Realizations other than zero follow roughly the same patterns of variation as intervocalic word medial realizations. They are predominantly [ɹ], with more lip rounding in Mark and Ada than in the other speakers. There are some examples of [ɾ] in Ben but not in other speakers. Mark and Ada have one example each of [v]. This realization does not occur in the other speakers. A realization found only word finally is [ʔ] which occurs twice in Stevie, and not at all in the other speakers.

I have the impression that zero is more common as a realization of R in the phrase "more or less" than elsewhere word finally and intervocalically. A single long [ɔ]-like vocoid between the M and the L is often heard in this phrase. Realizations of R other than zero occur with about the same frequency after Ia, Ea, Ur, Ar, Au, Ua, &. After Ou zero realizations are much more common.

In general speakers who have fewer diphthongal realizations of Ou (see Charts 31 and 32) have more realizations other than zero of R at the end of words like, "how, now". Diphthongal realizations of Ou and realizations of R other than zero seem to be mutually exclusive. Phonemically, this might be interpreted as a phonemic alternation between two semivowels /r/ and /w/. Only Nan, Mark and Ada have examples of [ɹ] word finally after Ou. These are few and all occur in the words "how, now", which are the only words in the corpus with Ou which do not end in some consonant other than R.

R must also be postulated to occur at the end of a few words with Oe such as "fellow, barrow, window", (but not all words with Oe in the final syllable - "Pingo" is an exception). In this case again, a diphthongal realization of the Oe and a realization of R other than zero are mutually exclusive. This is another example of "phonemic alternation" - between the phoneme found in "go" and that found finally in "painter". My impression is that when these words occur in the corpus, they are most frequently pronounced with a short pure central vowel, following the patterns of variation of realizations of &, and very seldom with a diphthong resembling realizations of Oe. After these short central vowels and before another vowel realizations of R other than zero are about as common as after &.

Jenefer and Ada each have one pronunciation with [ɹ] of the word "yes" preceding a vowel. This forces the investigator to choose between the following treatments. Either (a) The word "yes" is postulated to have the diaphonemic shape Y*E*R*S*. When S* is realized as [s] or a similar contoid, R* is always realized as zero. When S* is realized as zero, R* may be realized as [ɹ] or a similar sound. Or (b) The word is spelt diaphonemically Y*E*S* and it is stated that S* as only in "yes" may have realizations (among others) of [s], [ɹ] and zero. There is little to choose between these two treatments. The former is perhaps more satisfying to the "Sprachgefühl" and has been adopted here.

No speakers apart from Jenefer and Ada use [ɹ] in "yes", although all frequently "drop" the S.

Mark has one pronunciation of "got to have" thus: [gɵ̀ʔəɹɛ́v]. Here again one must postulate an R occurring after the Ue* of "to" as only in "got to" (and also perhaps "ought to"). "To" as only in "got to" has then a different diaphonemic shape from "to" occurring elsewhere. In "got to" it is spelt T*Ue*R*, elsewhere T* Ue *. In "to" as only in "got to" occurring before a vowel [ʊ]-like realizations of Ue* and realizations of R* other than zero are mutually exclusive. It has been found necessary to separate different usages of the "same" word and to give them different diaphonemic shapes at several other points in this study.

[ɹ] or a similar sound is only found in "got to" on this one occasion in Mark and in no other speaker.

After T when T is realized as an affricated apical plosive, realizations of R are often wholly fricative, [ʂ], the sequence TR being realized as an affricate [tʂ]. This fricative realization of R is wholly dependent on the preceding T being realized as an affricate. The phonetic segment [ʂ] is interpreted as being "shared" by two diaphonemes, T and R. The voiceless fricative manner of articulation is held to be part of the realization of T. The post-alveolar place of articulation of the voiceless fricative is held to be part or all of the realization of R. [ʂ] does not occur after [ʔ], [ʔt] or after [t] as a realization of T after S.

In Mark and Stevie fricative wholly voiceless realizations of R are very common in this position. Mark has several pronunciations of "train" which sound very like "chain". Stevie has perhaps fewer wholly voiceless realizations than Mark. He has a few realizations of [ʂɹ]. He has one particularly long realization [ʂ:ɹ] in "terrific" where the length may be attributable to ə between T and R.

Voicing commencing before the end of postalveolar sounds is more common before an unstressed vowel as in "country, central" than before a stressed vowel as in "train, truth". Mark and Stevie still have some wholly voiceless fricative realizations of R before unstressed vowels, Mark again somewhat more than Stevie.

Ada, Phil, Ben, Nan and Jenefer all have some fricative realizations of R after T, but these are seldom, if ever, wholly voiceless, being usually [ʂɹ]. Ada has perhaps a few more wholly voiceless realizations than the others, but not as many as Mark or Stevie. Ben has probably fewer fricative realizations than the others speakers. Again there is more voicing before an unstressed vowel than before a stressed one. Ben has 2 examples of zero after T and before an unstressed vowel, "after him" [ˈɑ:ʔ dɶ̃] and "military" [ˈmɪl.dɪ]. No other speakers have zero realizations of R in this position.

After D voiced fricative realizations of R [ʐ] occur, most of all in Mark. He has a pronunciation of "Drew" which sounds very like "Jew". Again, fricatives are found probably most, after Mark, in Stevie, less in Ada, Nan and Jenefer, and perhaps least in Phil and Ben. Ben has two examples of R between D and a stressed vowel when the only hint of its presence is some slight post-alveolarity of the apical plosive realization of the D. These examples are in "it's drawn" and "they'd drop". Postconsonantal realizations of R are in general more often "weak" in Ben than in other speakers, as will be seen below. Fricative realizations are a good deal less common before an unstressed vowel as in "bedroom" than before a stressed vowel as in "driving".

After D and before an unstressed vowel Ben and Phil have a few examples of very weak realizations of R, perceptible only in a slight retraction from the normal place of plosion of the plosive realization of D and some small degree of "r" colouring in the following vowel, often a mid-central vowel. Thus DR& in "children" or DRI in "hundred" are on a few occasions realized as [ɖɚ]. Such weak realizations of R in this position are found mostly in Ben and Phil and especially in the word "hundred". Ben has an example of "hundred" in which the two [d] realizations of D have only a post-alveolar voiced frictionless continuant between them. This is interpreted as a "shared" realization of & and R.

It is one of the few occasions on which R is not realized as zero before a consonant. Many of the other occasions on which this happens are in Ben's speech. He uses [ɹ] between consonants or between a consonant and a semivowel as a "shared" realization of R and a vowel more often than other speakers. Examples:- "Chevrolet" [ʃˈɛvɹɪlˈɛʔ], "corner away" [kʰˈɔ:nɹwˈɛɪ], "quarter of a million [kʰwˈɑʔɹvmˈɛ lʝən]. Phil has this "syllabic" [ɹ] on a few occasions as well, e.g. "children" [tʃˈəodɹn]. Mark has it a few times in "hundred and " [ɐ nɹn], [ˈɐndɹn]. R in "hundred" seems particularly susceptible to this treatment. Jenefer has an example in "from" [fɹm̥]. I can find no examples in Ada and Stevie of this phenomenon. Between a vowel and a consonant there are a few [ɹ] realizations of R. Mark and Stevie have one each initially in "remember(s)". "Who remembers" [ˈʊɹmˈɛmbəz] and "d'you remember" [dʒəɹmˈəmbəɹ]. Once, as has been noted above, Mark realizes the initial R in"remember" as zero.

Indeed in a number of the words quoted above as having examples of "syllabic" [ɹ] there are also realizations of zero. Ben and Phil have examples of zero realizations in "hundred" [ˈɐndə] and [ˈɐnəʔ]. "Alexandra" which provides a phonetic environment similar to that in "hundred" is pronounced by Phil once with [ndɹə] and once with [nə]. Nan has two zero realizations in "children" [tʃˈɪʊ n] and [tʃˈɪodn] on the only two occasions when she uses the word. Stevie also has a zero realization in "children" [tʃˈɪʊdn]. Elsewhere he has several other pronunciations of the word with [ɹ].

Ada and Phil, who also use the word in the corpus, have no pronunciations recorded with zero realizations of R.

All instances of "syllabic"[ɹ] occur when R is followed in the original diaphonemic sequence by a vowel diaphoneme which is either "dropped" or which "shares" a realization of [ɹ] with R. R followed in the original diaphonemic sequence by a consonant diaphoneme is invariably realized as zero.

After the aspirated plosives [p^{h}] and [k^{h}] and also after voiceless fricatives [f], [θ], [s], [ʃ] etc. R is usually partially voiceless. This is true to about the same extent in all speakers. In transcriptions and examples no symbol is used for this partial voicelessness. It may be assumed every time [ɹ] occurs after [p^{h}], [k^{h}] or a voiceless fricative symbol.

After the above mentioned sounds R is sometimes realized as zero. This seems most likely to happen after [p^{h}]. Stevie, Ben and Mark have examples of zero realizations of R after [p^{h}]. "profession(al)" [p^{h}əfɛ] and [p^{h}fɛ́], "Pretoria" [p^{h}t^{s}ɔ́:ɹɪə]. For Mark and Stevie the first two of these examples are their only zero realizations of R in this type of environment. Jenefer, who has an example of "syllabic" [ɹ] in "from" has two examples of the word with zero realizations of R, [fm]. She has one other zero realization of R after a voiceless fricative, in "natural" [natʃo].

Zero realizations of R after a voiceless fricative are most common in Ben. Some are:- in "through" (twice), "street" (three times), "France", and so on. There is one example of zero after

[k^h] in "across" [ək^h́ɔ:s].

Ada, Nan and Phil have no such zero realizations after aspirated plosives or voiceless fricatives.

Phil and Ben have a few weak realizations [ɹ̥] in this position. Jenefer also has an example of [ɹ̥] in "Africa".

In those individuals who commonly use [ʔ̆] as a realization of F, Phil and Mark, R is often realized as zero or [ɹ̥] after this sound. "different" [dɪ́ʔ̆ən], "not for a " [nɔ́ʔ̆ə], "come from" [k^h ɐ́ mʔ̆m], "pay for a" [pʰɐ́ɛʔ̆ə]. This is not found in other individuals.

"R" is"dropped" by Mark once after G in "great" and once by Phil after V in "everything" [ɛ́vðɪŋʔ].

Y

This diaphoneme occurs in words such as:- "you, yesterday, tube, Tuesday, stupid, beautiful, cute, music, few".

There is not a great deal of variation in realizations of Y and what there is seems to be remarkably predictable.

In all individuals the only realization (with 2 exceptions in Ben) found after a vowel, semivowel or consonant other than T, D, S, Z, Sh, Zh, Ch, J, is [j]. The 2 exceptions in Ben are zero realizations found twice in "ridiculous" [ɹɨd̥ ˈɪ ˀk l ə s].

Examples: "tell you" [tˢˈɛ l j ɪ]; "enthusiastic" [ɛ n θ jˈøːzˈeast ɪ ˀk]; "cute" [kʰjˈŒʊʔ]; "never used" [n ˈɛ v ɨ jˈøːs].

A special diaphoneme Y* has to be postulated to account for the variation found utterance initially in "yes". In this word and in this position Ben has a large number of very weak realizations in which the tongue is not held as near to the palate as in most other realizations of Y. Ben also has quite a few zero realizations, where the word "yes" begins with a vocoidal sound of the quality usually found in realizations of E and where there is no glide from a vocoid of closer quality. Nan also has several such "weak" realizations. They are not found in other individuals.

Word-initially after T realised as [tˢ], D, S, Z, Sh, Zh, Ch, J fricative realizations [ʃ] and [ʒ] occur. There is a relatively small number of partially fricative realizations [ʃj] and [ʒj] and also a very few alveolo-palatal fricatives [ɕ] and [ʑ], rather than the more usual palato-alveolar fricatives. These fricatives are voiceless after voiceless consonants and voiced after voiced ones. Word-initially after T realized as anything but [t^s], Y is realized as [j]. I do not have the impression that my informants differ substantially in their use of these realizations.

Examples:- "don't you" [dˈɛʊntʃʉ]; "didn't you" [dɜ̆ ʔjˈəː]; "looks younger" [lˈʊʔkʃ ˈeˈŋɡɐ]; "was younger" [wəʒˈʌŋɡəɹ]; "do you" [dʒY]; "married you" [mˈÆɹɪd ʒʉ]; "college you" [k^hˈɒlɛdʒE].

Word-medially after T, D there is a variation between fricative realizations [ʃ] and [ʒ] and zero. I have the impression that the variation here may be conditioned to a large extent by the word in which Y occurs. The "dropping" of Y in certain words is an example of "phonemic variation". In all instances except 2 in my material where word-medial TY precedes an unstressed vowel, as in "actually, situated, lectures, feature" Y is realized as [ʃ]. The 2 exceptions are in "amateur" in Ben who twice pronounces the word [ˈæməʔtə]. Stevie has a couple of pronunciations of the same word with [tʃ]. Before a stressed vowel zero realizations are more common and probably somewhat more frequent than other realizations. In the sequence STY as in "stupid", realizations of Y vary between [j] and zero, the realization of T not being affricated. I do not have the impression that there are any significant differences between speakers in their use of these realizations.

Examples:- "lecturer" [lˈɛʔk tʃɹɐ]; "actually" [ˈæʔktʃlɛ]; "stupid" [st^cjˈYːp^hɪd], [stˈəʊʔpɪd]; "tube" [tʃˈœøb]; "tubing" [t^sˈəʊbɪn]; "during" [dʉɹən]; "educate" [ˈɛdʒɪk^hˈɛɪʔ].

Word medially and after <u>N</u>, there are many zero realizations and a few examples of [j]. There are no examples in the material of <u>SY</u> or <u>ZY</u> word-medially.

Examples:- "continuation" [kʰənt^{s}ˈɪnʊˈɛ̃ʃn]; "Newmarket" [nˈɨʊ mˈɑːxɪt̪].

I

This diaphoneme occurs in such words as "bit, sit, pick, big, which, live (vb.), missed, pin, sing, still, hill, village, living, honest, beautiful, Jenefer," etc.

I has been classified as a "short vowel", since its realizations are almost all short and monophthongal.

The qualities marked in the chart are the average qualities of realizations of I used in stressed position before any consonant except L realized as a vocoid. There is very little difference indeed between individuals' realizations in this position. All speakers' average realizations are [ɪ] and all except Mark have as their average rather open varieties of [ɪ] . Mark's average pronunciation is somewhat closer than the other speakers', and roughly equidistant from [ê] , [i] and [ɨ] . Ben's, Stevie's and Ada's pronunciations are on average roughly equidistant from [e] , [E] and [ə] . Phil's are on average somewhat more retracted and more open, perhaps a little nearer to [ə] and [E] than to [e] . Nan's are on average somewhat advanced, a little nearer to [e] than to [ə] and [E] and Jenefer's pronunciations, though still centred in [I] are on average very near to [e] , [ɛ̂] and [E] .

As is implied in the above paragraph by the fact that no individual's average pronunciation falls squarely in the middle of the [I] slot, all individuals have some realizations other than [I] . Most individuals have some realizations in each of the slots surrounding [I] , in [i] , [ɨ] , [ə] , [E] , [ɛ] , [e] and [ȅ] . There are a few realizations as far away from [I] as [ɛ] .

Examples:- "think" [fɪ́ŋk̚] [féŋkʰ] [fɛ́ŋk̚] "pretty" [pʰɹə́ dI] "wish" [wɨ́ʃ] [wɨ́ʃ] "thing" [θ é ŋ] "give" [gɛ́ v] "this" [z̪ ɨs] [d̪ Ɛ́s]

Before L realized as a vocoid realizations of I in all individuals tend to be more central in quality than the averages described above. [I] and [ə] are a good deal more common than the more outlying qualities [ɛ] , [e] etc. I am not aware of any differences between individuals in the realizations they use here.

Examples:- "still" [stɪ́o] [stˤɨ́ʊ] , "will" [wə́ʊ]

In unstressed position realizations of I are generally a good deal more central than the average realizations in stressed position and zero realizations also occur. I have the impression that the degree of centralization here depends to some extent on the number of syllables in the word in which I occurs and on the particular syllable within the word in which I is found. There is least centralization of unstressed I in monosyllabic words or in polysyllabic words in which the syllable containing I might, in other contexts, be stressed, e.g. in "bit" or "little". There is next least centralization of unstressed realizations of I in polysyllabic words where I is found in either the first or the last syllable and this syllable may not be stressed, e.g. in "impressed, village, Conservatives". There is most centralization of unstressed realizations of I in words longer than two syllables and in which I occurs in any "unstressable" syllable except the first or last and adjacent to a stressed or "stressable" syllable, e.g. in the 2nd and 4th syllables of "university". Thus, in a word such as "inquisitive", in a context where no syllable is stressed, the vowel in the 2nd syllable is least likely to be centralized, the vowels in the 1st and 4th syllables next least likely to be centralized and the vowel in the 3rd syllable most likely to be centralized. This order of probability of centralization of realizations of I is also the order of probability of realization of I as zero. I am not aware of any differences between individuals in their pronunciation of unstressed I .

Examples:- "horrible" [hɒ́ɹəbʊ] "terribly"[tˢέɹə b l EI] "American" [əmέɹəkʰm] "notice" [nɜ́ʊ ʔ Is] "disappointed" [dɪ́səpʰɔ́ə ntˢId] "mister [mɛ̂stᶜəɹ]"mutiny" [mj ɨ́ʊ ʔnɪ̈] "university" [jʉ:n ə v ɜ́:s:tˢ] , [jẙnv ɜ́ :s:tˢɛ̂] .

Special diaphonemes I* may need to be postulated to account for variation in "if, it, him, with" in which there may be a higher degree of centralization of vowels in unstressed position. I am not certain, however, that this is the case.

A special diaphoneme must be postulated to account for the pronunciation of "will" (future auxiliary) in unstressed position. The W* of this word is almost always realized as zero in unstressed position and when the word follows a vowel as in "he will" the I* is also normally realized as zero, the realization of the sequence V+"will" often being homophonous with that of the sequence V+L. E.g. "you will have" [jəláv] "you will be" [ʒəʊbəI] .

After a consonant unstressed "will" may often be realized only as [ə] or [l] as in "it will get" [Iʔə géʔ] and "match will have to" [mɛtʃlǽʔə]. I am not aware of any differences between speakers in their realizations of I* and I* in unstressed "will".

I* as only in "is" is almost invariably realized as zero when unstressed and following any diaphoneme but S, Z, Sh, Zh, Ch, J. After these six diaphonemes realizations of unstressed I* ("is") are similar to those of unstressed "it, if, him". Individuals do not differ in their pronunciations here.

Examples:- "he is" [EIz] "that is" [æs] "this is" [ðəsəz]

A special diaphoneme must be postulated to account for the "phonemic variation" which occurs in the word "his". Ben, Phil, Mark and Nan, sometimes pronounce this word with vowels identical to those used as realizations of Ee,.

so that "his" and "he is" are often homophonous in their speech. Stevie, Ada, Jenefer use pronunciations which fit in with their patterns of variation for <u>I</u> .

Examples:- "takes his" [tˢáɛʔksIiz] "crown or his" kʰɹʌ́:nré:z] "all his" [óôIiz] "his Dad" [Izdǽd] "said his" [sɛ́dIz] .

E

This diaphoneme occurs in such words as "second, dead, F., pleasure, telly, jelly, friend, pen, Daleks, accents," etc. It is classified as a "short vowel", having realizations, the vast majority of which are monophthongal and short.

In stressed position and before any consonant average qualities of realizations of E are as follows:- in Ben, Nan, Ada and Jenefer in [ɛ] slightly towards [ɛ] and in Ben's, Nan's and Ada's cases somewhat retracted, in Phil and Stevie in [E] somewhat towards [ɛ] and in Mark in [ɛ] somewhat retracted towards [E]. In all individuals examples of [ɛ], [ɛ] and [E] are common, in Mark examples of [e], in Stevie and Phil examples of [ə] and in Nan examples of [æ] are also fairly common, but less so than [ɛ], [ɛ] and [E]. Phil and Ben have a few examples of rounded front vowels [œ] and [Œ]. All individuals have a few examples of some of the more peripheral realizations [e], [I], [ə], [ɐ], [æ]. In most individuals there are also a very few narrow diphthongs, so narrow that they do not move out of the area in which monophthongal realizations are found. In Nan, there is possibly some significant connection between a diphthongal realization and the environment ED+C. In this environment she has three diphthongs, [ɛe] twice and [ɛe̝] once, and no monophthongs. These examples occur in the words, "bed, dead".

Examples:- "letter" [lɛ́ʔɐ],[lɛ́ʔɐ] "red" [ɹEd] "next" [neʔs] "Jenefer" [dʒ ə́nəʔə]"Jenny" [dʒǽ nɛ̂e]

In unstressed position and before any consonant, realizations of E are in Phil, Mark and Jenefer in no way significantly different from realizations in stressed position. The average quality of realizations in both positions is roughly the same, in [E] ,[ɛ̂] and [ɛ] respectively. In Ben, Nan and Stevie unstressed realizations of E are on average considerably more central in quality than their stressed counterparts, being centred in Ben and Nan squarely in [E] and in Stevie on the borderline of [E] and [ə] . In Ada unstressed realizations of E are significantly closer than stressed ones, being centred in [ɛ̂] somewhat retracted.

Examples:- "never" [nə́ vɹ] "progress" [pʰɹɐ́ʊgɹES] "accents" [ɛ́ksEʔs] "prospects" [pʰɹɔ́spɛʔs] .

Before the semivowels L and R, realizations of E are in some individuals significantly different on average from the average realizations. In some individuals realizations of E before L differ depending on whether the L is realized as [l] or as a high back vocoid (symbolized in this section [ʊ] for convenience, although not always of that exact quality).

In Jenefer, realizations of E before R, E before L[l] and E before L[ʊ] do not differ significantly from her other realizations of E, being on average in [ɛ] somewhat towards [ɛ̝]. The situation regarding variation of realizations of E in the four environments É+C, E+R, E+L[l] and E+L[ʊ] is, in individuals other than Jenefer, rather complex.

In Ben, Phil, Nan and Ada realizations in these four environments are grouped around three centres, but in none of these three speakers are the two environments in which realizations of E are on average centred together, the same two. Thus, in Ben realizations of E before R and before L[ʊ] are on average the same, centred on the borderline of [ɛ] and [E], that is somewhat more centrally than his stressed realizations of E before a consonant, and his realizations of E before L[l] are on average yet more central, squarely in [E], like his realizations of unstressed E before a consonant. In Mark, realizations of E before R and L [l] are on average the same, centred on average at the meeting point of [ɛ], [ɛ̝] and [E], that is in a more open and somewhat more central position than his realizations before a consonant and his realizations of E before L[ʊ] are on average squarely in [E], i.e. about as open as before R and L[l] but somewhat more central. In Ada and Nan realizations of E before L[l] are on average the same as their stressed realizations before a consonant, in [ɛ] somewhat towards [ɛ̝] and slightly retracted. Ada's realizations of E before L[ʊ] are on average more central than this, about on the borderline of [ɛ] and [E]and her realizations before R are again slightly more central, in [E] but quite near to [ɛ]. Nan's average for realizations of E before R is more open, between [ɛ] and [æ] and her average position for realizations of E before L[ʊ] is squarely in [E] like her average for realizations of unstressed E before a consonant.

In Phil and Stevie average realizations of E in these four environments are centred around two points. In Phil and Stevie realizations in these environments are grouped together in the same way but in the case of E before L [l] around rather different points on the vowel chart. Phil's and Stevie's realizations of E before R and before L[ʊ] are on average the same as their realizations of stressed E before a consonant, in [E] towards [ɛ]. Phil's realizations of E before L[l] are about as open as this but retracted towards [ɐ].

Stevie's realizations of E before L[l] are also on average retracted from the position of his realizations before R and L[ʊ] but more close, in [ə] very near to [E], that is, not far from his average position of unstressed realizations before a consonant.

Examples:- "terribly" [t^{s}ɛ́ɹəblEI] "American" [ə mÉɹə k^{h}m] [əmə́ɹɪk^{h}əŋ] "terrible" [t^{s}ǽɹəbə̣] "tell" [t^{s}ɛ́ʊ] [t^{s}Éʊ], [t^{s}ə́o] "fellow(s)" [fə́ləz], [fɐ́l əz], [fÉləz], [fɛ́lɐ].

Certain words are pronounced with vowels which vary according to patterns roughly similar to the patterns of variation found for E but not identical with them.

These words must be spelt with special diaphonemes E*

Two such words are "very" and "well", (used as a conjunction to introduce a sentence) both common words. I have the impression that the vowels in these words are in general more central than those found in similar environments (before R and L) in other words. E* in "very" quite often has front rounded vocoid realizations [œ], [œ̂], [ɶ]. I have the impression that each labialization is particularly frequent in Ben and Phil. In unstressed "well" central vowels [ə] are very common, particularly when L is realized as [l] e.g. "well he" [wəlé:]. On occasions, when L is realised as a high back vocoid, there is no glide to the high back position from a lower more open position, e.g. "well we" [wʊ́bwI]. Here the [ʊ] must be considered a "shared" realization of both E* and L* in "well". I am not aware of any differences between individuals in their pronunciation of "well".

Other examples:- [və́ɹI], [vœ́ɾe] [wË̝́8] [wəl] [wə̹́ʊ]

The words "when" and "went" appear to be pronounced with vowels which are on average more central than the average position for realizations of E. It may be that a preceding W has some retracting effect on mid-front vowel diaphonemes as a similar retraction is found in realizations of Ea* as only in "where". (see Chart 11 and discussion). Examples:- [wə́n], [wEn], [wə̹̠́nʔ].

In Ben, the words "said, says", particularly when used in a narrative passage, e.g. "So'e says to me....and I said to 'im..." are pronounced with vowels more central on average than the average position of realizations of E, and on occasions with zero. I do not think that other speakers have such a special treatment of these words.

Examples:- "he says" [isz] , [íis̩ɨz] "they says" [ðE: s ɘ̌z] .

In unstressed position "them" used as a pronoun and not, as sometimes happens in the material, as an adjective, is usually pronounced with very central vowels or no vowel at all, being an example of a "weak form". I do not think that my informants differ significantly in their treatment of this word.

Examples:- "few of them" [fjŒ́:əðə m] "some of them" [s məvəm] "get them" [gə́dəm] "them horses" [ðEmɔ́osIz] . (In this last example "them" is used as an adjective.)

In the word "yes" S* is very frequently realized as zero and as a general rule the realization of E* when this is the case is somewhat longer than most realizations of E and also quite frequently diphthongal. Monophthongal realizations are of about the same average quality as realizations of E before a consonant, except possibly in Ben in whose speech they may be on average somewhat more central, in [E] . Diphthongal realizations generally start with about the same quality as monophthongal realizations and glide to a more central quality [E] or [ə] . When the S* in "yes" is not realized as zero, realizations of E* are shorter, although a few long realizations do occur. Diphthongal realizations are much less common when S* is not realized as zero. Monophthongal realizations are of about the same quality as realizations of E before a consonant except in Ben, in whom they may be somewhat more central.

Examples:- [jÉ:] , [j ə́ :] , [j ɛ́:] , [j ɛ́ :] , [jÉS] , [j ɛ́s] , [jɛ́ə] , [jɛ E] .

There are instances of "phonemic variation" in the words "again, against". There may well be three-way variation here, i.e. between three different phonemes. Nan and Ada have one and four examples respectively of diphthongal realizations of E* as only in "again(st)" [ä̦I] , [EI] , [Ae̦], [Ae] and [ɛ̦ë]. These diphthongs fit in well with their patterns of variation of realizations of Ay. Mark has two examples of [ɛ́] which fit in his pattern of variation of realizations of E. With the realizations found in Ben, Phil and Stevie, no such neat phonemic-type conclusions can be arrived at. Ben has one example of a very narrow diphthong[ɛɛ̣] , so narrow in fact that a reservation has been made in the judgement as to whether it is a glide or not. This glide is in the same area as Ben's average realizations of E before a consonant, but no diphthongal realizations of E have been recorded for him, and for this reason this realization, if one considers it a diphthong, does not fit in with his patterns of variation of realizations of E. Nor does this narrow glide fit in with Ben's patterns of variation of realizations of Ay, whose average is a glide from [AE] to [I] . He does have a very few narrow diphthongs as realizations and some even beginning as far front as [ɛ] , but none which combine such narrowness of glide with such frontal quality. The nearest (admittedly pretty near) realization of Ay to this [ɛɛ̧] in "again" is an example of [ɛ̧ɛ̣] in "steak", but this is quite an exceptional realization of Ay. Ben's [ɛɛ̣] in "again" stands, then, on the extreme periphery of patterns of variation of realizations of two separate diaphonemes.

Similar difficulties would be encountered in trying to assign Phil's one [ę] , Stevie's two [ę] 's and one [ɛ̈] to phonemes. These realizations of E' in "again(st)" are on the peripheries of patterns of variation of realizations of both I and E and very roughly equidistant from the average positions of realizations of these diaphonemes.

There is another instance of "phonemic variation" in the words "get, gets, getting". In terms of phonemes the variation here is between /I/ and /e/. Since the diaphonemes corresponding to these phonemes, I and E overlap to a considerable extent (all individuals having some examples of [ɛ] , [E] , [ə] as realizations of both diaphonemes) assignment of vowels found in "get", etc., to "basic" phonological units, such as phonemes, is impossible.

All one can do is to describe the peculiar distribution in "phonological space" of vowels found in these words. In Mark and Jenefer realizations of E* ("get" etc.) are centred on average in the same position as their realizations of E, before a consonant, in [ɛ] and [ɛ] respectively. In Ada realizations of E* ("get" etc.) are on average [ɛ] , somewhat open. This is near to her average for realizations of unstressed E before a consonant, but closer than her average for realizations of stressed E before a consonant. In Nan, Ben and Phil realizations of E ("get" etc.) are on average in [ɛ] very near to [e] and somewhat retracted, in [I] very near to [e] ,[ɛ] and [E] and in [E] very near to [ɛ] , [e] and [I] respectively. These positions are nearer to Nan's, Ben's and Phil's averages for realizations of I than to their averages for realizations of E. They are not identical, however, with either, and lie between them. Stevie's realizations of E* ("get" etc.) are on average in [I] about equidistant from [e] , [E] and [ə] , in a position not significantly different from his average for realizations of I.

Examples: - [gíʔIm] , [gIʔ] , [gέʔ] [géʔ] [g̊έd] [gə́d] [gEʔ] .

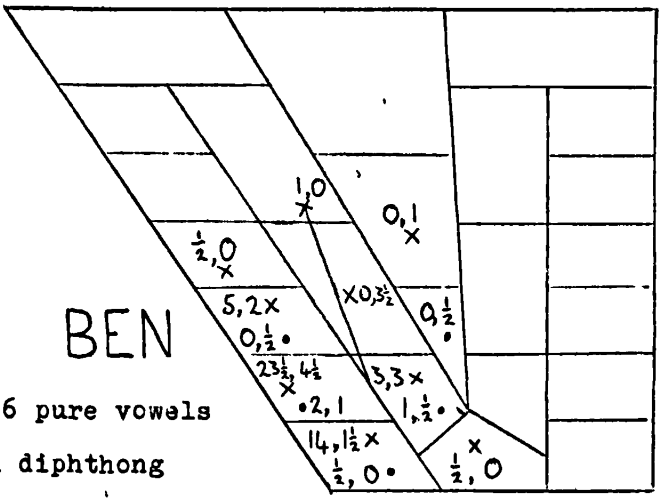
A

This diaphoneme occurs in such words as "black, Daddy, Dad, challenge, pal, canal, fat, man, hands, standing, camp, carrying, married, carrots, van, cab" etc.

It has been classified as a short vowel, its realizations being in general of about the same length as those of E, I, U, O, Oo.

Chart 14 shows the principal realizations of A in stressed position. In the positions which are excepted A is realized somewhat differently. Monophthongs easily predominate over diphthongs. The one diphthong in Ben is something of an oddity. It occurs in the word "Chevalier" and the glide to [I] is probably part of the transition to the somewhat palatalized [l] which precedes the [j] in this word. Stevie, Ada and Jenefer are the only others who have diphthongal realizations and in them they are very rare. The 5 diphthongs which have been recorded are all glides from [a] or between [a] and [æ] to [ɛ] or between [ɛ] and [ɛ̂]. They are thus fairly short glides and "span" the area in which most of the monophthongal realizations are situated.

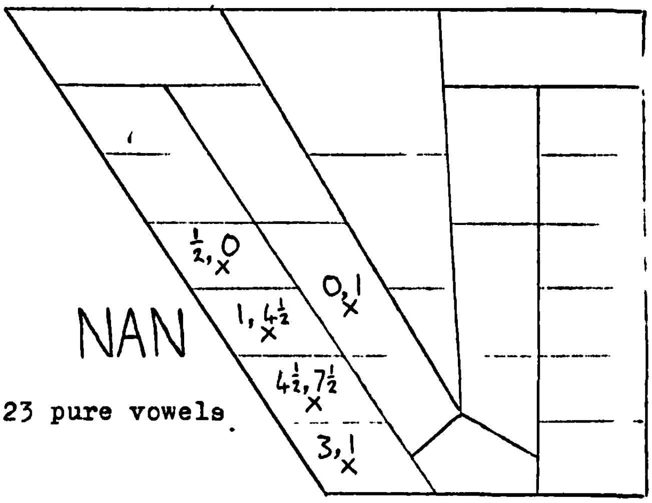
Monophthongal realizations range from between [e] and [ɛ̂] to between [a] and [A] and may be retracted as far as [ɐ] and [ə]. The great majority of realizations are however in [ɛ], [æ] and [a]. The closest realizations are found in Mark, whose pronunciations centre in [ɛ] somewhat towards [æ]. Ben's, Nan's, Phil's and Ada's realizations are centred in [æ], Phil's being on average more open than the others. Stevie's realizations are on average of about the same tongue height as Ben's, Nan's, Phil's and Ada's, but are retracted, centring in [æ] but near



BEN

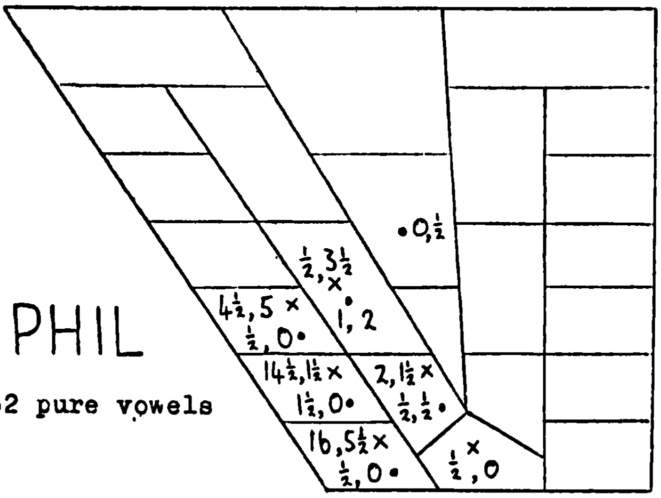
66 pure vowels

1 diphthong



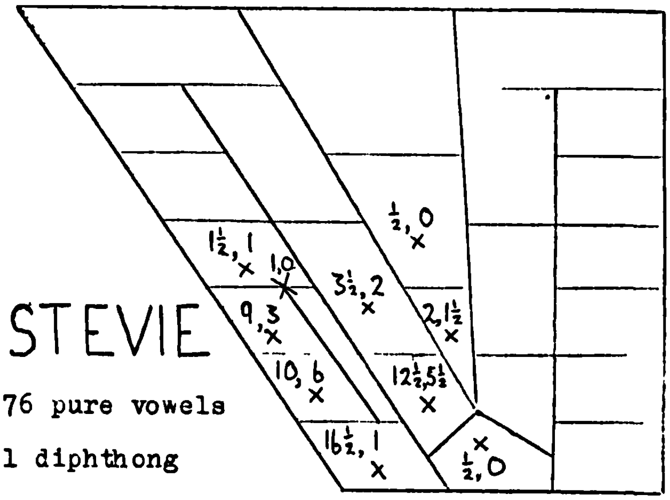
NAN

23 pure vowels



PHIL

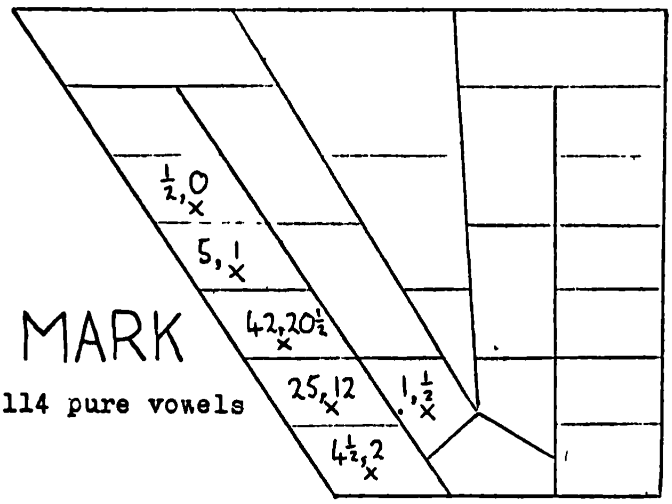
62 pure vowels



STEVIE

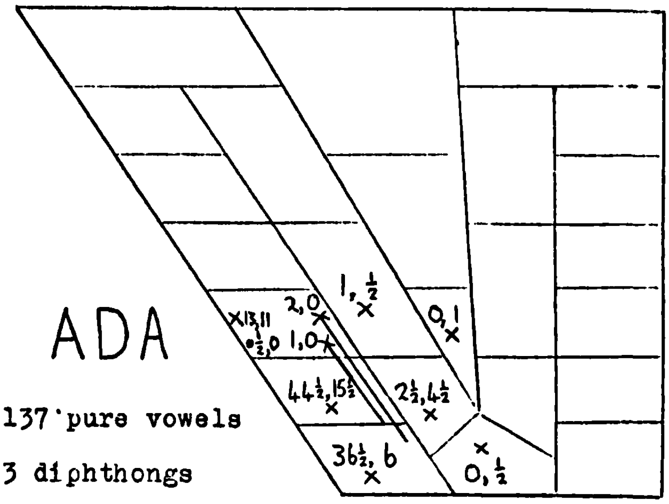
76 pure vowels

1 diphthong



MARK

114 pure vowels



ADA

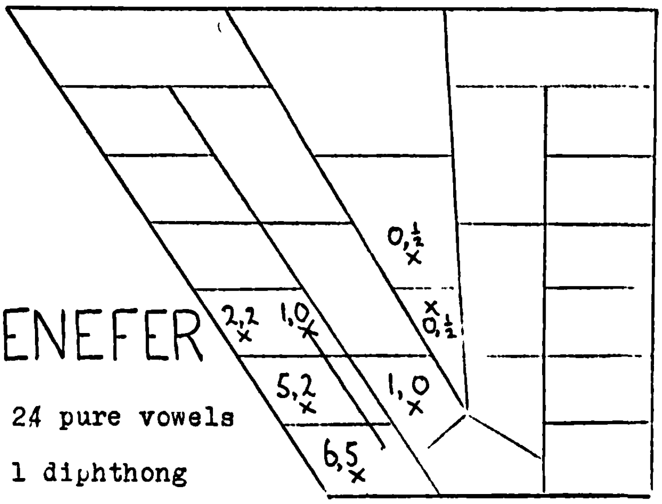
137 pure vowels

3 diphthongs

14

A as in "black, Daddy, challenge, fat" etc.
Stressed and in all positions except: before M,N,Ng; before D followed by another consonant; before R; before L when L is realized as a vocoid or a velarized lateral.

Also A* as in "have, has, had, at, as" only.
Stressed and in all positions.
Second figures show pronunciations of "have, has, had".
First figures show pronunciations in other words.



JENEFER

24 pure vowels

1 diphthong

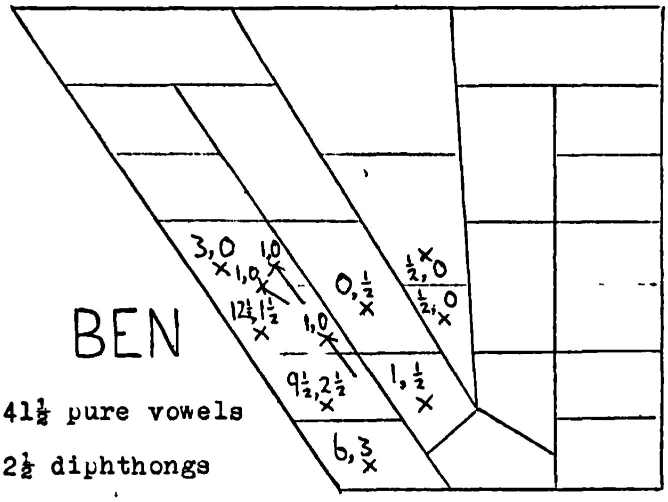
the borderline with [Æ] . Jenefer's realizations are on average somewhat lower, centring on the borderline of [ӕ] and [a].

Chart 14 also shows how stressed realizations of A* in "have, has, had" tend to be rather more centralized than those of A in some speakers. This is particularly so of Ben, Phil and Ada. In them the fully front vowels [Ɛ, ε, æ, a] are used as realizations of A and A* as in "have, has, had" in approximately ratios of 5:1, 3:1 and 3:1 respectively. The more retracted vowels are used for A and A* as in "have, has, had" in a ratio of roughly 1:2 by Ben, Phil and Ada. In Stevie, whose realizations of A are in any case somewhat retracted, there is not the same degree of difference. He uses fully front vowels for A and A* as in "have, has, had" in a ratio of about 3½:1. The corresponding ratio for the use of retracted vowels is about 2·1. In Mark, Nan and Jenefer all of whom use hardly any retracted vowels at all, there is no such difference.

Chart 15 shows the effect upon A of a following nasal consonant. Firstly diphthongal realizations are slightly more common than elsewhere and they are more common when the nasal consonant is itself followed by a consonant or a pause. Nan's rather odd diphthong may have been caused by nervousness as this occurred in her very first words in a recording. She seemed also a little short of breath at that moment. Phil's 2 diphthongs are of interest. The rather close one, gliding from [E] to [Ɛ] was misunderstood when he said it. His sentence was, "It was very hot and the [sÉƐ̃] was black." All present, Jenefer, Ada and myself, thought he had said "sea" and immediately queried the fact of a black sea. Phil then repeated himself "The [sǫ̀ǽ̃nd] was black." The first of these diphthongs is then, a case of "bad aim", the second pronounced with a certain care and deliberateness. Ben and Ada have a few very narrow diphthongs, so narrow in fact that they do not move out of the area in which the monophthongal realizations are found. They start near the average position for monophthongal realizations and move slightly upwards. Jenefer has one rather wider diphthong

In some individuals, stressed realizations of A before N, M, Ng followed by another consonant are a little higher than stressed realizations of A before N, M, Ng followed by a vowel. These differences are not great in any individual, but the reverse is never the case, and so some significance may be attached to it. Comparing the first and second figures in Chart 15, one can observe that the centre for the first ones is a little higher than that for the second ones in Ben, Stevie, Mark and Ada. In Nan, Phil and Jenefer there is no appreciable difference.

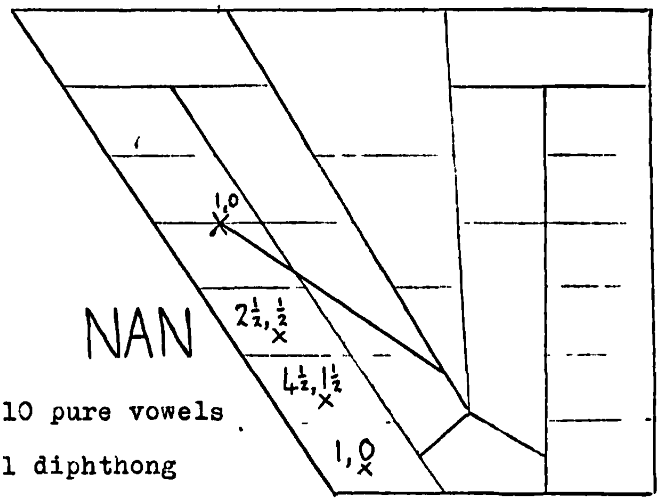
Comparing the realizations of A before N, M, Ng with the principal realizations of A in Chart 14 one finds that in Nan, Phil and Jenefer they are about the same, on average [æ], [æ] and [æ̨] respectively. In Ben, realizations of A before N, M, Ng plus consonant are centred between [ɛ] and [æ], slightly higher than the average principal realization. Before N, M, Ng plus vowel they are slightly lower, between [æ] and [a]. In Stevie, realizations of A before N, M, Ng are noticeably less



BEN

41½ pure vowels

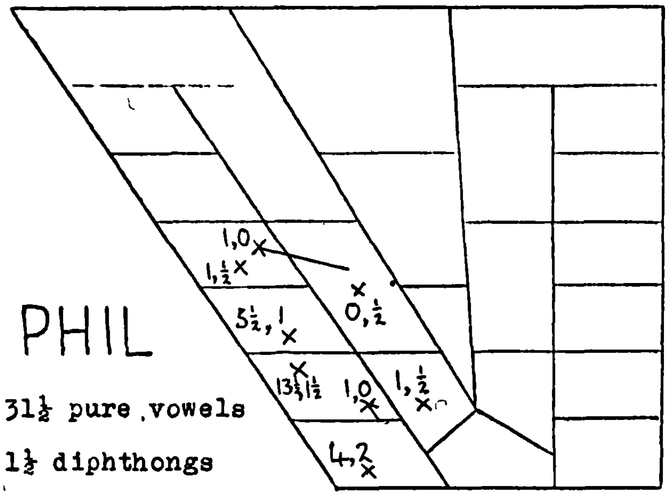
2½ diphthongs



NAN

10 pure vowels

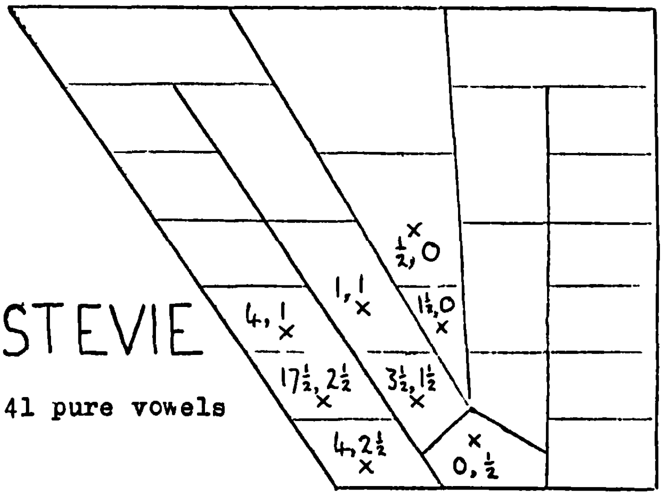
1 diphthong



PHIL

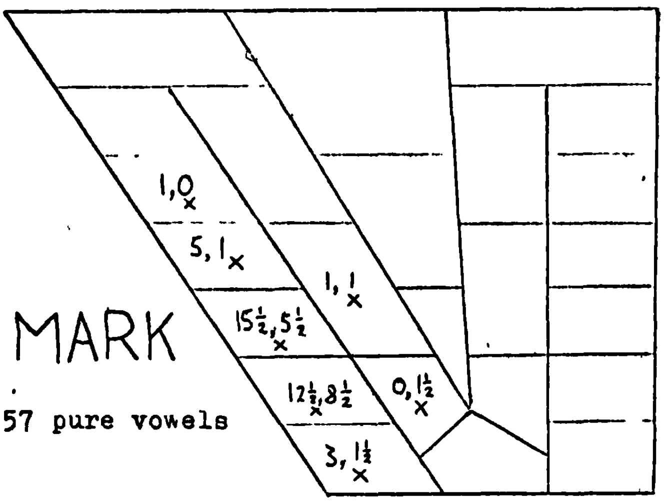
31½ pure vowels

1½ diphthongs



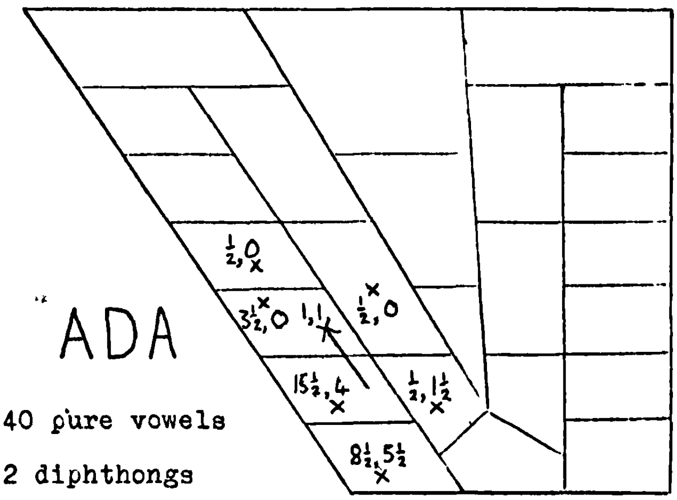
STEVIE

41 pure vowels



MARK

57 pure vowels



ADA

40 pure vowels

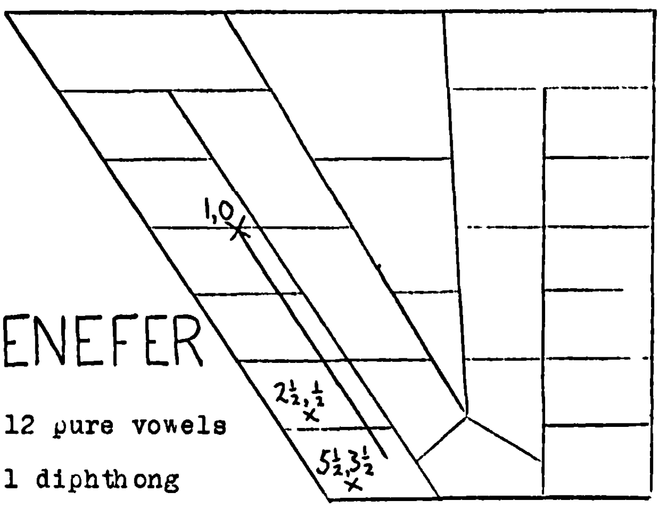
2 diphthongs

15

A as in "man, hands, standing, camp" etc.
Stressed and followed by M, N, Ng.

Also A* as only in "and, can (vb.), am, than".
Stressed.

First figures show pronunciations when nasal consonant is followed by another consonant or a pause.
Second figures show pronunciations when nasal consonant is followed by a vowel.



JENEFER

12 pure vowels

1 diphthong

retracted than the principal realizations. Before N, M, Ng plus consonant they are on average of about the same tongue height as the principal realizations, in [æ], before N, M, Ng plus vowel they are somewhat lower, still in [æ] , but near [a]. In Mark and Ada, realizations of A before N, M, Ng plus consonant are centred in the same place as the principal realizations, in [ɛ] and [æ] respectively, and the realizations before N, M, Ng plus vowel are somewhat lower, in [æ] and [a] respectively.

AD

Chart 16 shows how stressed A is affected by a following D plus consonant or pause.

In this position diphthongs are far more common in Nan, Stevie, Ada and Jenefer. They are not found in Mark or Phil although in the latter there are only 3 examples of AD plus consonant. In Ben there are no examples. The diphthongs in Nan, Stevie, Ada and Jenefer all commence at approximately the centre of their principal monophthongal realizations and glide upwards. The glides remain near the front of the mouth and end in general at about the uppermost limits of the principal monophthongal realizations of A or slightly closer. Jenefer's one diphthong is very narrow [aæ].

The monophthongal realizations of A followed by D plus consonant are centred in about the same position as the principal realizations in all individuals except Phil and Stevie in whom they are slightly closer, on the borderline of [ɛ] and [æ] and in [æ] near to [ɛ] respectively.

AR

Chart 17 shows the effect on stressed A of a following R. In this position, realizations tend to be centred in a somewhat more open and/or retracted position than the principal realizations. This is true of all individuals. Mark's average realization of stressed A before R is [æ], Ben's between [æ] and [a], Nan's and Jenefer's in [a] (Jenefer's one example of [Œ] being something of an oddity) Ada's and Phil's at the meeting point of [æ], [a] and [Æ], and Stevie's in [Æ].

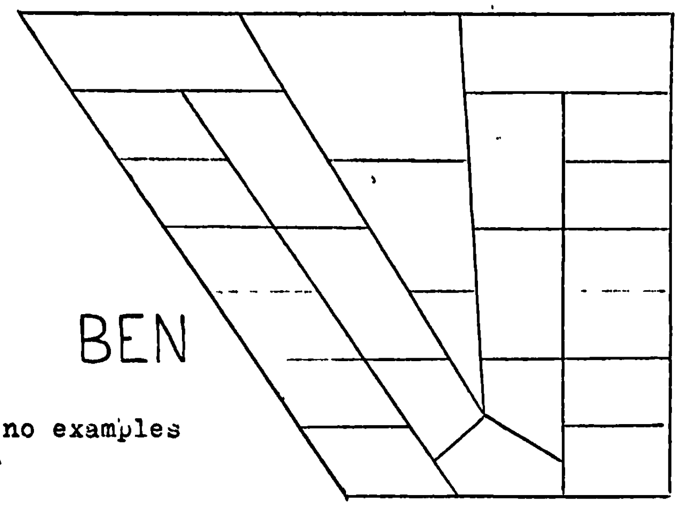
Chart 18 shows how stressed A is affected by a following L when L is realized as a vocoid or as a velarized lateral. The diphthongs shown on this chart are realizations of 2 diaphonemes, A plus L, except in 2 instances where Ben uses [ɫ]. These are the diphthongs [Æ ɐ] and [ao] shown on the chart. As has been said before, the transition from a vocoid to a velarized lateral voiced frictionless continuant is very similar in auditory effect to a diphthong ending with a high back quality and Ben's example of [Æɐɫ] is therefore not much different from the other diphthongs shown on the chart. The example of [aoɫ] is even less out of place.

The sequence AL followed by a consonant (in which position vocoid and velarized lateral realizations of L are mostly to be found) is rather uncommon and there are unfortunately only a few examples in the corpus. For Nan, Stevie, Ada and Jenefer there are no examples, for Mark, two, for Phil, one and for Ben six.

From what evidence there is, it would seem that an L realized as a vocoid or velarized lateral has a similar effect on a preceding A as R, i.e. that of causing the vowel to be somewhat more open and/or more retracted than the average principal realization. The average starting point for Ben's diphthongal realizations of AL is about on the borderline of [Æ] and [a]. Phil's one diphthong commences there as well and Mark's two begin between [ɛ] and [æ].

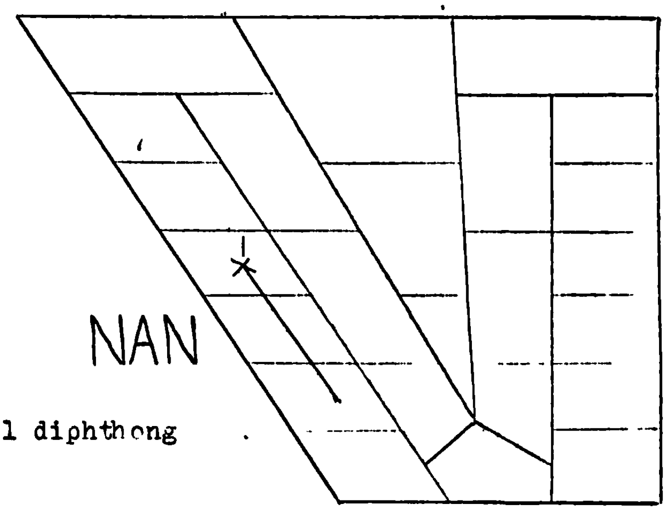
The end-points of the diphthongs centre in Ben, in [ʊ] towards [o] with one rather open end point between [ɔ] and [ɤ]. Phil's dipthong ends in [ʊ] as does one of Mark's. Mark's other one ends between [ʊ] and [o].

Chart 19 Shows the realizations of A and A* as in "that, (adjective adverb and pronoun), has had, have (excluding examples in 'should have, would have, might have' etc)" in unstressed position. Examples of A were found to be very rare in unstressed position. What few examples there are, were found to fit in with the pattern of variation in unstressed "that, has, had, have" and so the two have been included on the same chart. Realizations marked onthis chart will be seen generally to be concentrated somewhat more centrally than the principle realizations of A recorded in Chart 14. It is in fact more relevant to compare the figures on this chart with the second figures on Chart 14, those showing the stressed pronunciations of "have, has, had", since most of the figures on Chart 19 are made up of examples of "have, has, had," and "that" which in this position behaves similarly. The unstressed pronunciations shown in Chart 19 are in Nan, Phil, Stevie, Mark, Ada and Jenefer concentrated somewhat more centrally than the stressed pronunciations shown in Chart 14. In Nan and Mark they are concentrated in [æ] but somewhat retracted, in Stevie and Phil they are centred in [E] tending towards [ɛ, æ,Æ], in Ada and Jenefer they are centred in [æ] near the borderline with [Æ]. In Ben the unstressed pronunciations of "have, has, had" are on average the same as the stressed ones. Ada has two short diphthongs, one conforming to the pattern of her few dipthongs in stressed A, one beginning in a rather retracted position, in [AE], but gliding up and forward to end in the same position as her other stressed A diphthongs, in [ɛ].



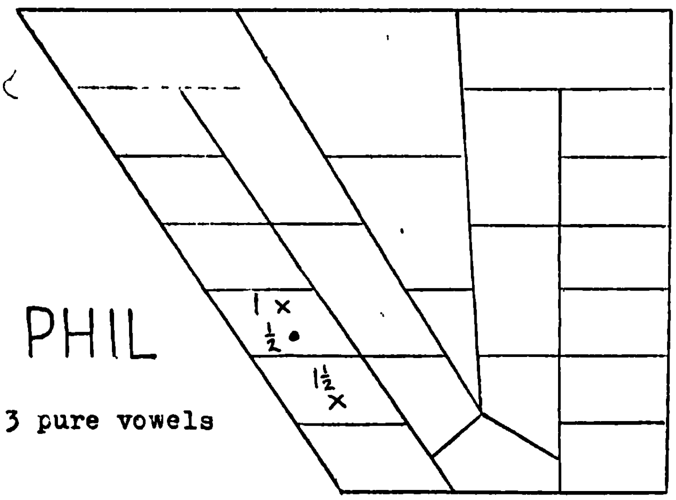
BEN

no examples



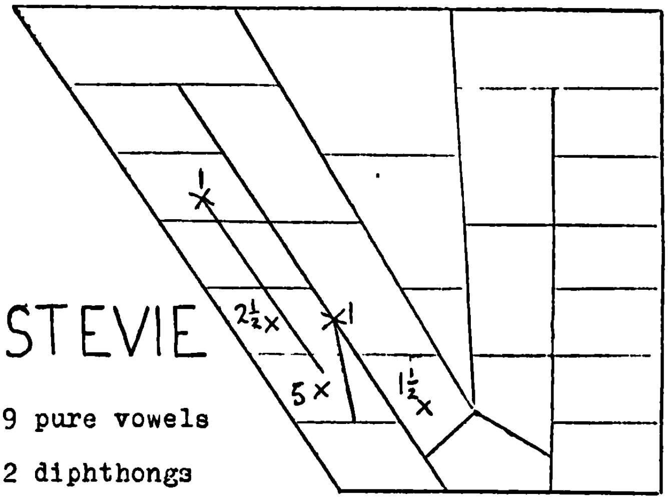
NAN

1 diphthong



PHIL

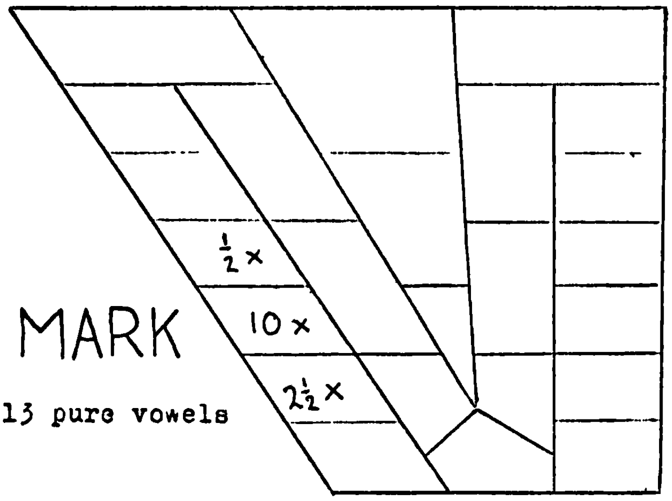
3 pure vowels



STEVIE

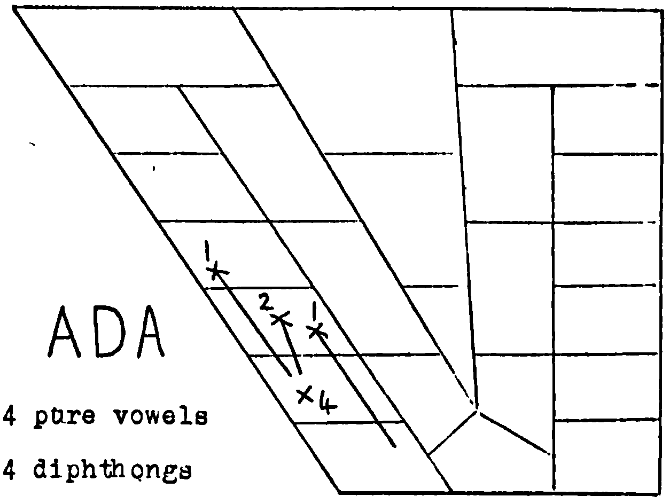
9 pure vowels

2 diphthongs



MARK

13 pure vowels



ADA

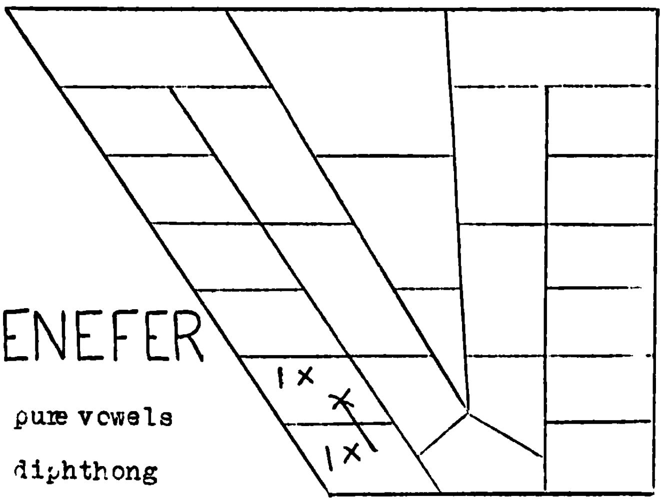
4 pure vowels

4 diphthongs

16

A as in "bad, mad, Dad" etc.

Stressed and before D when D is followed by a consonant or a pause.



JENEFER

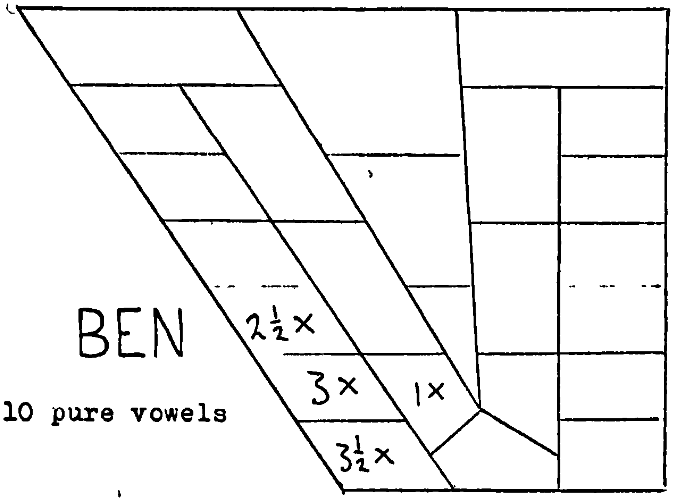
2 pure vowels

1 diphthong

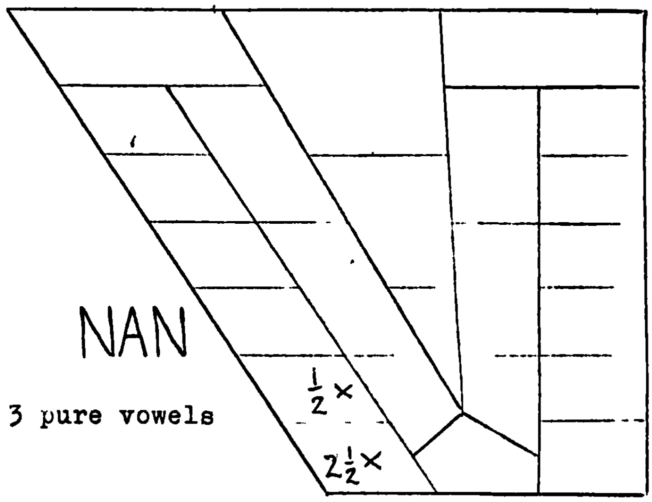
Chart 20 shows realizations of $\underline{A}$* in "and" in unstressed position. The realizations are in general considerably centralized from the position of the principal realizations of $\underline{A}$. It is interesting that when "and" occurs utterance initially, the vowel is centralized less than when it occurs elsewhere. This is true of all speakers. In all individuals the proportion of the first figures in the diagrams to the second figures is highest in the fully front vowel slots [Ɛ̂,ɛ. æ a], next high in [E,Æ, A] and lowest elsewhere.

By the device of splitting the figures for [E,Æ, A] in two and adding half each to the figures for [Ɛ̂,ɛ, æ, a] and to those for [ɨ,ə,ɐ,8,ɔ,ʊ], we can compare the ratios of front vowels to central and other vowels in utterance initial "and" and "and" occurring elsewhere in all individuals.

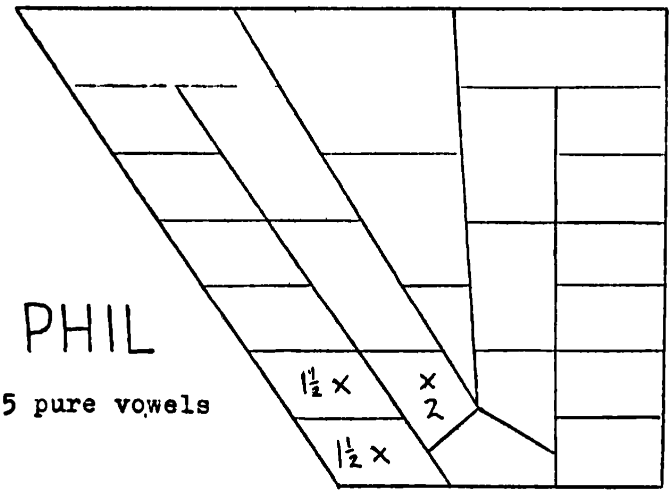
Use of front vowels in utterance initial "and" is most prevalent in Nan who uses them in a ratio of roughly 5:1 to central vowels When "and" is not utterance initial the ratio is reversed, being roughly 1.5 in favour of central vowels. Ben also uses more front vowels than central and other vowels in utterance initial "and". The ratio in his case is about 2:1. In other positions he uses front vowels in a ratio of about 1:9 to central and other vowels. In Jenefer the ratio of front to central vowels is about 2:3 in utterance initial "and" and about 1:5 in other occurrences of "and". In Phil, Ada, Stevie and Mark front vowels are used less than central and other vowels in utterance initial "and", respectively in ratios of roughly 1:5, 1:5, 1:6 and 1:7.



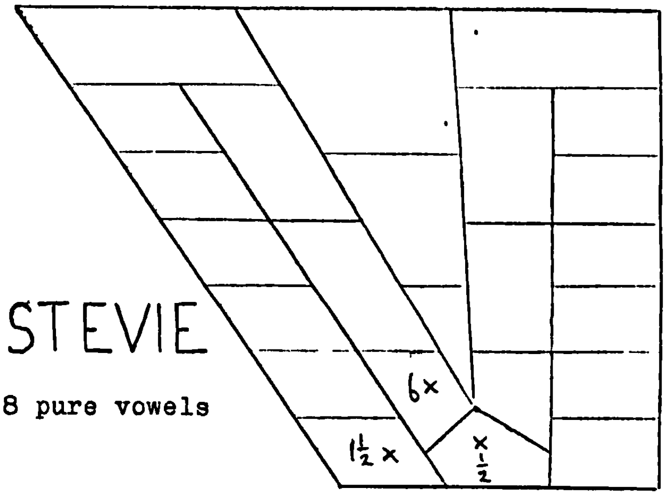
BEN
10 pure vowels



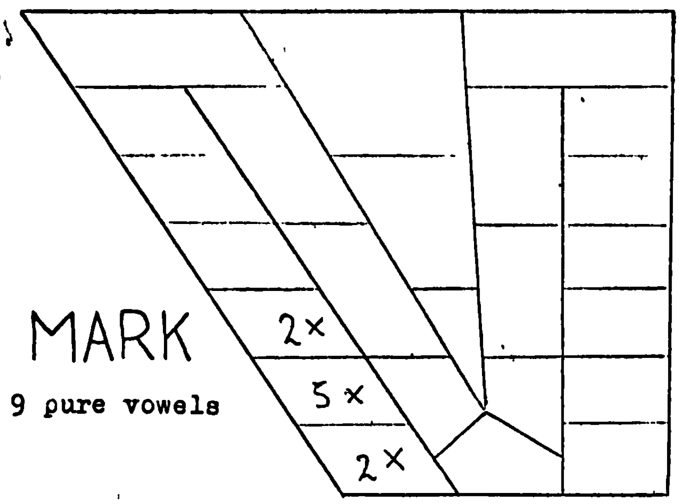
NAN
3 pure vowels



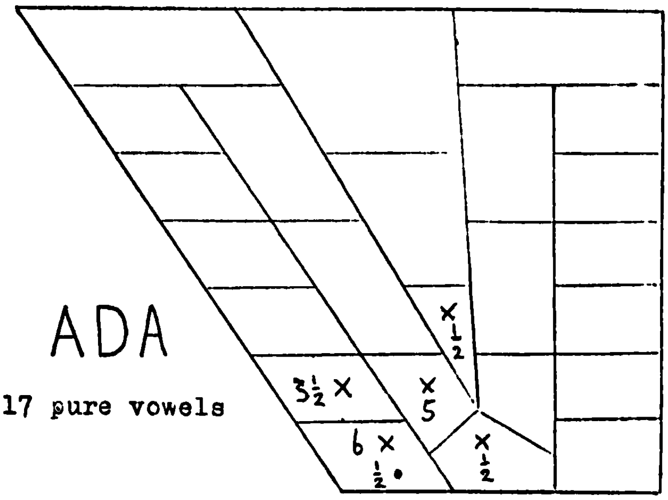
PHIL
5 pure vowels



STEVIE
8 pure vowels



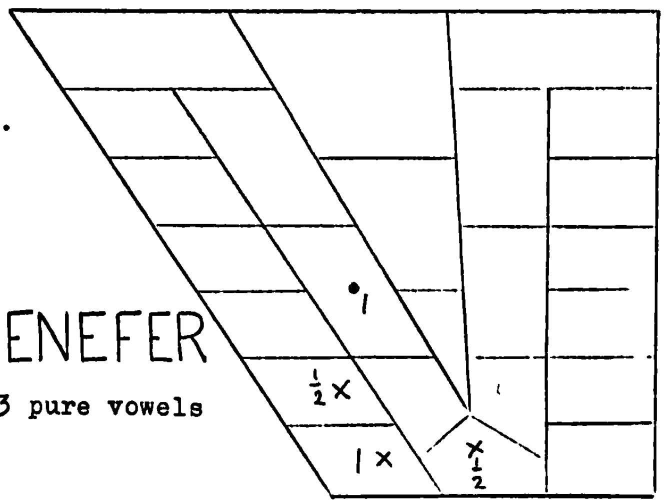
MARK
9 pure vowels



ADA
17 pure vowels

17

A as in "carrying, married, Harry, carrots" etc.
Stressed and before R.



JENEFER
3 pure vowels

In other occurrences of "and" the ratios of front to central vowels in Phil, Ada, Stevie and Mark are roughly 1:10, 1:11, 1:25 and 1:40 respectively. Thus the greater tendency to centralization in instances of "and" other than utterance initially is found in all individuals. It is more marked in Nan and Ben than in the other speakers and in Phil and Ada is least marked of all. Centralized realizations of A* in "and" tend to be very short.

The prevalent use of front vowels in utterance initial "and" by Ben and Nan may well have something to do with what has been called in the description of the recordings their rather "narrative" style. The word is commonly used in this position when telling a story and I have the impression that it is often used to fill a silence while the speaker collects his thoughts for the next sentence. There is thus a certain association between the use of the word in this position and some hesitation or deliberation on the part of the speaker.

Chart 21 shows pronunciations of A* in "that" (adjective, adverb and pronoun) in stressed position.

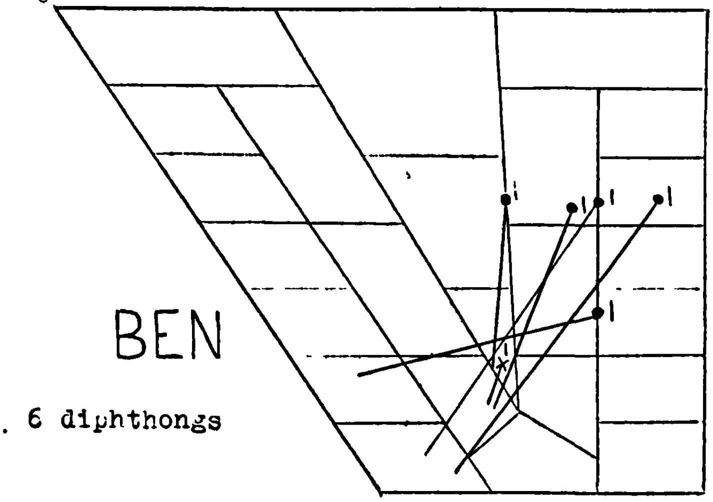
When this word occurs utterance finally it is far more likely in Ada to be pronounced with a diphthong than when it occurs elsewhere. Utterance finally she has diphthongs and pure vowel realizations in a ratio of roughly $1:1\frac{1}{2}$. In other positions the ratio of diphthongs to pure vowels is about 1:28. The diphthongs all conform to the pattern of her diphthongs found as principal realizations of A, in A before M, N, Ng and AD, except for one which starts rather far back, between [ɐ] and [Æ]. The end point of this diphthong conforms to the general pattern. In Ada diphthongal realizations in stressed utterance final "that" are almost as frequent in relation to monophthongs as in stressed A followed by D plus consonant or zero; the ratio is roughly 1:1

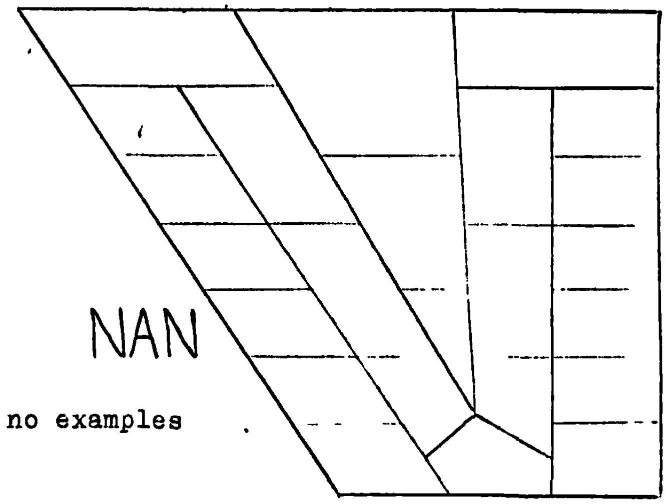
Nan and Stevie also have one diphthong each recorded in stressed utterance final "that", none in stressed "that" in other positions. Nan's fits in with others of hers recorded as realizations of A, Stevie's ends in [E] somewhat more central than the end point of the three other diphthongal realizations of A recorded for him. The starting-point of Stevie's one diphthong is not far from those of the others.

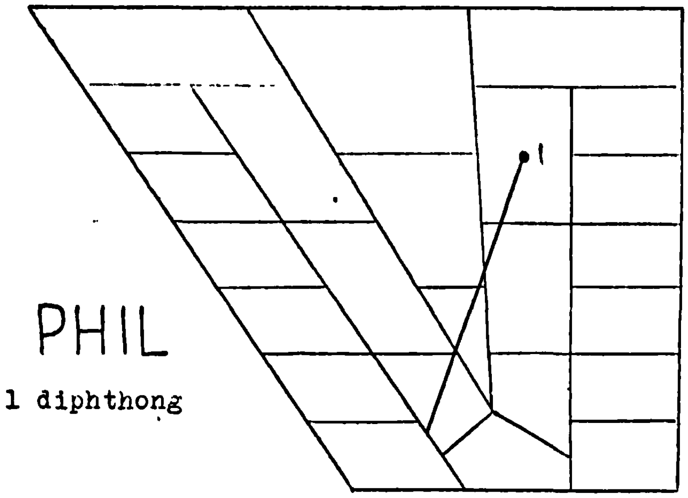
Ben, Phil, Mark and Jenefer have no diphthongal realizations of stressed "that".

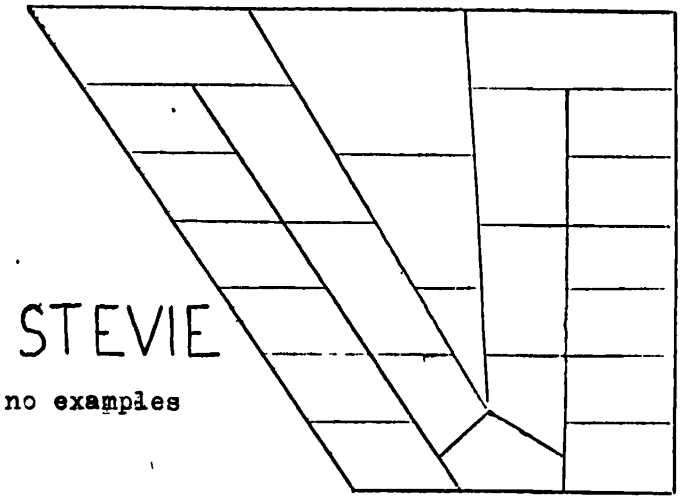
The monophthongal realizations of A* in stressed "that" conform to more or less the same pattern of variation as those of A* in stressed "have, has, had" (Chart 14, second figures) in all individuals except Ben, in whom the vowels found in "that" are perhaps slightly less centralized than those in "have, has, had".

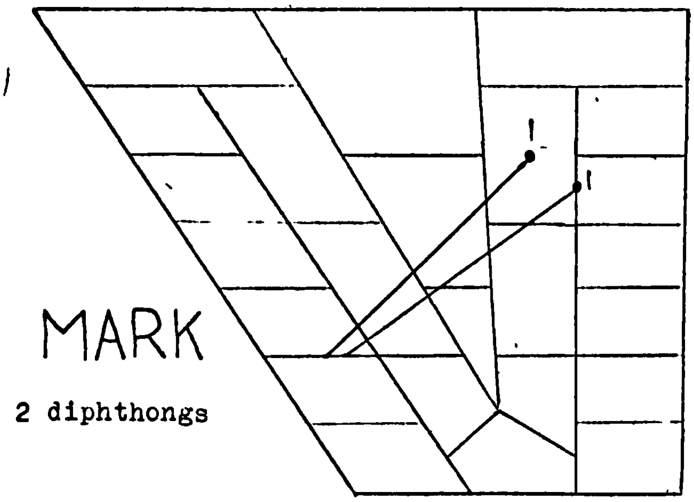
Chart 22 shows the realizations of A* in "that, (relative conjunction), at, as, than, have (in 'should have, could have, might have' etc.) shall, can " in unstressed position. These constitute for the most part "weak forms". In Ben, Phil, Stevie, Mark and Ada they are centred in [ə] where the great majority of their realizations occur. In Nan and Jenefer they are centred on the borderline of [E] and [ɵ]. In all speakers there is a very wide spread of realizations. Pronunciation as far apart as [Ɛ̂] and [ɔ] have been recorded. In all speakers

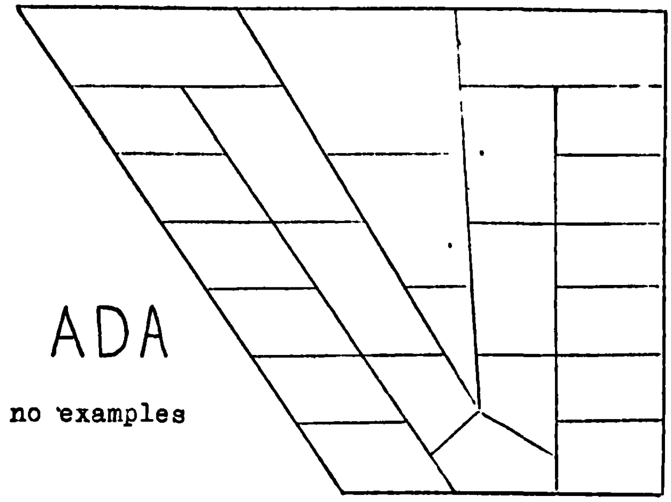








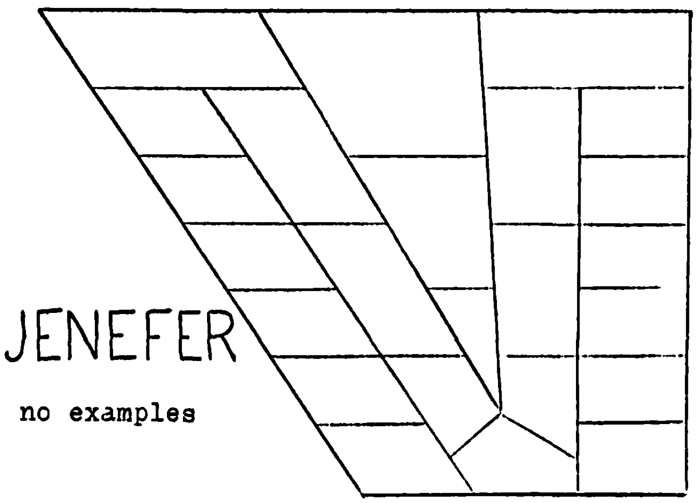




18

<u>AL</u> as in "pal, canal" etc. when <u>L</u> is realized as a vocoid or a velarized lateral.

(See notes.)



realizations other than [ɛ] tend to be distributed more among the front vowels than among the back vowels. These realizations are all very short.

These "weak form" realizations are conditioned by the same factors as those mentioned with reference to Ur* as only in "her, were" and more detailed treatment of them has not been made for the reasons given in that case.

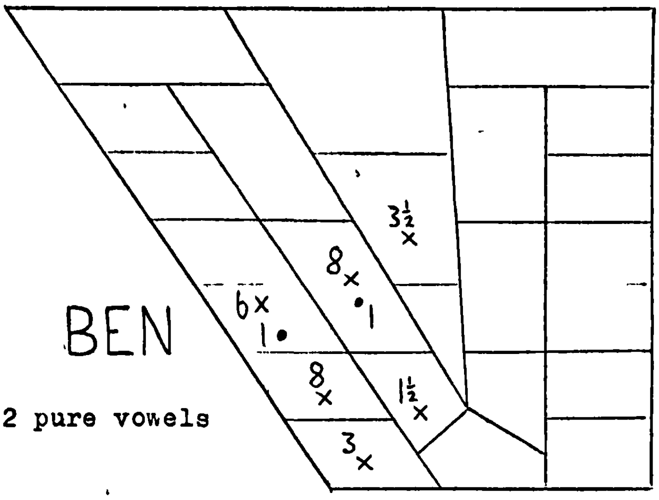
U

This diaphoneme occurs in such words as "pub, shut, brother, dull, worry, mother, huts, lucky, unless, done, up, Russell" etc. U has been classified as a "short vowel" having realizations which are in general of the same length as those of A, I, E, O, Oo.

There was found to be no significant difference between realizations before L when L is realized as a vocoid or a velarized lateral and other realizations of U. Consequently all instances of U before L have been included with the other realizations of U on Chart 23. There are in fact only two instances recorded of U followed by L realized as a vocoid or a velarized lateral. One is in Mark, [ʌ̟ ɫ] and the other in Phil [ɐʊ].

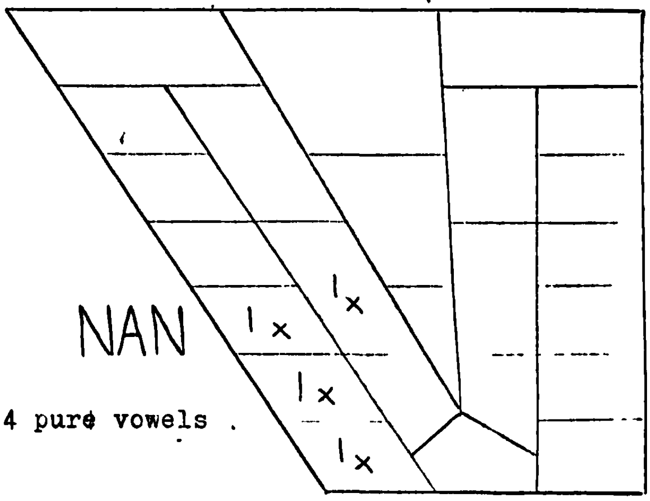
All realizations are monophthongal. Stressed realizations tend to differ only very slightly from unstressed ones. Unstressed realizations are concentrated very slightly more centrally than stressed realizations, but the difference is in general so small that it is impossible to perceive any significant variations between individuals in this respect. In Chart 23 the proportion of the first figures to the second figures is generally somewhat higher in the [ʌ, Æ, a, ɐ˙] slots than in the [ə] slot.

The average realizations vary in position from one individual to another. In Ben, Phil and Stevie realizations are centred in [ɐ], being possibly slightly less open in Stevie than in Ben and Phil. Although the great majority of their realizations are low central, a very few realizations are to be found as far forward as [a] though there



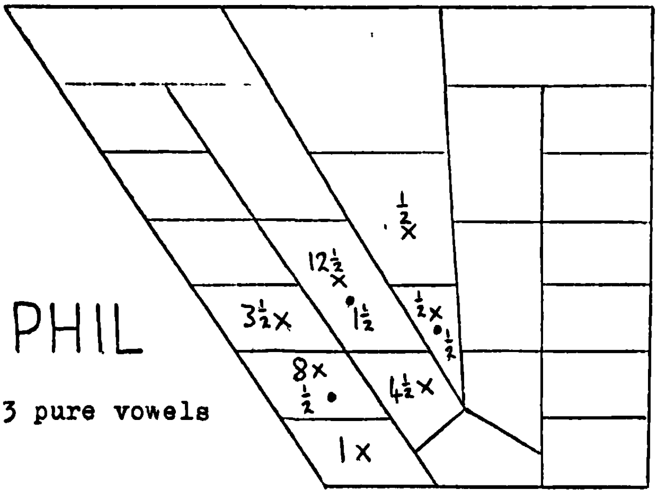
BEN

32 pure vowels



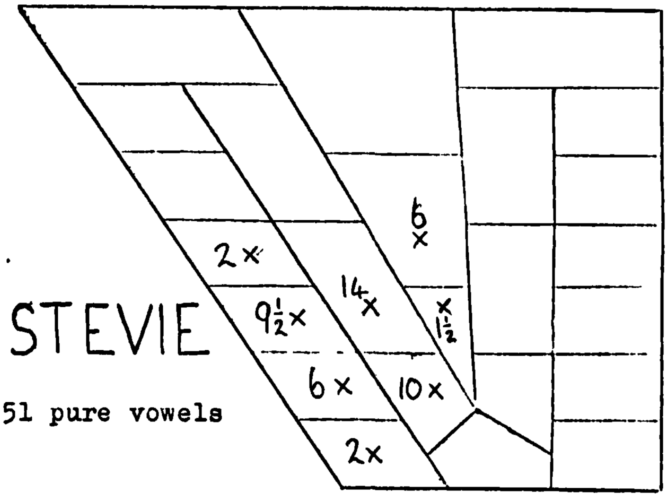
NAN

4 pure vowels



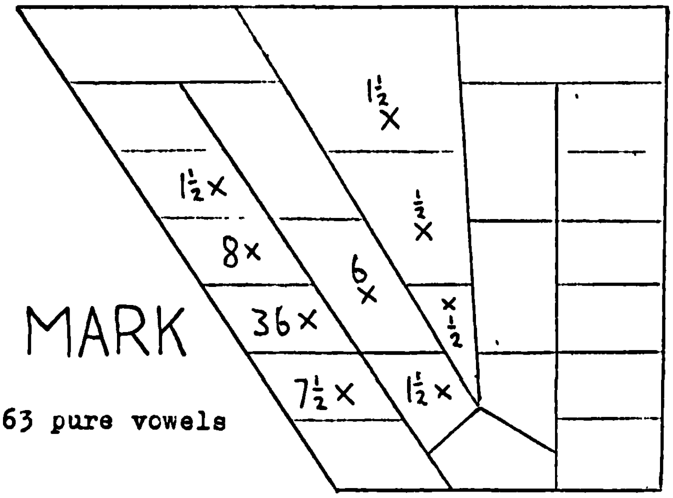
PHIL

33 pure vowels



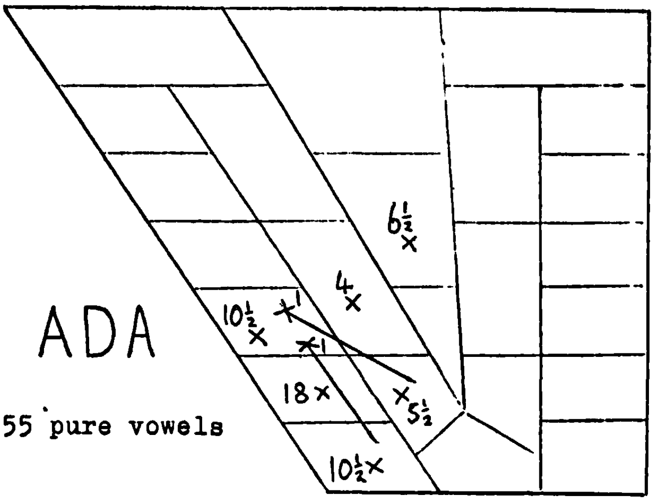
STEVIE

51 pure vowels



MARK

63 pure vowels



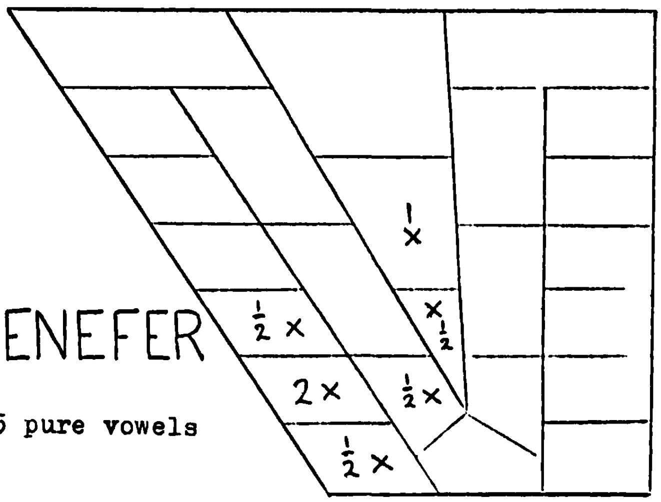
ADA

55 pure vowels

19

A as in "programme, tablets, happens" etc. Unstressed and in any position.

Also: A* as only in "that (adj., adv. & pron.), has, had, have (excluding examples in 'should have, would have, must have' etc.)". Unstressed.



JENEFER

5 pure vowels

are none further back than [8] except for Stevie's one example on the borderline of [ɔ] and [8]. In Ada pronunciations are centred about on the borderline of [ɐ] and [Æ]. She also has a number of realizations in [a], but only one as far back as [ɑ]. Mark's pronunciations are centred in [Æ] but close to the borderline with [ɐ]. Jenefer's realizations are centred in [Æ] somewhat towards [A]. Nan's realizations are furthest forward and most open of all, being centred at about the meetingpoint of [a], [Æ] and [A].

Charts 24 and 25.

These charts show the rather unusual distributionof realizations of U* as only in "just, does, such". The environments in which realizations found in "does" are in general different from the principal realizations of U (Chart 23) are quite restricted. These environments are: when "does' is used as an auxiliary in questions, as for example "Where does your wife come from?" and "Does he scare you?"*; but not in tag questions as in "It seems a shame really, though, doesn't it?" and also in the phrase "Nor does..." If there were an example in the corpus of "So does..." this would probably be included here as well.

Realizations of U* in "just, does, such" are in general short. In stressed and unstressed position the realizations of U* as only in "just" and "does" are grouped near the meeting-point of [ɨ, ɪ, ɘ] in all individuals.

---

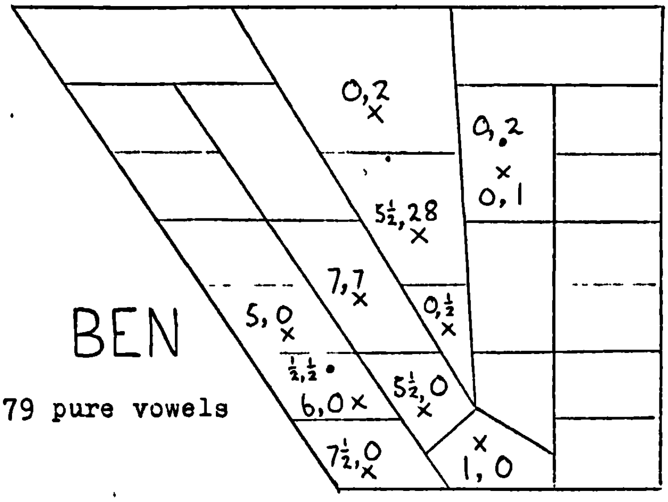
*In the first of these two examples "does" is always unstressed and therefore only Chart 25 is applicable to examples of this kind.

There are not really large enough figures to enable one to be very definite about the average pronunciations of each individual, but from what we have, we may suspect that Stevie's and Ada's pronunciations tend to centre in [ɨ] towards [I] and [ə] and that those of the others are possibly on average slightly more advanced, at the meeting-point of [ɨ], [ɪ] and [ə].

Of "such" there are only five examples in the corpus, but these lead one to suspect that in stressed position the vowel in "such" may conform to the pattern of the principal realizations of U, but that in unstressed position it may behave more like the vowels in "just" and "does".

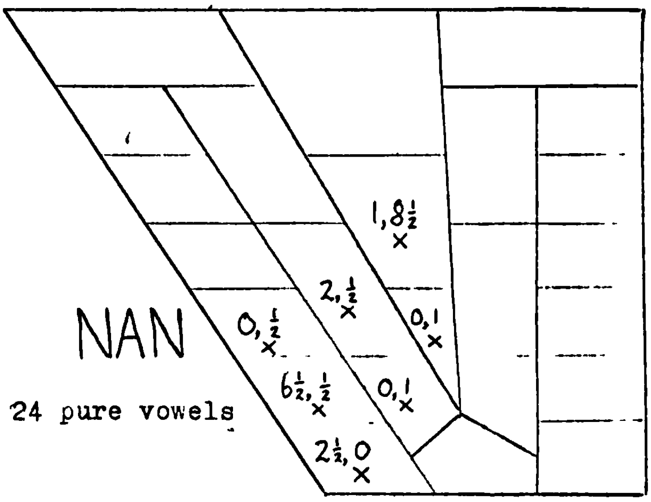
There are three stressed realizations. Ada has two, both within the area covered by her principal realizations of U (Chart 23). Phil has one very near the average position for his principle realizations of U. Ada and Nan have one unstressed pronunciation of "such" each, in [ɨ] and [ɪ] respectively, thus within the area covered by their realizations of "just" and "does". One can draw no general conclusions from these facts but they are nonetheless interesting.

The realizations of "just" and "does" pose an interesting problem for the phonemicist. Their patterns of variation are like those in no other words. How should he assign them phonemically? They are a good deal more retracted on average than the realizations of I as in "pit, bit" etc , closer and shorter than those of Ur as in "third, first" etc., more advancedthan those of Oo as in "good, pudding". Is this a new phoneme in the process of emerging?



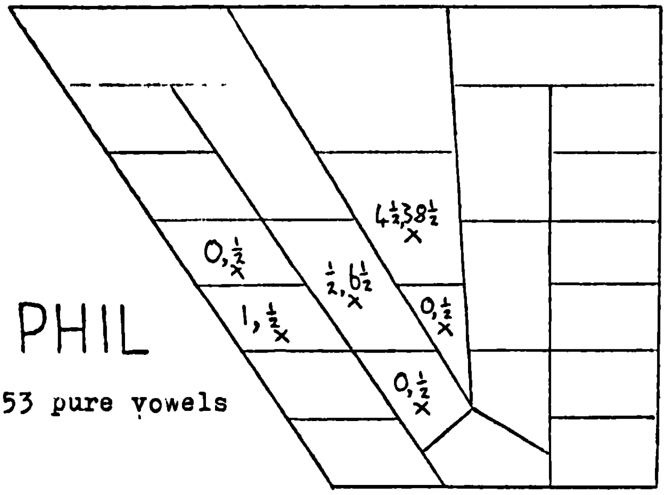
BEN

79 pure vowels



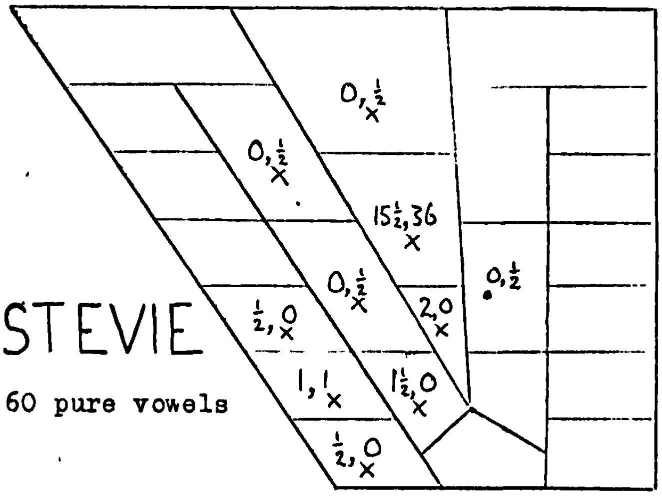
NAN

24 pure vowels



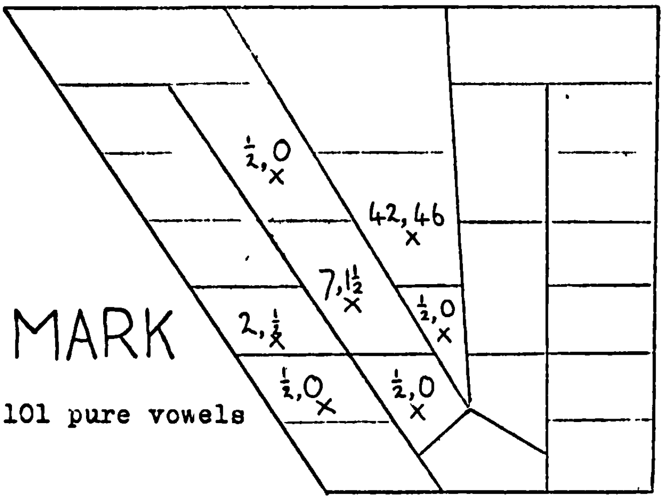
PHIL

53 pure vowels



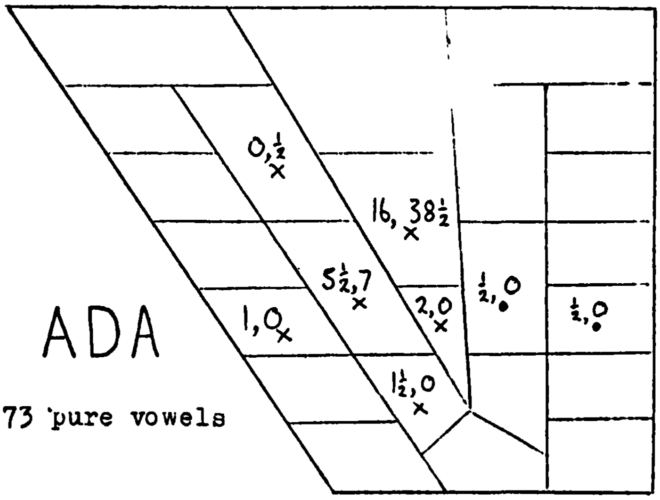
STEVIE

60 pure vowels



MARK

101 pure vowels



ADA

73 pure vowels

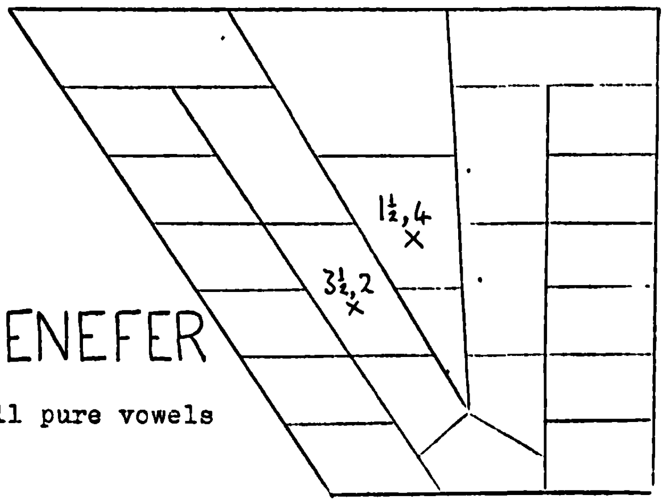
20

A* as only in "and".

Unstressed and in any position.

First figures show pronunciations "and" is utterance initial.

Second figures show pronunciations when "and" is not utterance initial.



JENEFER

11 pure vowels

This thesis is less concerned with the economy and symmetry of a phonological description than with the accurate recording of facts as they are observed. The different behaviour of the vowels in "just, does, such" obviously necessitates the postulation of a separate diaphoneme. This diaphoneme has been labelled U* out of convenience, partly because "just" and "such" are spelt in orthography with "u" but principally because stressed "such", and "does" in environments other than those specified have vowels which conform to the pattern of variation found in the principal realizations of U.

Chart 26 shows realizations of U* as only in "come" when used as an imperative. The vowels in "come" used in other ways, as also the vowels in "coming" and "comes" conform to the general pattern of principal realizations of U and were included on Chart 23. Stressed realizations of U* as in "come" (imperative) are more central and closer than stressed principal realizations of U in some individuals. For Stevie and Jenefer there are no examples and in Ada there are only two examples. These two conform to the general pattern of her stressed principal realizations of U, as do also Mark's eight examples to his. In Phil and Nan, one may suspect a certain tendency for realizations of U* in "come" to be closer and somewhat more central than the principal realizations of U. Their average pronunciations for stressed "come" are in [ɐ] and [Æ] respectively. Ben has two examples of stressed "come", one between [ə] and [E], the other between [ə] and [8]. These are very definitely closer than his average for the principal realizations of U.

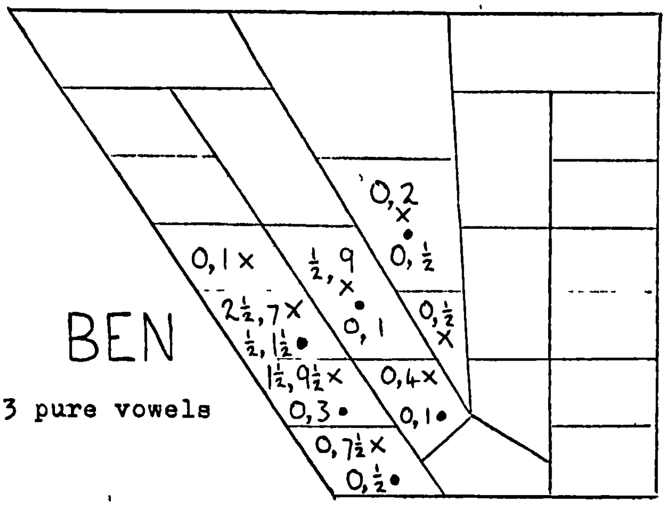
Only Mark and Ada have examples of unstressed "come" (imperative).

Ada's two are in [ɐ] near the average position for her unstressed principal realizations of U. Mark's four examples are spread between [Æ] and the borderline of [ɨ] and [ə], the average being between [ɐ] and [ə], which is a good deal closer than his average pronunciation of the unstressed principal realizations of U.

Chart 27 shows stressed and unstressed realizations of U* as in "but".

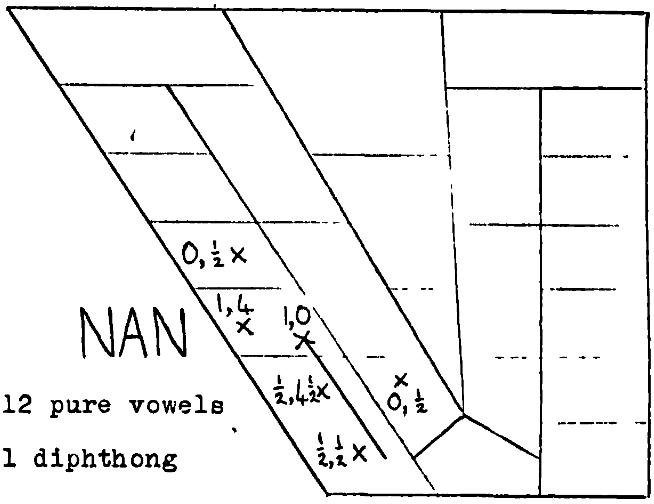
Only three people have examples of stressed "but", Nan, Stevie and Ada. This is interesting in itself. Ada's one example is in [Æ], near her average for principle realizations of U. Stevie has two examples, one in [ə] and the other between [ə] and [ɐ], the average being in [ə] towards [ɐ]. This is closer than his average for the principle realizations of U which is in [ɐ]. The same applies to Nan's six examples which centre in [ə] near [ɐ] and [E]. This is considerably closer than her average for the principal realizations of U which is about at the meeting-point of [a, Æ, A].

In all speakers the unstressed realizations of U* as only in "but" and of U* as only in "us, some, must" (Chart 28) are centred in [ə] and there is a comparatively small number of pronunciations scattered as far apart as [U], [Æ] and the borderline of [I] and [ə]. Ada's realizations tend towards [E] and [ɐ] and she has proportionately far more realisations in [E] and [ɐ] than other speakers. Ada and Mark are the only speakers who have any realizations more retracted than [ə, ɐ] - Mark, one between [ɐ] and [ɔ], two in [U] and one between [U] and [ə], and Ada one in [U]. In general the realizations in unstressed "but, as, some, must" show a



BEN

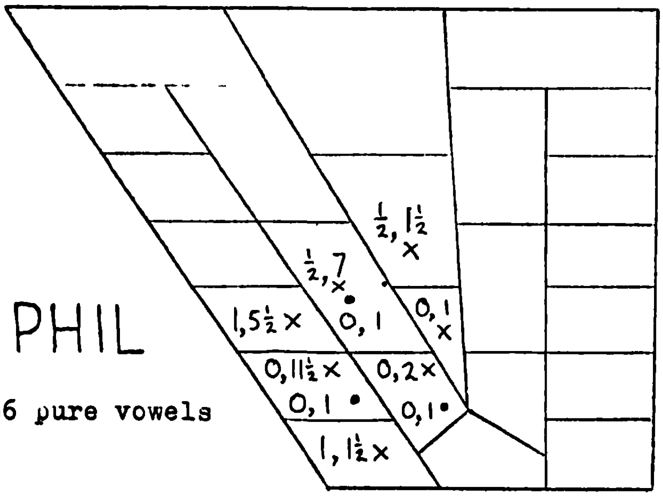
53 pure vowels



NAN

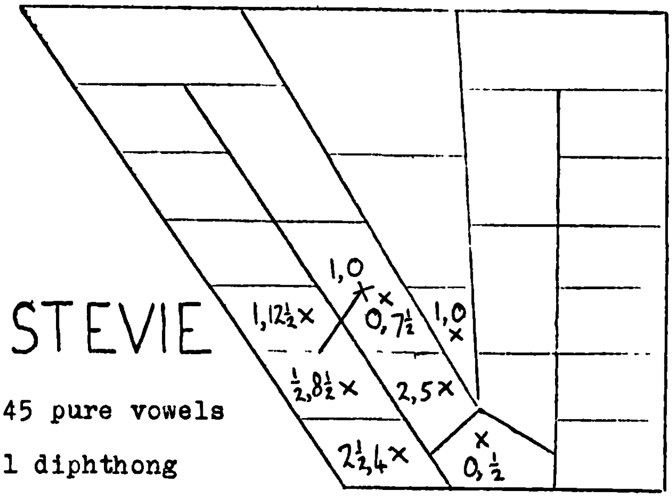
12 pure vowels

1 diphthong



PHIL

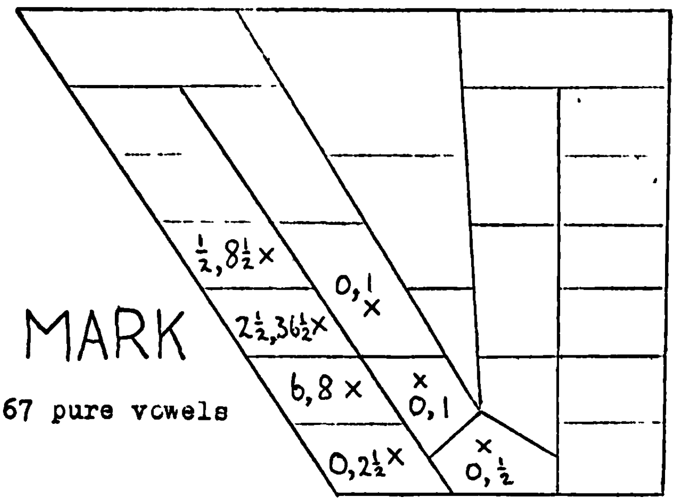
36 pure vowels



STEVIE

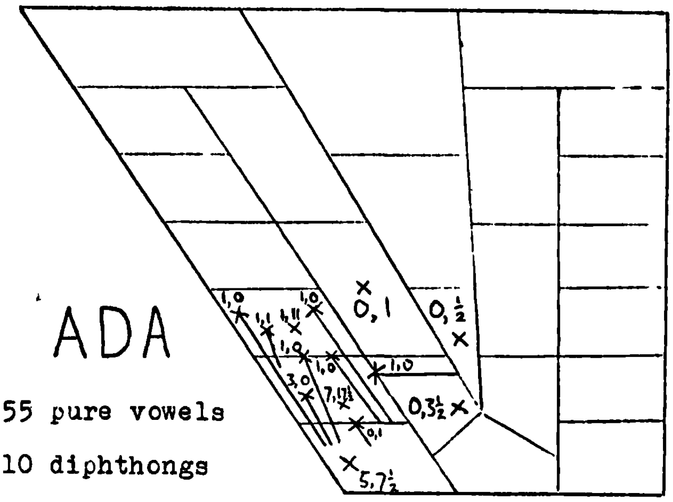
45 pure vowels

1 diphthong



MARK

67 pure vowels

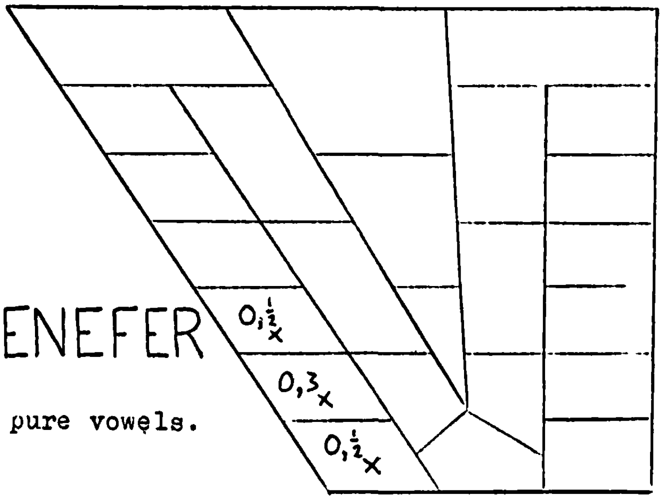


ADA

55 pure vowels

10 diphthongs

21



JENEFER

4 pure vowels.

A* as only in "that" (adj., adv. & pron.)

Stressed and in all positions.

First figures show pronunciations when word is utterance final.

Second figures show pronunciations when word is not utterance final.

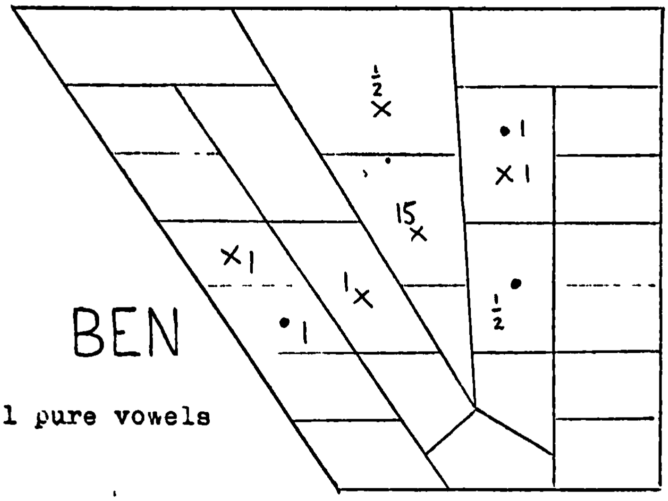
similar pattern of variation to those in the "weak forms" of <u>A</u>* shown in Chart 22 except that the realizations of "but" are not spread so widely. This may well be due to the fact that there are fewer examples of the <u>U</u>* weak forms than the <u>A</u>* ones.

O

This diaphoneme occurs in such words as "lot, bombs, stop, shop, got, proper.

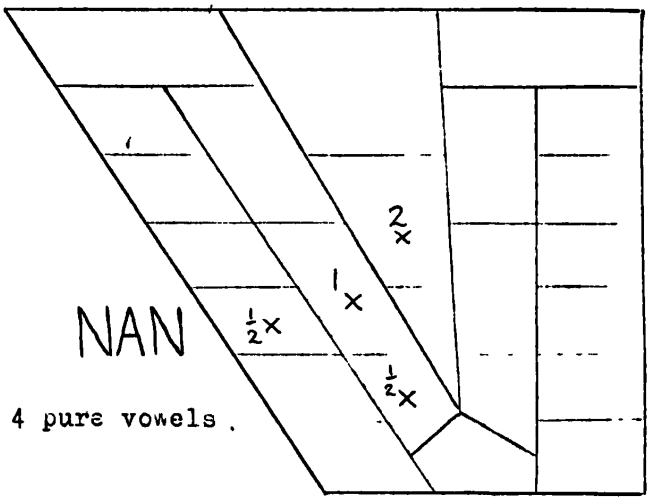
O has been classified as a "short' vowel' since it has realizations which are predominantly monophthongal and short.

There is not a great deal of difference between individuals in their realizations of this diaphoneme. The average realizations in any environment are as follows· In Nan, Phil, Stevie, Ada and Jenefer in [ɔ], in Phil, Stevie and Ada somewhat open and advanced, in Nan somewhat open, towards [ɒ̂] but not specially advanced, and in Jenefer squarely in the [ɔ̞] slot, Mark's realizations are on average on the borderline of [ɔ] and [ɵ] and quite open, near [o] and [ɵ̂], and Ben's average position for realizations of this diaphoneme is in [ɒ] somewhat close and advanced, I have the impression that unstressed realizations tend to be somewhat more centralized than stressed realizations. More unstressed realizations are found in [ɵ]. In all individuals deviation from the average quality for realizations of O is far more likely to be in a downward, more open direction than in an upward, closer direction. Quite a few examples of [ɵ̂] and even [ɒ] occur, particularly, I think, in Ben, Phil and Mark, but examples of realizations more close than [ɔ] are extremely rare. Deviation in a forward direction is quite common, examples of [ɵ] and [o] occurring in all individuals. There are even a few examples of [ɐ] and I have the impression that these are more common in Phil and possibly also in Mark than in other individuals.



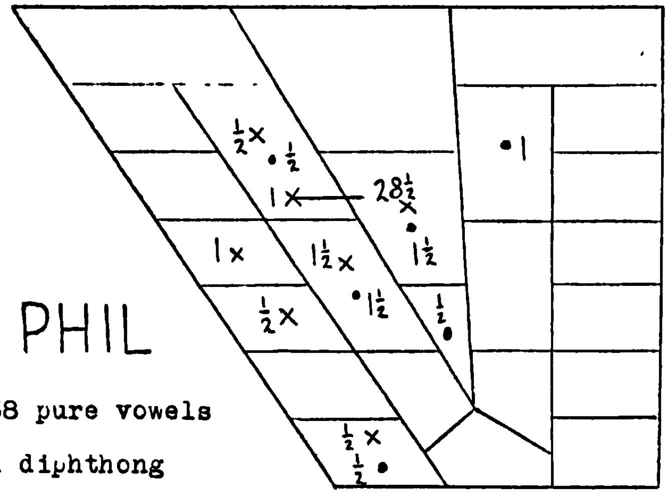
BEN

21 pure vowels



NAN

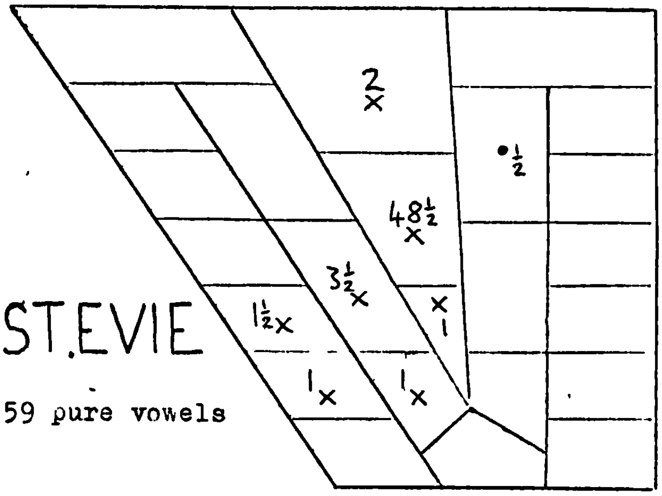
4 pure vowels



PHIL

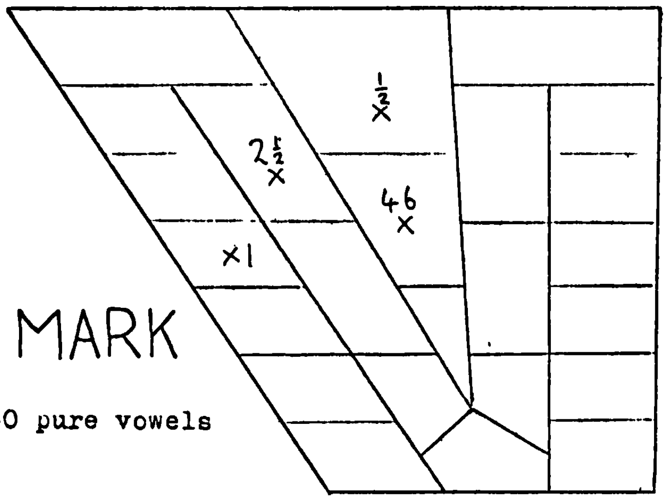
38 pure vowels

1 diphthong



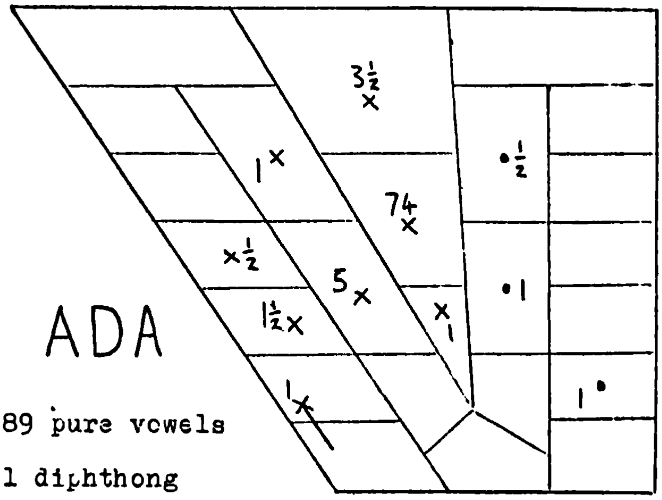
ST.EVIE

59 pure vowels



MARK

50 pure vowels



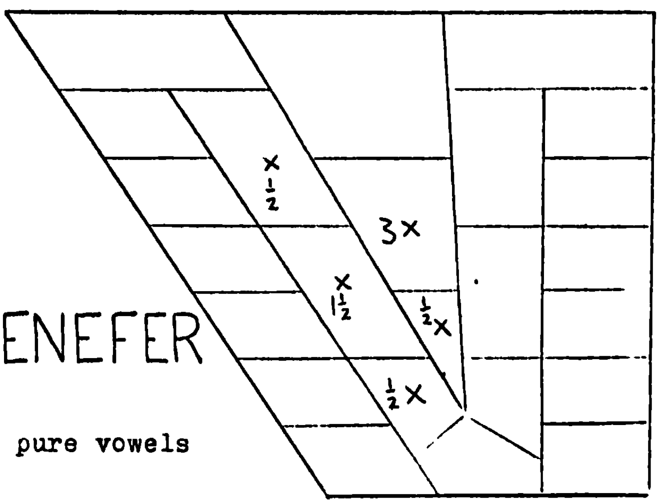
ADA

89 pure vowels

1 diphthong

22

A* as only in "that (rel. conj.), at, as, than, have (in 'should have, could have, must have' etc.), shall, can (vb.)". Unstressed and in any position.



JENEFER

6 pure vowels

It should be noted here that the more retracted realizations, such as [ɔ], [ɒ̂], are rounded, while the very advanced, and also the somewhat more open, realizations, [ɐ], [ʌ] are articulated, if not with spread lips, then at least without a great amount of lip-rounding. The progression from rounded to neutral lip position is a gradual one and hence the abrupt change from symbols representing rounded vowels [ɔ], [ɒ̂], [ɒ] to those representing unrounded ones [ʌ], [ɐ], is an over-simplification of the facts. However, since the phonetician's ear is not capable of judging an infinite number of degrees of lip-rounding a line, or lines, must be drawn somewhere. It has been found practical to set up such a line in the present case between [ɔ], [8] and [ɒ̂] on the one hand and [ɐ] and [ʌ] on the other.

The drawing of such a line has not, however, been interpreted as imposing a moratorium on the perception of rounded vowels in front of it. Where clearly rounded vowels with an advanced tongue position have been heard, they have been recorded as such. The line is only a guide for doubtful cases.

Examples: "got" [g8ʔ], [gɔʔ] "want" [wɐ̹́n], [wɐ̃́]

"long" [lʌ̹ŋ], [lɔŋ] "bomb" [bɒ̂m]

Before R and L realizations of O vary according to the same patterns as those described above. There are no examples in the material of O before L realized as a vocoid. In the questionnaire recording I tried to get Mark to say "dolls" but he always replied, and there is perhaps some significance in the fact, "dollies".

Special diaphonemes O* have to be postulated to account for the wider degree of variation in the vowels found in "was, wasn't, because, what". In stressed position the vowels found in these words are in general more central than realizations of O. Realizations as far from [ɔ] as [ə̹˂],[ə] ,[ʊ] ,[o̹] have been recorded in these words in stressed position, although many other realizations [ɔ],[8] etc. which fit in with the patterns of variation of realizations of O also occur. I am not aware of any differences between individuals in their pronunciations of these words.

Examples· "was" [wʊ́z],[wɘ́ʒ],[wɔ̈́z] "what"[wə́t],[wʊ́t],[wö̆ʔ] [wɔ́ʔ],[wɐ̼́ʔ] "because" [βɪkʰə́z]

In unstressed position the vowels in the above words, "what, was, wasn't, because" and also "of, from, on" are in general very central, probably on average [ə] or very close to it. These words unstressed constitute what are commonly referred to as "weak forms". I am not aware of any differences between individuals in their treatment of these words.

Examples" "because" [b̥ɪkʰəz],[bəgəz]"was"[wəz],[wʊz],[w8z],[wɨz] "what" [wə] "from"[fɹəm] "some of the" [sɐ́məðə] "come on Mark" [kʰɐ́məmɑ́ːʔk]

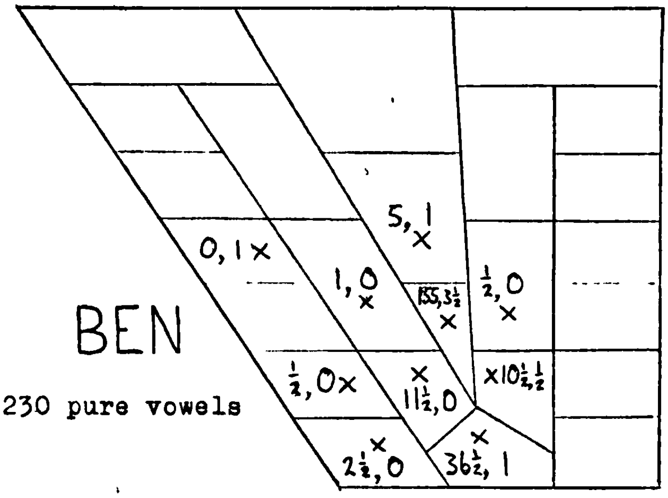
In the words "off, lost, gone, God, hospital, cost, across" there are instances of "phonemic variation". In these words there is variation between vowels similar to realizations of O and vowels similar to realizations of Au. It so happens that in this instance there are no borderline cases of vowels which could be interpreted as allophones of either /o/ or /ow/ (Sivertsen's symbols) which are the phonemes corresponding to the diaphonemes O and Au. All vowels found in these words have some feature or features characteristic of realizations of only one of the diaphonemes O or Au, be it on the one hand length and/or diphthongality and/or quality of [ɔ̂] or closer or on the other hand shortness, purity and quality of [ɔ] or more open.

Nan has 1 example of "off", 1 of "God" and 3 of "hospital" all pronounced with vowels similar to realizations of Au i.e. [ɔ̂:] twice and [ɔ̂ŏ], [ọ:] and [ɔ̂̈:] once each.

Ben has examples of vowels in these words as follows: "off" [ọ̧:] twice, "lost" [ɔ:] "gone" [ɔọ̧] and [ɔ·] "God" [ọ:] "cost" [ó:] . All these vowels would fit in well with Ben's patterns of variation of realizations of Au. In "across" Ben has [ɔ:] three times and [ɔ̂] once, sounds similar in length and quality to his realizations of Au. He also has in this word pronunciations [ɔ], [ọ̧], similar in their shortness and quality to his realizations of O. This is the only case of "phonemic variation" in the same word and the same individual in this "gone, off" etc. group of words although an extension of the corpus might reveal others.

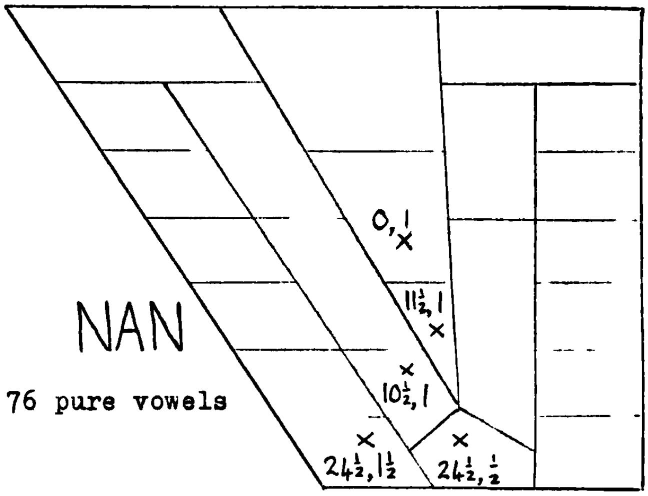
Stevie has examples of vowels in these words as follows: "off" [ɔ̂:], [ọ̧:] and [o:] , "gone" [ɔ̂:] twice and [ọ̧:], all pronunciations like his realizations of Au. In "God" he has [ɔ] and in "lost" he has [ɔ̈] twice, [8] and [ɔ] once each, pronunciations very similar to his average for realizations of O.

Phil pronounces "off" and "lost" once each with [ɔ̂:] vowels similar



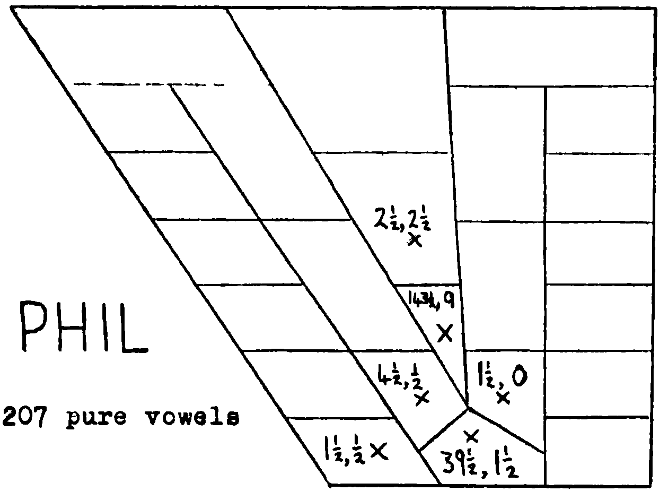
BEN

230 pure vowels



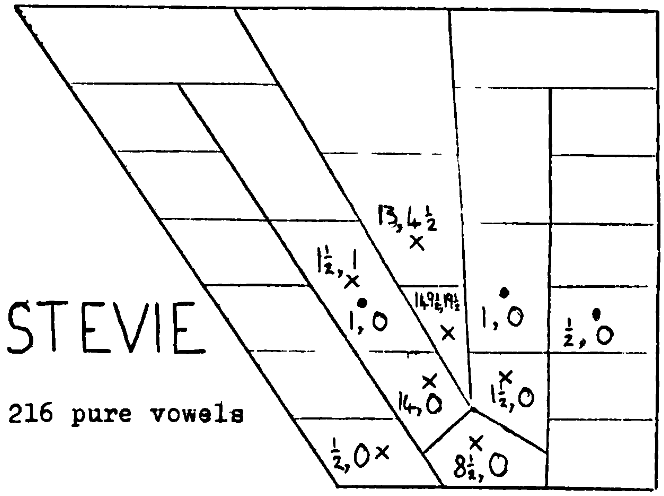
NAN

76 pure vowels



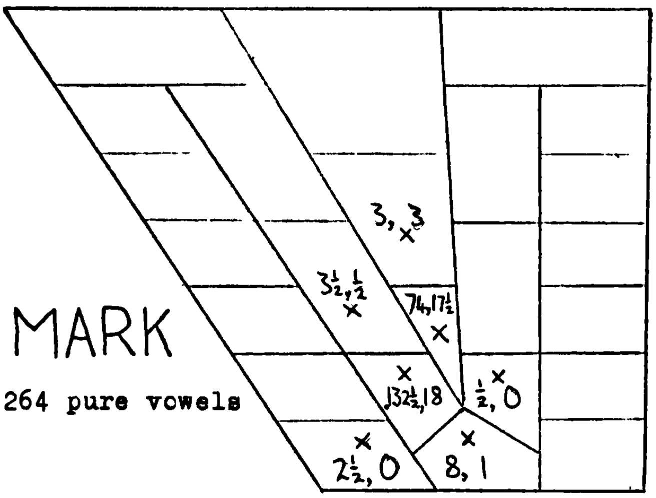
PHIL

207 pure vowels



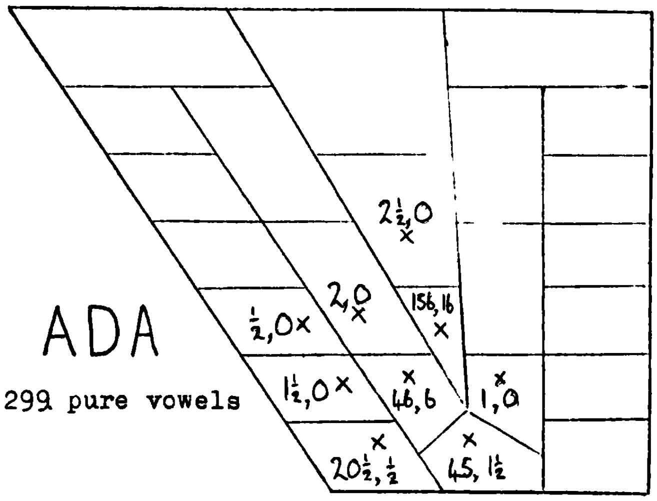
STEVIE

216 pure vowels



MARK

264 pure vowels



ADA

299 pure vowels

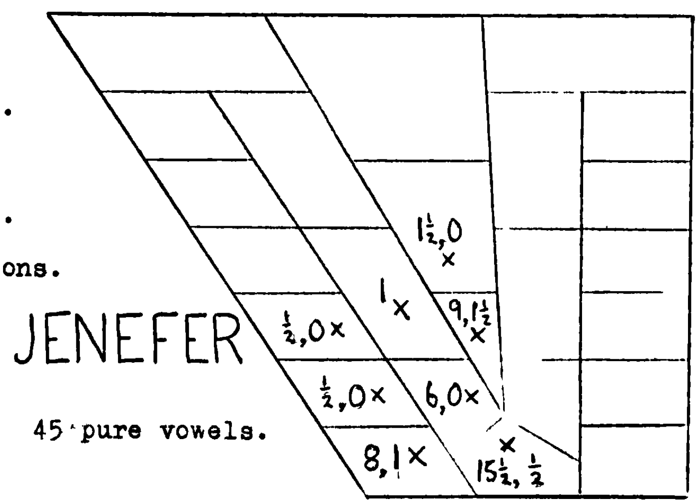
23

U as in "pub," shut, brother, dull, worry" etc.

Stressed and unstressed in all positions.

First figures show stressed pronunciations.

Second figures show unstressed pronunciations.



JENEFER

45 pure vowels.

to his realizations of <u>Au</u>. In "gone" he has [ɔ̈] twice and [8] once and in "hospital" he uses [8] once, pronunciations similar to his realizations of <u>O</u>.

Mark has one pronunciation of "God" with [8ʊ]in the expression "for God's sake". I got the impression that he used this expression facetiously, perhaps in imitation of his elders. His pronunciation of "God" here is with a vowel similar to his realizations of <u>Au</u>. In "cost , last, off, gone" he has 7, 1, 5 and 1 pronunciations respectively which fit in with his patterns of variation of realizations of <u>O</u>.

Ada has in these words only pronunciations which fit in with her patterns of variation of realizations of <u>O</u>, although she has no examples of "cost" or "God". She has 3, 7, 2, 13 and 2 examples respectively of "across, off, lost, gone, hospital".

Jenefer has 1 example of [ɔ] in "off" and one of [8] in "cost", both pronunciations similar to her realizations of <u>O</u>.

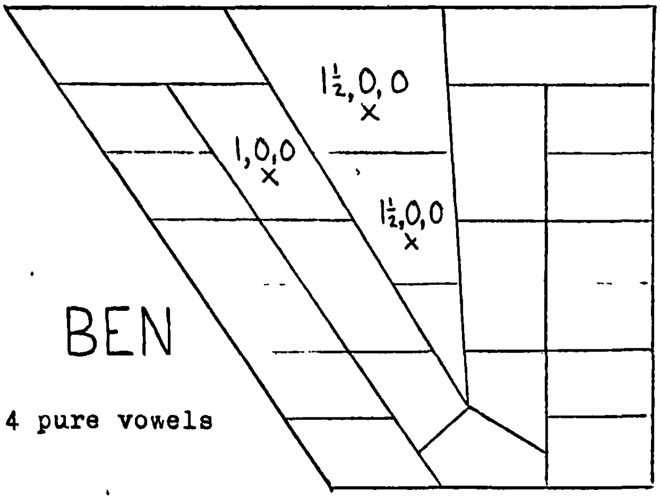
<u>Oo</u>

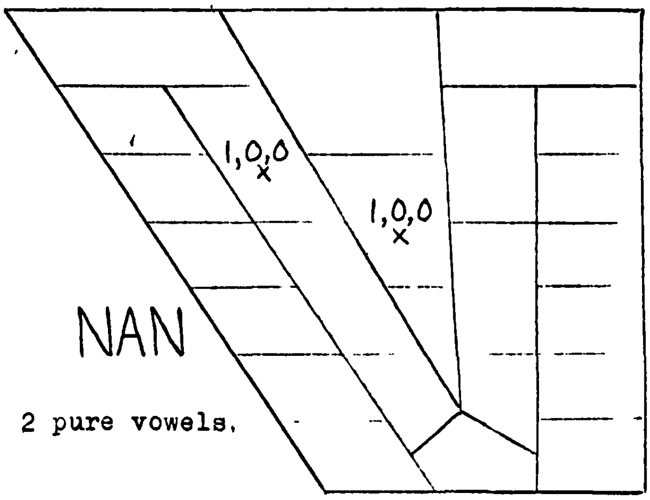
This diaphoneme occurs in such words as "put, push, pull, foot, good, boyhood, neighbourhood, cooked," etc. It has been classified as a "short vowel", as it has realizations which are almost invariably monophthongal and short.

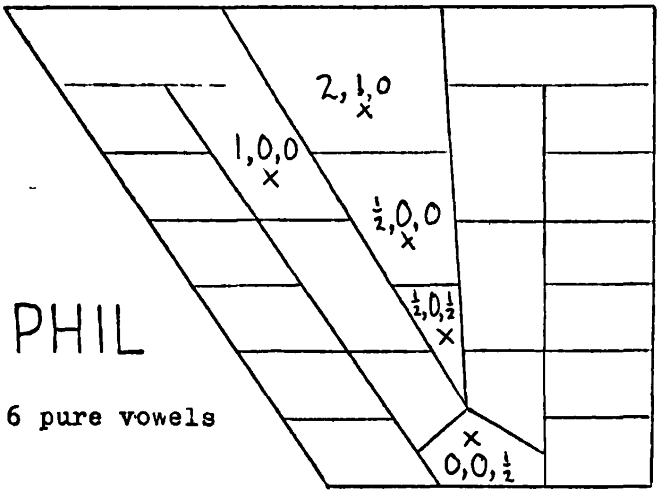
There is remarkably little variation, either between or within individuals, in realizations of this diaphoneme. In all individuals easily the predominant realization is [ʊ] anywhere except before <u>L</u> realized as a vocoid. Nan has only [ʊ]. Other individuals have a very few other realizations [ʉ] and [ɜ] and vowels on the borderline between these and [ʊ]. After [ʊ], realizations on the borderline between [ʊ] and [ɜ] are most common. This is the reason for the average qualities of realizations of <u>Oo</u> shown in the Chart being somewhat opener and more advanced than the centre of the [ʊ] slot in all individuals except Nan. Apart from the consistency found in Nan, all individuals have patterns of variation of realizations of <u>Oo</u> which are in no way significantly different from one another.

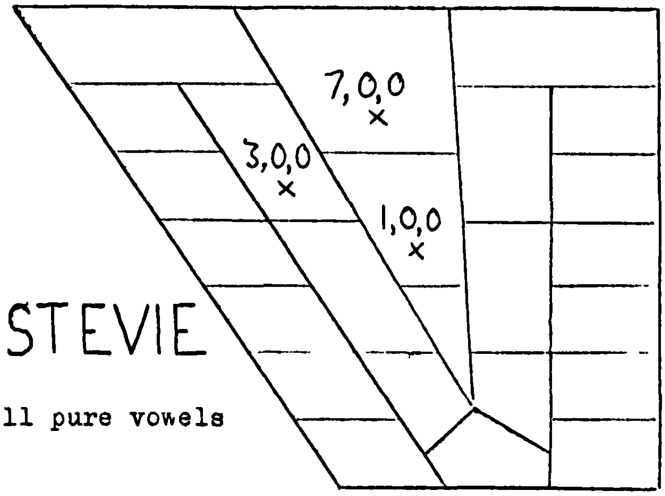
Examples: "good" [gʊ́d], [gə́d] "sugar" [ʃʉ́gə]

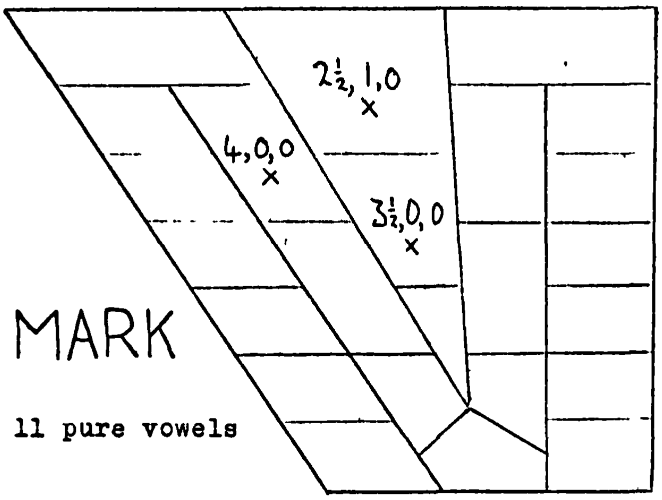
Besides many examples of [ʊ] Ben has 2 rather odd pronunciations in "Captain Cook". He uses the phrase 3 times, the first time with [ʊ] and the next 2 times with [ɔ̜ː] and [ɔo̜], the latter 2 pronunciations being similar to his realizations of <u>Au</u>. Is there some confusion here as to the correct pronunciation of Captain Cook's name? Ben also has 2 examples of [ɔ̈̃] in "put", besides many examples of [ʊ]. These are

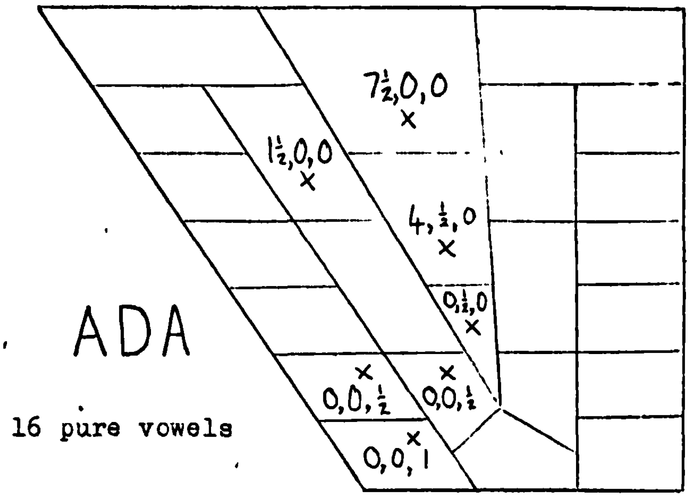






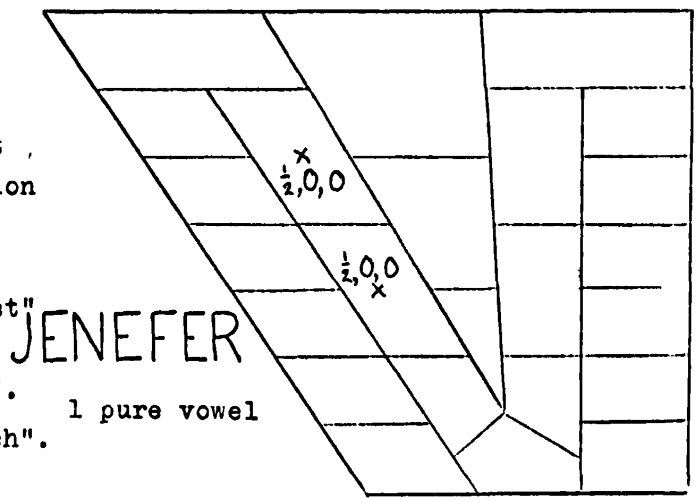






24

U* as cnly in "just,(adv.), does (vb. when used as an auxiliary in questions, except tag questions, and also in the construction 'nor does'), such".
Stressed and in all positions.
First figures show pronunciations of "just"
Second figures show pronunciations of "does".
Third figures show pronunciations of "such".



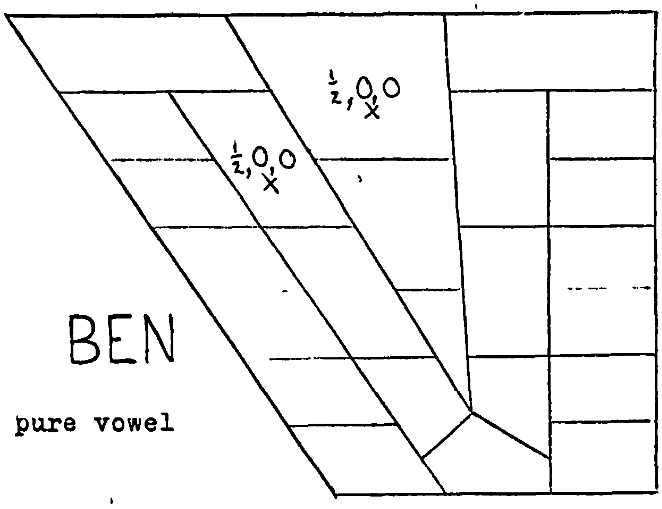
similar to other speakers' realizations of Oo before L realized as a vocoid and also to some of his realizations of Oo before L realized as [l]. The following pronunciations have been recorded in the following words and phrases in Ben, [ʊ́lj] in "pull you" [ʊ́lɪ] in "pull him", [ɔ̂lɪ] twice in "pulling" and [ɔ̂lə] in "pull the". Thus some of Ben's realizations of Oo before L realized as [l] are similar to his realizations before other consonants and some are similar to realizations before L realized as a vocoid, found in other speakers. (Ben himself has no examples of Oo before L realized as a vocoid).

Examples in speakers other than Ben of Oo before L realized as a vocoid are as follows: "pulled" in Ada [pʰɔ́ɔ̂d], in Stevie [pʰo̜:d̥] "full" in Mark (questionnaire recording) [fö] and [foʊ], in Phil [fo̜o]

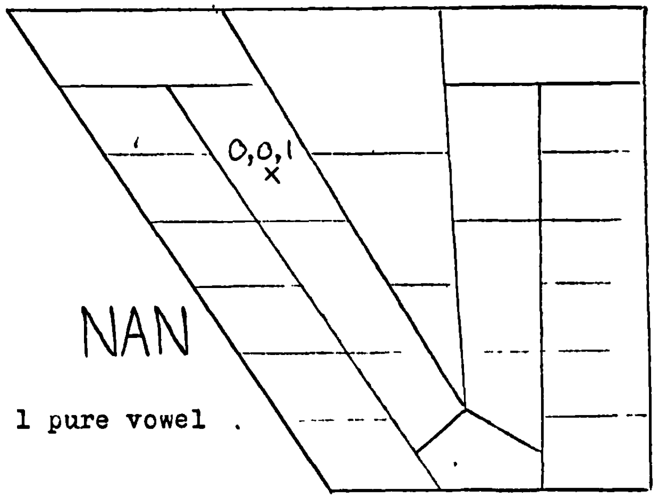
A special diaphoneme Oo* must be postulated to account for the pronunciations found in "would". In this word W* is very frequently realized as zero and when the word follows a vowel Oo* is also very frequently realized as zero. After a consonant Oo* tends to be realized by a vocoid more central in quality than the usual realizations of Oo. This is equally true of all individuals.

Examples: "I would" [ɒəd] "you would" [jy:d]
"Mum would" [mǽmməd] "what would" [wɒ́ʔwəd]

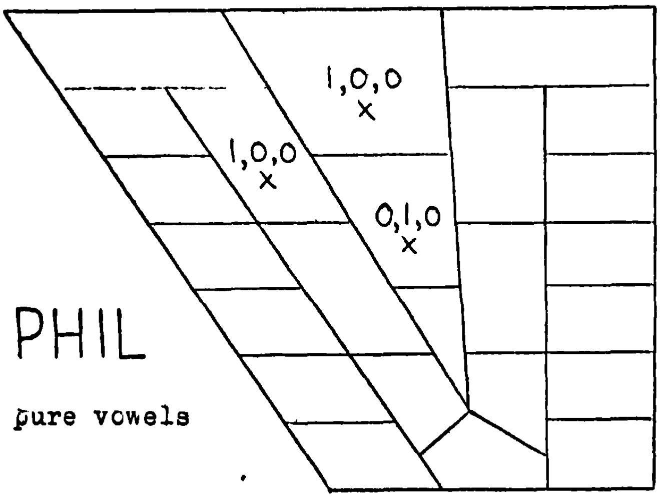
Special diaphonemes Oo* are also needed in the case of the words "should, could" in which the average realizations of the vowel diaphoneme are somewhat more advanced, in [ʉ] or [ɨ] or on its borderline with [ʊ], than the average realizations of Oo. I have the impression that this is true of all individuals.



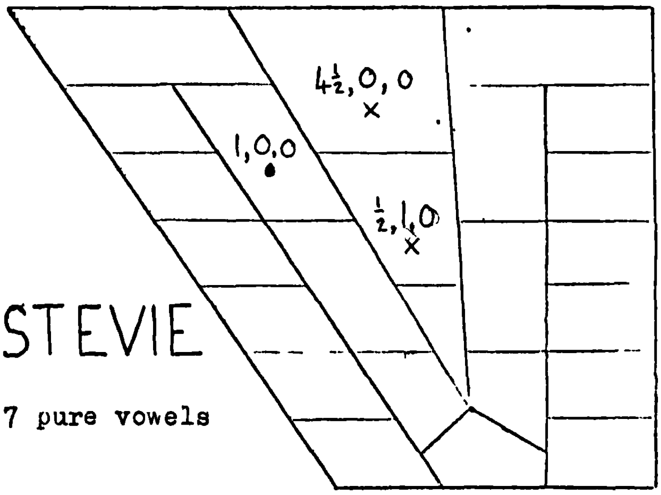
1 pure vowel



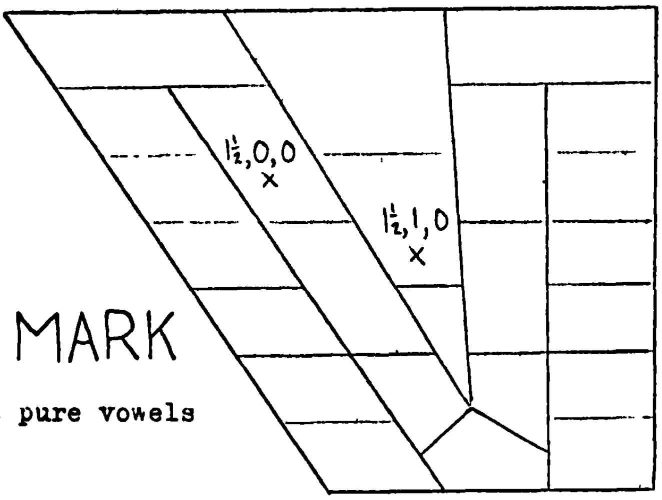
1 pure vowel



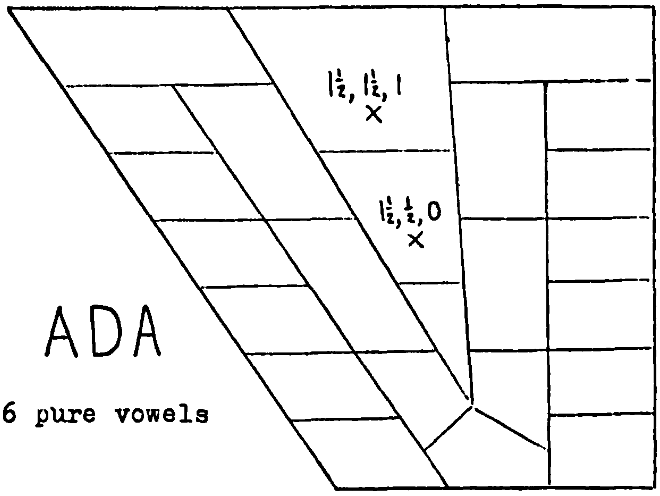
3 pure vowels



7 pure vowels



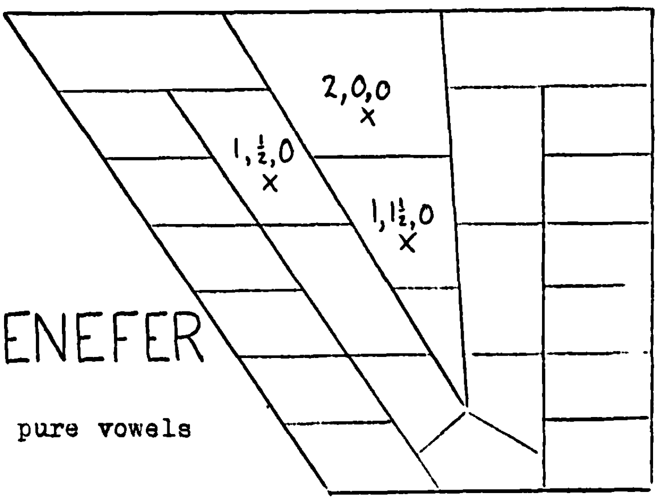
4 pure vowels



6 pure vowels

25

U* as only in "just (adv.), does (vb. when used as an auxiliary in questions, except tag questions, and also in the construction 'nor'does'), such".
Unstressed and in all positions.
First figures show pronunciations of "just".
Second figures show pronunciations of "does".
Third figures show pronunciations of "such".



6 pure vowels

Examples· "they could talk" [ðə?kɨdtˢɔ́:?k]

"should have" [ʃɨdə] "you should" [ʒʃʉd] "he should" [Eɪʃʊd]

It is possible, though not certain from the material, that my informants have "phonemic variation" in one, or both, of the words "room, bedroom". Ada pronounces "room" once with [ʉ̜̀ʉ̜], a pronunciation which fits in with her patterns of variation of realizations of <u>Ue</u>. Mark and Stevie have pronunciations of bedroom" with [ʊ̜̇] and [ʊ] respectively, pronunciations which conform to their patterns of variation of realizations of <u>Oo</u>.

The suffix "...hood" which occurs twice in the material, may well usually have a more central vowel than is found on average for realizations of <u>Oo</u>. Stevie has "boyhood" with [ʊ̜̈] and Ben has "neighbourhood" with [ə].

<u>Ou</u>

This diaphoneme occurs in such words as "now, shouting, about, thousand, our, pound, house, how, bounce, counter, out" etc.

There is a considerable degree of variation between individuals in their realizations of this diaphoneme. The ratios of diphthongal to monophthongal realizations are approximately: in Ben, 1:1, in Jenefer 1:3, in Stevie 1:4½, in Nan 1:6, in Ada 1:8, and in Phil and Mark 1:17.

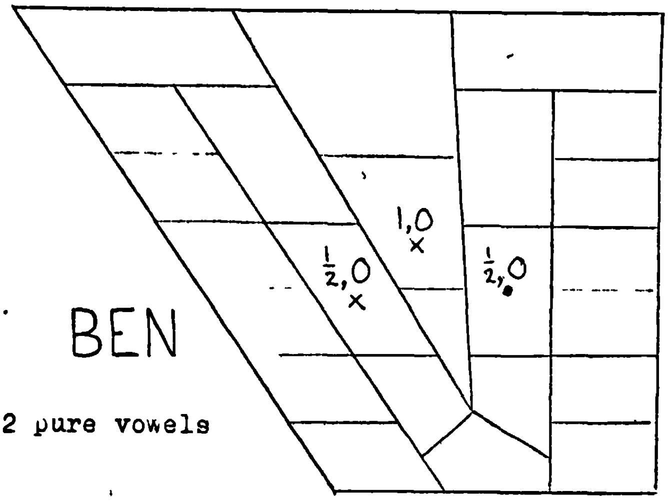
In Ben, Phil and Stevie, all of whose monophthongal realizations are centred in [A] fairly advanced, that is more retracted than the average monophthongal pronunciations of the others, diphthongs commence on average in [ɐ], farther forward than the average position for monophthongal realizations. In Nan, Jenefer and Ada diphthongs begin on average in about the average position for monophthongs, in [a] somewhat raised, in [æ] very near to [a] and in [æ] respectively. Mark's diphthongs begin on average in [æ] somewhat raised, and his monophthongal realizations are centred in [ɛ] somewhat lowered.

In Ben, Ada and Stevie the beginning points of diphthongs are scattered fairly widely, respectively from [æ] to [A] to [ɐ], from [ɛ] to [a] and from [æ] to between [a] and [A] to between [ɐ] and [Æ].
The beginning points of Nan's, Phil's, Mark's and Jenefer's diphthongs show more uniformity.

The direction of glide in diphthongal realizations of <u>Ou</u> is in general up and back towards [ʊ]. Mark and Ada both have realizations which are exceptions to this general rule. Mark has a diphthong gliding up from between [æ] and [a] but remaining front, ending in [ɛ]. His six other diphthongs move up and back in the more usual way. Ada has six out of a total of 14 diphthongs which do not move back at all. They stay at the front and end on average in [ɛ] near [ɛ̂].

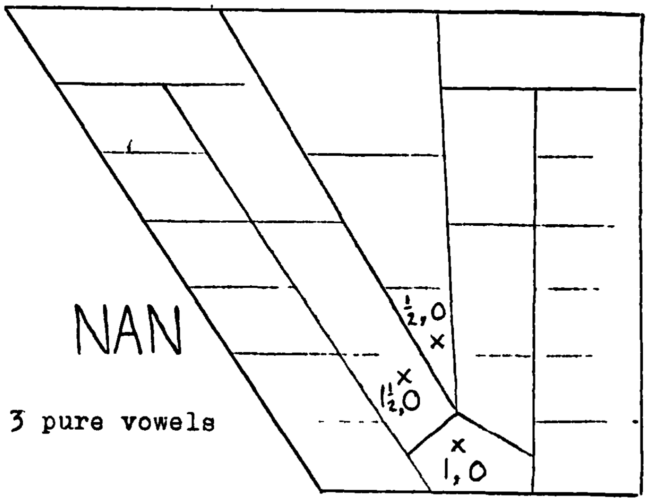
The end points of the more usual type of diphthongs, those which glide up and back, vary widely. Most diphthongs end in [ʊ], [ə] or [ɐ]. It is not, then, the direction of the glides which varies as much as it is their width. This variation is most marked in Ben. He has dipthongs ending in [ɐ], [ə] and [ʊ] in a proportion of roughly 2:2½, 1. Diphthongs as narrow as some of Ben's, ending in [ɐ] are hardly found in the other speakers. Nan, Phil, Mark and Stevie have one, one, one and two diphthongs respectively which end between [ə] and [ɐ] and Nan also has one ending between [ɐ] and [Æ]. Nan's and Phil's end points are on average in [ə] and [ɜ] respectively. In Stevie, Mark, Ada and Jenefer diphthongs end on average between [ə] and [ʊ]. One of Mark's diphthongs moves further than any of the others, to between [ʊ] and [Ç]. Ben has a few diphthongs which differ from the above pattern in the matter of direction of glide. He has diphthongs ending between [ɨ] and [ə], in [8], between [8] and [ɔ] and in [ɒ]. Stevie also has one diphthong ending in [8].

The main difference between the stressed and the unstressed realizations of <u>Ou</u> (Chart 32) is the lack of diphthongs in the latter. Only two occur, one in Stevie and one in Mark. Mark's conforms to the pattern of his diphthongs in stressed position. Stevie's begins at a point somewha



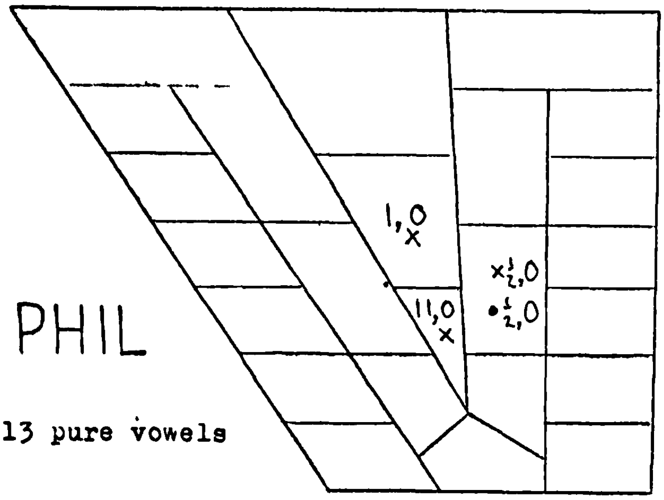
BEN

2 pure vowels



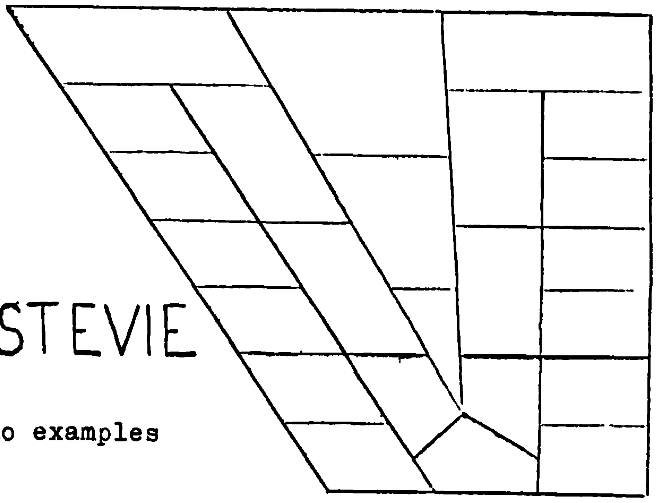
NAN

3 pure vowels



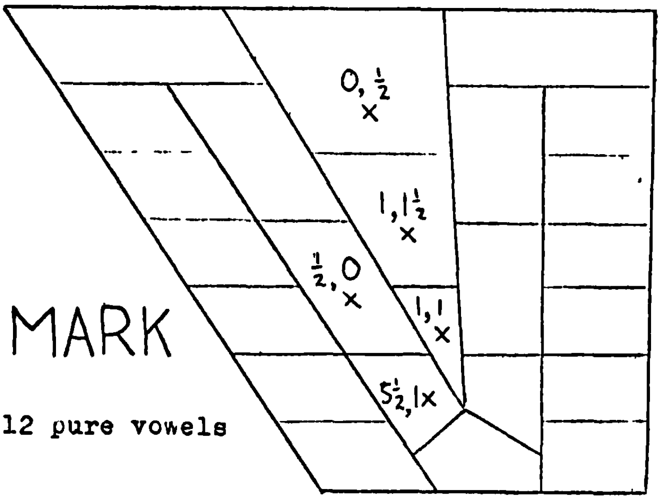
PHIL

13 pure vowels



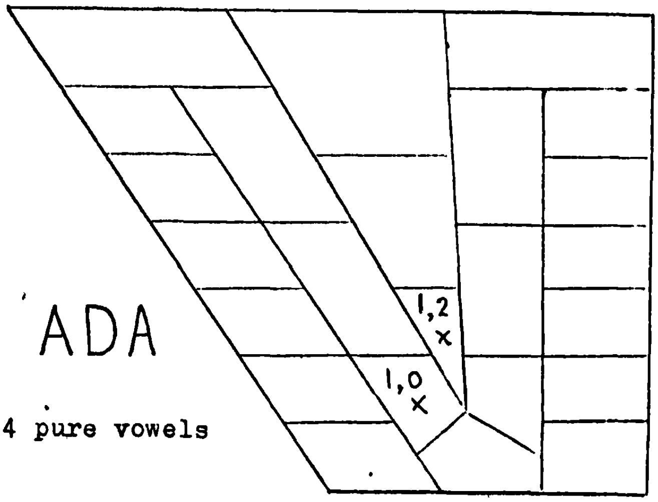
STEVIE

no examples



MARK

12 pure vowels



ADA

4 pure vowels

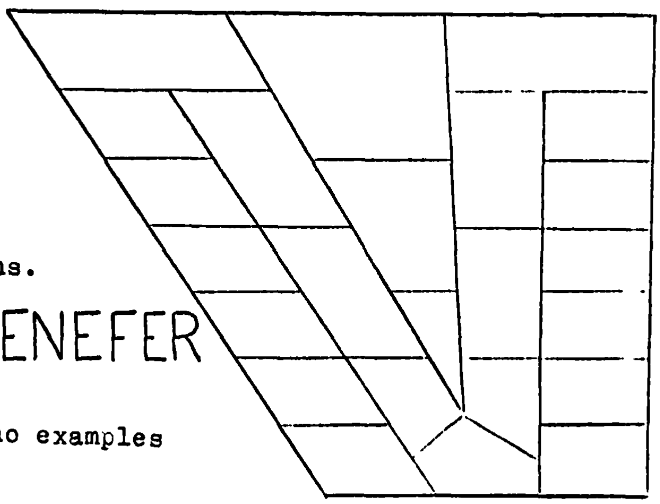
26

U* as only in "come"(imperative).

Stressed and unstressed in all positions

First figures show stressed pronunciations.

Second figures show unstressed pronunciations.



JENEFER

no examples

higher than the average starting point for his diphthongs in stressed position.

Of the monophthongs Mark's, Ada's and Phil's conform to the patterns of their stressed realizations. Stevie's are on average closer, being centred in [ɐ], slightly lowered and advanced. Ben's three unstressed realizations are centred in [Æ], closer and more advanced than the average position for his stressed realizations, but one can draw no definite conclusions from just three examples. Nan and Jenefer have no examples.

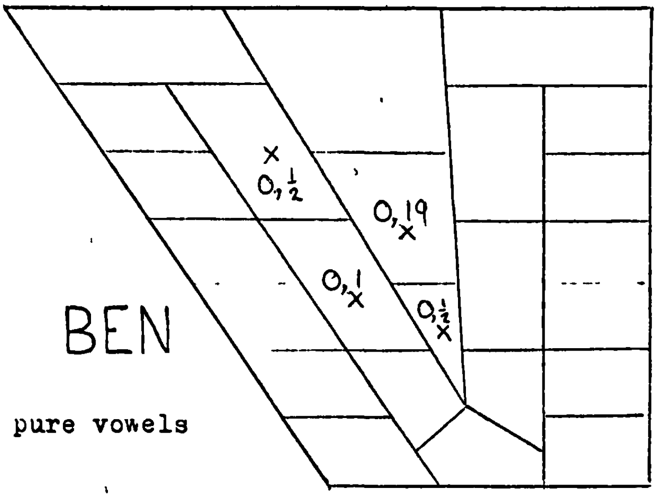
Ur

This diaphoneme occurs in such words as "church, Churchill, worst, first, heard, third, early, work, shirts, girl, world,earning, turning" et

The symbol Ur* has been assigned to the diaphonemes occurring in the words "her" and "were". In stressed position these words behave similarly to words with Ur, but in unstressed position they behave differently.

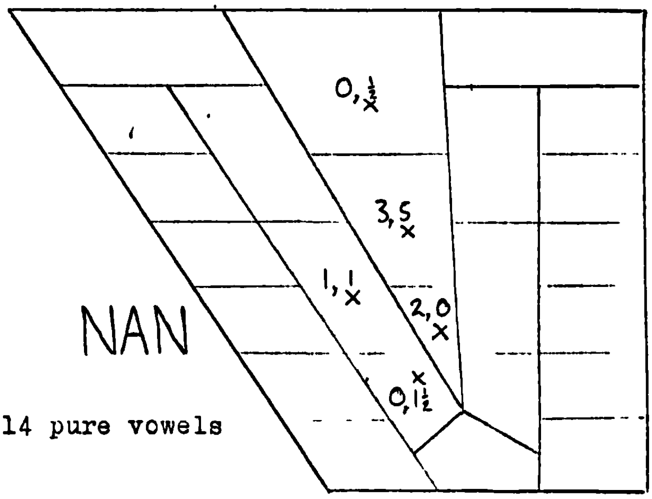
Ur is classified as a long vowel, having realizations which are predominantly monophthongal and of about the same length as realizations of Ar and O^{u}.

Chart 4 shows the principal realizations of Ur, that is those in any position except before L when L is realized as a vocoid or a velarized lateral. There is a high degree of uniformity in the pronunciation of this diaphoneme. In all speakers [ə] is easily the predominant realization. There is some small variation, the degree of which varies from one speaker to another. In Stevie there is none. He has 53 instances of [ə] and no other pronunciations recorded. Ben, Nan, Phil and Mark have some slight variations, with a very few pronunciations of [ɜ , E, ɨ , ɐ , ɑ], all adjacent to [ə], recorded. These are not numerous enough to be considered significant and are probably instances of occasional "bad aim" in articulation. In Jenefer, the average pronunciation is still in [ə] but slightly off-centre and towards [E]. She has instances of [E] in a ratio of 1:8 to [ə]. In Ada there is most variation of all. She has instances of [E] in a ratio of 1:8 (approx.) to [ə] just like Jenefer, and also instances



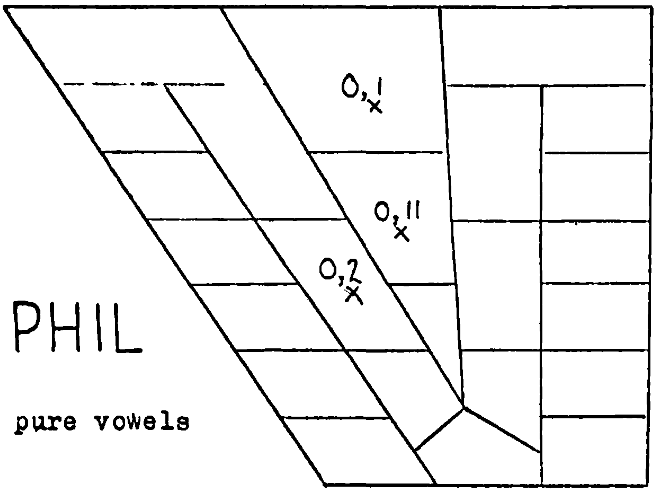
BEN

21 pure vowels



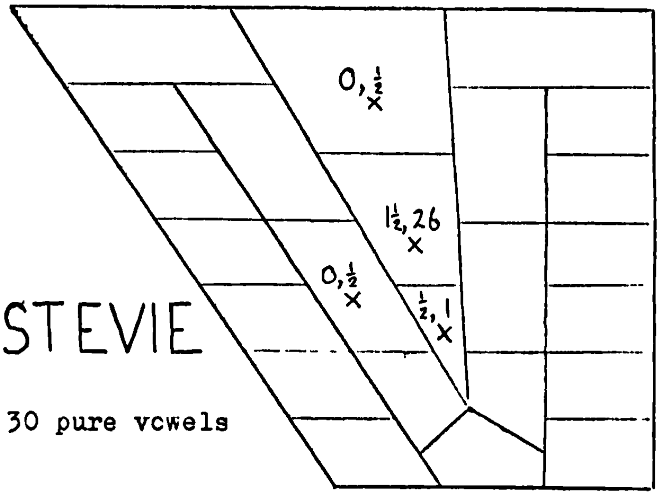
NAN

14 pure vowels



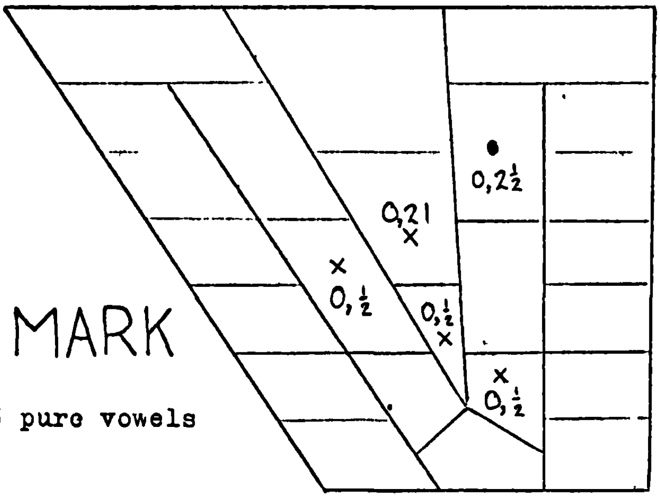
PHIL

14 pure vowels



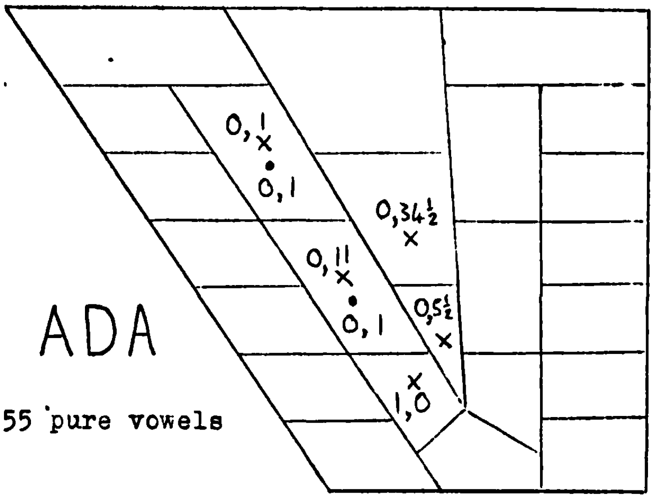
STEVIE

30 pure vowels



MARK

25 pure vowels

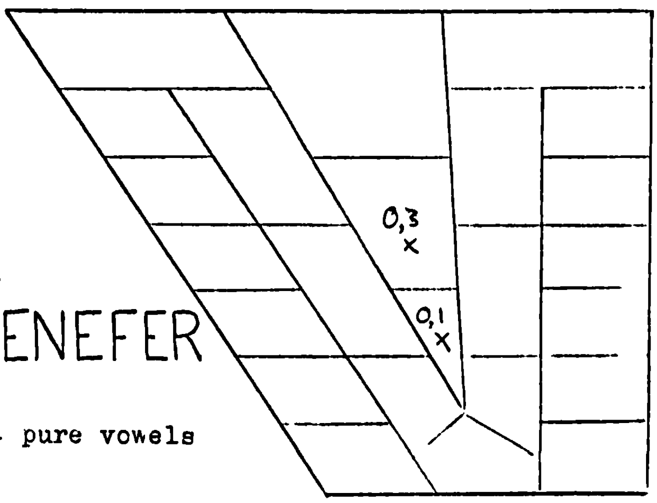


ADA

55 pure vowels

27

U* as only in "but". Stressed and unstressed
in all positions.
First figures show stressed pronunciations.
Second figures show unstressed pronunciations.



JENEFER

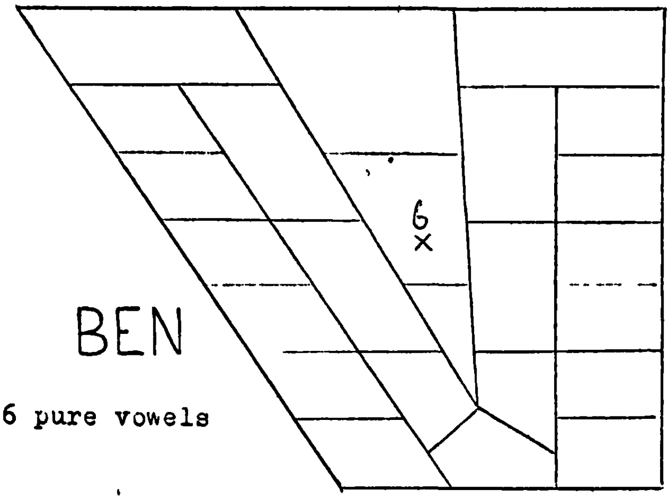
4 pure vowels

of [ɜ] in a ratio of 1:11 (approx.) to [ə]. She also has some diphthongal realizations, 4 very short glides. Her average pronunciation is still definitely within [ə], but off centre and towards [E] with some very slight degree of lip-rounding.

Chart 5 shows realizations of UrL as in "girl, world" etc. The diphthongs shown on this chart are all realizations of two diaphonemes, Ur plus L. The one monophthong (in Stevie) occurs before [ɨ] in "world". The transition from vocoid to velarized lateral voiced frictionless continuant is very similar in auditory effect to a vocoid glide ending in a high back quality. Thus the one monophthong shown in Stevie's diagram is not as out of place as it may seem.

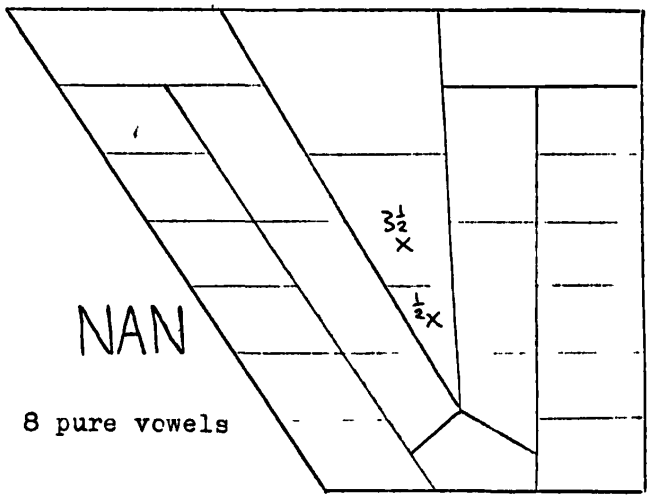
The second elements of the diphthongs, which have been interpreted as realizations of the L, do not vary greatly. In all speakers they are centred in and around [U] and [o]. Phil's realizations are centred somewhat lower than Ada's and Stevie's. He has one diphthong ending on the border-line of [ɔ] and [ɵ]. Mark's realizations are slightly higher than Ada's and Stevie's. He has two diphthongs ending on the border-lines of [ô] and [U]. There are not enough examples from Ben, Nan and Jenefer to form any general picture of their realizations of L in this position.

This chart shows the different ways in which the realizations of Ur are affected by a following L. In Ada and Stevie there appears to be a tendency for Ur before L to be realized as a more retracted vocoid than in other positions. Out of 12 realizations Ada has 3 in [ɵ] and one on the border-line of [ɵ] and [ə]. In other positions she



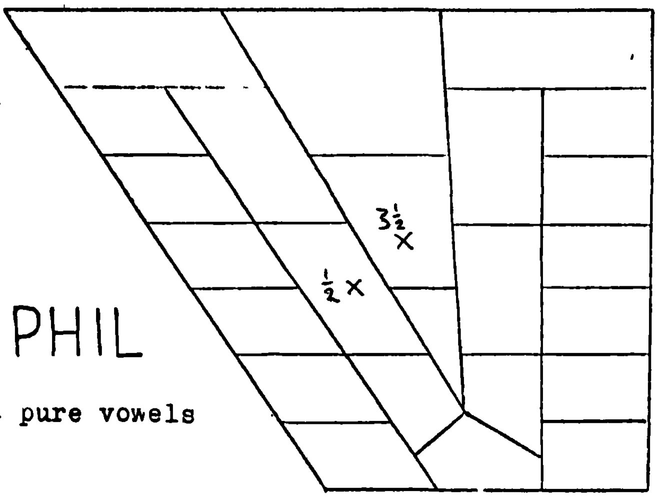
BEN

6 pure vowels



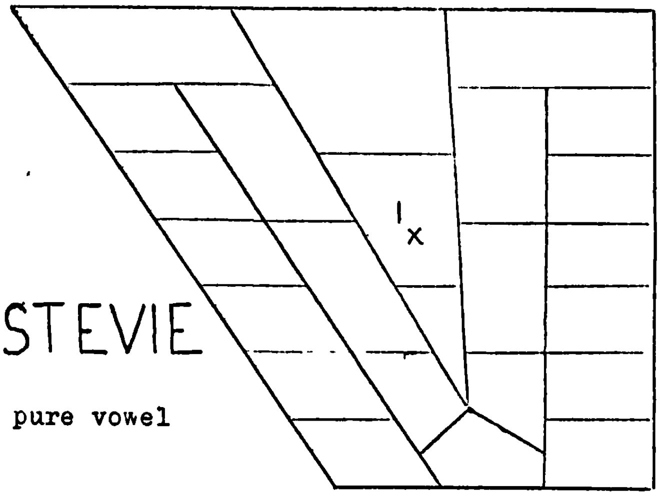
NAN

8 pure vowels



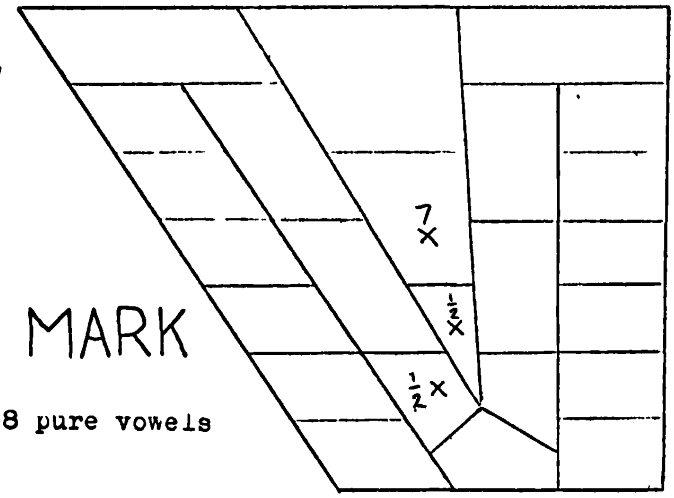
PHIL

4 pure vowels



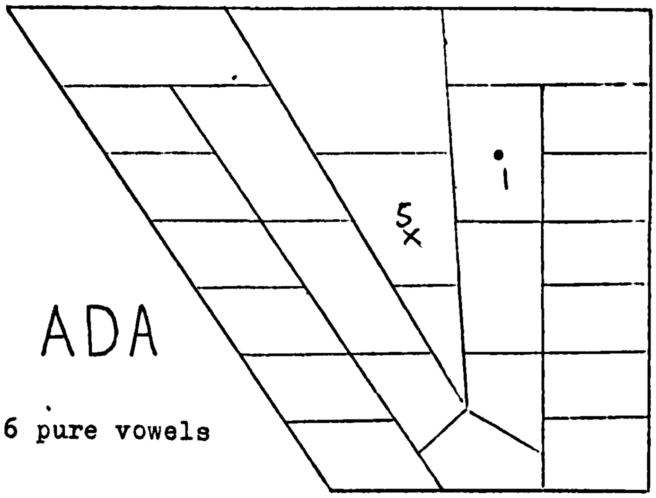
STEVIE

1 pure vowel



MARK

8 pure vowels



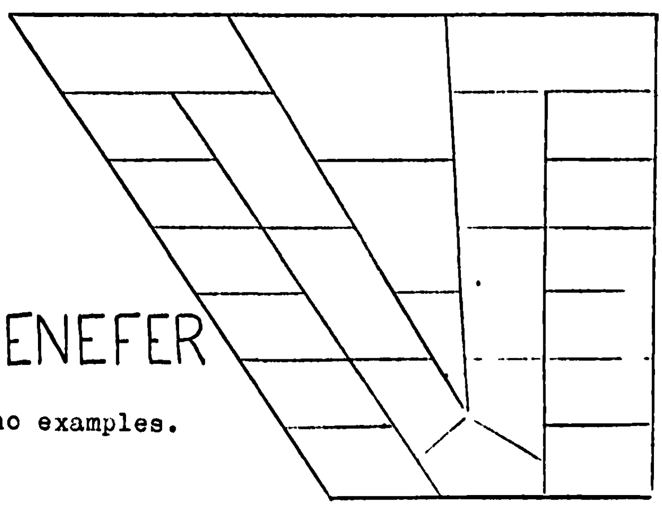
ADA

6 pure vowels

28

U* as only in "us, some, must".

Unstressed and in all positions.



JENEFER

no examples.

has no realizations of Ur in this slot and indeed we have seen that her other realizations of Ur tend to be very slightly advanced from centre. The tendency is less strong in Stevie. Out of 10 realizations, he has one between [ɔ] and [ɑ] and one between [ɑ] and [ə]. His average pronunciation of Ur before L is slightly retracted from centre, but not so retracted as Ada's.

An opposite tendency may be noted in Phil and Mark. Their realizations of Ur before L tend to be somewhat advanced from centre and from their realizations of Ur in other positions. This is particular so in Mark. 4 out of his 7 diphthongs begin in [E]. Of Phil's 11 diphthongs one begins between [E] and [ε], two in [E] and two between [E] and [ə].

In Ben and Jenefer there is only one pronunciation each, both diphthongs beginning in [ə]. We can tell nothing from this about whether they share the Mark/Phil advanced tendency or the Ada/Stevie retracted tendency. There are no examples in Nan.

Chart 6 shows the realizations of Ur* as only in "her, were" in unstressed position. In this position these words are often pronounced as what are sometimes preferred to as "weak forms." These pronunciations show a higher degree of eccentric variations than those of other words in unstressed position. This variation is conditioned to a large extent by the nature of the contiguous and near-contiguous sounds. It is therefore difficult to draw any conclusions about the variations found between individual speakers. The conditioning factors themselves are so numerous and varied that it was impossible to make separate counts of the pronunciations of these "weak forms" in all the conditioning environments, and still have figures high enough in each category for any conclusions about differences between individual speakers to have been drawn.

It should be noted that although the majority of pronunciations in all individuals falls in [ə], there may be deviations quite far from this norm, as for example, Ben's [ɛ̂] and Phil's pronunciation on the border-line of [ɯ] and [ɯ̄]. The vowels shown on this chart are in general very short, thus differing from realizations of Ur and stressed realizations of Ur* as in "her, were".

<u>Ar</u>

This diaphoneme occurs in such words as, "bar, car, barges, laughing, started, father, rather, Mark, pass, heart, jar, dark, form" etc.

It has been classified as a long vowel, having realizations which are predominantly monophthongal and of about the same length as those of <u>Ur</u>, <u>Ou</u>.

Chart 29.

In Ben stressed realizations of <u>Ar</u> are centred in [ɑ], very close to [ɒ], somewhat raised and very slightly centralized. Unrounded and rounded vowels are found in a proportion of roughly 3:2. Rounded vowels have been recorded in a higher proportion for the closer tongue positions, but this may well be due in part to a certain confusion in judgement at this point on the vowel chart between lip-rounding and slight raising of tongue position. It is at this point that the Cardinal Vowels change from spread to rounded lip positions. Cardinal 5 has spread lips, Cardinal 6 rounded lips.

Phil's stressed realizations of <u>Ar</u> are centred in [ɑ] very near [ɐ] and somewhat rounded. In him unrounded and rounded vowels are found in a proportion of roughly 4:1. The degree of lip rounding found in Ben and Phil is not found in the other individuals. Stevie, Mark and Ada have a very few rounded variants, Nan and Jenefer none.

Nan's monophthongal realizations are centred about between [ɑ] and [8]. Stevie's and Mark's in [ɐ] close to [a], Ada's in [ɑ] somewhat advanced and slightly raised, Jenefer's in [ɐ] close to both [ʌ] and [ɑ].

Ben, Nan, Stevie and Ada have a very few diphthongal realizations There are rather varied in nature. They are most common in Nan who has them in a ratio of roughly 1:3 to monophthongal realizations. Her diphthongs are all very narrow and "span" the area covered by her monophthongal realizations, starting about in [ɒ] and gliding back and down to about [ɑ]. Ada has one very narrow diphthong moving in roughly the same direction as Nan's, from [ʌ] to [ɑ], and two rather wider ones moving in the opposite direction, from [ɒ] to between [ə] and [ʊ], and from [ɑ] to [ə] The latter is the same as Ben's single diphthongal realization of Ar. In addition Ada has one very narrow diphthong in which the tongue position remains the same, but the lips move from an unrounded to a slightly rounded position, [ɑ ɑ̫].

Stevie has two very short diphthongs moving up and forward from [ɑ] and [ɒ] to [ɒ] and [ʊ] respectively.

Although there are not enough figures on which to base an entirely sound judgement, one may suspect that in some individuals stressed realizations of Ar* as only in "are" are on average somewhat more central and closer than those of Ar.

This is most likely to be the case in Ben for whom the figures at our disposal give the ratio of fully back vowels to more central and close vowels as roughly 2:1 in "are" and about 21:1 in other words. Centralization of the vowel in "are" also seems likely to be an established tendency in Ada for whom the corresponding ratios are roughly 3:4 and 2:1. In Phil and Stevie the figures are less conclusive but at least show some slight evidence of a similar tendency, the ratios being for

Phil approximately 1:1 and 3:2 and for Stevie roughly 1:3 and 2:3. In Mark there appears no such evidence of a tendency for the vowel in "are" to be somewhat centralized. Nan and Jenefer have no examples of stressed "are".

Chart 30.

A few unstressed realizations of Ar occur in Ben, Stevie, Mark and Ada. In Ben and Stevie they conform to the patterns of variation for stressed Ar. In Mark and Ada they are centred somewhat more centrally. The figures are, however, too small in all cases to draw definite conclusions.

The patterns of variation found in unstressed Ar* as in "are" resemble in general those found in other "weak forms". There is, except in Ben, the same grouping of realizations in and around [ə] and the same rather wide spread of realizations over the vowel chart. Phil's, Stevie's, Mark's and Jenefer's realizations are all centred in [ə], Ada's between [ə] and [E] and Ben's between [ʌ] and [ʊ̂], somewhat rounded.

These pronunciations recorded for Ben, (there are four) cannot be called "weak forms" they are centred only slightly away from his average for realizations of stressed "are".

Au

This diaphoneme occurs in such words as "port, saw, thought, door, daughter, Walter, fault, Victoria, story, record, football, baseball, almighty" etc. Au has been classified as a "long vowel" since the majority of its realizations are monophthongal and long.

Before any consonant realizations of Au may be either monophthongal or diphthongal. Many examples of both types of realization occur in all individuals. In Ben, Nan, Phil and Jenefer monophthongs are more common than diphthongs, in Ada and Stevie monophthongs and diphthongs occur with roughly equal frequency, and in Mark diphthongs outnumber monophthongs. In all individuals except Jenefer the average position of monophthongs is in [ɔ̂], quite near to [o] in Stevie, and about equidistant from [o] and [ɔ] in Ben, Nan, Phil, Mark and Ada. Jenefer's average position for monophthongal realizations of Au is in [ɔ] towards [ɔ̂]. Examples of [ɔ̂·] and [o:] are found in all speakers quite often. Examples of more central realizations [8] are comparatively rare. In all individuals diphthongal realizations begin on average somewhat below the average position for monophthongal realizations i.e. approximately in [ɔ] very near to [ɔ̂], and glide to a considerably closer position, on average about in [o] somewhat close, near to [ô]. In all individuals there are examples of diphthongs beginning and ending at points both opener and closer than these average beginning and end points.

Examples· "brought" [bɹǫ́oʔ], [bɹɔ̂́oʔt] , [bɹǫ́·ʔ], [bɹɔ̨́·ʔ], [ḅɹɔ́ɔ̂ʔ] "daughter" [dɔ̨́oʔə], [dɔ̂́ôt^{s}ə][dɔ́:ʔtə] "forty" [fǫ́:t^{s}ɪ] [fɔ̂́ọt^{s}ɪ] "born" [bɔ̂́·n], [bɔ̨́ ǫ n].

Before R in the same word, as in "Victoria, Laura, saw a, more of" and also word finally when a following R is realized as zero before a consonant or semi-vowel as in "more than, saw the", realizations of Au are in all individuals much more frequently monophthongal than elsewhere, and the monophthongs which are the general rule in this position tend to be rather more open in quality than monophthongs found elsewhere. Between [ɔ] and [ɔ̂] is in all individuals about the average quality for the monophthongs found here. Some diphthongs do occur in this position but are very rare. I have the impression that in Ada and Jenefer there are somewhat more examples of more open monophthongs [ɒ̂], and [ɑ̂]. Apart from this I am not aware of any differences between individuals in their realizations of Au in this position.

Examples: "Laura" [lɔ̧́ɹʌ] "boring" [bɔ̧́ɹɪn] "your own" [jɔ̧́·rɐ́ʊn] "your mother" [jɔ̂ mɐ́ðə] [jɔ̧́omɐ́ðə] "more fat" [mɑ̂·fǽ̨ʔ] "more than" [mɔ̧́:ðəʌ]

Utterance finally Au is often realized as a diphthong, but a diphthong which glides in a different direction from diphthongal realizations of Au found elsewhere. Utterance final diphthongs begin in about the same place as monophthongal realizations before R, i.e. about between [ɔ] and [ɔ̂] and glide forward to end in about [ə], [ɵ] or [ɐ]. Monophthongal realizations also occur here and are similar to those found before R. I am not aware of any differences between speakers in their realizations of Au in this position.

Examples: "more" [mɔ̂́ɐ] "jaw" [dʒɔ́ɵ] "law" [lɔ́ɐ] "before" [bəfɔ́:].

Before L in the same word diphthongal realizations of Au are more frequent than before a consonant and monophthongs are on average closer than before a consonant. When L is realized as a high back vocoid, this vocoid must be considered to be "shared" being at the same time part of a diphthongal realizations of Au and a realization of L. Thus in a large number of cases there is no difference between the realizations of the sequence AuL and the diaphoneme Au by itself, e.g. "Walter"[wɔ́otˢ] "water" [wɔ́otˢɐ]. This interpretation is not the "reason" for the comparatively high frequency of diphthongs before L, as diphthongal realizations are also comparatively more frequent before L realized as a lateral. I am not aware of any differences between individuals in their realizations of Au in this position.

Examples: "all" [ǫ́ǫ],[ɔ́ɔ̂ɨ],[ó:],[ǫ́:l],[ǫ́ǫ],[ǫ́oɨ],[ó:l]

In the words "for, your, or" in unstressed position realizations are in all individuals generally short central vocoids [ə]. A few other, near-central realizations [ɪ], [ʊ], [ɨ], [ɵ], occur. These words in unstressed position constitute "weak forms". I am not aware of any differences between individuals in their realizations of Au* as only in these words.

Examples: "more or less" [mɔ́.ɹəlέs] "your father" [jəfá:ðə] "for you" [fɪjʉ́:] "for the" [fəðə] "yourself" [jɨsέɔ̂f].

Ia

This diaphoneme occurs in such words as "beer, dear, here, career, ideas, hear, really, nearly, near, earhole, beard ..."

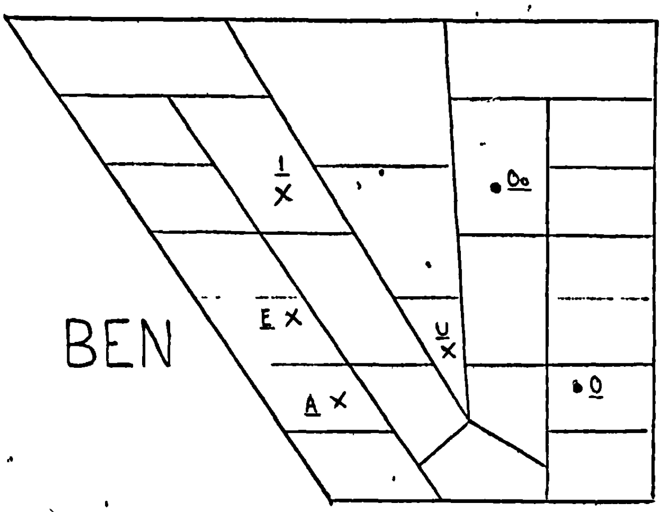
In stressed position the main factor conditioning the realizations of Ia is whether the diaphoneme occurs utterance finally or not.

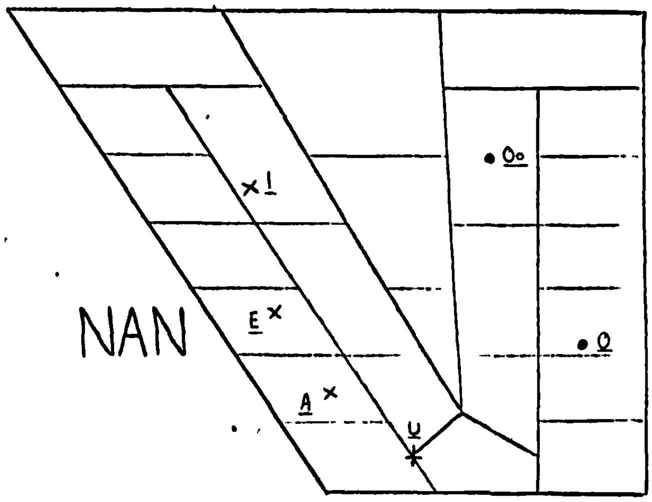
As will be seen from Chart 1 diphthongal realizations predominate markedly over monophthongal ones when Ia occurs utterance finally the ratio of diphthongs to pure vowels over all speakers being roughly 6:1. This situation is reversed when Ia occurs elsewhere (Chart 2), the ratio of diphthongs to pure vowels being in this case roughly 1:3. An exception is the case of Nan, for whom the figures are possibly inadequate. The proportion of monophthongal to diphthongal realizations does not vary significantly from one speaker to another in either position. Monophthongal realizations are about as long as those of the classified "long" vowels such as Ar, and Ur.

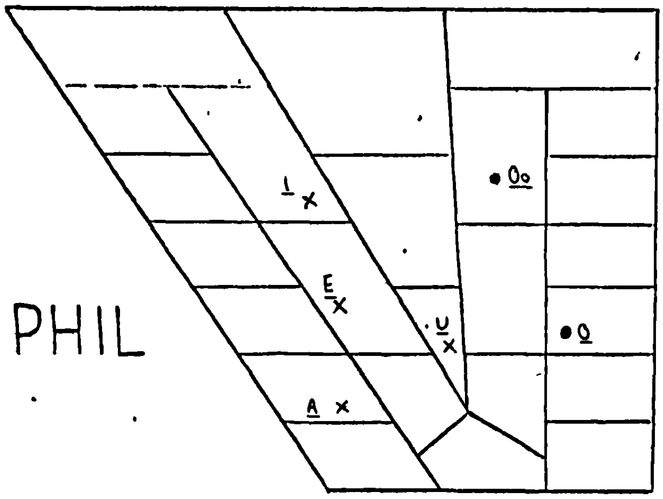
In general the initial elements of diphthongal realizations are formed in the same area as monophthongal realizations, and hardly vary from one individual to another. They are concentrated in and around [ɪ,e,ɛ̂]. In Mark they are consistently [ɪ]. In Stevie they are concentrated somewhat more centrally than in other speakers, in [ɪ] with a few instances of [E] and [ə]. Ben, Nan, Ada, Phil and Jenefer have very similar patterns of variation with most of their pronunciation recorded as [ɪ], [e] or [ɛ̂]. Ben's pronunciations possibly vary slightly more widely than the others, with one dipthong recorded as commencing on the borderline of [ɛ̂] and [e] and another on the borderline of [ɨ] and [ɪ]. Ben, Ada, Stevie, have a few instances of [ɛ].

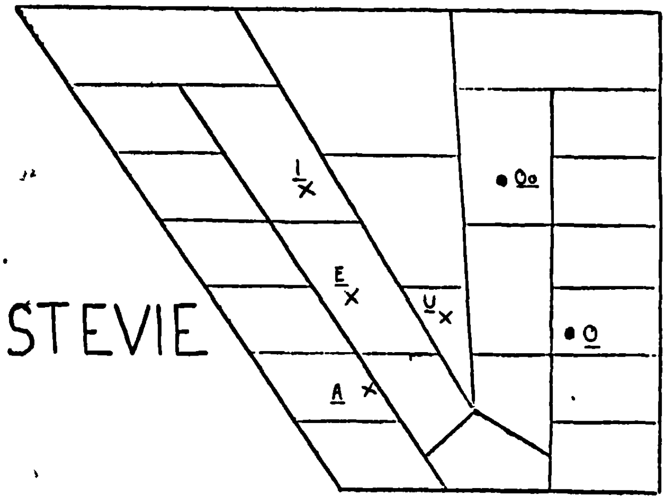
The second elements of diphthongal realizations of Ia occurring other than utterance finally are concentrated in [ə] and [E] and on the border-line between them. They may be said broadly speaking to describe an arc from [ə], through its borderlines with [ɪ] and [E], through [E] to [Ɛ̂]. On this arc Stevie's pronunciations are situated at one end consistently in [ə]. Nearest to him is Mark, predominantly [ə] with one diphthong "falling short" on the border line of [ə] and [ɪ]. Next is Ben, still mostly [ə] but with several pronunciations at the border-line of [ə] and [Ξ], in [Œ] and in [Ɛ̂]. Next Ada, the end point of whose diphthongs are centred on the border-lines of [ə], [ɪ] and [E]. Phil's one diphthong ending between [Ɛ̂] and [E] would put his pronunciation at the other end of this arc, but one can of course not generalise from one occurrence. There are also insufficient figures in the case of Nan and Jenefer but from what we have, we might suspect that Nan's pronunciation was most similar to Ben's and Jenefer's most similar to Ada's. Diphthongs occurring utterance finally tend in some speakers to glide further and to end at a more open tongue position than those occurring elsewhere.

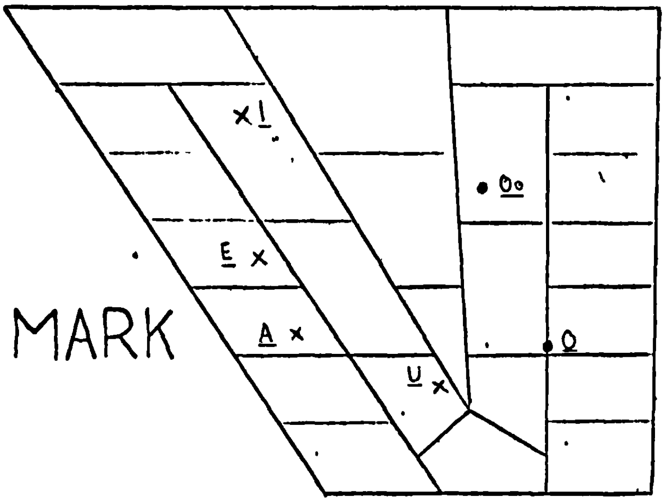
Again, it is convenient to think of their end points describing, broadly speaking, an arc. In this case the arc extends from [ə], through [ɐ] to [Æ] and [A]. Ben's and Stevie's pronunciations are situated at one end of this arc, being predominantly [ə]. Of Ben's 9 diphthongs in this position 7 end in [ə], one on the border-line of [ə] and [E] and one in [Æ]. Stevie has 2 diphthongs ending in [ə] and

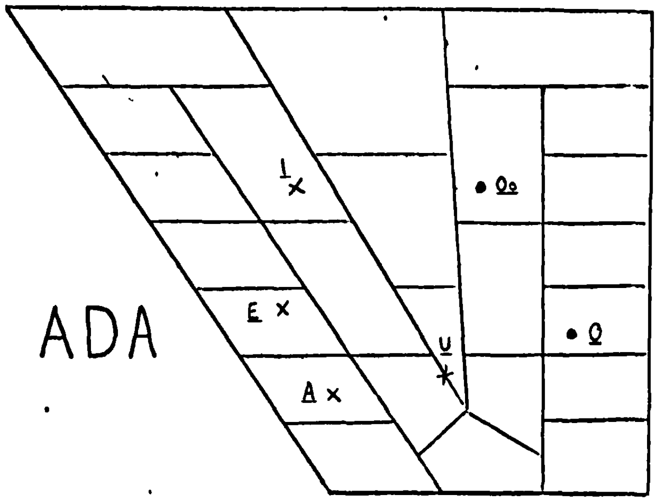


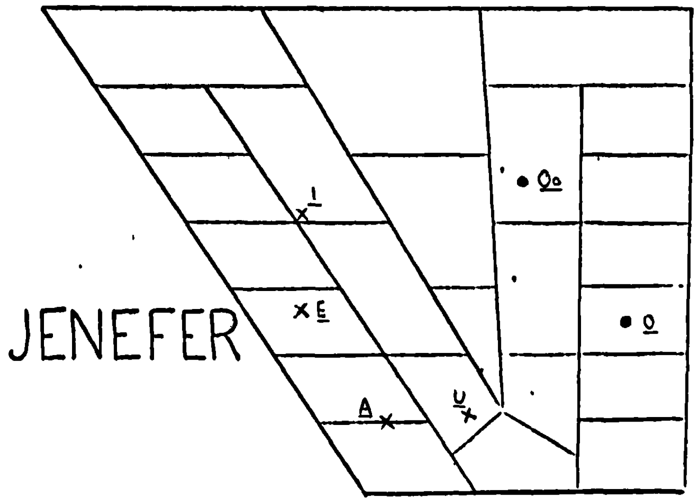










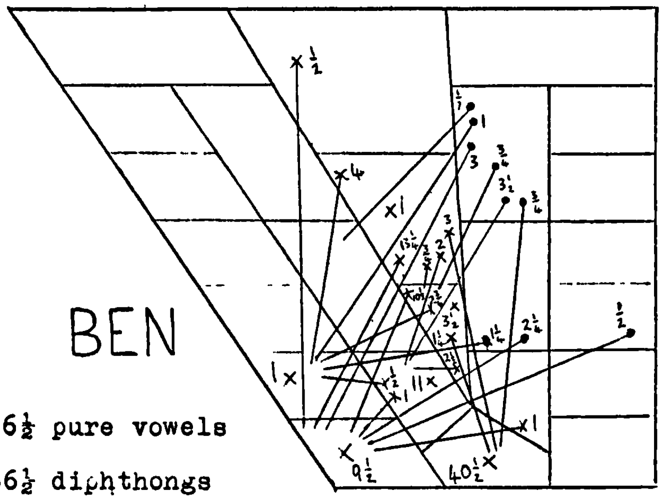


Average principal realizations of the "short vowels" I E A U O Oo one in [E]. Next on the arc come the pronunciations of Phil. His diphthong endings range from [ə] to [A], but the average is still within the [ə] slot, although somewhat opener than Ben's and Stevie's pronunciations. Mark and Nan have very similar pronunciations. The end points of their diphthongs range, in both individuals, from [ə] to [Æ] and the border-line of [ɐ] and [A], the average being about [ɐ]. Ada's pronunciations cannot be described entirely in terms of this arc, since she has three diphthongs ending in [ɛ]. This is farther forward than the final elements in the diphthongs of any of the other speakers. She does have 4 other diphthongs whose end-points average position is around the border-line of [ɜ] and [ɐ]. These would put her pronunciations on the arc between those of Phil and those of Mark and Nan, were it not for her unique use of diphthongs ending at [ɛ]. There are no examples of *Ia* utterance finally in Jenefer.

In unstressed position (Chart 3) there is the same type of difference between prepausal and other realizations of *Ia*. Of the five prepausal occurrences of unstressed *Ia* (in all speakers) 3 realizations are diphthongal. Of the 22 other occurrences only 2 are realized as diphthongs. This shows also that in unstressed position, although there is the same sort of difference between prepausal realizations and others, pure vowels are relatively more frequent than in stressed position. In all stressed positions the ratio of diphthongs to pure vowels is roughly 2:3. In all unstressed positions it is roughly 1:4.

Again, the beginning points of the few diphthongs which there are are the same as the majority of the pure vowel realizations. These, in their turn, differ only slightly in quality from the monophthongal realizations in stressed position. In Mark, Ada, and Jenefer they are the same, and in Ben, Phil and Stevie they are somewhat centralized from the average realization in stressed position. In Ben, Phil and Mark there is also a slight hint of labialization in a few instances.

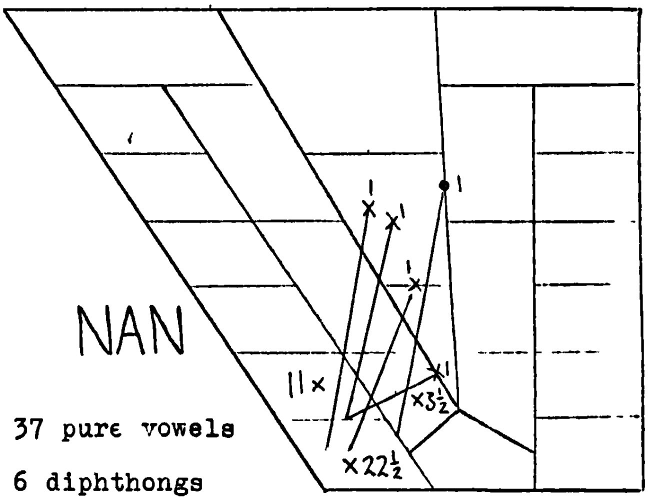
There being only 5 instances of diphthongal realizations one cannot generalize about their end points. In Ben they conform roughly to the pattern found in stressed position, with one rather close example between [ɨ] and [ə]. The 3 diphthongs in Phil and Stevie end in a more advanced and slightly more open tongue position than the average end points of their diphthongs in stressed position.



BEN

66½ pure vowels

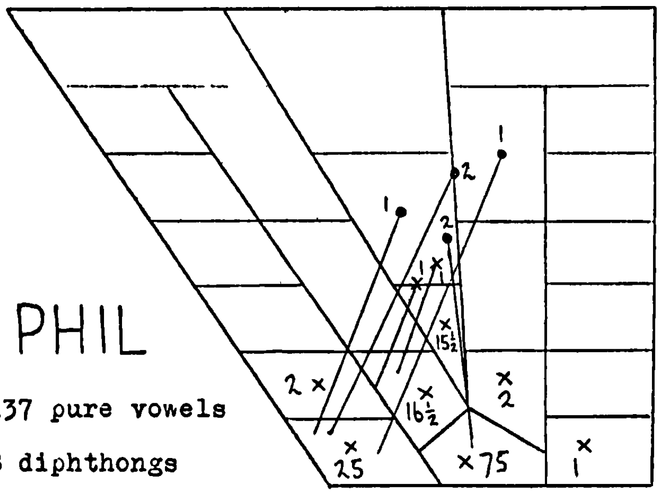
56½ diphthongs



NAN

37 pure vowels

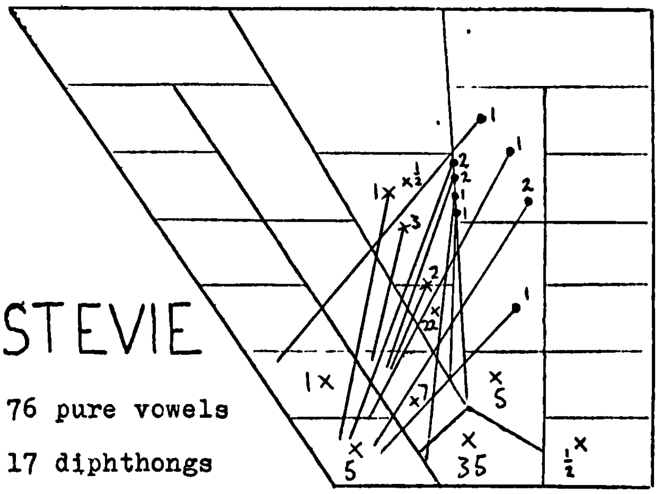
6 diphthongs



PHIL

137 pure vowels

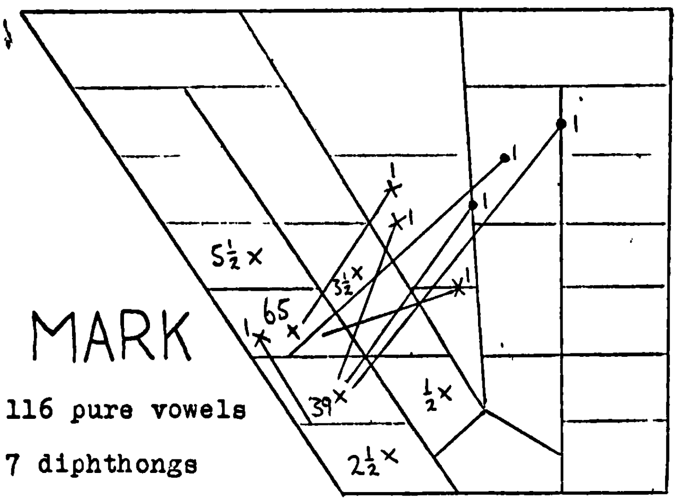
8 diphthongs



STEVIE

76 pure vowels

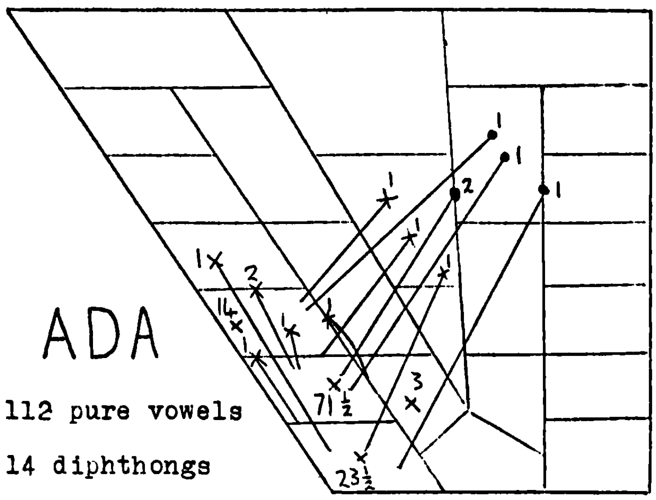
17 diphthongs



MARK

116 pure vowels

7 diphthongs



ADA

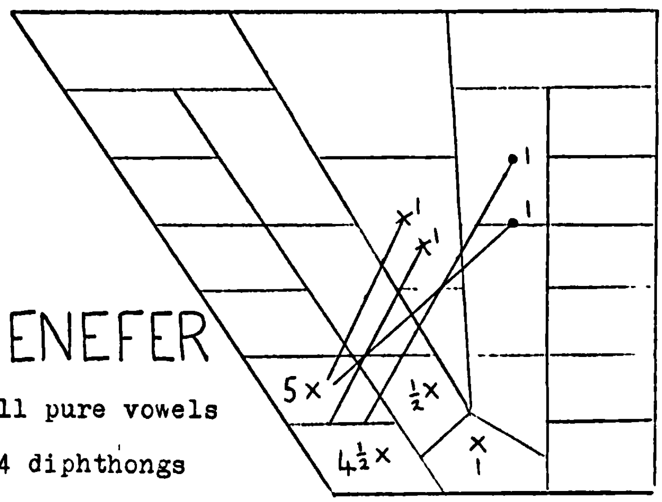
112 pure vowels

14 diphthongs

31

<u>Ou</u> as in "now, shouting, about, thousand"etc.

Stressed and in all positions.



JENEFER

11 pure vowels

4 diphthongs

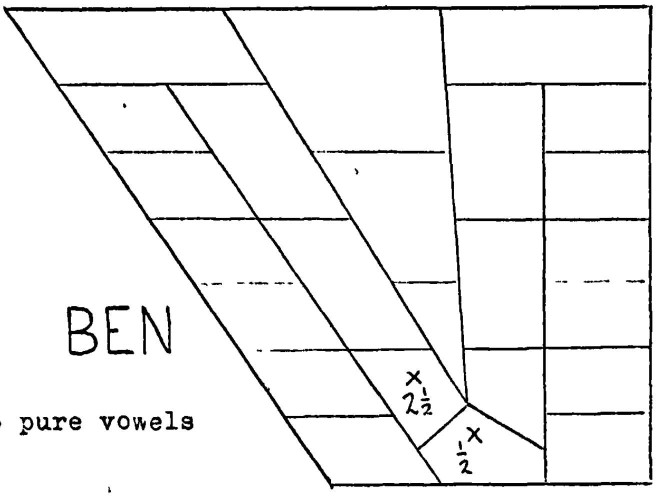
Ia* as only in "year(s)"

The symbol Ia* has been assigned to the special diaphoneme occurring only in the words "year, years". These two words show variations which are best interpreted as an example of "phonemic variation" between the phoneme found in "beard" and that in "heard".

Chart 7 shows patterns of variation which conform more or less exactly to those shown on Chart 1. The slight differences are that Ada and Phil each have a diphthong in "year" beginning in [ɪ] whereas in Ia (Chart 1) their diphthongs begin on average somewhat lower, in [ɛ]. This difference is probably due to the influence of the [j] at the beginning of "year". Phil's one monophthongal realization shown on Chart 7 occurs in fact in unstressed position and may be seen to conform to the general pattern of variation found in Ia in unstressed position (Chart 3). Mark's one diphthong ending on the border-line of [ə] and [ʌ] may be considered an abnormal variation, a mild case of "bad aim". Prepausally then Ben, Phil, Mark, Ada and Jenefer all pronounce "year" in conformity with the patterns of variation found in Ia. For Nan and Stevie there are no examples of prepausal "year".

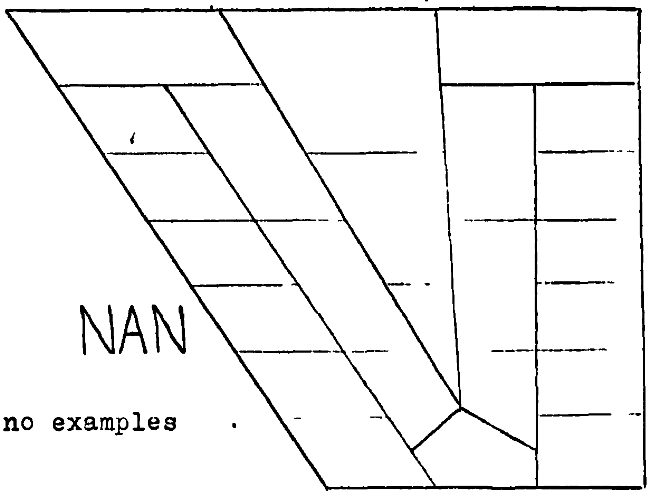
In positions other than prepausal (Chart 8) the situation is rather different. Phil, Stevie, Mark, and Jenefer have pronunciations all of which conform to the Ia pattern in this position (Chart 2). Mark's one diphthong commencing between [ɨ] and [ɪ] owes its somewhat high beginning point perhaps to the influence of the [j] of "year". Ada has 10 examples of "year(s)" in this position. Of these 8 conform to the Ia pattern, but 2 fall in [ə] and, being long, are realizations typical of the Ur diaphoneme (Chart 4). These 2 instances of [ə] are both in unstressed position. The other 8, which conform to the Ia pattern are all stressed. Ben has 11 instances of "year(s)" in this position, all of them stressed. Of these, four may be said to conform to the Ia pattern. They do not do so exactly, as the average of the 2 pure vowels is in [E], slightly lower and more central than the average realization of Ia. This difference may or may not be significant. One cannot tell from only 2 examples. Ben has a diphthong beginning between [i] and [ɪ]. This is again probably due to the influence of the [j]. Ben's other 7 pronunciations fall in [ə], conforming to the Ur pattern. Nan has 5 examples, all stressed, 4 realized as [ə] and one on the border line of [ə] and [E], thus conforming almost exactly to the Ur pattern.

In the above paragraph it has been easy to distinguish between those realizations of Ia* as in "year(s)" which conform to the Ia pattern and those conforming to the Ur pattern. In Nan, Ben, Phil, Mark and Jenefer these patterns do not overlap although they are contiguous. In a larger corpus the Ia and Ur patterns of these speakers might be found to overlap slightly. In the present corpus the Ia and Ur patterns of Stevie and Ada do in fact overlap. Stevie has several realizations of Ia in [ə], where all of his Ur realizations are concentrated. Had he used the word "year" more than once in the recordings, he might well have uttered a few examples of [jəː]. To have assigned these to either the Ia or the Ur diaphoneme would have been an arbitrary decision. Similarly Ada uses [E] as a realization of both I



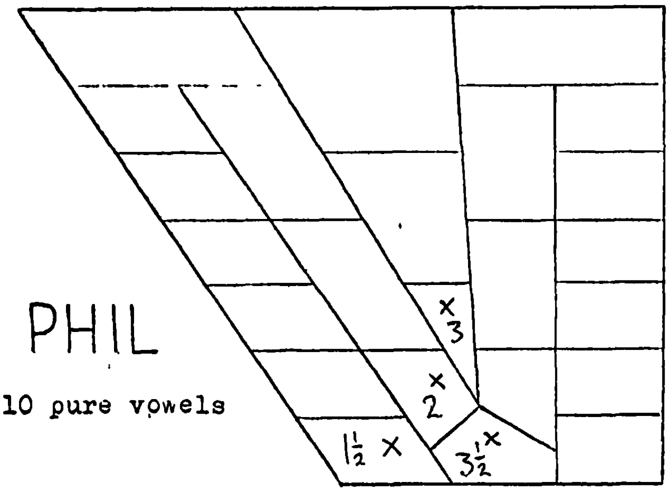
BEN

3 pure vowels



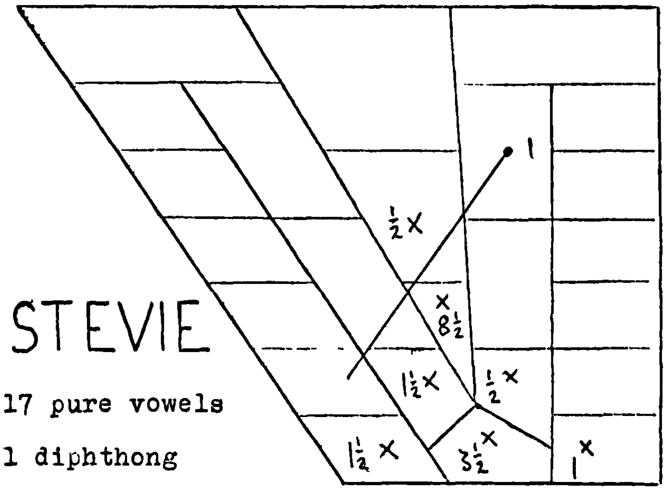
NAN

no examples



PHIL

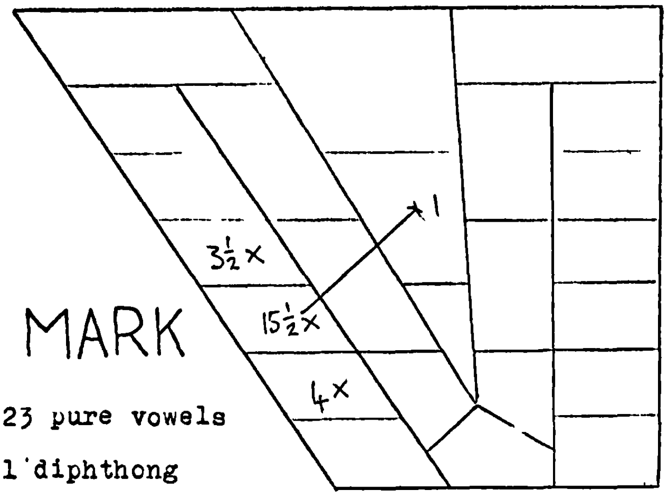
10 pure vowels



STEVIE

17 pure vowels

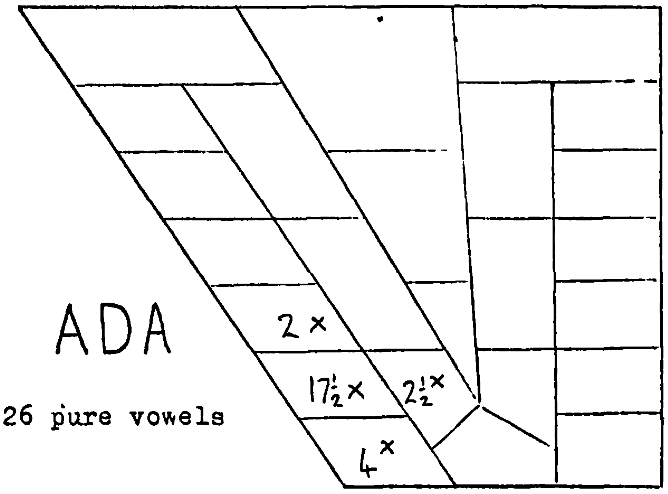
1 diphthong



MARK

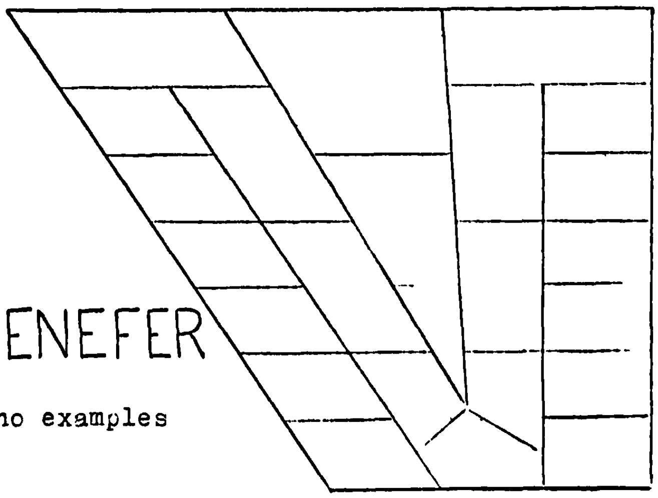
23 pure vowels

1 diphthong



ADA

26 pure vowels



JENEFER

no examples

32

<u>Ou</u> as in "now, about, pound" etc.

Unstressed and in any position.

and Ur. Had she ever said [jE:] for "year" it would have been impossible to say which diaphoneme she was using.

Ea

This diaphoneme occurs in such words as "square, fair, hair, Mare (abbreviation used by Stevie for his wife's name, "Mary") rarely, bear, care, pair, scare," etc.

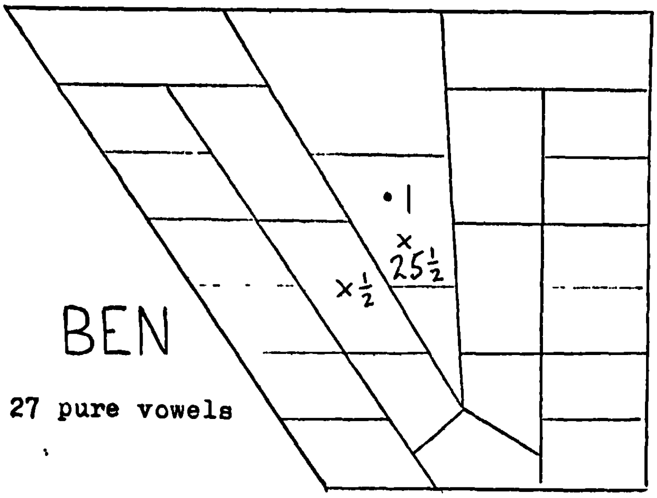
No significant difference was found between the stressed and the unstressed realizations of Ea.

As in the case of Ia, diphthongal realizations are more common in utterance final position (Chart 9) than in other positions (Chart 10). Diphthongs do not, however, predominate over pure vowels utterance finally. In this position the ratio of diphthongs to pure vowels, over all speakers is about 5:6. The proportion varies considerably from speaker to speaker. In Ben and Nan diphthongs and triphthongs easily predominate over pure vowels, in Stevie and Mark there are about equal numbers of each, and in Ada pure vowels easily predominate over diphthongs and a triphthong. In Jenefer and Phil there are not enough figures to go by.

In positions other than utterance final pure vowels predominate over diphthongs in all speakers although again the proportions differ from speaker to speaker. The individuals' ratios of diphthongs to pure vowels in this position are roughly: Ben - 1:2, Stevie - 1:3, Mark and Nan - 1:6, Phil - 1:27, Ada - 1:67. For Jenefer, one can give no ratio, as she has no diphthongal realizations. She has 6 monophthongal realizations. Although based on small samples these figures show differences large enough to be considered quite significant. The overall ratio of diphthongs to pure vowels in utterance non-final position is about 1:5.

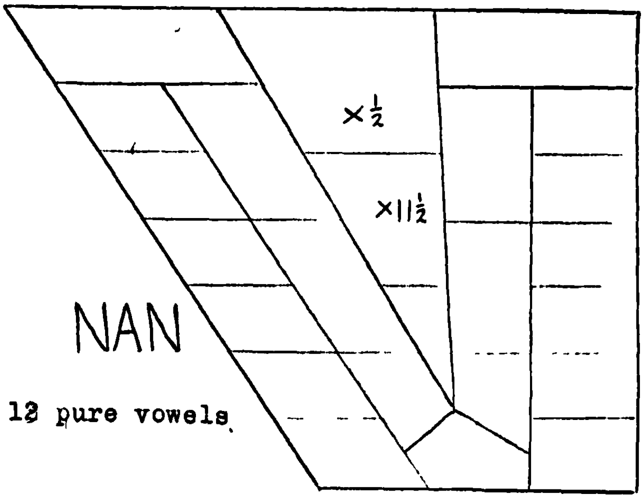
Monophthongal realizations are about as long as those of the classified "long" vowels such as <u>Ar</u>, <u>Ur</u>. The initial elements of diphthongal realizations of <u>Ea</u> are about the same whether <u>Ea</u> occurs utterance finally or not. They range from the border-line of [ɛ̂] and [e] to the border-line of [ɛ] and [æ]. In Ben, Stevie and Mark the average is in [ɛ̂] but close to the border-line with [ɛ]. In Ada and Nan the average is in [ɛ], slightly lower in Nan than in Ada. Phil has only 2 diphthongs, one beginning in [ɛ̂] and the other between [ɛ] and [E]. Jenefer has no diphthongs.

As was also the case with realizations of <u>Ia</u>, the various end points of the diphthongal realizations of <u>Ea</u> may be conveniently thought of as describing a rough arc. The arc extends from [ə], through [ɐ], through [Æ], through the border-line of [Æ] and [a] to [a] and the border-line of [a] and [æ]. Some diphthongs fall short of this arc and end in [E] or on the border-line of [ə] and [E]. In prepausal position, the end points of diphthongs are spread somewhat more widely along this arc than in other positions. Ben's diphthongs vary widely in their end points from [ə] to between [a] and [Æ]. His average end point is at about the border-line of [E] and [ɐ]. This is also the average end-point of Mark's diphthongs, but his vary far less widely than Ben's, being concentrated close together. Stevie's average end point is about on the border-line of [E] and [ə] and his pronunciations range from [ə] to [ɐ] on the arc. Phil's one diphthong ends between [ə] and [E]. Nan's end points are further forward and lower than those of the men, being centred at about the meeting point of [a], [æ] and [Æ]. Ada's are furthest forward



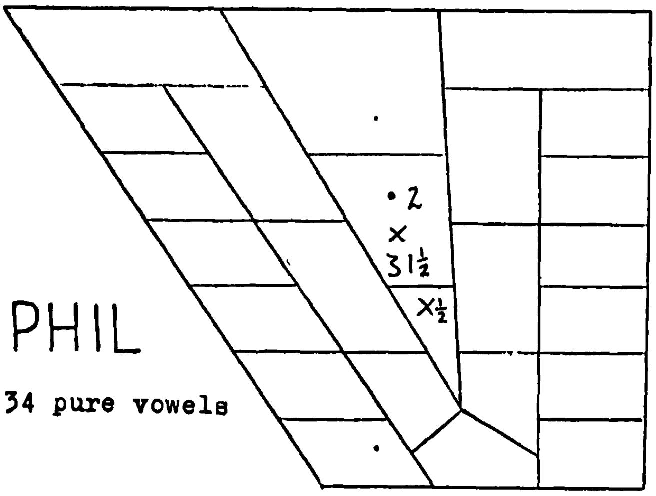
BEN

27 pure vowels



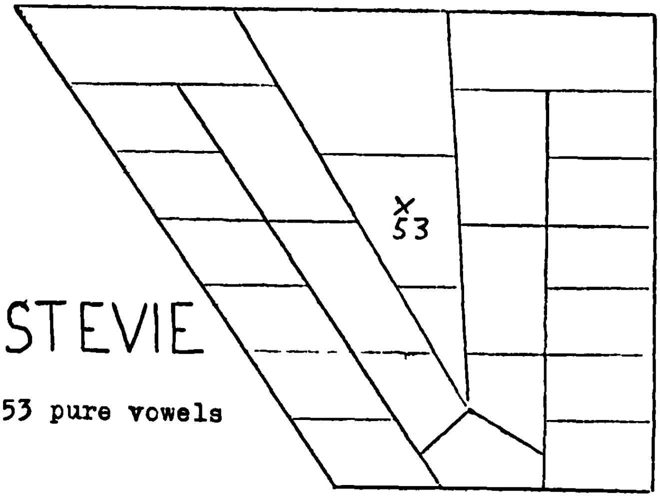
NAN

12 pure vowels



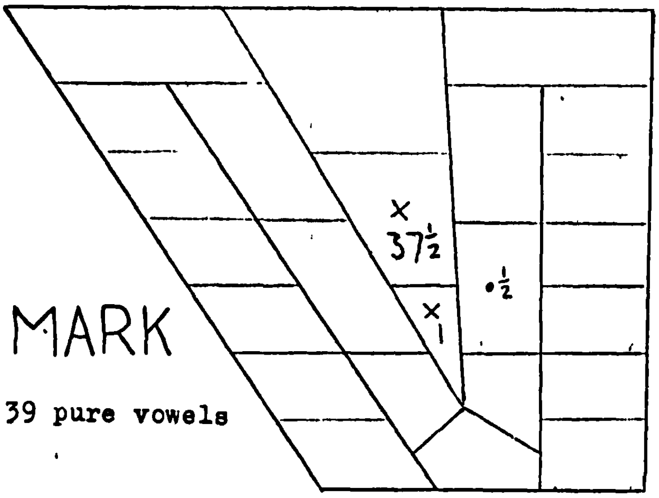
PHIL

34 pure vowels



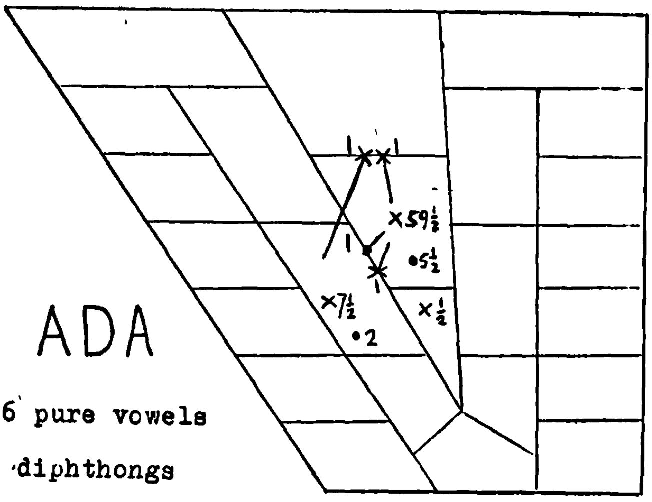
STEVIE

53 pure vowels



MARK

39 pure vowels



ADA

76 pure vowels

3 diphthongs

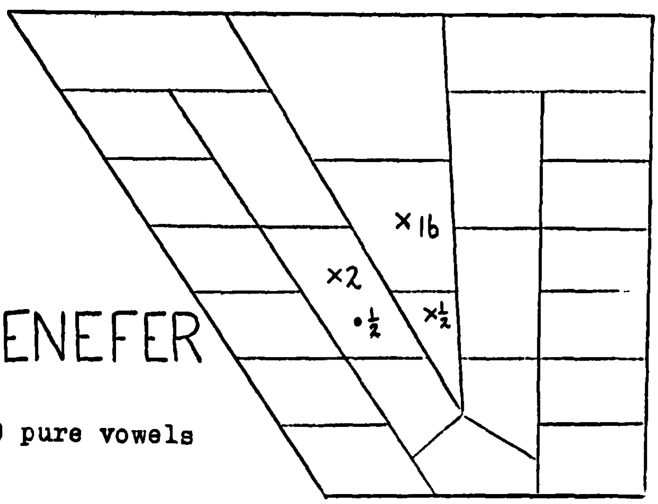
L

<u>Ur</u> as in "early, work, shirts" etc.

Stressed and unstressed in all positions except before <u>L</u> when <u>L</u> is realized as a vocoid or a velarized lateral.

Also: <u>Ur</u>*as only in "her" and "were".

Stressed and in all positions.



JENEFER

19 pure vowels

of all, being centred in [æ].

Nan and Ada have respectively 2 and 1 triphthongs in this position. They are, respectively [έε̂æ̈], [έε̂æ] and [έε̂ε].

In positions other than prepausal, diphthongs, besides being, as has been noted, less common, are also generally shorter and do not end so open or so far advanced as in prepausal position. Of Ben's 9 diphthongs in this position, all but one end in [E] or between [ə] and [E]. The end points of Stevie's diphthongs in this position are about the same as in prepausal position although not quite so widely ranging, having no pronunciation near [ɐ]. Mark's end points are centred in [ə], 3 of the 4 of them being [ə] and the other one [E]. Phil has one diphthong ending in [Œ] and Ada one between [ε] and [E] Nan's diphthong ending between [ɪ] and [e] is an oddity, perhaps a case of "bad aim".

The pure vowel realizations of <u>Ea</u> do not vary according to whether <u>Ea</u> is utterance final or not. They range from [æ] to [e] to [ə]. They are most open in Jeneier whose pronunciations centre in [ε] somewhat towards [æ]. Ben's, Nan's, Phil's and Ada's pronunciations centre in [ε] somewhat towards [ε̂]. Stevie's pronunciations centre slightly higher and more centrally at about the meeting point of [ε], [E] and [ε̂]. The 2 examples of [ə] recorded for him are both in "Mare", his abbreviation of his wife's name, Mary, and are unstressed. Mark's realizations are closest, centred in [ε̂] slightly centralized.

Ea* as only in "where" Chart 11

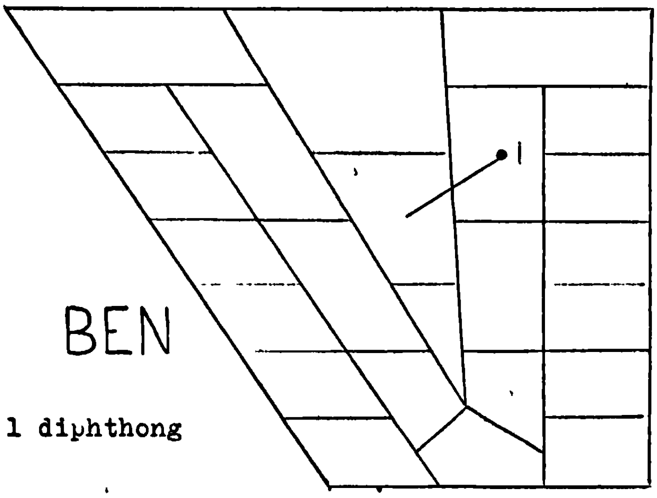
In positions other than prepausal, stressed "where" was found to be pronounced with different patterns of variation from the sounds in stressed "square, fair, hair" etc.

The difference is that in "where" there are (a) far fewer diphthongs, in fact only one to 58 pure vowels, (b) the pure vowels tend to be more central. This is particularly so in Ben, Phil, Stevie, Mark and Jenefer whose pronunciations all centre in [E]. Ben, Phil, Mark and Stevie all have some realizations in [ə]. In Phil there are also several rounded front vowels [œ] and [ǿ]. Ben, Ada and Jenefer have a slight degree of lip-rounding of a very few front vowels in "where". Ada's and Nan's pronunciations are centred in [ɛ], rather higher than the average for their realizations of Ea (Chart 10). Ada has 2 instances of [E] and 1 of [ə] to 6 fully front vowels, and Nan has one instance of [E] to 3 fully front vowels.

Ea* as in "there" Chart 12

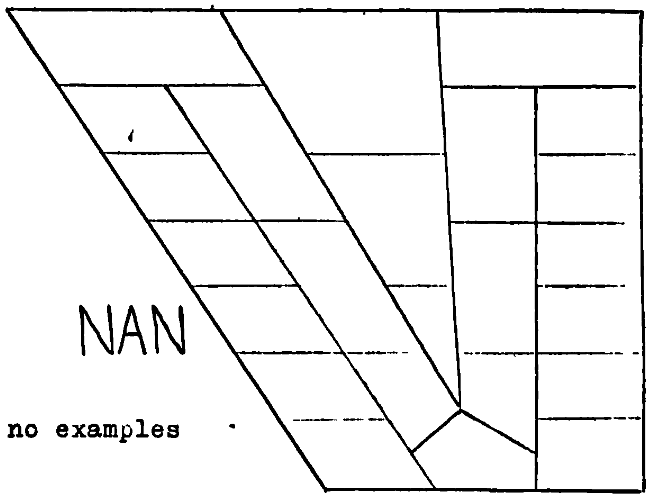
The pure vowel realizations of unstressed "there" are in general more central than those of stressed "there" and those of stressed or unstressed "square, fair, hair" etc. In unstressed "there" there are also far fewer diphthongs than in stressed "there" or stressed or unstressed "square, fair, hair" etc.

Realizations of unstressed "there" themselves differ according to



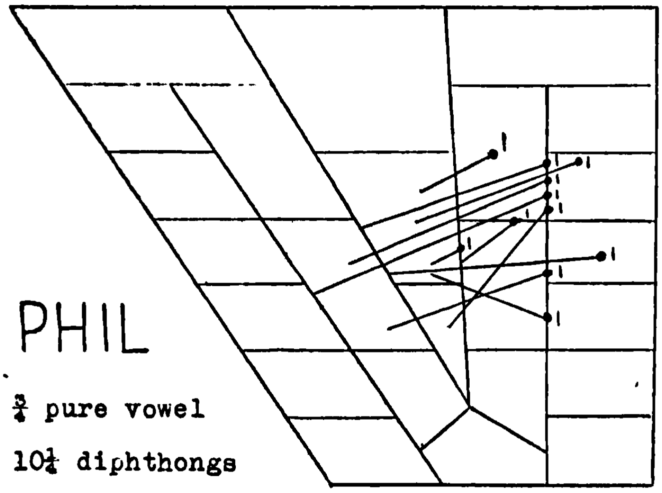
BEN

1 diphthong



NAN

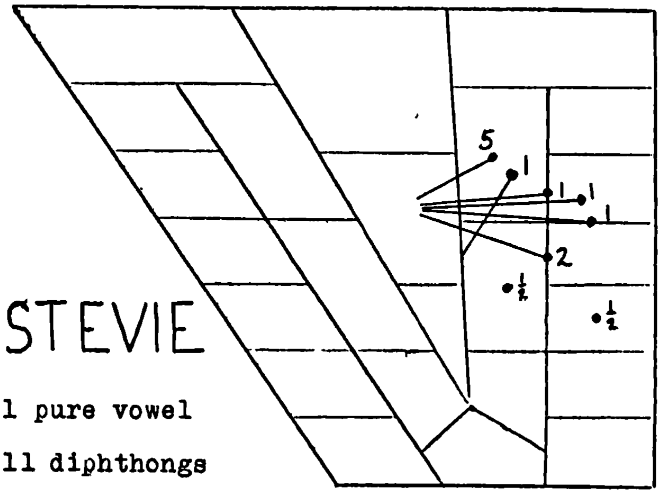
no examples



PHIL

¾ pure vowel

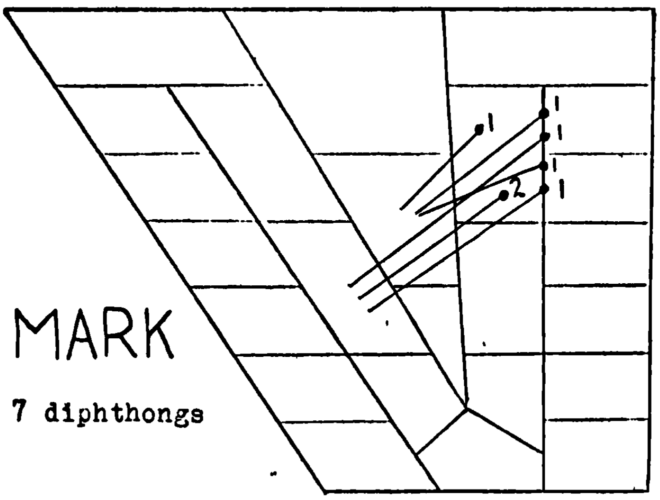
10¼ diphthongs



STEVIE

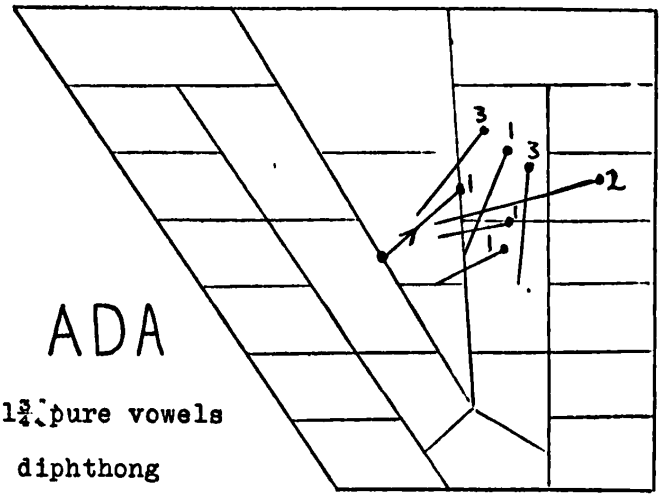
1 pure vowel

11 diphthongs



MARK

7 diphthongs



ADA

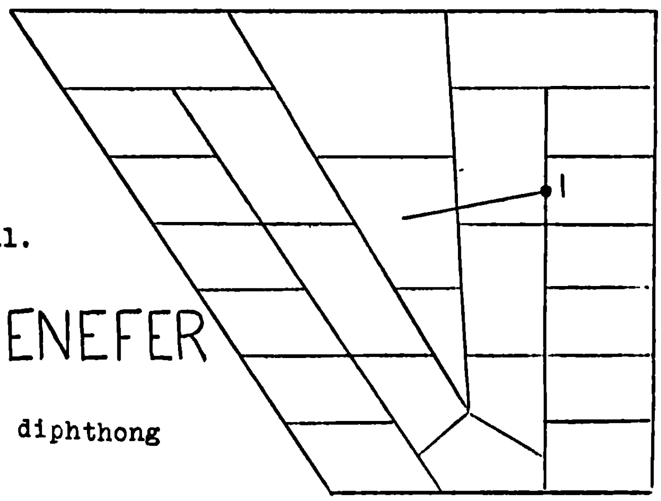
11¾ pure vowels

¼ diphthong

5

<u>UrL</u> as in "girl, world"etc.

Stressed and unstressed when <u>L</u> is realized as a vocoid or a velarized lateral.



JENEFER

1 diphthong

whether the word occurs in a phrase of the "there are, there is, there was, there would be, there used to be" type. In these phrases the word is generally pronounced with a more central vowel than elsewhere. This can be observed by comparing the first and second figures on Chart 12. Over all speakers the use of the fully front vowels [Ɛ̂, ɛ, æ] is divided between instances of "there is" etc. and other instances of "there" in the ratio of approx. 2:3; the ratio for the use of the most central vowels [ɪ, E, Œ] is roughly 3:2 and that for the fully central vowel [ə] is about 9:1. The pronunciation of unstressed "there" in "there is" etc. is then very often what might be called a "weak form", whereas this would apply much less to other instances of "there". It is however difficult to draw a definite boundary between "weak forms" and "strong forms". Different words and words in different contexts show varying degrees of centralization. There is a continuum of vowel quality from the most central to, in this case, the furthest front, and pronunciation may be heard all along this continuum. There is also a continuum in terms of vowel length. I have the impression that many of the centralized pronunciations of "there" are very short whereas some of the less central ones are of about the same length as those of the average Ea. It was not found possible to keep a consistent count of vowel lengths, however.

The degree of centralization of the vowel in "there" varies from one individual to another. In contexts other than "there is" etc. (second figures on Chart 12) the average pronunciation is [E] in Ben, Phil, Stevie and Mark. In Ada and Jenefer it is about between [ɛ] and [Ɛ̂], although Ada also has several centralized pronunciations.

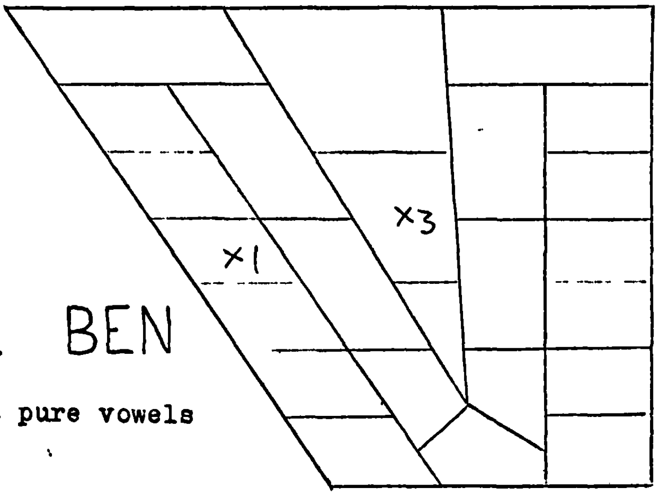
There are no examples for Nan.

In "there is" etc. Nan's, Phil's, Stevie's, Mark's and Ada's pronunciations centre in [E], Phil's somewhat nearer to [ə] than those of the others. Ben's pronunciations are, on average, on the borderline of [ə] and [E]. Stevie's pronunciations are rather more evenly spread than those of the others.

Chart 13 also shows what could be called "weak forms". Here again may be seen varying degrees of centralization in different words. Unstressed "where" has generally more central vowels than unstressed "their". In "where" the ratio of fully front vowels to more central ones is about 1:3, in "their" it is about 1:1. These vowels all tend to be short. In Ben, Nan, Phil and Stevie the average pronunciation for unstressed "their" is [E]. In Ada it is between [ɛ] and [E]. In Mark it is in [ɛ̂].

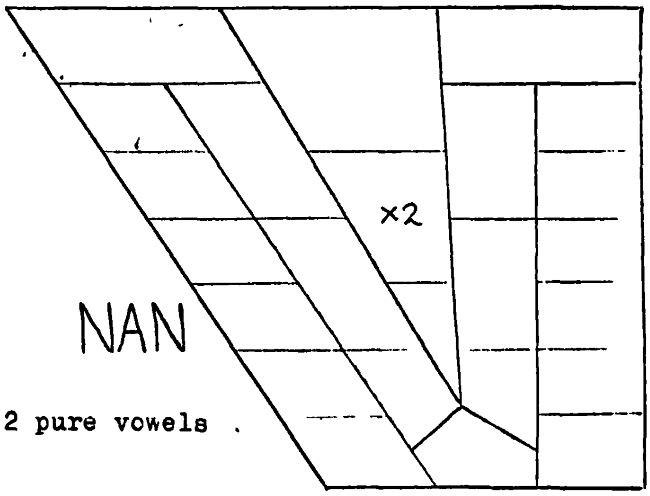
In unstressed "where" the average pronunciation is in Ben, Phil, Stevie and Ada [E], Phil's being somewhat more towards [ə] than the others. In Nan, it is between [e] and [ɛ̂], somewhat higher than in other words, but this statement is based on only one example and therefore not reliable. In Mark it is in [ɛ̂] and of this again there is only one example.

Finally, as evidence of the varying degrees of centralization of vowels found in "there, their, where", the following figures are given. They represent the approximate ratio of fully front vowels to more central ones in these words in unstressed position (over all speakers).



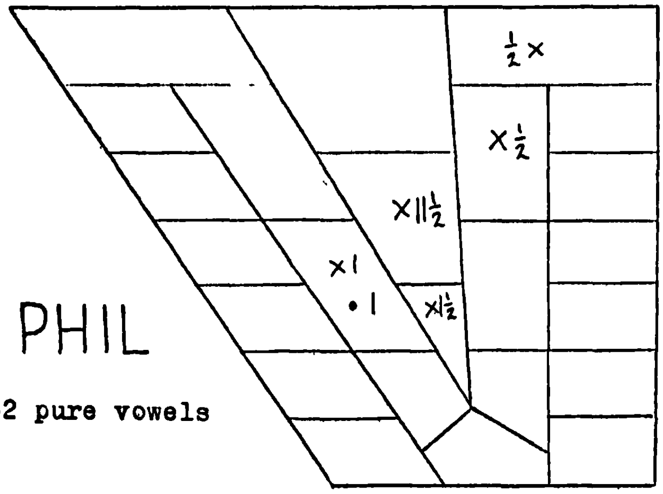
BEN

4 pure vowels



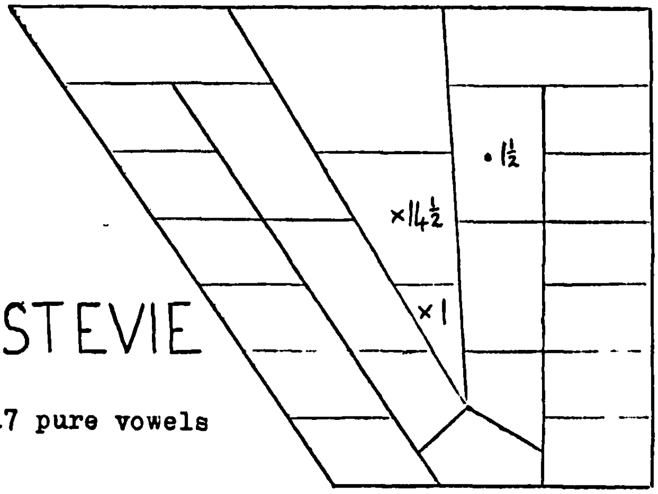
NAN

2 pure vowels



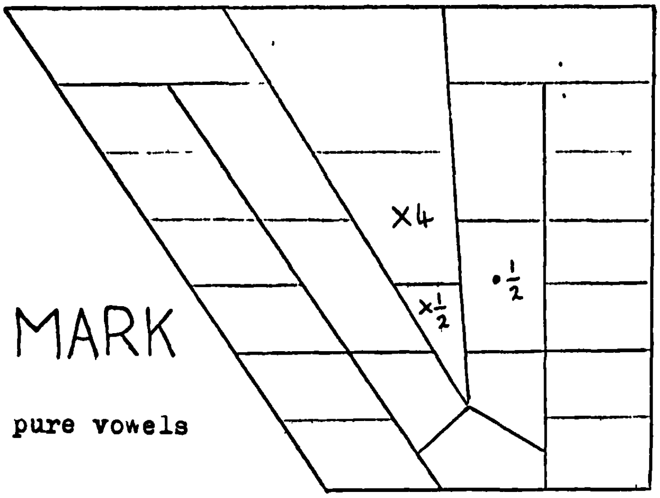
PHIL

32 pure vowels



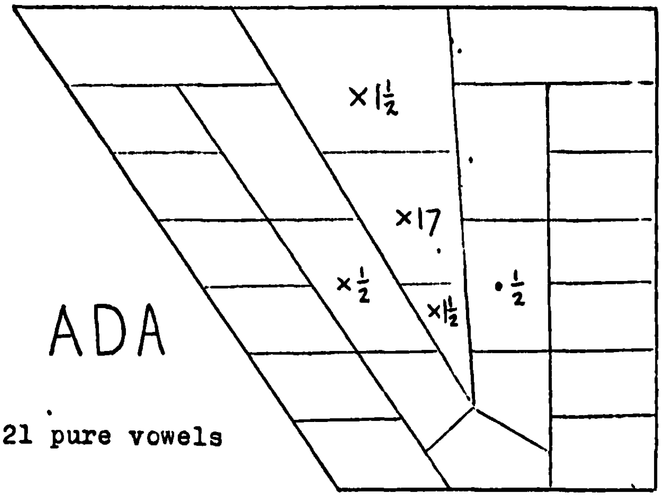
STEVIE

17 pure vowels



MARK

5 pure vowels



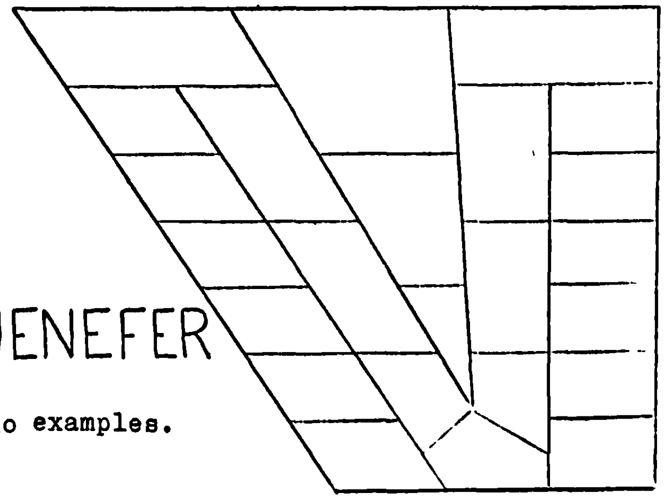
ADA

21 pure vowels

6

Ur* as only in"her" and "were".

Unstressed and in all positions.



JENEFER

no examples.

"There" in "there is" etc.	1:4½
"where"	1:3
other instances of "there"	1:1½
"their"	1:1

Ua

This diaphoneme is the rarest vowel diaphoneme and occurs in the material in only three words "tour, pleurisy, fluently". The last two of these words occur only twice and once respectively. Ua has been classified as a "centring diphthong", since it has diphthongal realizations which glide from a high back to a central position.

The word "fluently" occurs in Mark and is pronounced [flʏ́ ənʔli] This is an example of a realization of Ua unlike any other in the material.

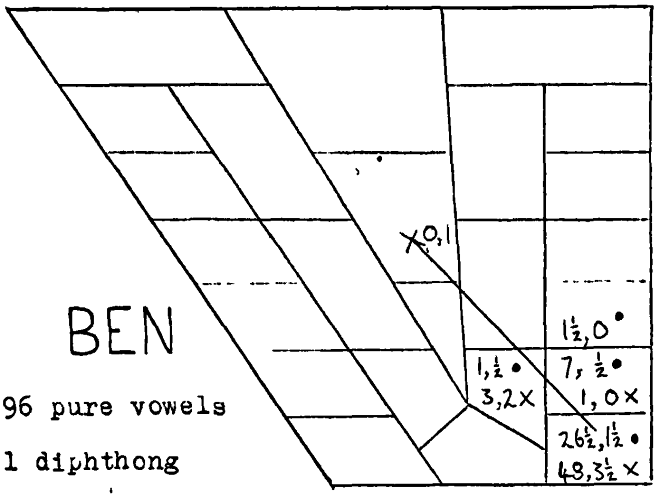
"Pleurisy" occurs once in Ada, once in Nan and is pronounced with [ʉ́:ɹ] and [ʊ́:ɹ] respectively.

"Tour" occurs twice in Mark, (in the "questionnaire" recording) and once in Phil. On each occasion it occurs utterance-finally and is realized as [ʊə].

In the words "sure" and "poor" there are probably instances of "phonemic variation" since vowels occur in these words some of which are [ʊə] or very like it and others of which resemble realizations of Au. However, since we have so little evidence on the nature of realizations of Ua it is impossible to be precise about this variation. Examples in the two words are as follows.

In "sure" Ada and Phil each have one utterance final [ÿ̦ə] similar to the realizations of Ua found utterance-finally in Mark and Phil. Ben has an utterance-final [ʊə] in "sure" identical to the pronunciation in Mark's and Phil's "tour". Mark has an example of [ʊ́:ɹ] in "sure how" identical to Nan's realization of Ua before the R in "pleurisy". Other pronunciations found in "sure" are similar to realizations of Au. These are [ɑ] found once each in Stevie and Mark before a consonant, [ɔ̂:] also found before a consonant in Stevie, and [ɔ ə] found utterance finally in Stevie. Other vowels found in "sure" cannot be assigned in this phonemic-type way since they resemble no known realizations of any diaphoneme. These vowels are: utterance-finally, [ʊ] in Mark, [ɘ:] in Phil, [ɔ̂ȯ] and [ɵ̨̌ ʊ] in Stevie, and preconsonantally [ö:] in Mark and [ʊ:] in Stevie.

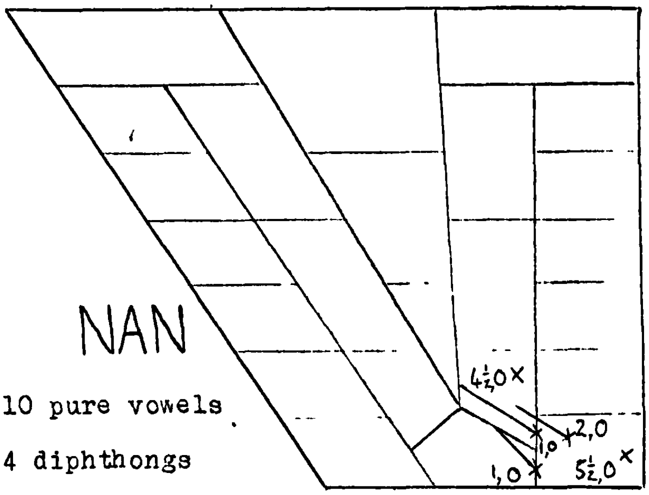
There is less difficulty in finding similarities between the vowels used in "poor" and known realizations of diaphonemes. Ben, Phil and Stevie have 1, 2 and 3 examples respectively of "poor" pronounced in a way which fits in with their patterns of variation of realizations of Au. Mark also has 2 such pronunciations and another, [ó ə̧] utterance-finally which is similar both to his own utterance-final realizations of Ua in "tour" and to utterance-final realizations of Au. Ada has an example of [ɔ̂̇ ɔ] before a consonant. This is unlike any known realizations of either Ua or Au.



BEN

96 pure vowels

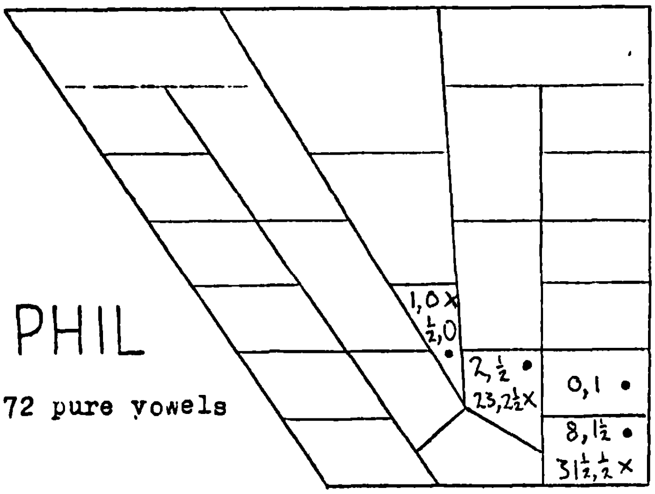
1 diphthong



NAN

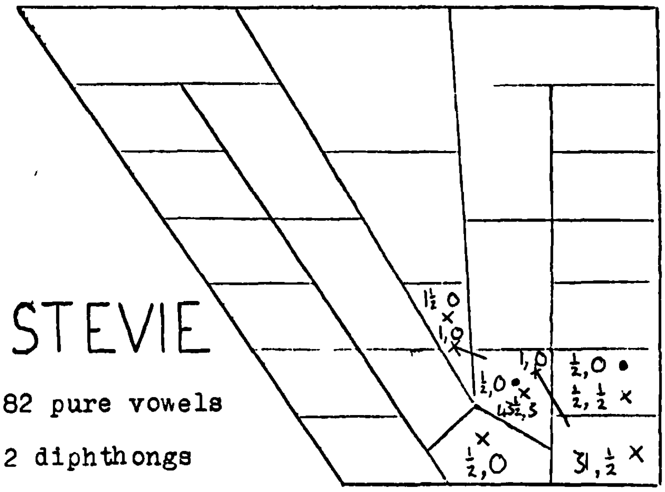
10 pure vowels

4 diphthongs



PHIL

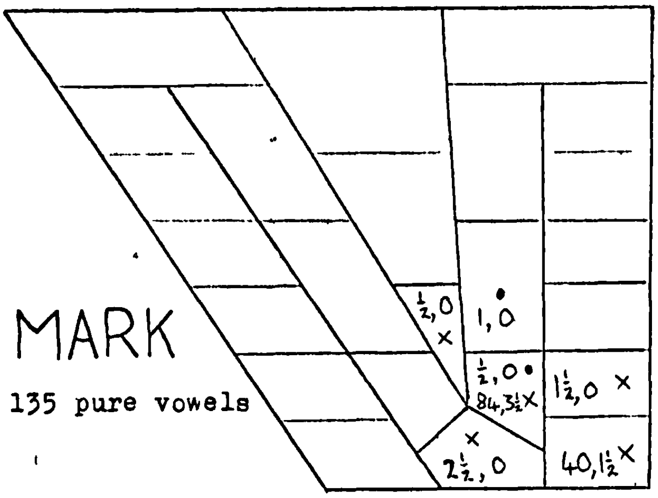
72 pure vowels



STEVIE

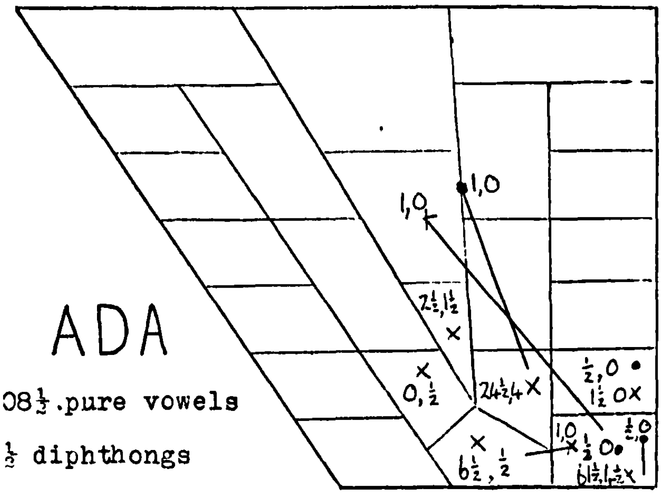
82 pure vowels

2 diphthongs



MARK

135 pure vowels



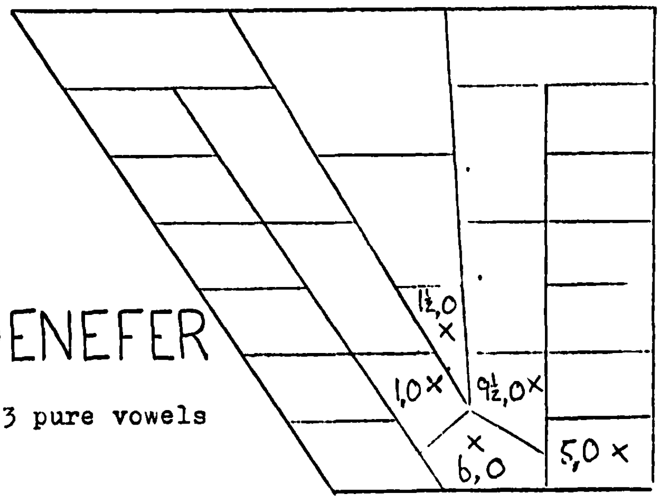
ADA

108½ pure vowels

2½ diphthongs

29

Ar as in "bar, car, barges, laughing" etc.
Stressed and in all positions.
Also Ar* as only in "are". Stressed and in all positions.
Second figures show pronunciations of "are".
First figures show pronunciations in other words.



JENEFER

23 pure vowels

Ee

This diaphoneme occurs in such words as "mean, people, keeping, seems, East, lucky, married, reserve, remember, Sunday, yesterday," etc. Ee has been classified as a "fronting diphthong" since the majority of its realizations are in all individuals narrow diphthongs which glide from about a half-close position slightly retracted from front to a position closer and more advanced.

In stressed position except before L diphthongal realizations predominate over monophthongs fairly easily except in Jenefer in whom diphthongs and monophthongs are about equally frequent. All diphthongal realizations are very narrow glides and monophthongal realizations all occur in the area "spanned" by the diphthongs.

The average starting point of diphthongs is in Ben, Stevie and Ada in [ɪ], squarely in [ɪ] in Ben, very open in Ada, near [E] and open and retracted in Stevie, near [ə]. Nan's and Phil's diphthongs begin on average on the borderline of [e] and [ɪ], Mark's on average between [ɪ] and [ə] and Jenefer's on average between [e] and [ɛ̂]. In all speakers there are examples of diphthongs commencing in slots adjacent to their average beginning points except [i] and [ɛ̂].

The average end points of diphthongs are in Stevie, Ada and Mark in [ɪ] very close and near to [i]. Ada's end points are also on average somewhat advanced and near to [ɛ̂]. Nan's and Phil's diphthongs end on average in [ɛ̂] near to [e] and in Nan's case somewhat retracted near to [ɪ]. Ben's diphthongs end on average in [i] very near to [ɪ] and Jenefer's in [e] very near to [ɪ].

Examples: "speak" [spí̈iʔk], [spį́ɪkʰ], [spə́ɪkʰ], [spɛ́ek̂], [spė́ːkʰ], [spɛ́ęk̂], [spė́ik̂], [spéɪk̂], [spɪːk̂].

The great majority of examples of Ee in unstressed position occur in the suffixes "...ly", ...y, ...ey" or in the words "he, me, she, we, be," unstressed. In this position realizations of Ee are in all individuals monophthongal and somewhat shorter than in stressed position. A few diphthongs do occur. The approximate average positions of the monophthongal realizations of unstressed Ee are· in Ben, Stevie and Mark in [ɪ], possibly somewhat close in Ben and possibly slightly retracted in Mark, squarely in [ɪ] in Stevie; in Nan and Jenefer in [e] very close to [ɪ]; and in Ada and Phil on the borderline of [e] and [ɪ] somewhat close in Phil and somewhat open in Ada.

In all individuals examples occur of realizations in slots adjacent to these average positions

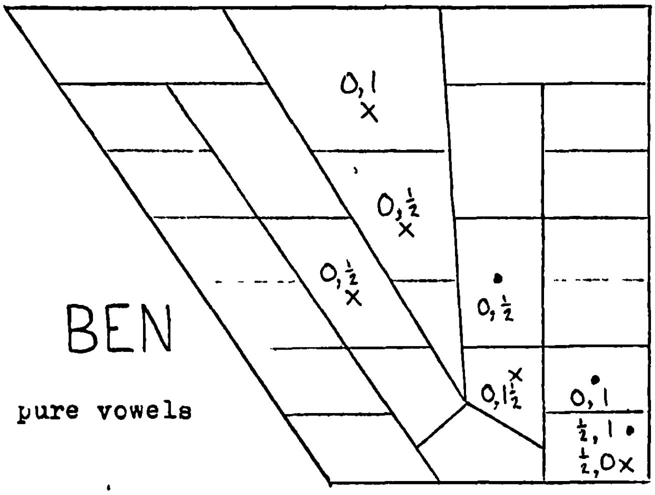
Examples: "he" [ə̂], [ë], [ɛ̈ë], [ɛe], [ɪ],
"married" [mǽ ɹɛ̂d], [mǽ ɹEd], [máɹɪd]

On the few occasions when Ee occurs before L realized as a high back vocoid, realizations of Ee do not differ from those of I in a similar position.

Examples· "feel" [fɪ o] "fields" [fɪ́ödz]

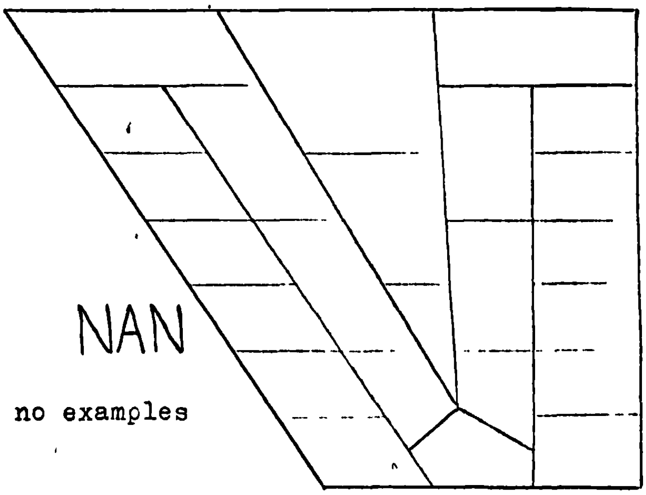
A special diaphoneme Ee* must be postulated to account for variations in the pronunciation of "the". Before a vowel, realizations of Ee* ("the") vary according to similar patterns to those of unstressed Ee. Before a consonant or a semi-vowel however realizations of Ee* ("the") vary according to patterns similar to those of &̲ and all other "weak forms".

When "we" precedes "are" the 2 diaphonemes E̲e̲ and A̲r̲* are frequently merged and the merged realizations resemble realizations of I̲a̲. Such treatment occurs in all individuals.



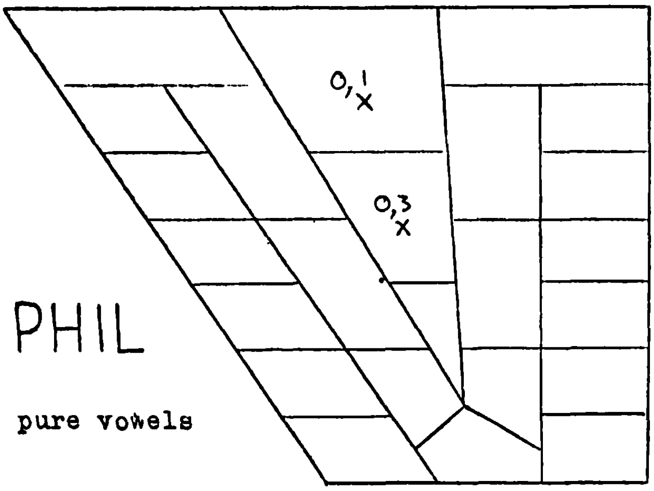
BEN

7 pure vowels



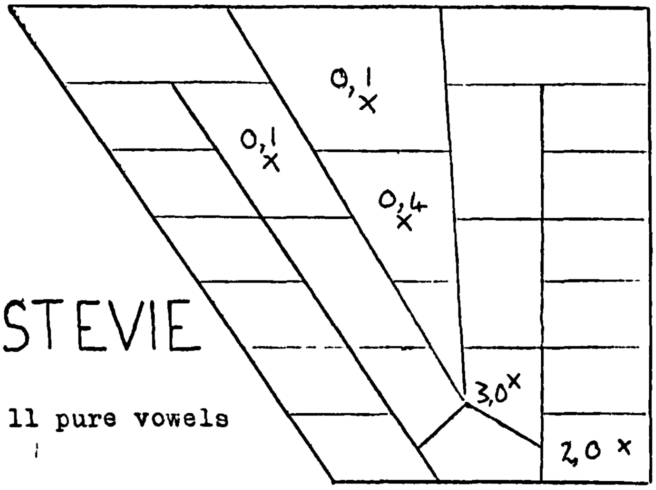
NAN

no examples



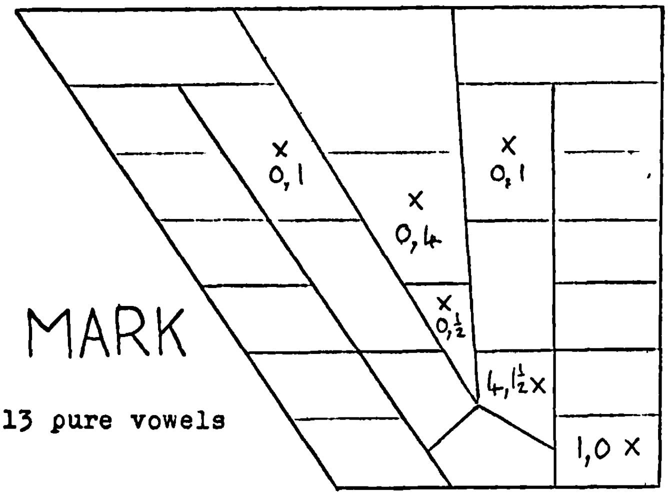
PHIL

4 pure vowels



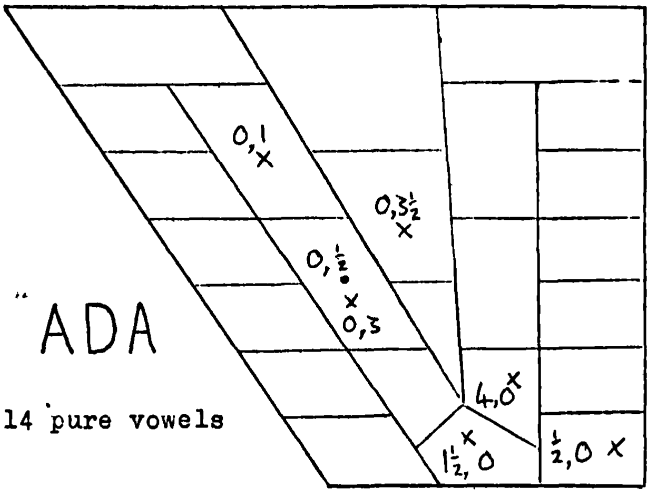
STEVIE

11 pure vowels



MARK

13 pure vowels



ADA

14 pure vowels

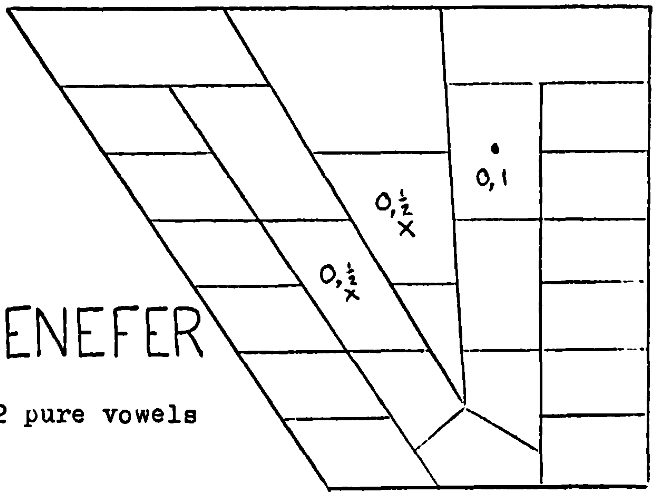
30

Ar as in "bar, car,massage, laughing" etc.
Unstressed and in all positions.

Also Ar* as only in "are". Unstressed and in all positions.

Second figures show pronunciations of "are".

First figures show pronunciations in other words.



JENEFER

2 pure vowels

Ay

This diaphoneme occurs in such words as playing, famous, race, explain, bookmaker, operation, nickname" etc. It has been classified as a "fronting diphthong" even though its realizations do not in general glide in a forward direction. Realizations are in general diphthongs which commence slightly retracted from front between open and half-open and glide to about half-close, still somewhat retracted from front. The close similarity between the end points of such diphthongs and those of diphthongal realizations of Oi and Ie is the reason for all these three diaphonemes having been classified similarly.

The great majority of realizations of this diaphoneme are in all individuals diphthongal. The few monophthongal realizations which occur are somewhat closer in quality than the average starting points for diphthongal realizations, e.g. "make" [mE:ʔk] "makes" [mɛ́:ʔks]. Such realizations are, however, very rare.

Within each individual the starting points of diphthongal realizations of Ay vary considerably. A possible, though not entirely convincing, reason for this is the fact that pronunciation of this diaphoneme is a well known marker of the Cockney accent. Professor Henry Higgins devoted a lot of energy to trying to alter Eliza Doolittle's [ɹÁɪnɪnspÁɪn] to the socially more acceptable [ɹɛ́ɪnɪnspɛ́ɪn]. All of my informants except Stevie and Jenefer have at least some diphthongs beginning in each of the following qualities: [ɛ], [æ], [a], [A], [AE], [E] and [ɐ]. Jenefer has diphthongs beginning in all these qualities except, oddly, [AE], situated in the middle of all the rest. Stevie has diphthongs beginning with all these qualities except [æ] and [a]. All speakers have a similar range in the beginning points of their Ay diphthongs, but have different preferences for qualities within that range. The average positions of initial elements of diphthongs differ as follows: Ben's, Nan's and Phil's diphthongs commence on average squarely in [Æ], Mark's in [Æ], somewhat closer, near to [E], Jenefer's diphthongs commence on average in [æ] near the borderline with [a] and somewhat retracted, Ada's begin on average between [ɛ] and [æ] somewhat retracted and Stevie's begin on average in [E] near to [ɛ] and quite open.

The average end points of the individuals' diphthongal realizations of Ay differ as follows. Mark's, Stevies and Ada's diphthongs end on average in [I], Ben's in [E] very near to [ɛ̂], [ɘ] and [I], Phil's on the borderline between [ɛ̂] and [E], Jenefer's between [ɛ̂] and [e] somewhat retracted and Nan's a good deal closer than the others, on the borderline of [ɘ̂] and [I].

Examples: "shame" [ʃɛ́Em], [ʃǽIm] "make(s)" [mɛ́Ikʔs], [mÉIx] "names" [nǼembz] "pays" [pÁIz] "same" [sɘ́ɛ̂m] "break" [bɪǽɛkʔ].

There are a few examples in the material of Ay before L realized as a vocoid. In all these examples, the sequence AyL is realized as a diphthong commencing with roughly a low front quality and gliding to a high back quality. The latter elements of such diphthongs may be interpreted as realizations of L and the initial elements as realizations of Ay. The realizations of Ay in this environment used by Ada and Jenefer do not differ significantly from their average pronunciations of the initial element of Ay diphthongs in other positions, averaging respectively between [ɛ] and [æ] somewhat retracted and between [æ] and [a] somewhat retracted.

Mark's two realizations of Ay before L realized as a vocoid are in [ɛ] and between [ɛ] and [æ], significantly more front than the average initial element in his Ay diphthongs. Nan's two realizations of Ay before L are both between [A] and [a], significantly more open than her average initial elements in other Ay diphthongs.

A special diaphoneme Ay* has to be postulated to account for pronunciations of "Saint" before a proper name as in "St Botolph's'. The vowel in this word in this context is invariably [ə] or "dropped", The word is spelt with Ay, as "Saint" in other contexts would almost certainly have a vowel resembling the realizations of Ay described above.

Examples: "St. Pauls" [səmp^{h}ɔ́ːɨz] [səmp^{h}ɔ́ɔɨz].

Special diaphonemes Ay* must be postulated to account for the pronunciations of "they, ain't, always". In these words there are far more monophthongal realizations than for Ay generally, and these monophthongal realizations tend to be on average more central in quality. The vowel in "ain't" is perhaps centralized on average somewhat more than those in "they", and "always". I am not aware of any differences between individuals in their pronunciations of these words.

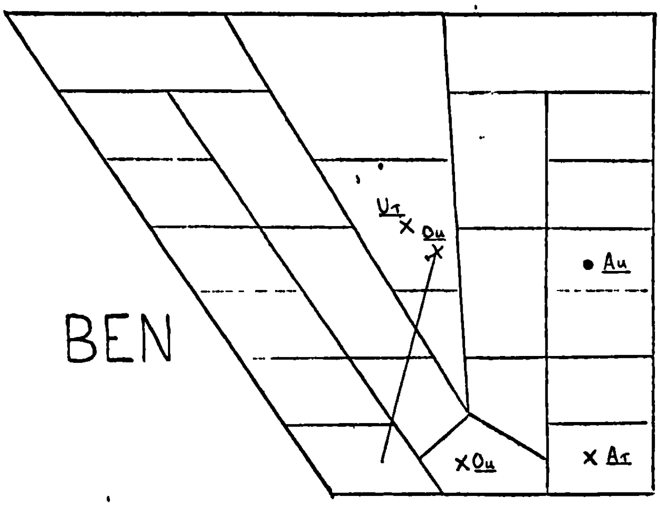
Examples: "they always" [ðË̥ɔ́wəz] "they been" [d̥əbɨ́n] "always" [ɔ́ːw^{E}z] "ain't they" [ə́nEɪ] "ain't he" [ə́nəɪ].

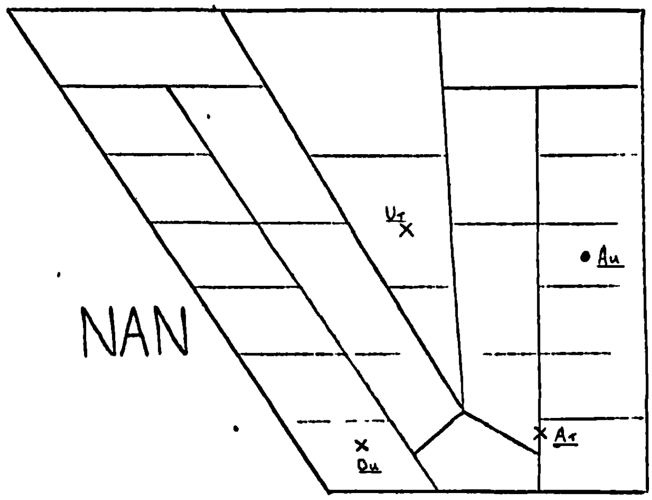
Ie

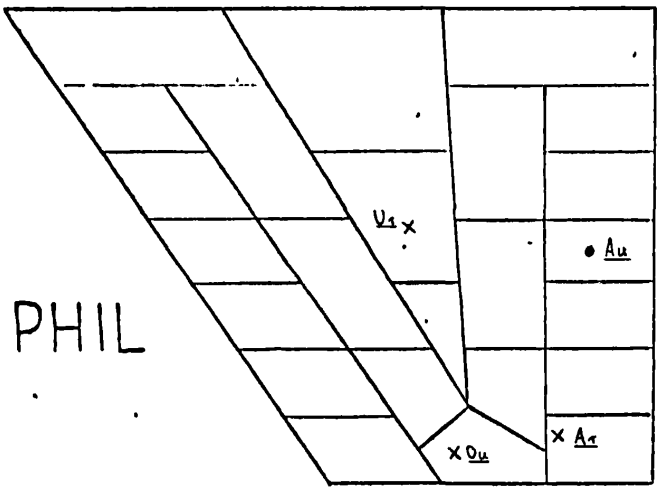
This diaphoneme occurs in words such as "high. buy, idea, tried, quite, nice, like, child, while" etc. It has been classified as a "fronting diphthong" since the majority of its realizations are glides from a back open quality to a closer, more front quality.

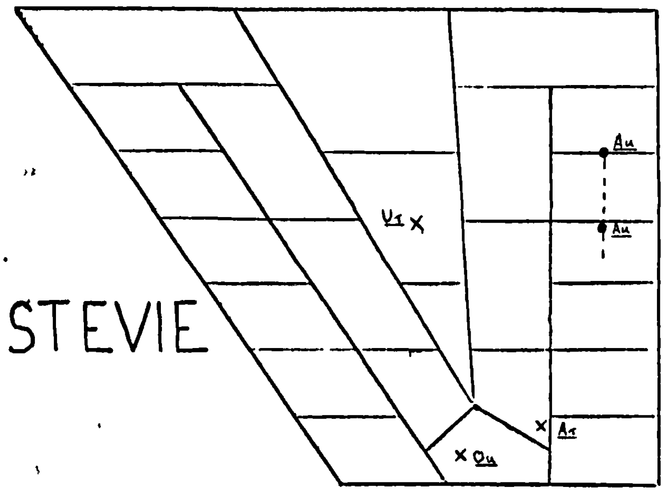
In Ben, Phil, Mark and Jenefer a clear majority of realizations are diphthongal, although these four speakers all have some monophthongal realizations. In Stevie diphthongal and monophthongal realizations are just about equally common and in Nan and Ada monophthongal realizations predominate clearly over diphthongal ones

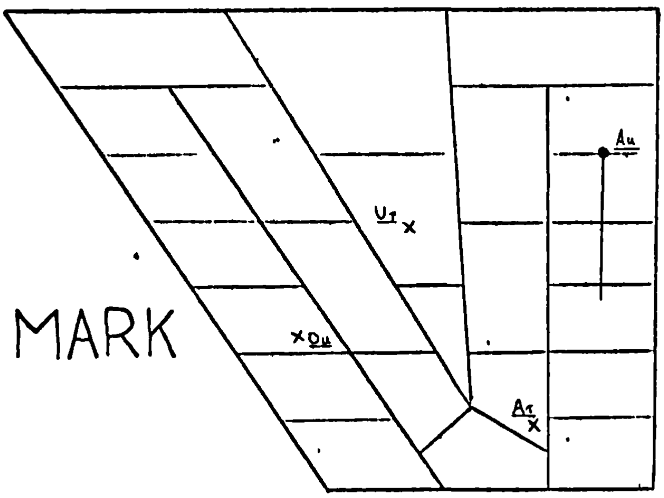
In general monophthongal realizations have in all individuals the same average quality as the starting points of their diphthongal realizations This average quality is in Ben, Nan, Stevie and Ada [ɑ] somewhat towards [ɒ] with some degree of lip-rounding in Ben. In Mark it is closer, in [ɑ̂] very near to [ɒ] and [ɑ] with some slight degree of lip-rounding. Phil's diphthongs commence on average in [ɒ] very near to [ɑ] and [ɑ̂] also with a slight degree of lip-rounding. In Jenefer the average quality of monophthongs and starting points of diphthongs is between [ɒ] and [ʌ] somewhat nearer to [ɑ] than to [ʌ]. In all individuals there is a good deal of variation around these average qualities. In Ben, Mark and Phil there are some fully rounded realizations some as close as [ɔ] and [ɵ]. In Ada and particularly in Jenefer there are some realizations farther forward than their average Both have examples of [ʌ] and [ɐ] and Jenefer even has one [a] and, very

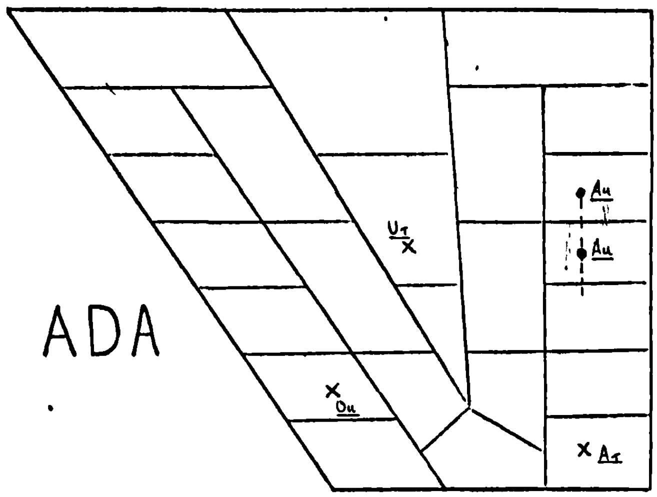




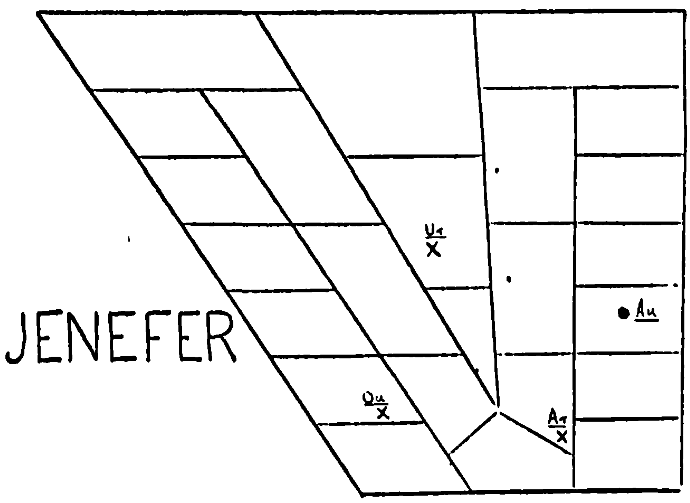








Average principal realizations of
the "long vowels" Ur Ou Ar Au



surprisingly, one [æ]. All speakers have some rather centralized realizations [ɑ̈] and [ɐ]. Most monophthongal realizations overlap with realizations of Ar.

It is more difficult to generalize about the end points of the diphthongs used by each individual than about the starting points, since glide realizations vary along a continuum from very narrow glides, near-monophthongs in fact, to very wide ones Nevertheless it is possible and meaningful to say that for the glides which move beyond the area in which monophthongal realizations are found, the average end point is in Phil, Ada and Stevie in [ə] near to [ɪ] and [E], in Ben at about the meeting point of [ə], [ɪ] and [E], in Mark in [ɪ] very slightly towards [ə] and [E], in Nan in [E] very near [ɪ] and in Jenefer about at the meeting point of [ɛ̂], [ɛ] and [E]. It is particularly difficult to generalize about the end points of Jenefer's diphthongs as she has glides which vary not only in width but also quite significantly in direction, a phenomenon not found in other speakers. Jenefer has diphthongs ending at points along an arc from [a], through [æ] to [ɛ̂], [E] and [ə]. The more open qualities [a] and [æ] are, however, comparatively rare and the most frequent positions for end points of diphthongs are [ɛ̂] and [E].

Examples. "life" [lɑ́ɪf] [lɑ́Ef] [lɑ́əf] [lɒ̣́ːɪ̄] [lɒ̣́ɐf] [lɑ́ːf].

There are only a few examples of the sequence IeL. When L is realized as [l] then realizations of follow the pattern described above. When L is realized as a high back vocoid, realizations of Ie are always monophthongal and of the same quality as other monophthongal realizations of Ie. Examples. "child" [tʃɑ́ʊd] [tʃɒ̣̈ʊd], "while" [wɑʊ̈], "stylist" [stá:lɪst].

A special diaphoneme Ie* must be postulated to account for pronunciati of "I", which are in all individuals more frequently monophthongal than realizations of Ie in other words. Monophthongal, and the beginning-points of diphthongal realizations of Ie* in "I" are also probably on average somewhat centralized from the position of the average realizations of Ie. This applies to all individuals.

Examples: "well I know" [wɐlɐnɐ́ʊ], "and I should" [Enoʃʊ], "and I got" [ənɒ́gɔ́ʔ], "do I" [d̥ɜ́ɐɛ].

Another special diaphoneme Ie* must be postulated to account for instances of "phonemic variation" in the words "by, my". When unstressed these words often have pronunciations such as [bɪ], [mɨ], [mɪ] alternati with pronunciations which fit in with the patterns of variation found for Ie. I have the impression that Ben and Nan use such high front vowels in these words relatively more often than the other speakers, and Jenefer and Stevie perhaps somewhat less than other speakers. When "by, my" are stressed such high front vowels are not found in any individual.

Here there is an example of the difficulty which would meet an orthodox phonemicist in making a statement about the variation in "by, my". Pronunciations with [bɪ], [mɨ], [mɪ] he would allocate to, say, /i/ and pronunciations such as [bɒɪ] [md̥:] to, say, /ai/. This he would do on the basis of similarity between these pronunciations and pronunciations, on the one hand, of "me, be" etc. and on the other hand, of "buy, high" etc. But how would he allocate Phil's [ə] in "go by train" [gə́ʊbətˢɹɛ́n]?

Examples: "my life" [mɪlɑ́ɐf] [mʊ:lɒ́ɪf].

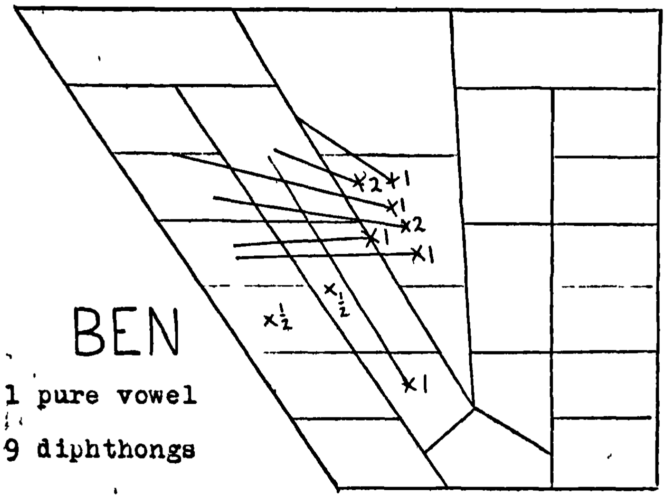
<u>Oi</u>

This diaphoneme occurs in words such as "boy, noise, boiled, oil, disappointed, enjoyed" etc. <u>Oi</u> is one of the least common diaphonemes. It has been classified as a "fronting diphthong", since it has realizations which in general glide from a back half-open quality to a closer, more front quality.

In all individuals diphthongs predominate easily over monophthongs. The few monophthongs that occur have about the same quality as the beginning points of the diphthongs, and are long in quantity. Ada has two triphthongs [ɔ́öɪ] and [ɔ́ɔ̂Ẹ̈].

In all individuals except Phil the diphthongs commence predominantly in [ɔ]. In Phil the average starting point is somewhat closer, in [ɔ̂], but very near to [ɔ]. All individuals except Jenefer have a few other variants, all bordering on [ɔ], or in Phil's case [ɔ] and [ɔ̂]. Jenefer has only one example, in [ɔ].

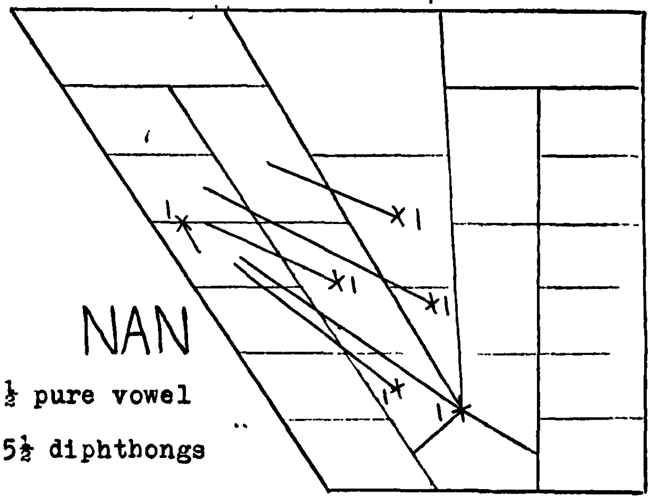
There is somewhat more difference between individuals in the end points of their <u>Oi</u> diphthongs. The end points of Ada's and Phil's diphthongs are on average in [ɘ], close to [E]. Ben's are on average between [ɘ] and [E], Stevie's somewhat closer, between [ɘ] and [ɪ], Nan's in [E], near [ɪ] and Mark's firmly in [ɪ]. Jenefer's one diphthong ends in [ɛ̂]. These differences reflect slight differences in direction of glide in diphthongal realizations of <u>Oi</u>, and also differences in width of glide. The former are insignificant, the latter more significant. The widest diphthongs are in Mark and Jenefer, the next widest in Stevie and Nan, next widest in Ben and least wide in Ada and Phil.



BEN

1 pure vowel

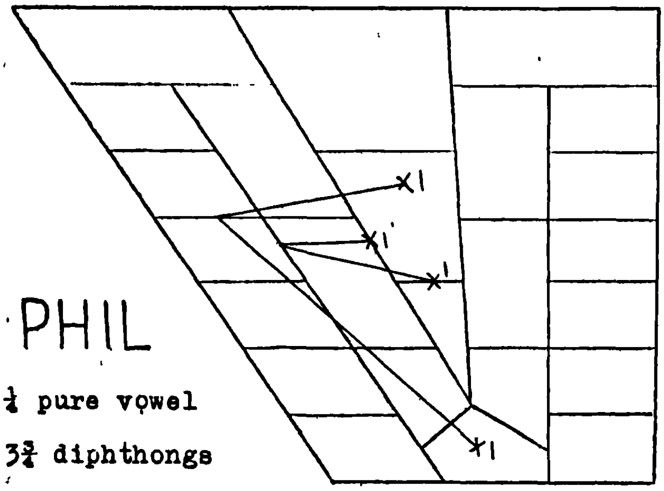
9 diphthongs



NAN

½ pure vowel

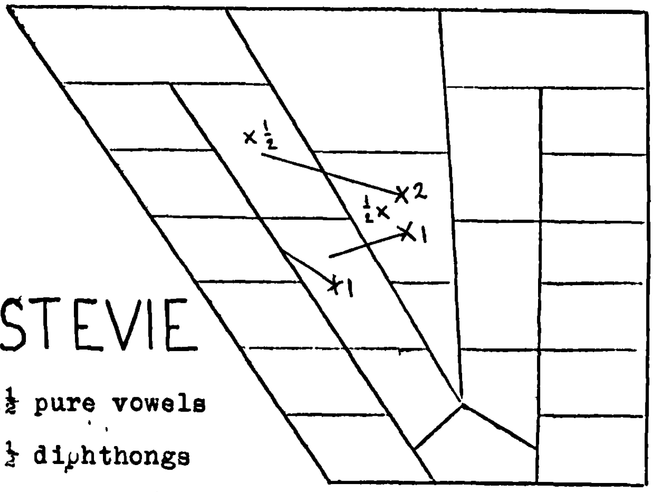
5½ diphthongs



PHIL

¼ pure vowel

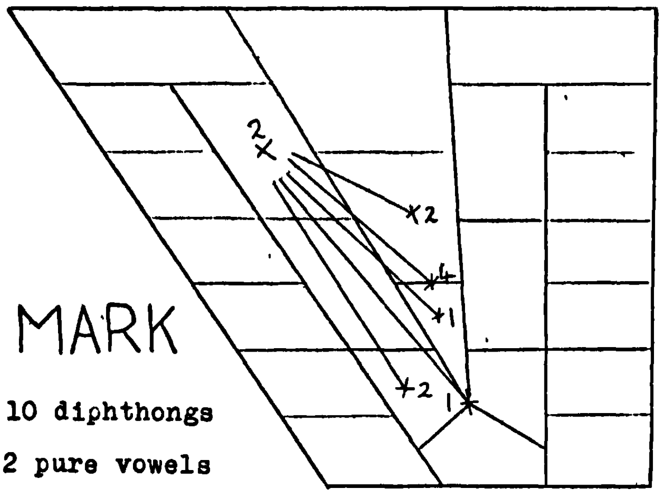
3¾ diphthongs



STEVIE

1½ pure vowels

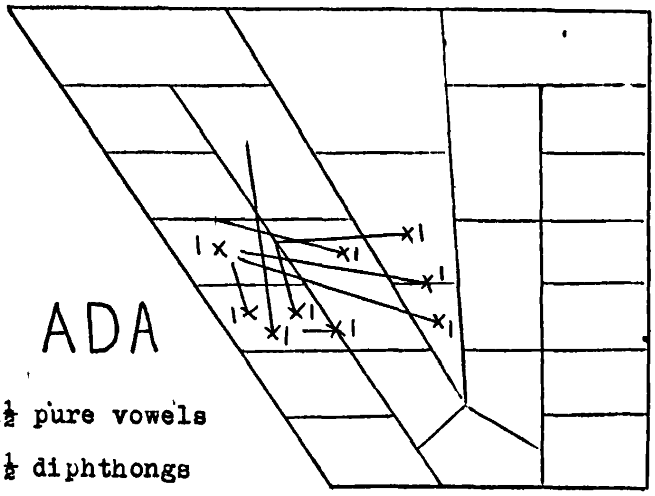
3½ diphthongs



MARK

10 diphthongs

2 pure vowels



ADA

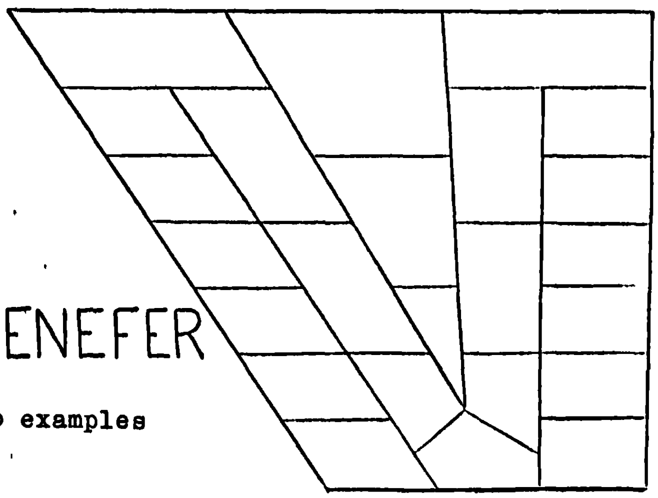
1½ pure vowels

7½ diphthongs

I

<u>Ia</u> as in "beer, here, dear"etc.

Stressed and in prepausal position

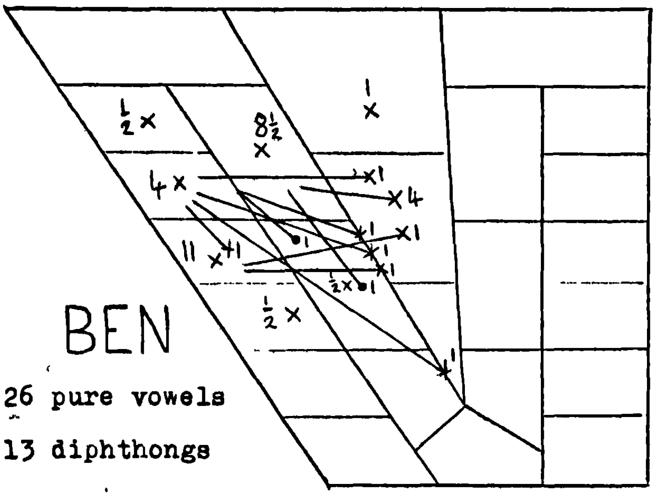


JENEFER

no examples

Before L realized as a vocoid, Oi is realized, on most of the few occasions when it occurs in this position, with a vocoid of the "normal" [ɔ] like quality. This vocoid is followed by another of a high back quality, a realization of L Once in Ben OiL is realized as [ɔ.], and in Ada the same diaphonemic sequence is realized twice as a triphthong [ɔ́ɪʊ] in "spoilt," and [ɔ́ɤ̈ɤ̂] in "royalty". Phil also has a triphthong in "boiled" [bɔ́ɤ ɔd].

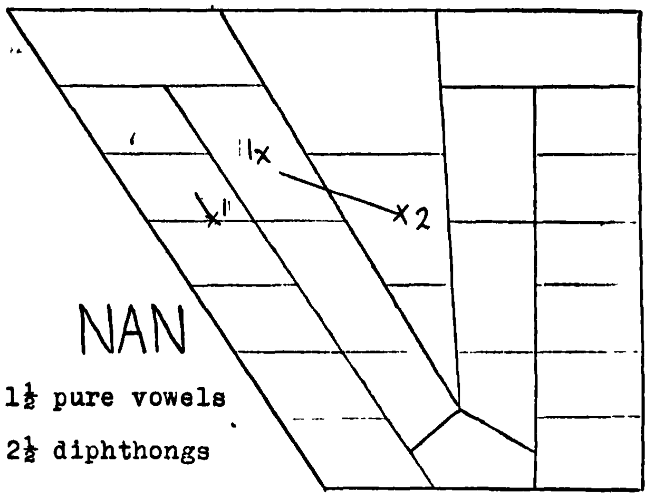
Examples. "boys" [bɔ́əz], [bɔ́ z], [bɔ́əz], [bɔ́Œz], [bɔ́ɪz], [bɔ́ɛz], [bɔ́Ez]. "Boiled" [bɔ́ ʊ], [bɔ́ɤ], [bɔ̍o], [bɔ:].



BEN

26 pure vowels

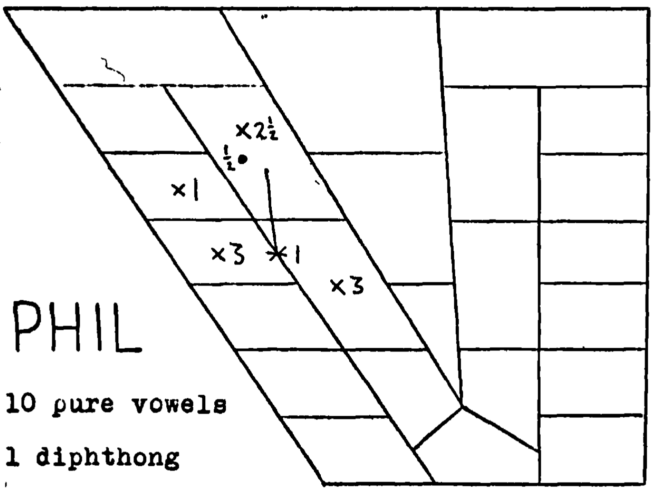
13 diphthongs



NAN

1½ pure vowels

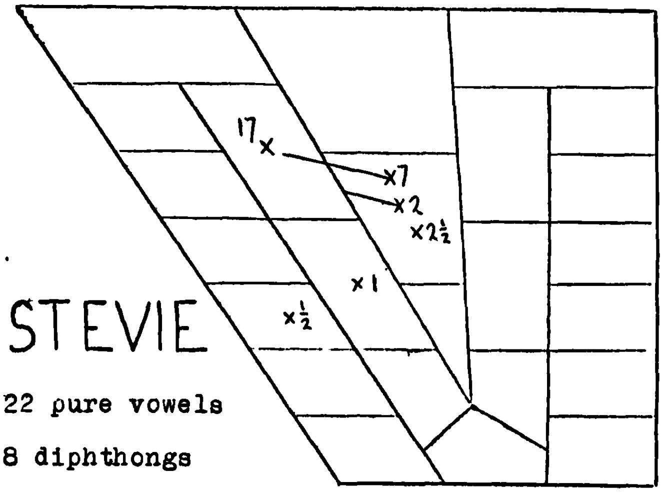
2½ diphthongs



PHIL

10 pure vowels

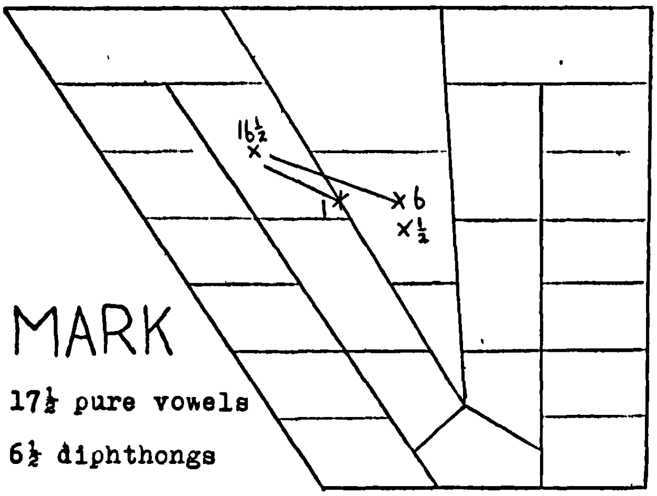
1 diphthong



STEVIE

22 pure vowels

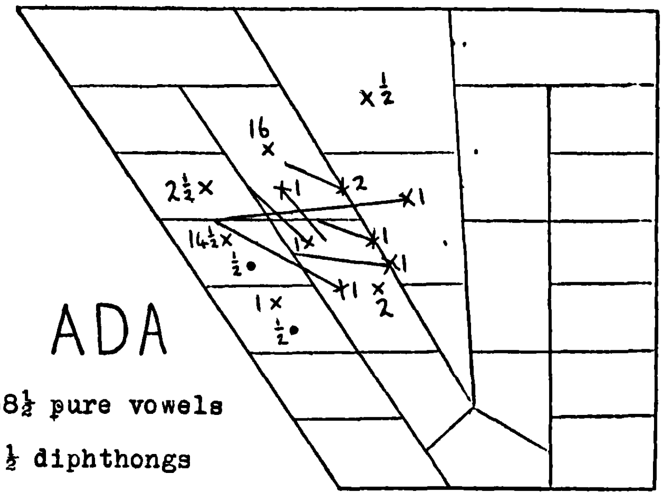
8 diphthongs



MARK

17½ pure vowels

6½ diphthongs



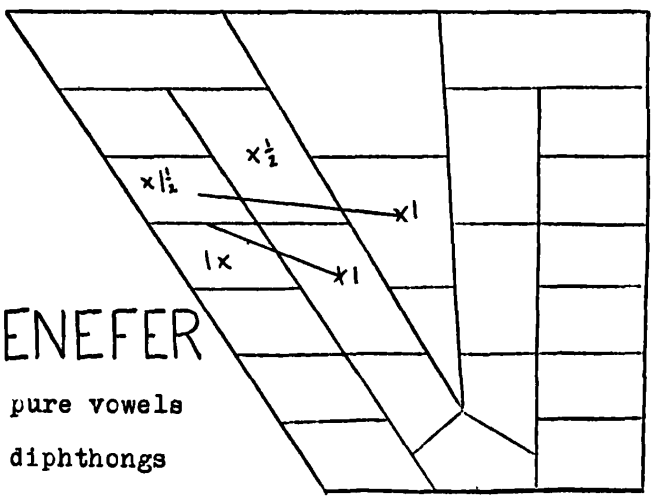
ADA

38½ pure vowels

6½ diphthongs

2

__Ia__ as in "beer, here, dear" etc.
Stressed and in all positions
except prepausal.



JENEFER

3 pure vowels

2 diphthongs

Oe

This diaphoneme occurs in such words as "road, home, choked, over, though, old, told, suppose, both", etc. Oe has been classified as a "retracting diphthong" since the majority of its realizations are diphthongs beginning in a roughly half open position somewhat front of centre and gliding in an upward and backward direction.

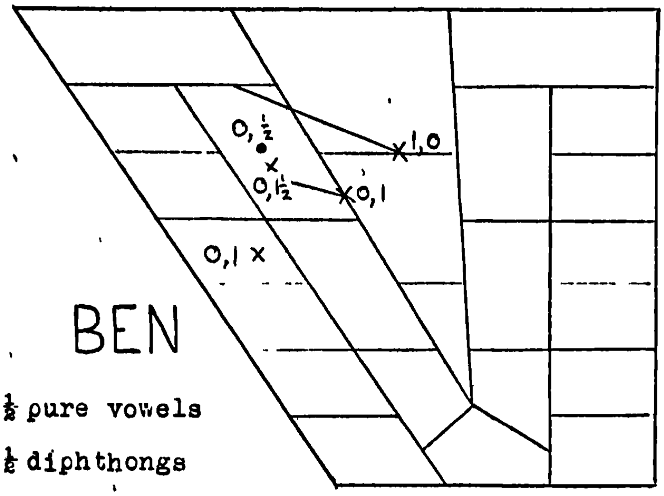
In any position except before L the average realizations of Oe are in all individuals diphthongs. In Ben, Stevie, Ada and Jenefer these diphthongs begin on average in [ɐ], somewhat advanced, in Stevie near to [ə] and [E], in Ben near to [E], in Ada about equidistant from [E] and [Æ] and in Jenefer near to [Æ]. In Mark the average starting point of diphthongal realizations of Oe is at about the meeting point of [ɐ], [E] and [Æ], in Phil it is about on the borderline between [ɐ] and [Æ] and in Nan it is more advanced, squarely in [Æ]. In all individuals diphthongs commencing with [ɐ], [E], [Æ], [A] occur and Nan has a few examples of glides starting on the borderlines of [Æ] with [ɛ] and [a].

In all individuals the average end point of diphthongal realizations of Oe is in [ʊ] in Mark squarely in [ʊ] and in all the other speakers somewhat open and advanced towards [ə]. In all speakers a few other sounds, [ə] ,[ɜ], [o], [ɵ], [u], [8] occur but [ʊ] easily predominates over these other end points. Jenefer has 3 examples of diphthongs which begin near the average starting points but glide upwards and forwards ending in [Œ] (twice) and [ë] (once). Ada also has a number of such forward-moving diphthongs, probably in roughly the same proportions as Jenefer, i.e. not enough to affect the average end point, [ʊ], significantly but certainly enough to be taken serious note of. Ada has diphthongal realizations of Oe ending in [Œ], [Y], on the borderline of [Œ] and [Y], one on the borderline of [ø] and [Y] and one even on the borderline of [y] and [Y]. She also has a few diphthongs ending in [ʉ]. Besides Jenefer, no other speaker has any examples of such advanced end points of Oe diphthongs.

Examples "know" [nɐ́ʊ], [nÉʊ], [nÁ̈ʊ], [nÉʏ̹], [nÁʏ̹], [nÁə], [nÁ̈ə], [nɐ́Œ̣], [nɐ́ÿ̹]

Before L realizations of Oe are again predominantly diphthongal in all individuals. The diphthongs found in this position are in all individuals more retracted both in their beginning and end points than the diphthongs found elsewhere. Most of the examples upon which this statement is based are in fact examples in which L is realized as a high back vocoid and this high back vocoid must in these examples be regarded as a shared realization of both L and Oe (it constitutes only a part of the realization of Oe). In the examples of OeL where L is realized as a lateral [l] or [ɫ], realizations of Oe seem to fit in with the patterns of variation found before L [ʊ].

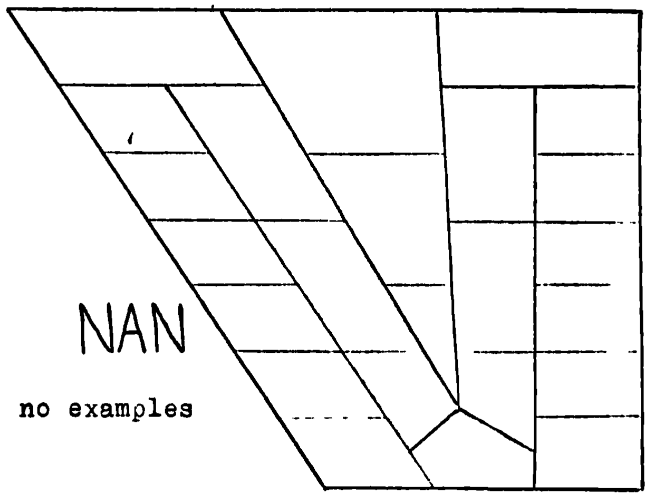
The comparative retraction of realizations of Oe before L is least in Mark in whom diphthongs commence on average at the meeting point of [ɐ], [Ä̈], [A] and [ɵ] and move to an average end point fairly squarely in [ʊ]. Nan's Oe diphthongs before L begin on average between [Ä̈] and [ɵ] and end on average in [o] not far from [ʊ] and [ɔ̂]. Phil's, Stevie's and Ada's Oe diphthongs before L begin on average in [ɵ], squarely in [ɵ] in Ada's case and somewhat close and retracted near [8], [ɔ] and [ɵ̂] in



BEN

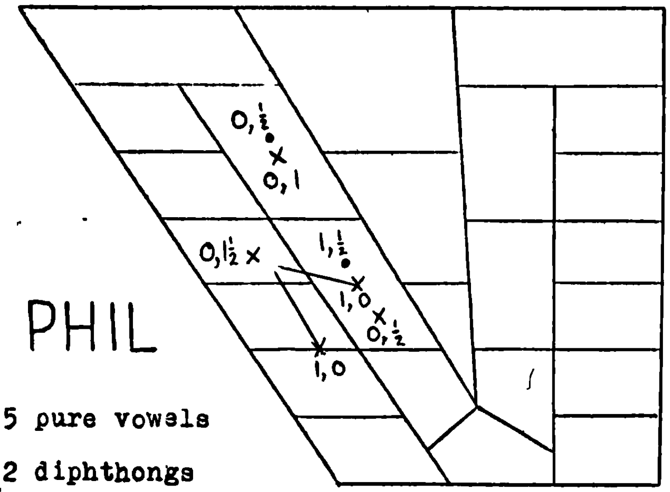
3½ pure vowels

2½ diphthongs



NAN

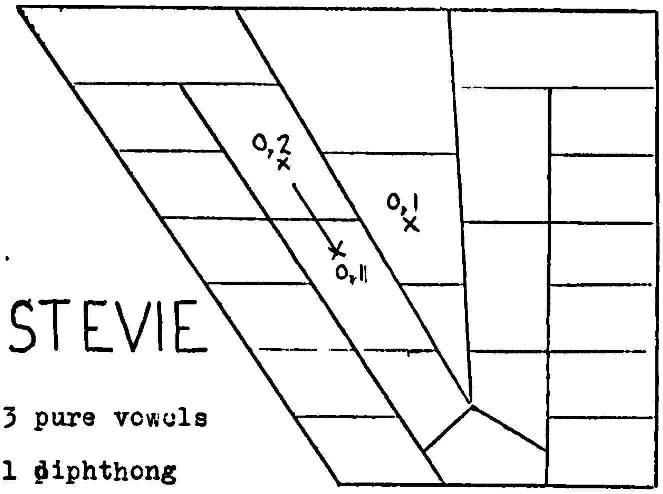
no examples



PHIL

5 pure vowels

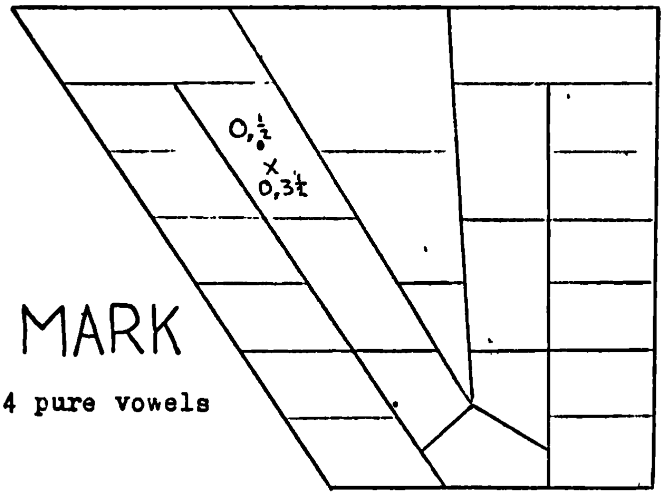
2 diphthongs



STEVIE

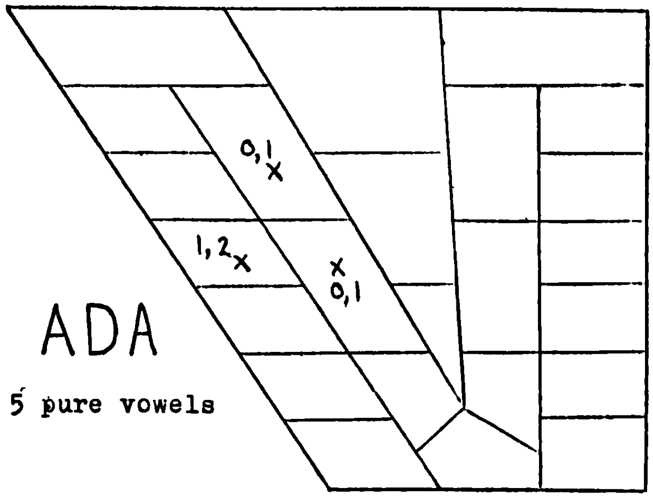
3 pure vowels

1 diphthong



MARK

4 pure vowels



ADA

5 pure vowels

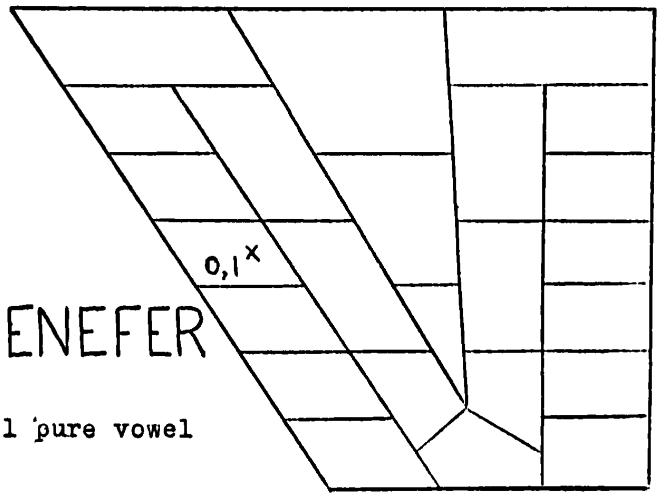
3

<u>Ia</u> as in "beer, here, dear" etc.

Unstressed and in any position.

First figures show prepausal pronunciations

Second figures show other pronunciations.



JENEFER

1 pure vowel

the case of Phil and Stevie. Phil's and Stevie's diphthongs end on average in [ʊ] quite retracted, in Phil somewhat open, near to [ȯ], [ɔ̂] and [o] and in Stevie somewhat close, near to [u] and [ȯ]. Ada's diphthongs in this position end on average between [ʊ] and [ȯ]. Ben's Oe diphthongs before L begin on average between [ɑ] and [ɑ̈] and end on average between [o] and [ɔ̂] somewhat advanced. Jenefer's average beginning point for Oe diphthongs before L is between [A] and [ɑ] and her average end point fairly squarely in [o].

Examples· "old(er)" [ǫ́ʊd], [ɐ̨́ÿdɹ], [ǫ̈ÿɨd], [áǫdɐ], [ɔ́ȯd], [ʌ́oǫÆ].

Oe* as only in "don't, won't" is often realized as a central monophthong in both stressed and unstressed position, although diphthongs broadly of the [ɐʊ] type found as realizations of Oe also occur frequently. Central monophthongs are particularly common in "don't" in the phrase "don't know" when "don't" is unstressed. I am not aware of any differences between speakers here.

Examples· "don't they" [dә́nʔn̪ÆE] "don't like" [dɐ́ʊʔlɑ:x] "don't know" [dәnɐʊ], [dә́nә]

Short central monophthongs [ә] are also very common in "know" in the phrase "don't know" when "know" is unstressed. I am not aware of any differences between individuals in their treatment of the vowels in this phrase.

Examples: [dɐ́ÿnә], [dә́nә]

In words in which Oe occurs finally, i.e. in an "open syllable" the realization of Oe may be "merged" with that of a following vowel diaphoneme. An example of this is "Joe Edwards" [dʒɐ̨́Ędwәdz]

Here the very narrow diphthong [ɐ̞Ė] which in fact moves only from the lower borderline of [ə] to the front borderline of [ə] is interpreted as a "merged" realization of <u>Oe</u> and <u>E</u>. Another pronunciation of the same phrase occurs in which the realizations of the 2 diaphonemes are not merged:- [dʒɐÿ́ɛdwədz]

Such merging of realizations of separate diaphonemes is particularly common in the words, "so, know, though, go" when these are followed by vowel diaphonemes. Some examples of this are as follows· "go on" [gɔ́8n] "go up" [gɐ́β̂], [gɐ́p̂], [gÉβ̂] "so he" [sEë] "so I" [s8ɐ], [sə̨̂:], [sɐ:] "no other" [nÆ̧̈və] "know how we" [nɒ́::wɪ] "know how I" [nɔ́::ɑE]
It will be seen from these examples that the quality of many merged realizations is difficult to predict from a knowledge of what the "normal" unmerged realizations of the two relevant diaphonemes are. What kind of transformational mincing machine is it that converts [sɐ́ʊɑɪ] or something similar into [s 8ɐ] or [sə̨̂:] and [nɐ́ʊʌ:] or something similar into [nɔ::]? No attempt is made in this study to analyse the obviously complicated processes at work here.

In the word "going" merging of <u>Oe</u> and <u>I</u> is particularly common, resulting in pronunciations such as the following: [gÉɛn], [gÉ:n], [gɛ́ə̨̌n] [gə́:n]• In the phrase "going to" used as an auxiliary verb <u>Oe*</u> and <u>I*</u> are almost invariably merged and pronounced with a short central monophthong e.g. [gə́nə], [gənə]. I am not aware of any differences between speakers in their treatment of <u>Oe*</u> and <u>Oe</u> when merged with other vowel diaphonemes.

"So" in unstressed position often constitutes what may be called a "weak form" being very frequently pronounced with a short central monophthong. The vowels found here are predominantly [ə] although vowels of other qualities, mostly adjacent to [ə] are also found, just as in the case of other "weak forms". I do not think that individuals differ significantly in their pronunciation of unstressed "so".

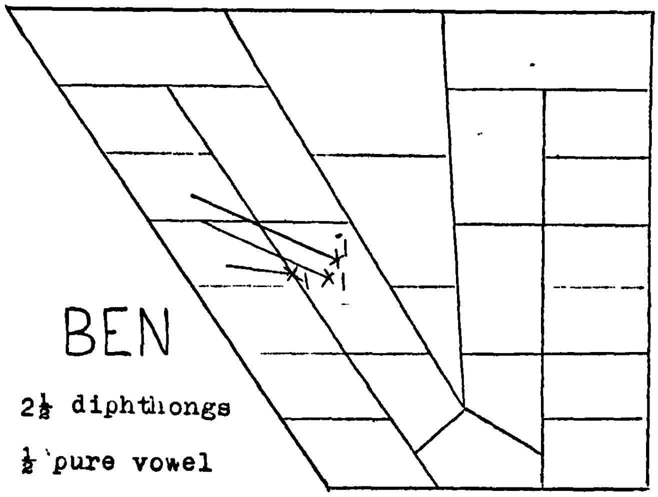
Examples· "ever so keen" [ˈɛvəsəkʰˈeːn] "so much" [səmˈÆtʃ]
"not so rough" [nˈɔʔsəɹˈɐf]

There may be an instance of "phonemic variation" in "no" used as an answer to questions. Nan and Phil have some pronunciations of this word with [ə̣ː], [Aː], and [Æː], sounds which fit in better with their realizations of Ou than of Oe. I have not noticed such pronunciations in other speakers. They use diphthongs similar to those found as realizations of Oe, e.g. [nˈɐʊ]

In certain words there is "phonemic variation" between the phonemes corresponding to the diaphonemes Oe and &. These words are polysyllabic and the variation takes place in the final syllable. Some of these words are: "fellow, window, barrow, tomorrow." In them short central monophthongs, identical to realizations of & are heard very frequently although diphthongs similar to realizations of Oe also occur. I am not aware of any differences between individuals here.

Examples· "window" [wˈendə], [wˈe̩ndɐ̣], [wˈɪndÆʊ]

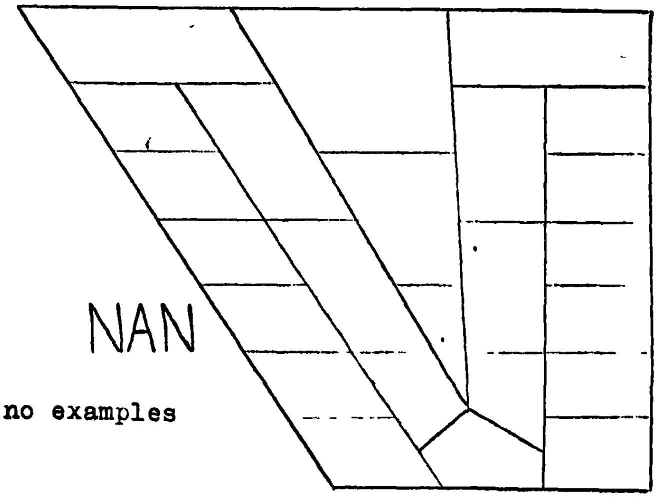
"...coat" occurs 3 times, twice in "Petticoat" and once in "waistcoat" and is pronounced on all 3 occasions with [ə]. These pronunciations are in Ben, Phil and Stevie.



BEN

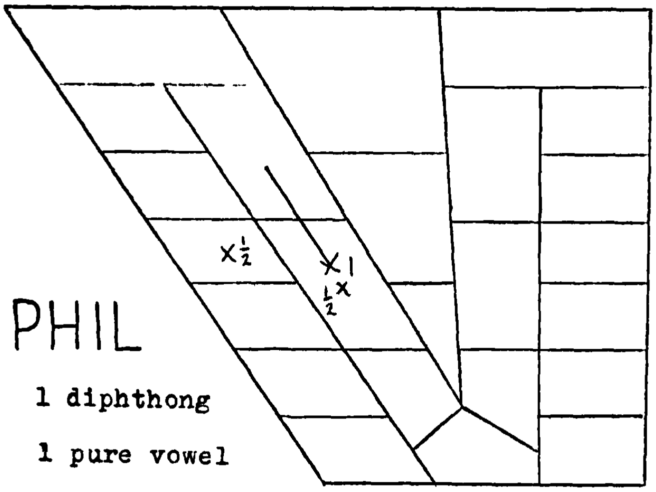
$2\frac{1}{2}$ diphthongs

$\frac{1}{2}$ pure vowel



NAN

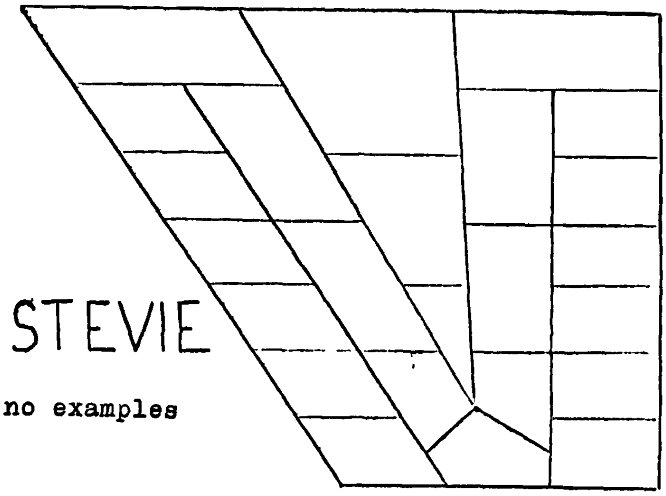
no examples



PHIL

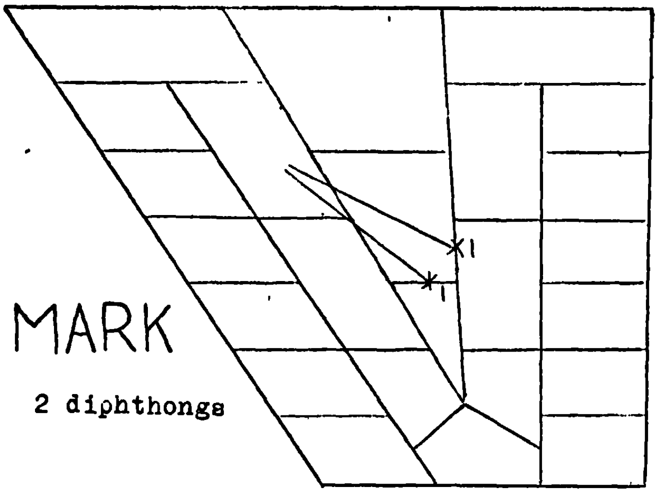
1 diphthong

1 pure vowel



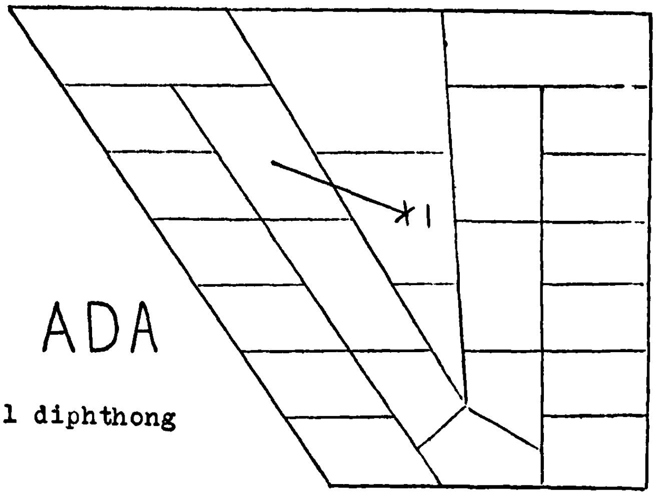
STEVIE

no examples



MARK

2 diphthongs

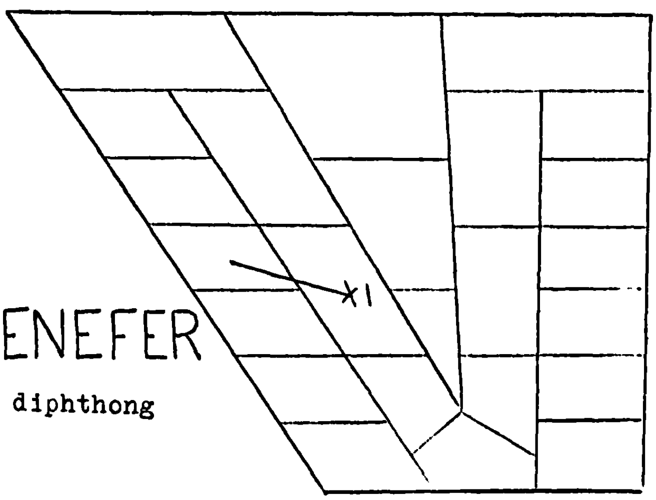


ADA

1 diphthong

7

<u>Ia</u>* as only in "year". Stressed and unstressed in prepausal position.



JENEFER

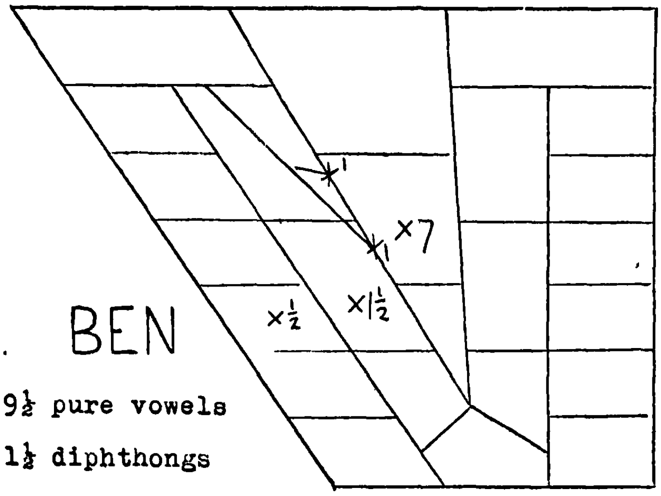
1 diphthong

Ue

This diaphoneme occurs in words such as "new, shooting, university, school, during, actually, lecturer, picture, ruined, used,'etc. It has been classified as a "retracting diphthong" since in most individuals the majority of its realizations are diphthongs moving from a roughly mid-central position to a high back position.

There is a high degree of variation in realizations of this diaphoneme, pronunciations as different as [ɶ̂:] and [u:], [əu] and [øø̂] having been recorded. In some speakers there appears to be a clear dichotomy between two distinct types of realization, i.e. back or back-gliding realizations and front or front-gliding realizations. In these speakers realizations tend to cluster around two focal points and there is a relative sparsity of realizations in the area between these two focal points. This dichotomy is in evidence to some extent in all individuals except Ben. Ben has only diphthongal realizations gliding on average, from fairly centrally in [ə] to [u] advanced and open, near He also has a very few monophthongs, which are centred about in [ʊ] advanced and close, very near [ʉ] and [u].

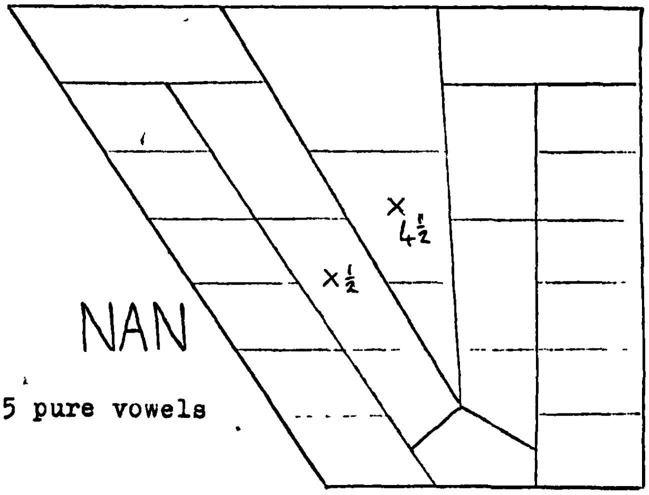
In Mark and Stevie the front/back dichotomy is paralleled fairly closely by a monophthong/diphthong dichotomy. Neither Mark nor Stevie have any diphthongs in the front area, further forward, that is, than [ɨ , ʉ , ə, ɜ] . The most frequent realizations of Ue are in both Mark and Stevie narrow diphthongs beginning on average in [ə] close and retracted very near [ʊ] and [ʉ] and ending on average on the borderline of [u] and [ʊ]. They both use monophthongs roughly half as frequently as



BEN

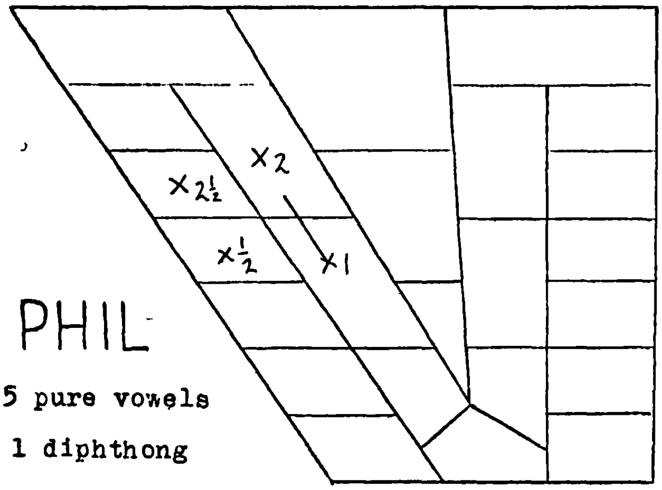
9½ pure vowels

1½ diphthongs



NAN

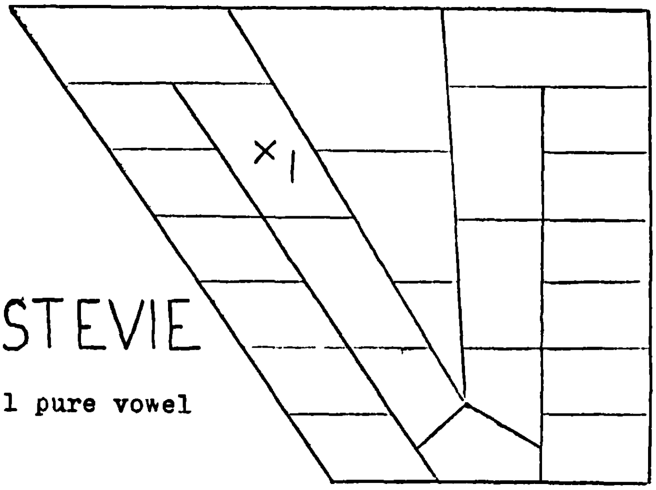
5 pure vowels



PHIL

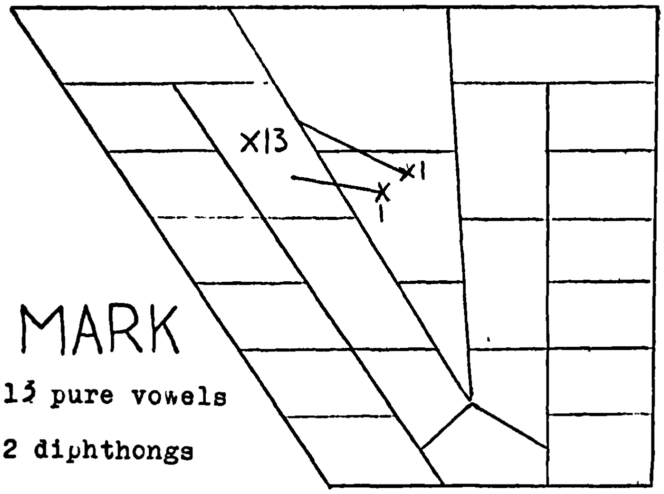
5 pure vowels

1 diphthong



STEVIE

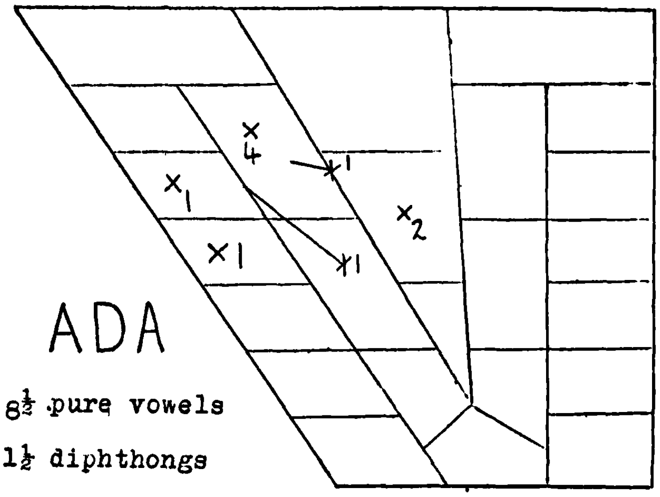
1 pure vowel



MARK

13 pure vowels

2 diphthongs



ADA

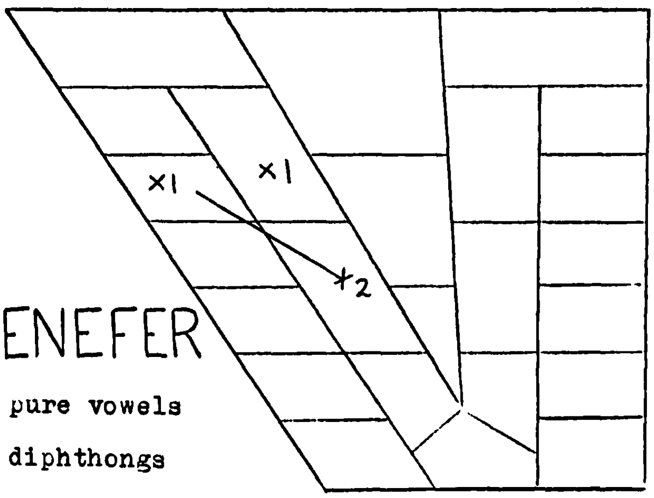
8½ pure vowels

1½ diphthongs

8

Ia* as only in "year(s)".

stressed and unstressed in any position except prepausal.



JENEFER

2 pure vowels

2 diphthongs

diphthongs. These monophthongs range in Mark from [y:] and [Y:] through [ʉ] to [ʊ:] and in Stevie from [Y:] through [ʉ·] to [ʊ·] and the borderline of [ʉ:] and [u:]. Their average quality is in Mark fairly squarely in [ʉ] and in Stevie about on the borderline of [ʉ] and [Y].

In Phil, Ada and Jenefer the front/back dichotomy is also paralleled closely by a monophthong/diphthong dichotomy but in a somewhat different way. Whereas in Mark and Stevie diphthongs are exclusively back and back-gliding and both front and back monophthongs are found, in Phil, Ada and Jenefer monophthongs are exclusively front and both front-gliding and back-gliding diphthongs are found. The average qualities of Phil's, Ada's and Jenefer's monophthongs are respectively: in [Y], very slightly advanced and close toward [ø] and [y], squarely in [Y] and in [ø] somewhat close and retracted towards [ɵ] and [Y]. In these individuals monophthongs and diphthongs are about equally frequent. In Phil and Jenefer back-gliding diphthongs easily predominate over front-gliding ones. Phil's diphthongs begin on average in [ɜ] fairly advanced and near [Y] and [Œ] and end on average in [ʊ] close and near to [u]. He has a very few fronting diphthongs such as [Œ̩Œ̩], [ɪY], [əY]. Jenefer's diphthongs begin on average squarely in [ə] and end on average in [ʊ] somewhat close, near [u]. In Ada front-gliding diphthongs are roughly twice as common as back-gliding ones. The clustering of diphthongal realizations in two separate areas is quite clear. Ada's fronting diphthongs begin on average on about the borderline of [ɜ] and [Œ] and end on average in [Y] somewhat open, roughly equidistant from [ø], [Œ] and [ɜ]. Her back-gliding diphthongs begin on average on about the borderline of [ə] and [ʊ] and move to an average end point in [ʊ] very close and advanced, near to [ʉ] and [u].

In Nan the back/front dichotomy is not closely paralleled by the monophthong/diphthong dichotomy. She has both front and back monophthongs and diphthongs. In her, diphthongs are perhaps slightly more common than monophthongs and the great majority of her diphthongs are back-gliding, moving on average from [ə] very near to [ʊ] to [ʊ] somewhat towards [u]. She has a few fronting diphthongs, for example [œ̂ø] and [ɛY]. Nan's monophthongs are divided about equally between front ones and back ones. The former are clustered around the borderline between [ø] and [Y] and the latter are concentrated squarely in [ʊ].

I suspect that there may be some significant connection between front and front and front-gliding realizations of Ue and the environment "following Y". I have the impressim that front realizations are in all individuals somewhat more common after Y. Many front realizations occur however after diaphonemes other than Y and many back realizations are also found after Y.

Examples "boots" [bə̣́ʊʔs], [bə̣́ʊ̤̈ʔs], [bə́ʊʔs], [bʊ́:ʔs], [bə́Yʔs]
"student(s)" [stjǿ:dəʔs], [stə̣́udnʔ], [stœ̂ʊdənts]
"used (to)" [jǿ:s], [jý:s], [jʉ́:s], [jʊ́:s], [jə́ʊs]

Before L I have the impression that realizations of Ue vary according to patterns very similar to those found for Au before L, i.e. between diphthongs beginning on average in about [ɔ̂] and moving to [o] or [ö] and monophthongs about [o:] in average quality.

Examples. "school" [skó:] [skɔ́ö] "pool" [pʰó:l]

Special diaphonemes must be postulated to account for the pronunciation of "you" and to" in unstressed position.

Unstressed "you" is almost invariably pronounced with a short monophthong which may vary in quality from [ə] [ɨ] and [ʊ] to [ɪ] and [y] Many more unrounded vowels are found in unstressed "you" than in Ue generally. I am not aware of any differences between individuals in their pronunciation of this word in unstressed position.

Examples· "you know" [jYnˈEʊ],[jənˈΛEʊ], [jEnˈɐʊ], [jɪnˈEʊ]

Unstressed "to" is very frequently pronounced with a very short central vowel and, less often with other short vowels near to [ə] in quality. I am not aware of any differences between individuals in their pronunciation of unstressed "to".

Examples· "going to" [gˈənə] "have to" [ˈaft^{s}ʊ] [ˈæftY] "got to" [gˈɔ 28].

<u>&</u>

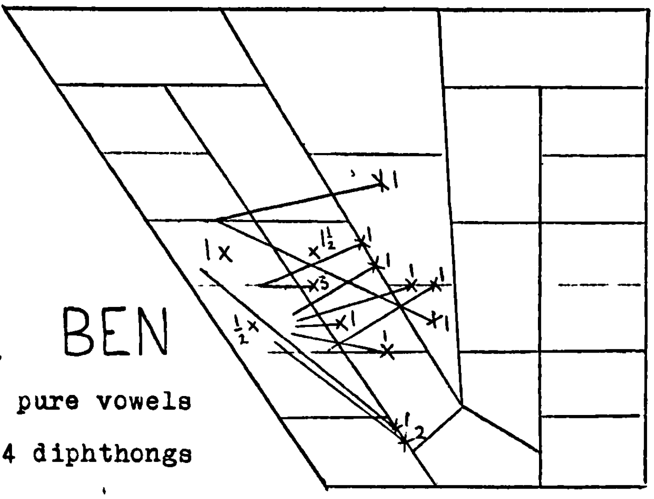
This diaphoneme occurs in such words as "about, a, ago, together, today, mother, father, barrel, couple, supporter, thousand, different," etc. <u>&</u> is never stressed.

In all individuals the most common realization of this diaphoneme is easily [ə]. Other realizations, mainly vocoids near [ə] in quality, namely [ɨ], [ɪ] , [E], [ɐ] , [8] , [ʊ]. Such variations are conditioned largely by assimilation to the contiguous sounds. Before or after a vowel <u>&</u> may be realized as zero or as a lengthening of the quantity of the adjacent vowel. Realizations of <u>&</u> before <u>L</u> realized as a vocoid are in all individuals generally [ʊ] or [o] and such realizations must be regarded as shared by both the <u>&</u> and the <u>L</u>. I am not aware of any differences between individuals in their realization of <u>&</u>.

Examples. "thousand" [ɾˈɛːzən] "afford" [əfˈɔ̃ðd] "wonder where" [wˈəndɹwˈÊː] "over the" [ˈɐʊvɨðə] "for a man" [ɑEmˈan] "ever you" [ˈɛvɪjy] "didn't she" [dˈɪʔʃEɪ] "useful" [ʃˈʉːsfʊ] "Russell" [ɹˈɐso] "only a blooming" [ˈɐʊnÊːblˈʊmɪn]

A common realization of <u>&</u> in all individuals is zero. Zero realizations are particularly common before <u>N</u>, <u>L</u>, <u>R</u> but may be found in almost any environment. I do not think that any individual uses zero realizations of <u>&</u> significantly more than any other.

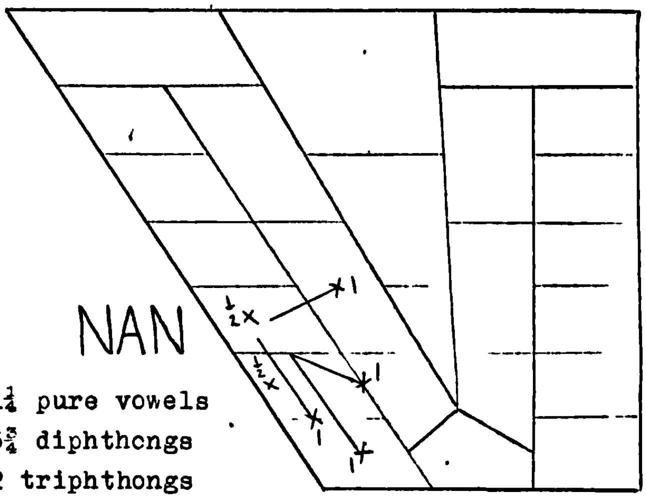
Examples: "reckon" [ɹˈɛʔkŋ] "sudden" [sˈE dn] "people" [pʰˈeːpl] "slippery" [slˈəpʰɹÊ] "suppose" [sβˈÊʉʒ] "marvellous" [mˈɑː vləs]



BEN

3 pure vowels

14 diphthongs



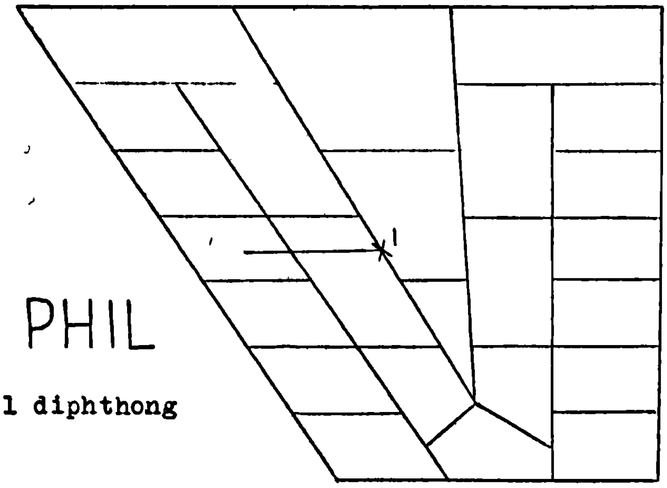
NAN

1¼ pure vowels

3¾ diphthongs

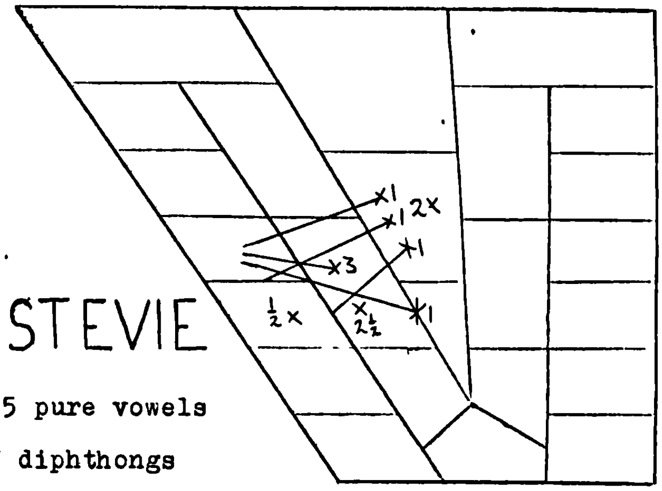
2 triphthongs

(See notes)



PHIL

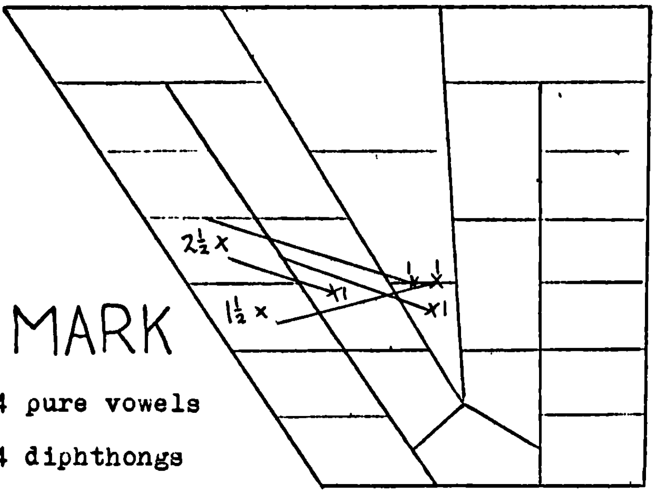
1 diphthong



STEVIE

5 pure vowels

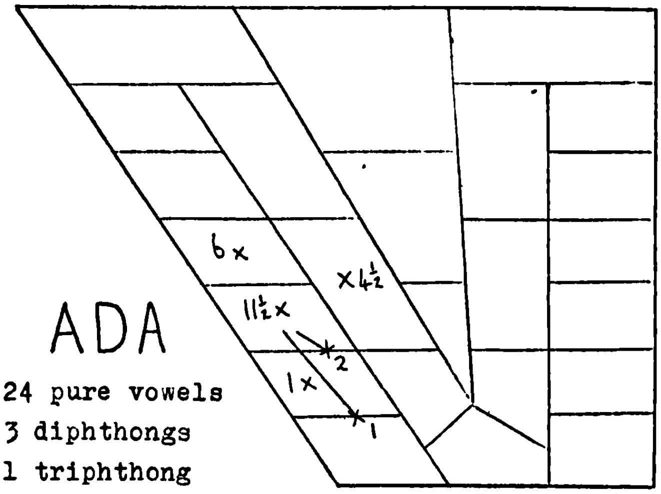
7 diphthongs



MARK

4 pure vowels

4 diphthongs



ADA

24 pure vowels

3 diphthongs

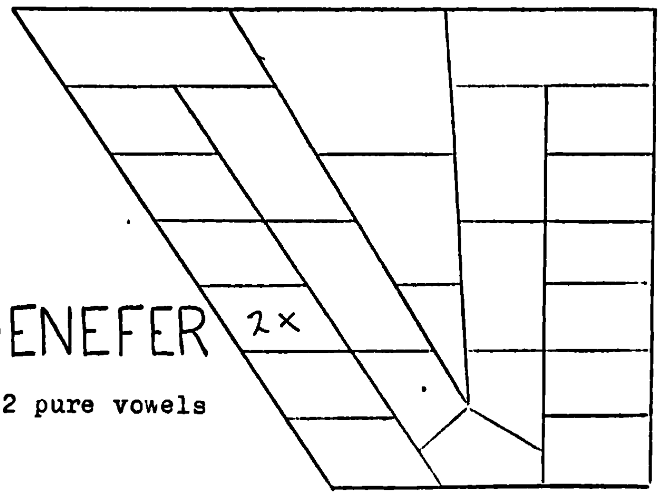
1 triphthong

(See notes)

9

<u>Ea</u> as in "square, fair, hair" etc. Stressed and unstressed in prepausal position.

Also: <u>Ea</u>* as only in "their", <u>Ea</u>* as only in "there", <u>Ea</u>* as only in "where". Stressed and in prepausal position.

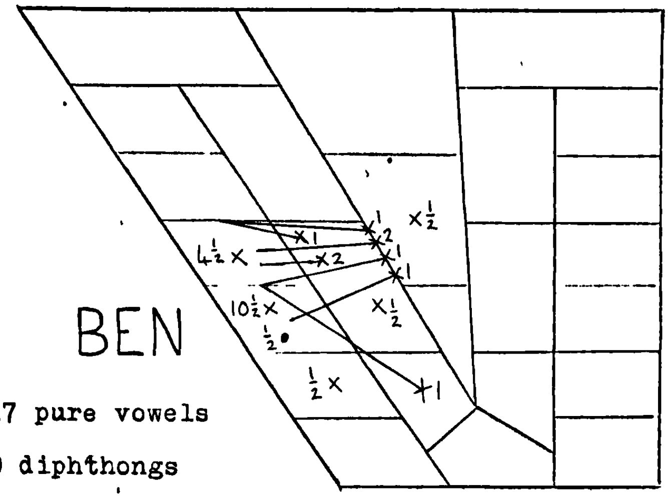


JENEFER

2 pure vowels

The only environment which conditions realizations of <u>&</u> in a way which may not be called assimilation is the environment "utterance-final." In this environment realizations of <u>&</u> are more open than elsewhere, on average about in [ɐ]. This appears to apply equally to all individuals.

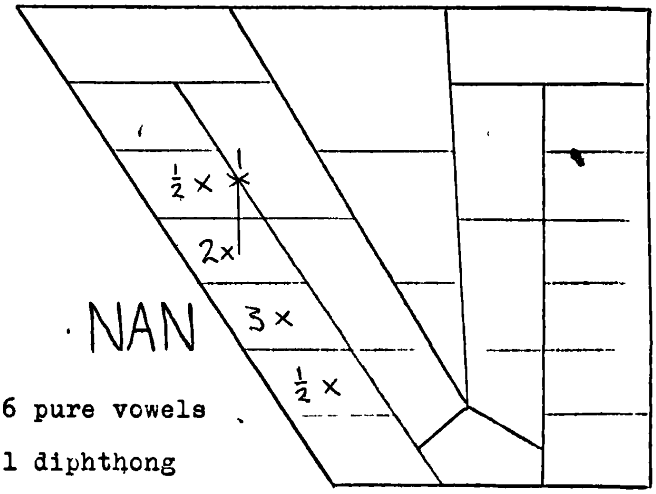
Examples: "fatter" [fát^{s}ɐ] "matter" [mát^{s}ɐ] "younger" [ʒǽŋgɐ]



BEN

17 pure vowels

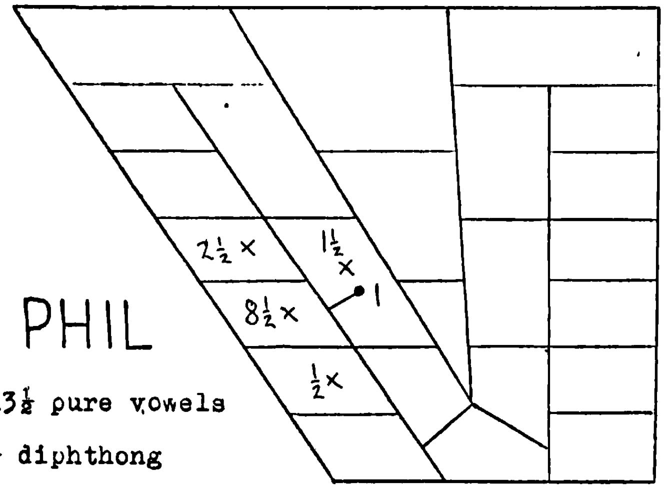
9 diphthongs



NAN

6 pure vowels

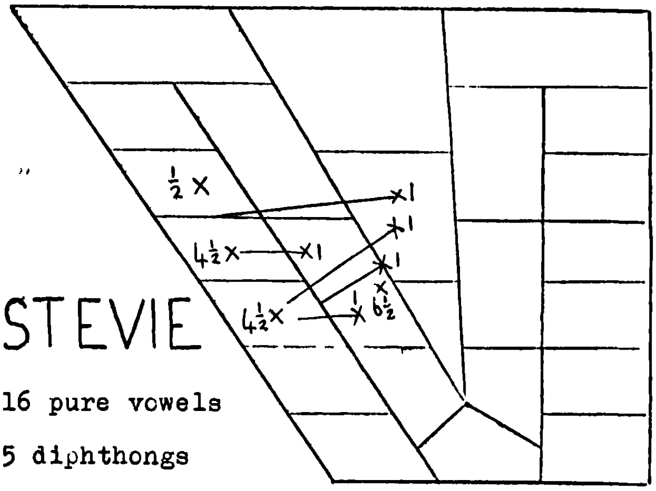
1 diphthong



PHIL

13½ pure vowels

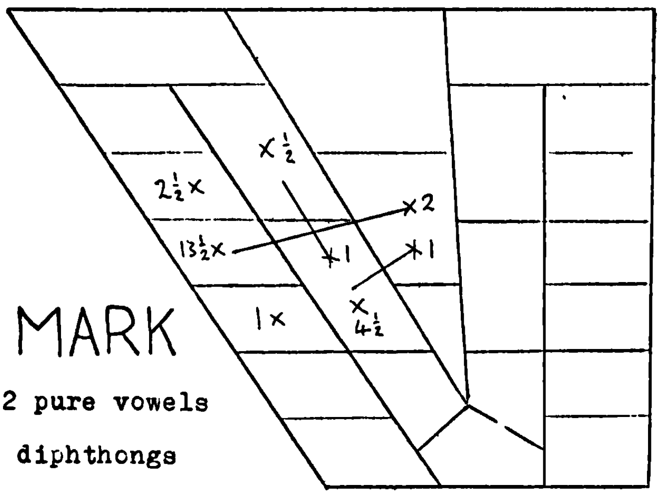
½ diphthong



STEVIE

16 pure vowels

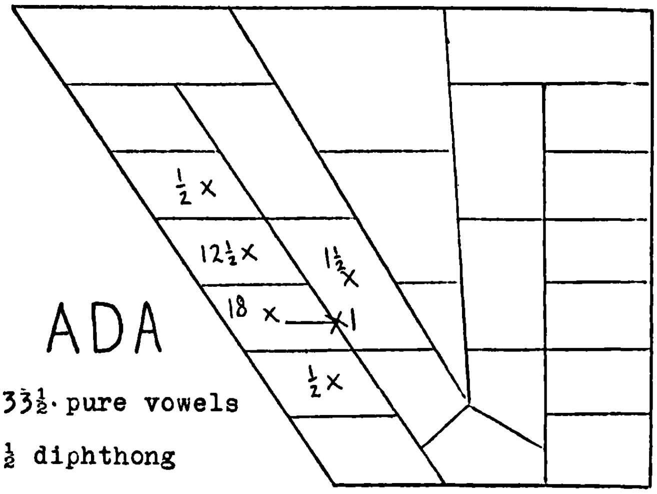
5 diphthongs



MARK

22 pure vowels

4 diphthongs



ADA

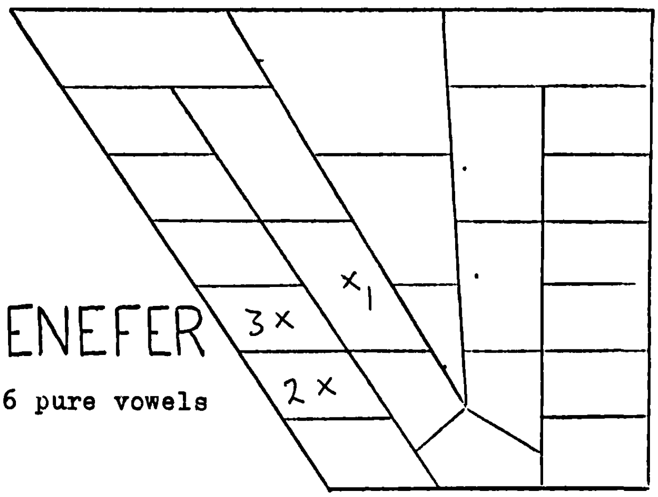
33½ pure vowels

½ diphthong

10

Ea as in "square, fair, hair" etc. Stressed and unstressed in all positions except prepausal.

Also: Ea* as only in "their", Ea* as only in "there". Stressed and in all positions except prepausal.



JENEFER

6 pure vowels

Conclusions

This study is regrettably, and for reasons already given, not a completely comprehensive description of the speech of my informants in terms of the diaphonemic framework of reference set up to account for it. Some diaphonemes have been treated in far greater detail than others. Hence, any conclusions of a general nature concerning differences between my informants in the totality of their speech habits can only be tentative. Detailed investigation of diaphonemes whose realizations have as yet not been exhaustively counted may show general tendencies observed so far to be reversed. This seems unlikely, but it is as well to mention these limitations on conclusions of a general nature drawn at this stage.

A further, greater limiting factor on the drawing of general conclusions from the facts presented in this thesis has been the same as that which prevented detailed descriptions of realizations of all diaphonemes being made, namely the lack of sufficient time in which to carry out such a large task. Statements of a general nature, i.e. concerning the informants' realizations of more than one particular diaphoneme, must of course make reference not to particular sounds such as for example [pʰ], [p], [ʔp], [β], but rather to abstracted features of sounds, such as, for example, aspiration, non-aspiration, glottalization, voicelessness, voicing. In the absence of complete figures for realizations of all diaphonemes, statements made here about the comparative frequency of such abstracted phonetic features must be, like statements made about diaphonemes not treated in detail, "impressionistic". A number of such impressionistic general statements can be made.

Realizations of P, T, K tend to be aspirated most frequently and in the greatest number of different environments in Ada. Next to Ada, I have the impression that Jenefer uses aspirated realizations most frequently and in the greatest number of different environments. At the other end of the scale of frequency of aspiration is Ben, in whom unaspirated realizations of P, T, K are most common. In Phil, unaspirated realizations of these three diaphonemes are also fairly common, but less so than in Ben.

Glottalized realizations of P, T, K, F are most common in Phil, next most common in Mark and Ben and least common in Nan, Stevie, Ada and Jenefer.

On a yet more general level, I have the definite impression that voicing is more common in realizations of all consonant diaphonemes in Ben than in other individuals. I also have the impression that voicing is more common in Stevie than in all other speakers except Ben. Nan, Ada and Jenefer seem to me to use relatively more voiceless sourds than other speakers.

As far as realizations of vowel diaphonemes are concerned, I am aware of the following few differences of a general nature between individuals here. One difference is a great frequency in Ada of realizations of Oe and Ue which are of, or end in, a rounded front vowel quality. Such realizations are also fairly frequent in Jenefer but less frequent or not found at all in the other individuals.

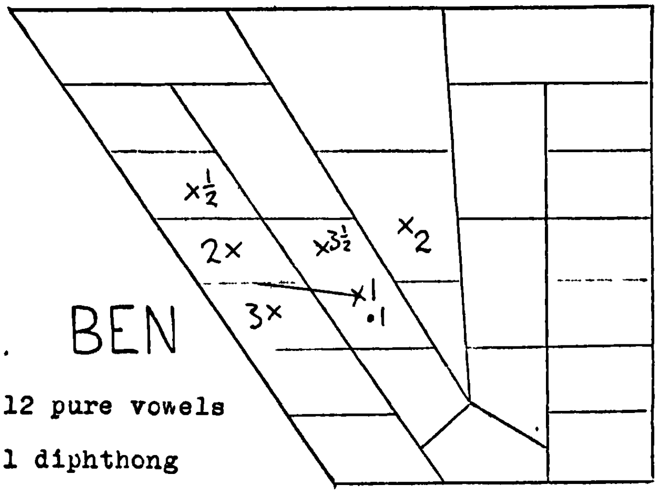
Stevie has a marked preference for more central realizations [ə] , [E] , [Œ] , [ɘ] , of most vowel diaphonemes which in other speakers have front vocoidal realizations, i.e. I, E, A, Ia, Ea, Ou.

I have the impression that front rounded vocoid realizations, such as [œ] , [Œ] of diaphonemes which have predominantly front unrounded realizations, i.e. I, E, A, Ee, Ia, Ea are somewhat more common in Ben and Phil than in other speakers, though in no speaker are they particularly frequent.

These are all the general comparative statements which it is possible to make on an impressionistic basis. It is doubtful whether, in fact, many more differences of such a general nature would emerge from a fuller analysis of the material. It is natural for any investigator to look for such general differences, but I have had the impression throughout the research for this study that the great bulk of the differences between individuals is in a mass of very particular, specific relationships of sounds to phonological units and not susceptible of summary by any one all-embracing statement.

When full counts of all realizations of all diaphonemes have been made, it will be possible to calculate on a statistical basis coefficients of similarity between all individuals. A method by which this might be done is as follows:- Take the realizations of a given diaphoneme in a given environment, say $\underline{T}$ in env. $\acute{V}\underline{T}V$, in two individuals and express the number of realizations of each type, i.e. [ʔ] , [t^s] , etc., in each individual as a percentage of the total number of realizations of that diaphoneme in that environment. Thus, individual X might have realizations of $\underline{T}$ in the above environment in the proportions 30% [ʔ] , 40% [t] , 20% [ʔt] and 10% [d] , and individual Y might have corresponding realizations in the proportions 50% [ʔ] , 5% [t^s] , 45% [ʔt] . Each of these two individuals would then be seen to use at least 30% [ʔ] , 5% [t^s] and 20% [ʔt] and the sum of these last percentages - 55% expresses the percentage of realizations of $\underline{T}$ in this environment which each individual has in common with the other . Thus, in this example X and Y's treatment of $\underline{T}$ in env. $\acute{V}\underline{T}V$ may be said to be "55% similar".

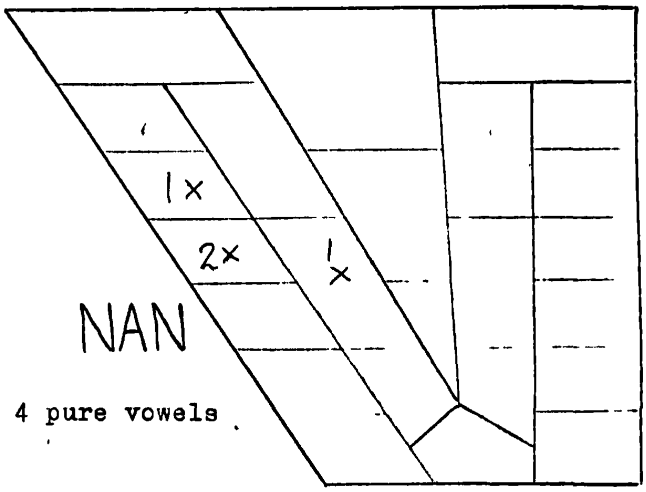
Now repeat this procedure for the realizations which X and Y use for all diaphonemes in all environments. Calculate the relative frequency of occurrence of all



BEN

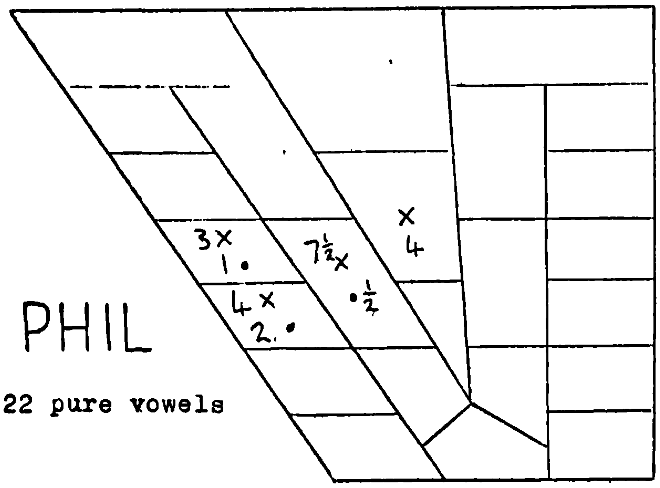
12 pure vowels

1 diphthong



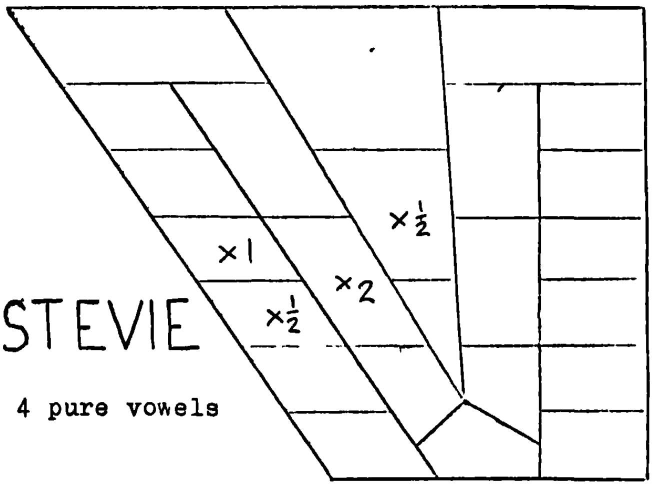
NAN

4 pure vowels



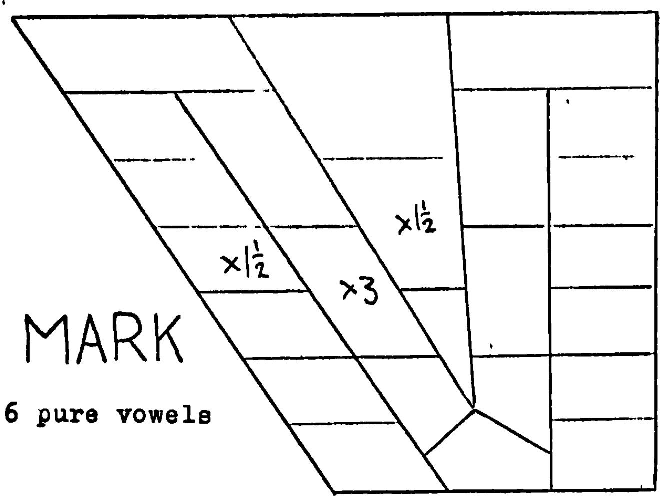
PHIL

22 pure vowels



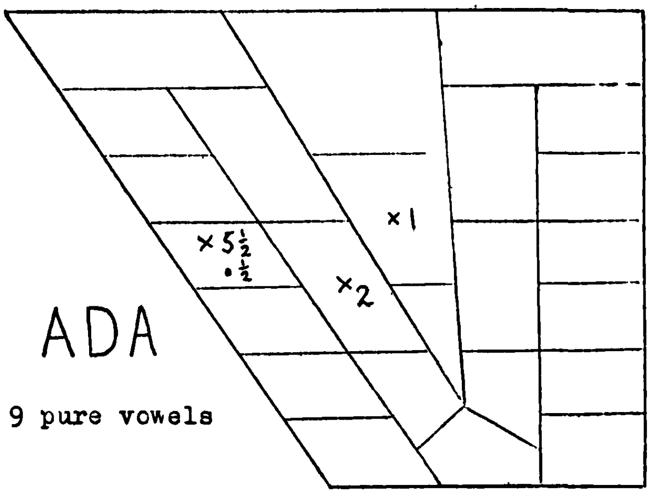
STEVIE

4 pure vowels



MARK

6 pure vowels

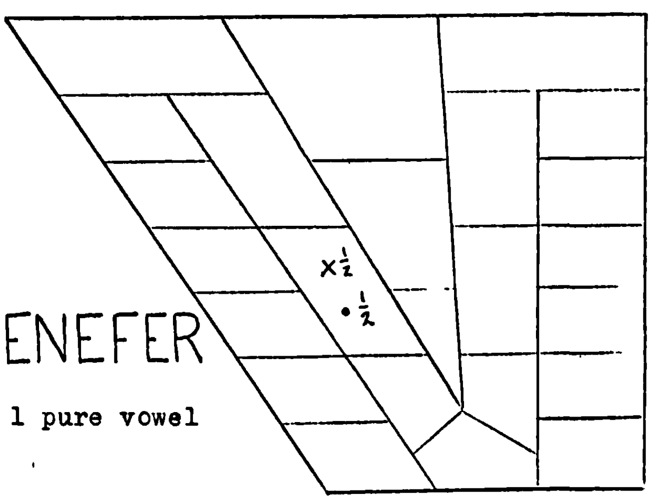


ADA

9 pure vowels

II

<u>Ea</u>* as only in "where". Stressed and in all positions except prepausal.



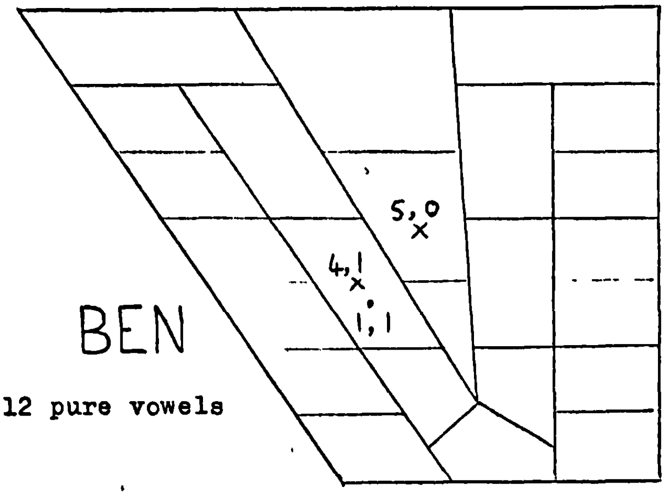
JENEFER

1 pure vowel

diaphonemes in all environments. This entails first counting the total number of realizations of all diaphonemes in all environments over both individuals and then expressing the number of realizations of a particular diaphoneme in a particular environment over both individuals as a percentage of the total. Thus, the use of T in env. V́TV might be found to represent 2% of the individuals' total speech activity. Therefore, in 2% of their speech activity X and Y are, as we have seen, 55% similar. Combining the figures for all diaphonemes in all environments, a percentage representing the overall similarity of the two individuals' speech habits can be worked out.

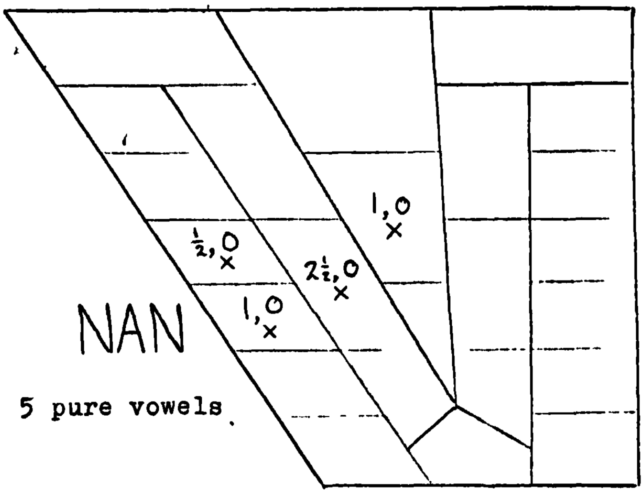
This is a very laborious process and can, of course, only be used to compare the speech of two individuals at a time. To arrive at coefficients of similarity between each pair of individuals in my group of seven would entail going through the above procedure fortytwo times. The reasons why no attempt has been made in the present thesis to compare individuals by this procedure even on the basis of those diaphonemes whose realizations have been comprehensively counted are, I hope, self-evident. It is nevertheless hoped to be able to carry out such a statistical treatment of the material some time.

The procedure outlined above is not entirely satisfactory. There are various flaws in it, one of which is as follows. If, to take a simple example,



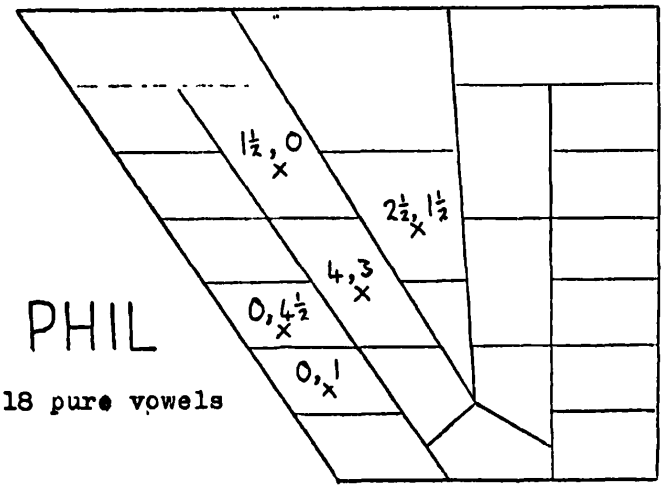
BEN

12 pure vowels



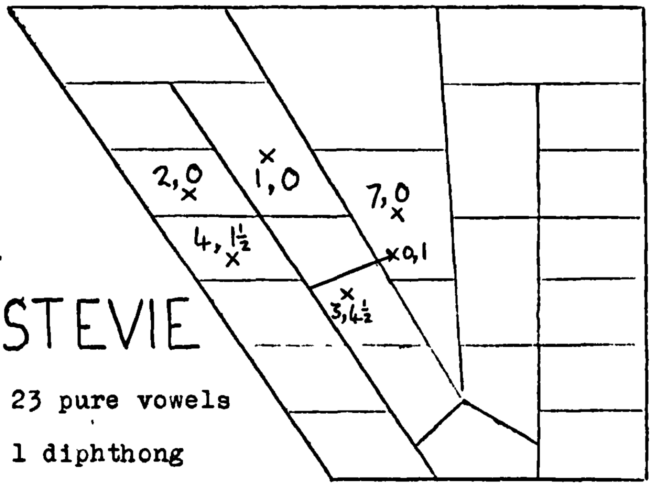
NAN

5 pure vowels



PHIL

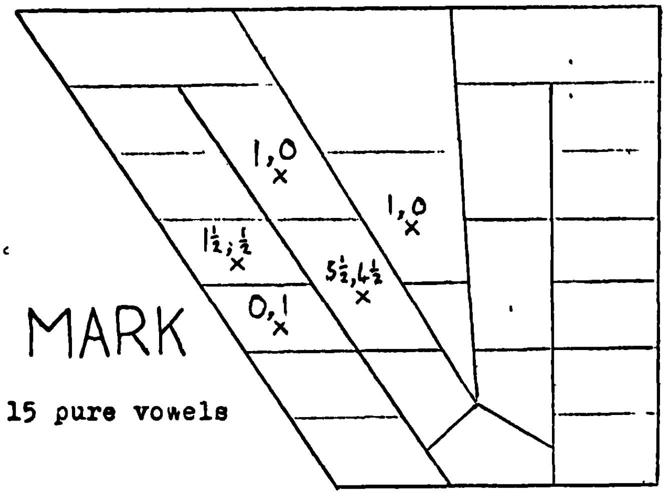
18 pure vowels



STEVIE

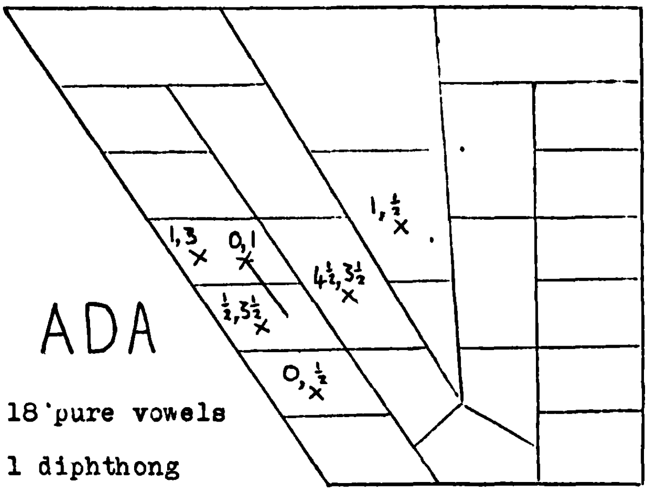
23 pure vowels

1 diphthong



MARK

15 pure vowels



ADA

18 pure vowels

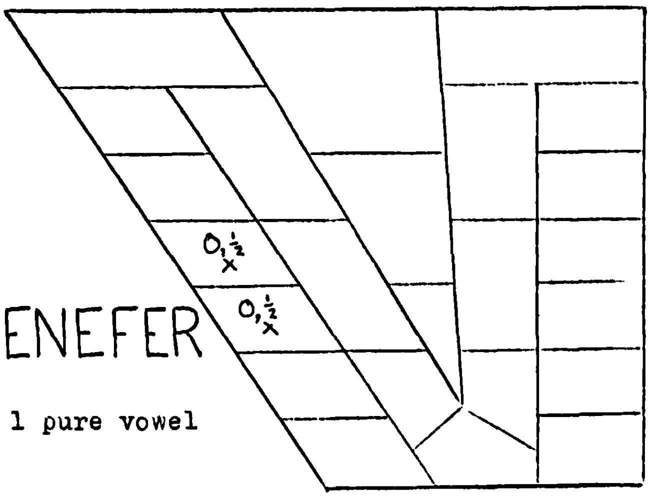
1 diphthong

12

Ea* as only in "there". Unstressed and in all positions.

First figures refer to pronunciations found in "there is, there are, there were, there used to be" etc.

Second figures refer to pronunciations of "there" found elsewhere.



JENEFER

1 pure vowel

individuals X, Y, Z use respectively 100% [æ:] , 100% [a:] and 100% [A:] as realizations of Ou in a given environment, then the procedure outlined above would tell us that there is the same degree of similarity - 0% - between X and Y as between X and Z. This goes against the obvious fact that even though neither X nor Y nor Z have any realizations in common, those of X and Y are phonetically more similar than those of X and Z. Some provision for assessing degrees of phonetic similarity ought to be built in to the procedure for calculating coefficients of similarity.

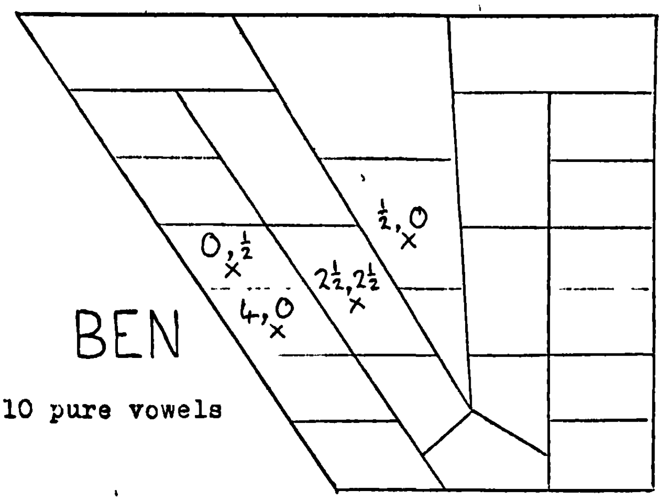
Without the use of such complicated procedures as those proposed above it is possible to make certain "impressionistic" statements about the overall similarities between the speech habits of pairs of individuals. The impression of such overall similarities is, in fact, gained from an accumulation of more specific impressions gained while analysing and describing realizations of each diaphoneme, and is confirmed by one's more immediate impressions of what, or whom, each individual sounds like when one actually listens to them talking.

I have the strong impression that the two individuals whose speech habits are most alike are Ben and Phil. Mark's speech seems to me to be something between Phil's and Ada's, possibly rather more like Phil's. There is not the same striking similarity between Nan and Ada as there is between Phil and Ben, although I think that Nan and Ada are probably more similar to each other than either of them is to Ben. Phil's speech is fairly similar to Ada's, Stevie's and Mark's. Stevie's speech, fairly close to Ada's and Nan's, is probably more similar to Ben's than their's are. Jenefer's speech is most like Ada's and also fairly like Nan's. I should say that there is the greatest amount of difference between Ben's speech and that of Jenefer and Ada. I am fairly confident that these impressionistic statements would be confirmed by a statistical calculation of the similarities between individuals.

These statements of general similarity between pairs of individuals show greater similarity between speakers who have one or more of the following factors in common - parentage, generation, sex. Thus, Ben and Phil are more similar to each other than Ben and Ada; and Ada and Nan more similar to each other than Nan and Phil. The characteristics of Nan's and Ben's sides of the family come together in Mark and Jenefer whose speech resembles that of both their parents. In Mark and Jenefer the factors of sex differentiates their overall speech habits somewhat. Mark's speech is somewhat closer to his father's, Jenefer's to her mother's. Stevie's speech is not so close to his mother's as is his sister Ada's. He has certain characteristics which we may call "male" characteristics -

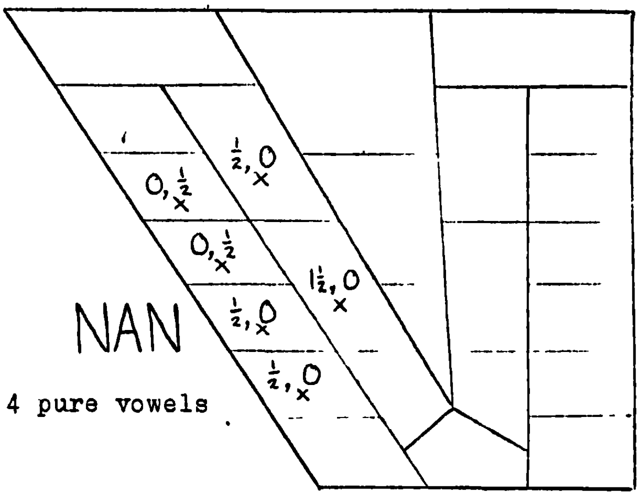
in common with Ben and Phil, which Ada and Nan do not have. The grandparents, Ben and Nan share certain characteristics not found, or not so prevalent, in younger generations.

A further conclusion, not directly concerning the differences and similarities between individuals, can be drawn from the material presented in this thesis. This is that the high degree of idiosyncratic variation found in realizations of most diaphonemes requires a framework of reference set up on a similar basis to that set up for this thesis. It is not claimed that the particular procedure for postulating phonological units used in this thesis is necessarily the best suited to a description of all types of dialects in all languages. Many of the advantages which have been gained from the particular treatment of the material of this thesis would also be found in a morphophonemic treatment. The reasons for using a diaphonemic, rather than morphophonemic framework of reference in this study have already been gone into. But it is claimed that the general approach to the problem of description of linguistic variation which is implicit in both the present study and the phonological component of transformational grammars, is better suited to the actual nature of the variation to be described than the approach of other types of phonological analysis, notably the "phonemic" type popular in America. The basic difference in approach is that whereas phonemic analyses approach language basically from the point of view of the



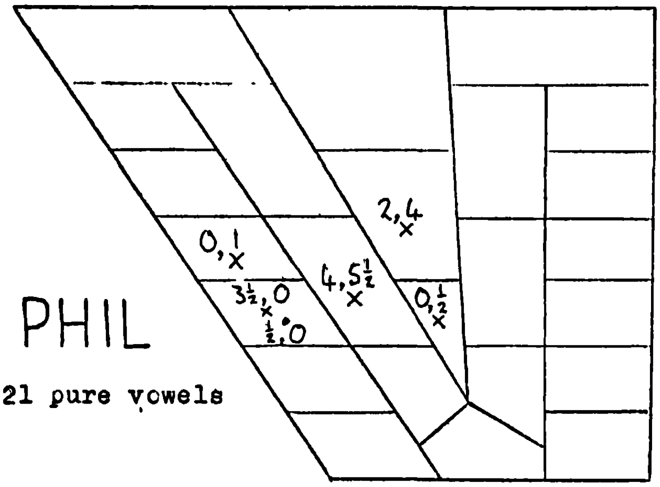
BEN

10 pure vowels



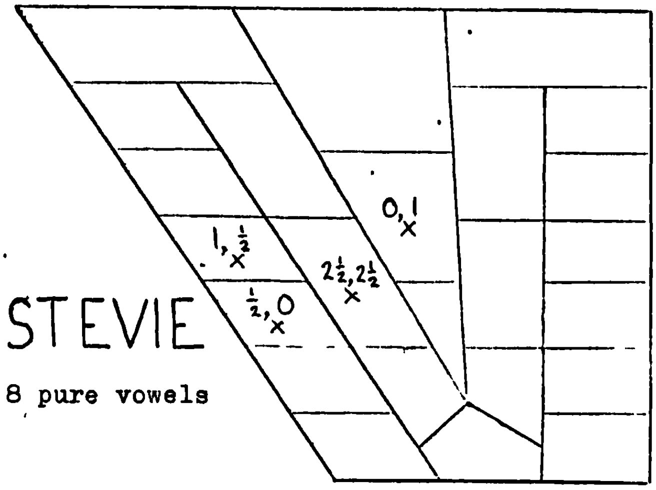
NAN

4 pure vowels



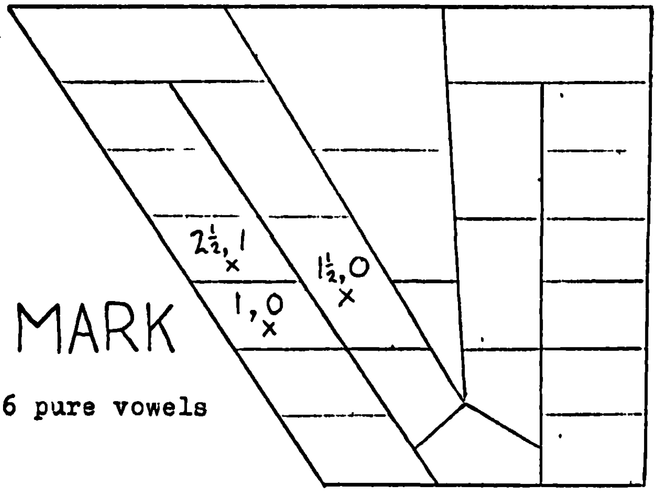
PHIL

21 pure vowels



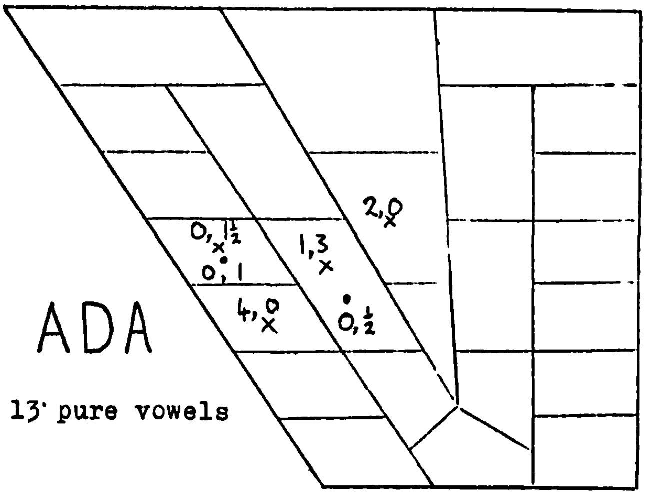
STEVIE

8 pure vowels



MARK

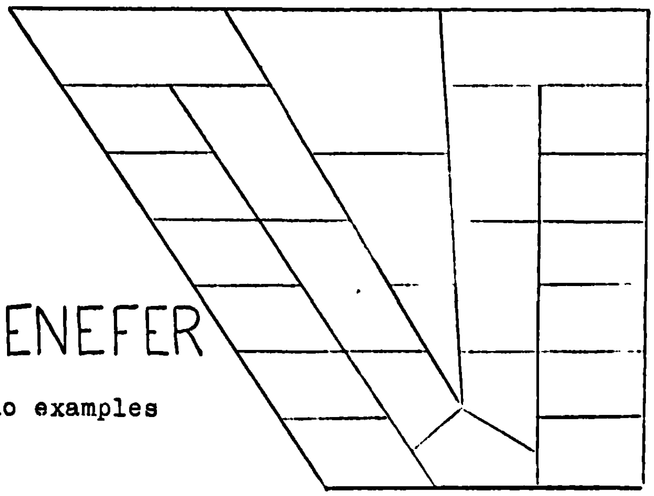
6 pure vowels



ADA

13 pure vowels

13



JENEFER

no examples

<u>Ea</u>* as only in "their". <u>Ea</u>* as only in "where".

Unstressed and in all positions.

First figures show pronunciations of "their".

Second figures show pronunciations of "where".

hearer, morphophonemic analyses and the present study approach the subject more from the point of view of the speaker. That one of these general approaches should prove more suitable to the nature of linguistic variation than the others, may lead one to the conclusion that sound change for which variation in pronunciation is generally agreed to be the "sufficient reason" originates with the speaker of a language rather than his audience. Such a conclusion needs a great deal of argumentation but shows an interesting line of thought which could develop out of the present thesis.

That the present diaphonemic type of analysis is better suited to the present material than a strict phonemic analysis is demonstrated by the following example. There are no fewer than nineteen different sounds which have been recorded as realizations of Th(*). These are;- [θ , θ̃ , fθ] , [f, ʔ̌], [ð,ð̃], [v, v̇], [w] , [ʃ], [h, ɦ, h̃, ɦ̃] [ʔ],[t̪θ , t̪θ̃],[d̪ð]. In this list the sounds have been bracketed together in groups corresponding to a phonemicist's probable grouping of them as allophones of particular phonemes. These sounds would probably constitute, then, in a phonemicist's analysis, allophones of eight phonemes, i.e. /θ/, /f/, /ð/, /v/, /w/, /ʃ/, /h/, /t/ and two di-phonemic sequences /tθ/ and /dð/. The basis of possible meaningful opposition of sounds on which the phonemicist postulates the existence of phonemes is severely undermined by the fact that, as in the above example, allophones of eight different phonemes may occur in variation with one another without any consequent variation in the "meaning" of the passage of speech in which they are used.

The notion that the basic phonological units which operate in speech, be they phonemes, morphophonemes, diaphonemes or whatever, do not have exponents which overlap phonetically is perhaps the most basic one which this thesis disproves. Such a notion is to a large extent presupposed by the "once a phoneme - always a phoneme" phonemic type of analysis. The notion is also presupposed in A. Martinet's discussion of the structural processes involved in sound change in his "Economie des Changements Phonétiques". He writes there (pp.47),

> "Dans le cadre d'une communauté linguistique homogène, il est probable que le champ de dispersion normal de chaque phonème, dans un contexte déterminé, ne sera pas contigu a ses voisins, mais qu'il y aura entre deux champs une marge de securité représentée par une sorte de 'no man's land'. Nous parlons ici de champ 'normal', car c'est un fait bien connu que, dans des circonstances extraordinaires, comme l'ivresse, les phonèmes voisins dans le système peuvent se confondre complètement."

The probability here assumed by Martinet is shown not to be true by the descriptions of variation in this thesis. (None of my informants were drunk when recordings of them were made.)

Some interesting light might be shed on the mechanisms of sound change by a statistical procedure similar to that proposed above applied to various types of environment. One could calculate, for example, whether there is more variation and difference between individuals word - initially - medially or - finally. I have the strong impression that realizations of consonant diaphonemes vary less word-initially than they do word-finally and word-medially. Similarly, one could calculate whether consonants before a stressed vowel were more, or less, susceptible to variation than those before an unstressed one.

I have the very strong impression that realizations of diaphonemes in certain common words vary in general more widely than realizations of diaphonemes found in other words. A calculation could be made to see whether there is any constant relationship between word frequency and degree of variation in pronunciation.

Many other similar calculations could be made and from them more insight could well be gained into the mechanisms of sound change.

Bibliography

Reference has been made in this thesis to the following works:-

[1]Allen, W.S. "Relationships in Comparative Linguistics" (Transactions of the Philological Society, 1953).

[2]Bach, E. "An Introduction to Transformational Grammars".

[3]Bazell, E. "Linguistic Typology".

[4]Bloch, B. and Trager, G.L. "The Syllabic Phonemes of English" (Language 17, 1941).

[5]Bloomfield, L. "Language".

[6]Catford, J.C. "Scots Dialect Vowel Systems" (Transactions of the Philological Society, 1957).

[7]Chomsky, N. "Current Issues in Linguistic Theory".

[8]Cochrane, G.R. "The Australian English Vowels as a Diasystem" (Word 15, 1959).

[9]Davis, A.L. and McDavid, R.I. "Northwestern Ohio: a transition area" (Language 26, 1950).

[10]DeCamp, D. "The Pronunciation of English in San Francisco" 2nd part (Orbis 8, 1959).

[11]Firth, J.R. "Personality and Language in Society" (Sociological Review, Vol. 42, 1950).

[12]Firth, J.R. "Sounds and Prosodies" (Transactions of the Philological Society, 1948).

[13]Francis, W.N. "Some Dialectal Verb Forms in England" (Orbis 10, 1961).

[14]Fries, C.C. and Pike, K.L. "Coexistent Phonemic Systems (Language 25, 1949).

[15]Gleason, H.A. "An Introduction to Descriptive Linguistics".

[16]Gumperz, J.J. "Phonological Differences in three Hindi dialects" (Language 34, 1958).

[17]Haugen, E. and Twaddell, W.F. "Facts and Phonemics" (Language 18, 1942).

[18]Hill, A.A. "Introduction to Linguistic Structures".

[19]Hockett, C. "A Course in Modern Linguistics".

[20]Hockett, C. "Manual of Phonology".

[21]Householder, F.W. "On the Uniqueness of Semantic Mapping" (Word 18, 1962).

[22]Jones, D. "English Pronouncing Dictionary".

[23]Jones, D. "The Phoneme: its Nature and Use".

[24]Kučera, H. "Phonemic Variations in Spoken Czech" (Word 11, 1955).

[25]Kurath, H. and McDavid R.I. Jr. "The Pronunciation of English in the Atlantic States".

[26]Labov, W. "Phonological Indices of Social Stratification" (The Ethnography of Communication, American Anthropologist, 1964).

[27]Lloyd James, A. "Broadcast English".

[28]Martinet, A. "Economie des Changements Phonétiques".

[29]McDavid, R.I. "Structural Linguistics and Linguistic Geography" (Orbis 10, 1961).

[30]Moulton, W.G. "The Short Vowel Systems of Northern Switzerland" (Word 16, 1960).

[31]Moulton, W.G. "Dialect Geography and the Concept of Phonological Space" (Word 18, 1962).

[32]Nida, E.A. "Morphology: the Descriptive Analysis of Words".

[33]Pickford, G.R. "American Linguistic Geography: a Sociological Appraisal" (Word 12, 1956).

[34]Pike,K.L. "Language".

[35]Pulgram, E. "Proto-Languages as Proto-Diasystems: Proto-Romance" (Word 20, 1964).

[36]Putnam, G.M. and O'Hern, E.M. "The Status Significance of an Isolated Urban Dialect" (Language Dissertation 53, Supplement to Language 31, 1955).

[37]Richards, I.A. "Growing Pains", a review of R.H. Robins "General Linguistics: an Introductory Survey" and M.A.K Halliday, A. McIntosh and P. Strevens "The Linguistic Sciences and Language Teaching" (New York Review of Books, Vol. VI, no. 6, April 14th, 1966).

[38]Robins, R.H. "General Linguistics: an Introductory Survey".

[39]Rousselot. "Les modifications phonétiques du langage."

[40]Sapon, S.M. "A Methodology for the Study of Socio-Economic Differentials in Linguistic Phenomena" (Studies in Linguistics 2, 1953).

[41]de Saussure, F. "Course in general linguistics".

[42]Sivertsen, E. "Cockney Phonology".

[43]Smith, H.L., review of Jones, D. "The Pronunciation of English" (Language 28, 1952).

[44]Stankiewicz, E. "The Phonemic Patterns of the Polish Dialects" (For Roman Jakobson, 1956).

[45]Stankiewicz, E. "On Discreteness and Continuity in Structural Dialectology (Word 13, 1957).

[46]Stockwell, R.P. "Structural Dialectology: a Proposal" (American Speech 34, 1959).

[47]Strang, B. "Modern English Structure".

[48]Swadesh, M. "On the Analysis of English Syllabics" (Language 23, 1947).

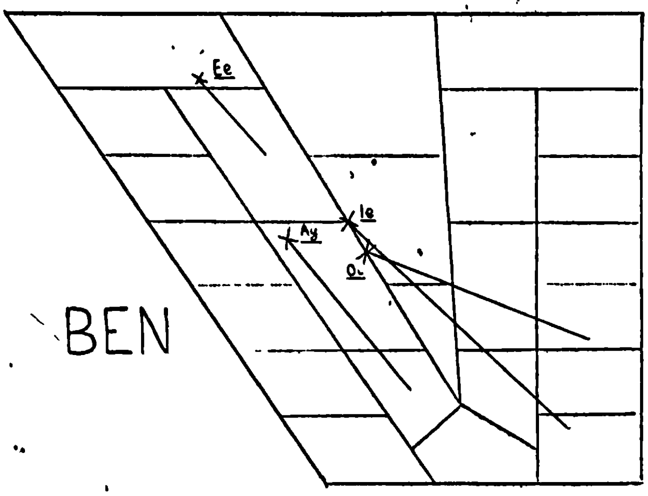
[49]Trager, G.L. and Smith, H.L. "An Outline of English Structure".

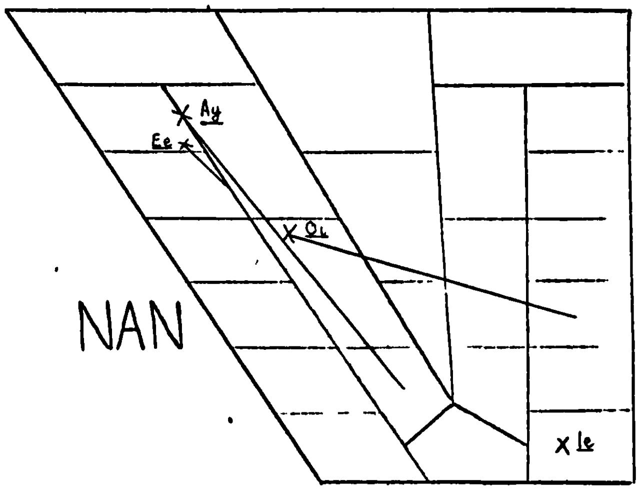
[50]Voegelin, C.F. "Phonemicizing for Dialect Study, with reference to Hopi" (Language 32, 1956).

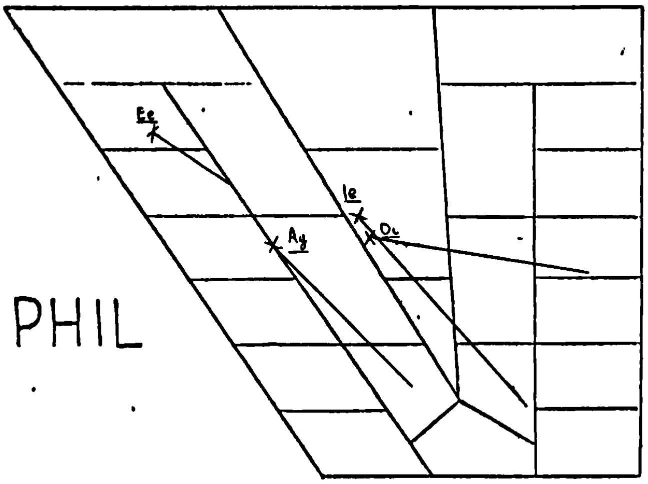
[51]Weinreich, U. "Is a Structural Dialectology possible?" (Word 10, 1954).

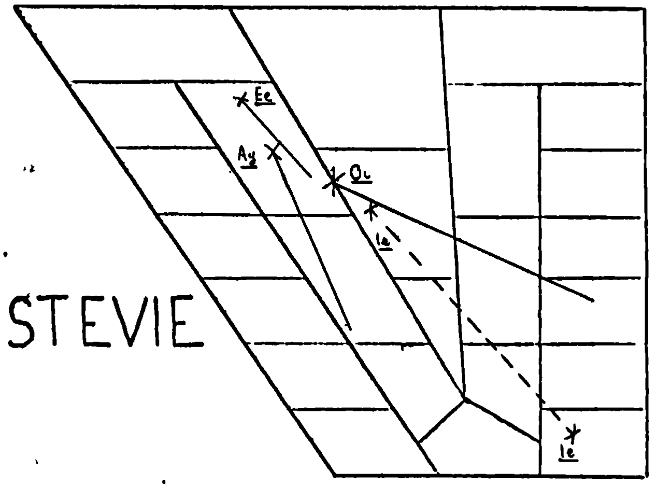
[52]Weinreich, U. "Travels through Semantic Space (Word 14, 1958).

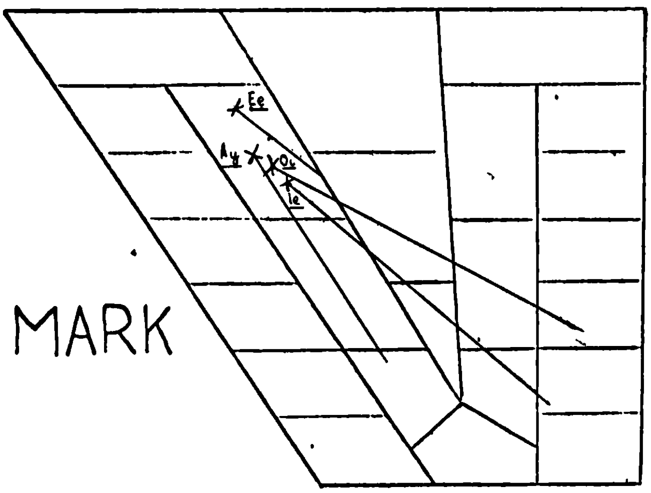
[53]Young, M. and Willmott, P. "Family and Kinship in East London".

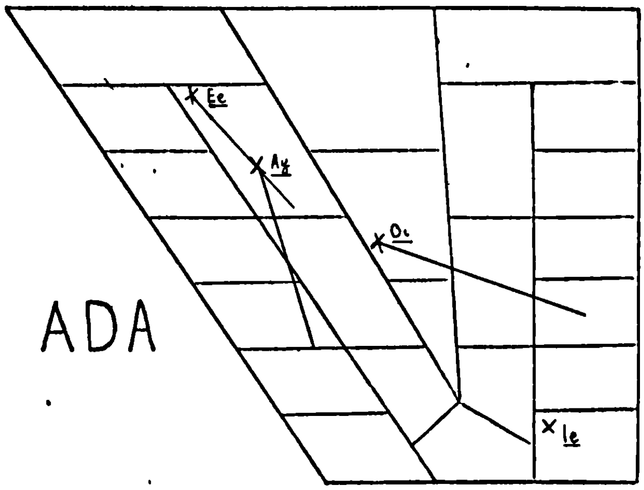


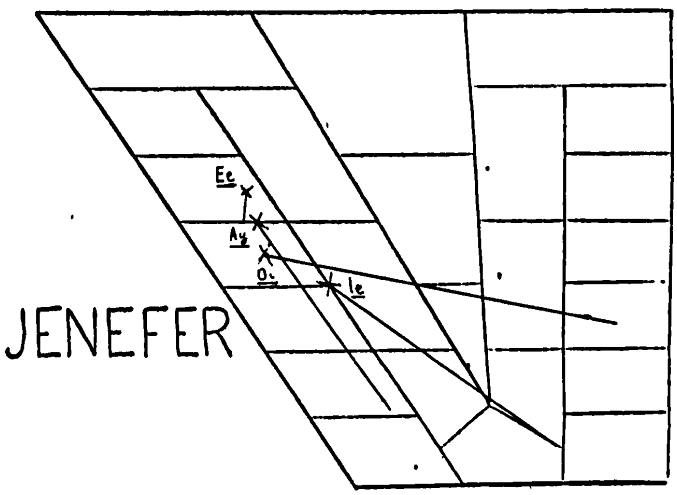




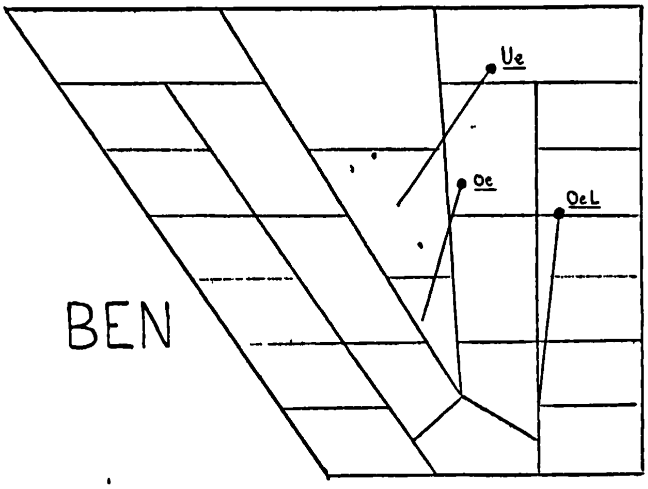


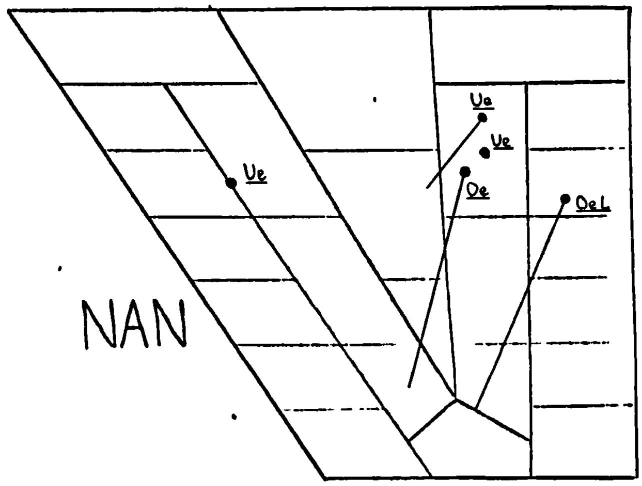


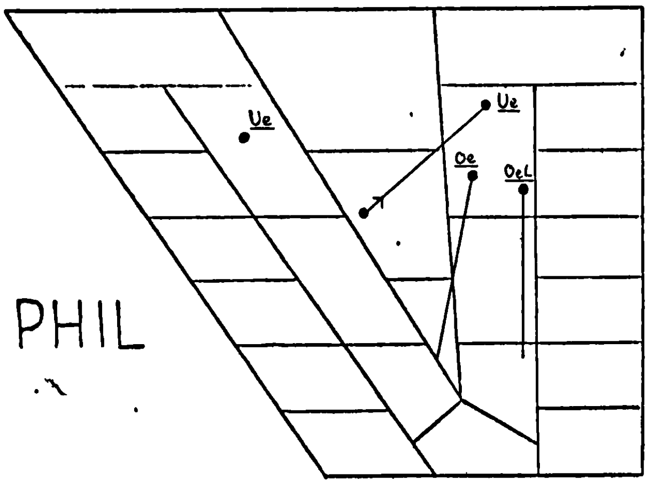


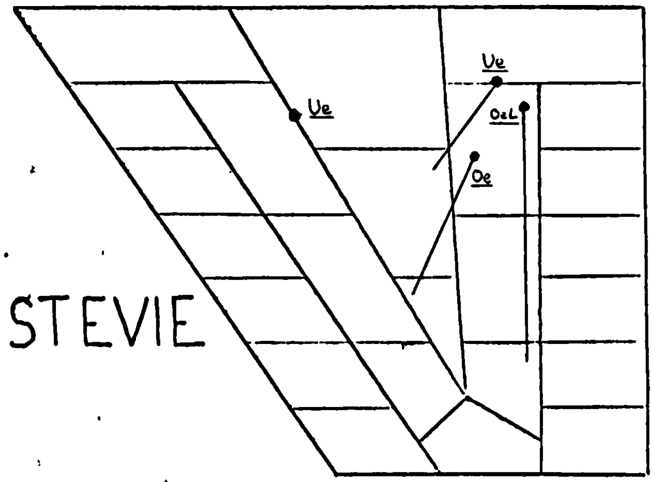


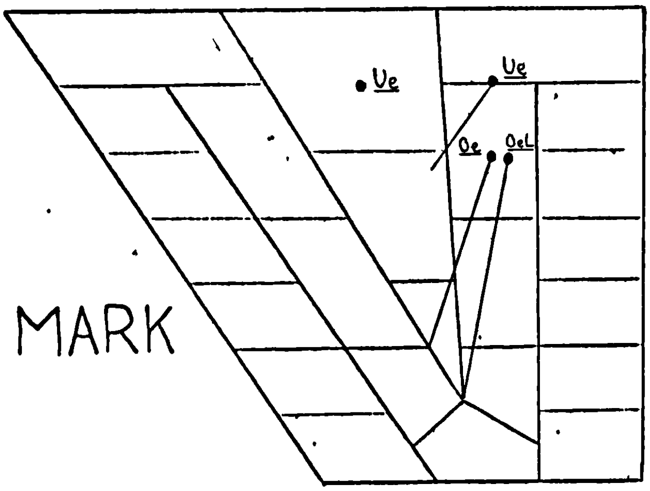
Average principal realizations of
the "fronting diphthongs"
<u>Ee</u> <u>Ay</u> <u>Ie</u> <u>Oi</u>

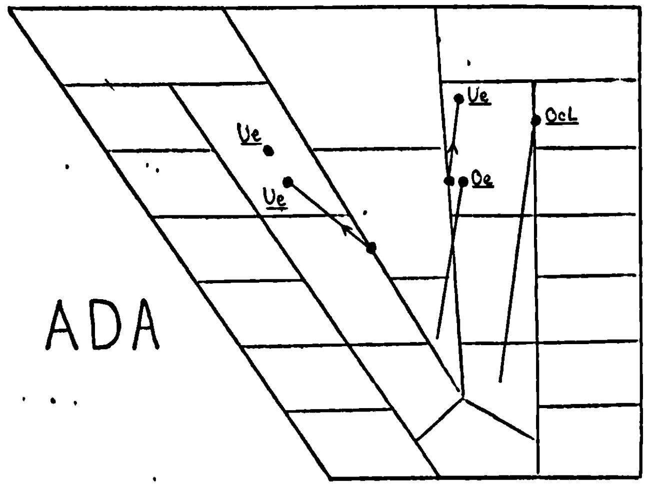


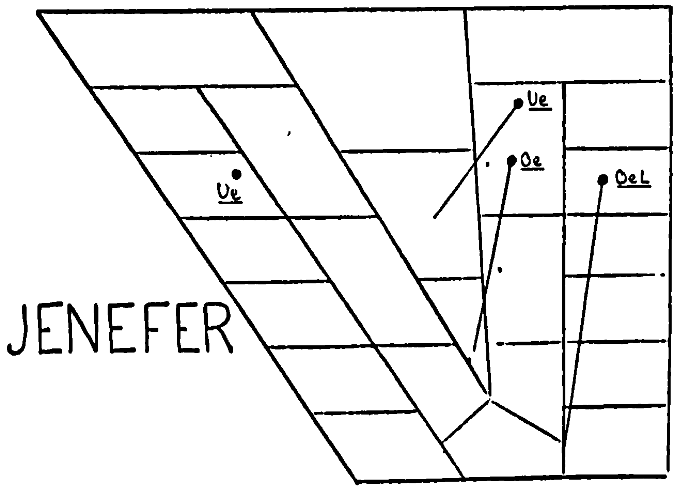












"Retracting diphthongs"
Average realizations of Oe before a consonant and Oe before L.
Average positions of main clusterings of realizations of Ue