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DISCUSSIONI

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THE PERCEPTION OF ENGLISH BY ITALIAN SPEAKERS AN ESSAY IN CONTRASTIVE PHONOLOGY *

1. Before describing in some detail the experiment conducted by the author of the present paper, the aim of which was to gain some insight into the way Italian speakers perceive the sounds of English, certain basic theoretical considerations will not be out of order, Clearly all experimental evidence must be placed within a general theoretical framework if it is not to be a mere haphazard collection of unrelated data with little or no explanatory power. The method followed in this paper will therefore be deductive-inductive: after a summary examination of the phonological systems of English and Italian, and in particular of the features amenable to systematic comparison, these theoretical considerations will be compared with the empirical data obtained so as to verify, and if necessary correct, the theoretical statements made in the first part of the paper. Clearly any examination of interference phenomena must be based on certain general categories (in our case, the phonological structure of the two languages compared) in order to have not only explanatory, but also predictive power. Nor would it be sensible to "derive" the phonological systems of the two languages from a study of the interferences observed in the course of the experiment: both languages have been exhaustively described and we will therefore have recourse to the standard accounts, many of which constitute the basic equipment of anyone concerned not

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only with the scientific study, but also the practical teaching of English as a foreign or second language. Language interference is obviously not bilateral, but unidirectional: given the type of experiment conducted, we shall be concerned with interference from Italian to English[1], i.e. in which Italian is the primary system and English the secondary system, and exclusively with the segmental features of the phonology of the two languages.

It should be added that, for reasons of pure convenience, all considerations of features regarding syllable structure and non-segmental phonology in general have been excluded from our treatment, since these features were not specifically tested in the experiment. It need hardly be said that it is to be very much hoped that future experiments will not only confirm, or modify, the results set our below, but also deal with some of the above-mentioned elements that were, it should be repeated, only for reasons of convenience and simplicity, excluded from the research in hand.

2. Any study of languages in contact cannot but take as its point of departure the seminal work of Uriel Weinreich. It is obvious that any theory of language interference must start from an examination of the features of congruence and incongruence present in the systems under consideration: if there were no, or only a very low degree of congruence present, no comparison would be possible, and on the other hand it is equally obvious that if there were perfect congruence between the two systems, i.e. if there were a perfect one-to-one correspondence between the features of the one and those of the other, no interference would arise. Neither of these two extreme positions obtains in the comparision of natual languages. It will therefore be our task to give some account - necessarily brief and summary

[1] Unlike Agard and Di Pietro who are concerned with interference from English to Italian. This is of some consequence: for example, at one point they deal with a phenomenon of over-differentiation (p. 29), at least on a theoretical level, for they provide no empirical evidence for this. Their contention is that Italian /i/ is "split" into two, or reinterpreted as the two English phonemes /i:/ and /ɪ/, according to whether it is found in open or closed stressed syllables, e.g.: "vino" as opposed to "visto" ([vi:nɔ] and [vɪstɔ] respectively) in the pronunciation of English speakers of Italian. In the experience of the writer, this is not borne out by the facts.

in the context of the present paper - of the elements of congruence and incongruence in the sound systems of Italian and English. The four basic types of interference treated by Weinreich (pp. 18-10) are under-differentiation, over-differentiation, reinterpretation of distinctions and phone substitution. The presence or absence of any one of these features, particularly of the first two, will clearly depend on the nature and complexity of the two systems to be compared; where the primary system is less complex than the secondary system (as is the case when we compare the Italian vowels with those of English), under-differentiation will be far more likely than over-differentiation, unless there are particular contextual constraints or allophonic features that account for the latter phenomenon. Reinterpretation will frequently depend on contextual constraints and represent an attempt [2] to bring the secondary or foreign system into line with the primary system which the speaker has internalized during the early years of the language acquisition process. For reasons which will become clear in the course of this paper, we shall not be concerned with features of what has been called "interlaguage" [3], i. e. an approximation and reorganization of the secondary system "comtaminated" by features of the primary system, since this represents a stage in the learning process; the subjects who participated in the experiment were not learning English, but merely perceiving it, and hence it may be presumed that their efforts were mainly directed at attempting to fit the "facts" of English into the framework of their own system, that of Italian, with the possible exception of one or two rather sophisticated subjects, who attempted to identify features not present in Italian. We could perhaps simplify Weinreich's categories by postulating interferences due to the contiguity of two phonemes - this would account both for under and over-differentiation - and to the substitution or suppression of one or more distinctive features of a phoneme, which would account

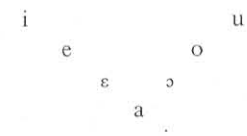
[2] Obviously unconscious, like practically all features connected with the phonological realization of higher level linguistic structures.

[3] The concept of "interlanguage" was first developed by L. Selinker in an article entitled *Interlanguage* in IRAL 10 (1972), pp. 209-231 and has since been used by numerous other scholars, auch as S. Pit Corder.

for reinterpretation. Reinterpretation in fact means that certain categories or features valid for L_1 are "assumed" to be equally valid for L_2. A typical example of this might be consonant doubling present in Italian (both intersyllabic, in such words as "gatto",) and syntactic doubling, or *rafforzamento sintattico* in cases like "a casa"), but absent, except between word boundaries, in English. As we shall see, many of our subjects had considerable difficulty in identifying the fortis/lenis contrast in English stop consonants, presumably because they were unable to identify the relevant distinctive features of the two categories concerned: but this is to anticipate some of the results of the tests which we shall be dealing with in the second part of this paper.

3. A detailed description of either the English or Italian sound system would clearly be out of place here, also because no useful purpose would be served restating facts that are well known and available in a number of standard textbooks on the subjects. Nevertheless it may well be useful to take a quick glance at the sound systems of the two languages for comparative purposes, limiting ourselves, as we have already said, to the segmental phonemes. We shall start with the vowels, classified and transcribed according to the practically universally used system of the IPA. The first two diagrams reproduced represent the typical or "central" positions of the English and Italian vowel systems respectively. The English system is that of RP as described by an author like Gimson, whose transcription has been followed throughout this paper, or others whose approach is broadly similar, whereas for Italian the values of so-called "standard Italian" are given, as described and illustrated by Canepari. No further comment on these two diagrams in necessary whereas in the following two the space available has been divided up into a number areas within which the respective vowel phonemes can roughly be said to fall: everything within a given area is perceived as belonging to - or is "assigned" to - that particular phoneme, everything outside the given area as belonging either to another phoneme or to an empty area in the system, which in auditory terms means that it is perceived to be a sound foreign to the system, like for exemple [ə] for a speaker of standard

Italian. The boundaries marked are to be taken as approximate and impressionistic and can in no way be assumed to be experimentally established or verified. Two things stand out at once: in the first place, the Italian system consists of a set of seven contiguous but clearly delimited spaces, whereas the twelve spaces of the RP system are partly overlapping. This is due to the presence of a set of "long" and "short" vowels, of which the so-called "long" member is distinctly closer in quality than its "short" counterpart [4]. In the second place it will be noticed that the Italian diagram has a large empty space in the centre, i.e. in the mid-central position: in fact Italian /a/ is essentially an open central vowel, so that the Italian vowel system is frequently represented in triangular form, thus:



The English vowels occupy a much larger area of the available space, including practically the whole of the mid-high, as well as low central area. On the other hand the two systems can be said to be congruous in respect of lip-rounding, which is present in the back vowels in varying degrees [5], but absent in the front vowels. /ʌ/ might be said to be an exception to this, but it is to be considered a central rather than a back vowel, and, as we shall see, is by Italian speakers perceived to be somewhere in the

[4] /ɜ:/ and /ə/ can hardly be considered long and short members of the same pair, not so much for articulatory, as for contextual reasons, whereas it is doubtful whether /ɑ:/ and /æ/ can be said to be long and short members of the same pair, as they do not overlap. A stronger case could be made out for /ɑ:/ and /ʌ/, so that one might consider *heart* and *hut* as "long" and "short" realizations of the same vowel. According to another analysis. particularly current among American phoneticians (but cfr. also Gimson, p. 92) the long members are treated as diphthongs, or vowels with an off-glide, so that /i:/ = /ɪj/, etc., a fact which accounts for their length.

[5] An exception is provided by the pronunciation of *not* in General American with an unrounded vowel, something like [ɑ], which occupies the space somewhere near the bottom right-hand corner of the diagram. Also other regional variants occupy various empty spaces, but we cannot go into this question here.

region of Italian /a/. Reinterpretation, therefore, means that the somewhat more "delicate" distinctions of English are redistributed among the seven spaces of the Italian vowel diagram, so that certain oppositions, not only of the type between /i:/ and /ɪ/, but also between /ɑ:/ and /ʌ/ tend to be lost. We shall see later in this paper in what way Italian speakers tend to restructure the English vowel system in terms of their own primary system.

The diagram representing the English diphthongs seeks to illustrate the direction in which they move, rather than the space occupied by them, which falls on either side of the arrows. Though the diphthongs, with the possible exception of English /eɪ/ and /əʊ/ do not represent great problems in the context of a contrastive analysis, it should be noted that there is only partial congruence between the two systems: whereas all English diphthongs are of the falling variety, Italian has both falling diphthongs like /au/ or /ai/ [6], and rising diphthongs like /uɔ/, as in "nuovo" [7].

4. At first sight the two consonant systems seem, from a structural point of view, to be very much more similar. As can be seen from the next chart, out of the 24 consonant phonemes of English, 19 are present also in the Italian system, i.e. disregarding, as we might well do, /t/ and /d/ and considering them merely different phonetic realizations in English and Italian of the same structural element. Out of the 23 items in the Italian system, only 4 (again disregarding /t/ and /d/) are not found in English. In other words, there are four English phonemes (/θ/, /ð/, /ʒ/ and /ŋ/) for which there are no corresponding members in Italian, and in the same way there are 4 Italian consonant phonemes (/ts/, /dz/, /ʎ/ and /ɲ/) not present in English. In addition there

6 Disregarding for our present purposes the greater prominence of the second element in the Italian diphthongs as compared with their English counterparts, so that the pronunciation of English *my* and Italian "mai" can hardly be said to be the same, even though from a purely structural point of view the two diphthong phonemes can be treated as functionally identical.

7 By many treated in terms of continuant + vowel: /wɔ/.

is also one English continuant /h/ [8] not found in Italian, the other two, /w/ and /j/, being present in both systems. Clearly a statement like the above, though correct from a purely structural point of view, is entirely inadequate to account for the considerable complexity of the two consonant systems: on the one hand we find that certain elements that were counted as incongruous in the above comparison are present at a different level in the other system, e.g. [ŋ] has the status of a phoneme in English [9], but is an allophone of /n/ in the Italian system, just like [ɱ]. Similarly [ts] and [dz] are present in English as *sounds* (e.g. in *hats* or *beds*, but can hardly be accorded the status of separate phonemes, as in Italian. What is more, the "same" element is realized in different ways in the two systems, e.g. /t/ and /d/, as we have already noted, or very noticeably /r/. But probably the most significant divergences between the two systems, divergences that result in a considerable degree of interference, are the different contextual constraints the consonant phonemes are subject to, or that they "trigger off", as in the lenis/fortis constraints as regards the preceding vowels. The considerable degree of congruence between the two consosant systems is therefore more apparent than real: to put it vey simply, we all expect Italian students to have difficulty with /θ/ and /ð/, but we are probably much less prepared for subtler, but equally significant, and what is more predictable types of interference, or in other words mistakes.

8 Also classified as a fricative.

9 This, at any rate, is the conventional analysis of [ŋ] : it has strong contextual constraints, in so far as it appears only in a post-vocalic position in the syllable and could be considered an allophone of /n/ in a velar environment, except in word-final position; but it would clearly be theoretically highly dubious, not to say extrjmely awkward from a pratical point of view to consider [ŋ] as an allophone of /n/ in *sank*, but a phoneme in *thing*. This difficulty does not of course arise in a generative theory of phonology, in which /ng/→ [ŋg], with cancellation of the final consonant in word-final position (which onviously corresponds to the historical origin of /ŋ/), but it necessitates on the other hand two distinct generative rules to account for the presence of [ŋg] in *finger*, but only [ŋ] in *longer*. For our present purposes as analysis in generative terms does not seem to be the most useful, even though it must be recognizes that it enables us to explain the hybrid status of /ŋ/ in present-day English.

5. The above account clearly does not pretend to constitute an exhaustive contrastive analysis of the phonological systems, even at segmental level, of the two language in question. It is hoped, however, that it will provide the essential theoretical framwork into which the experiment about to be described can be fitted. It is now time to describe this experiment, to explain the procedure followed and evaluate the results obtained. Perhaps it should be pointed out that the author of the present paper, who was solely responsible for devising, administering and interpreting the tests [10], considers it very much in the nature of a pilot experiment, to be revised, repeated and administered in different circumstances and localities before the results obtained can be considered anything more than tentative, but since, to the best of his knowledge, nothing of the sort has ever been attempted in Italy, the results may be used for what they are worth. The experiment was carried out during the academic year 1979-80 with a group of univeristity students from the Magistero di Suor Orsola Benincasa in Naples; most fo the students - all women - were either Neapolitans or at any rate from the Campania region. The purpose of the experiment was to find out how the Italian speaker perceives the sounds of English, to what extent he recognizes the significant sound segments of the English system and reinterprets them in accordance with the phonological rules of his L_1. It need hardly be said that this reinterpration and "attribution" of a sound to a particular phoneme operates entirely at a subconscious level, as do practically all linguistic choices at phonological level; nevertheless we are entitled to say that the normal speaker of, say, British English "assigns" the medial consonants in *later* and *ladder* to different phonemes (/t/ and /d/), whereas many American speakers do not, because the fortis/lenis opposition is neutralized in that particular position. But this is of course entirely by the way. In order to obtain results reliable from a purely phonetic point of view, i.e. not "contaminated" by the speaker's knowledge

[10] The only exception to this was the recording of the tape; it was considered inappropriate for the author of the tests, who knew what he wnated, to record his own material, and another speaker, who was merely asked to read a number of words and phrases aloud, was therefore used.

of the language and his ability, even if limited, to decodify a message in the presence of noise in the phonic channel, it was decided to use "naive" speakers, or to put it more simply, to administer the tests to students who declared they had never studied any English, though for practical reasons the test group included also a few students who had some English; the results of their tests were, however, considered marginal rather than central for the purpose of the experiment. In this way it was hoped to find out what Italian speakers (or rather "hearers") actually heard, how they perceived the sounds of English, not what they understood, for there was in fact nothing for them to *understand*: they did not (or at any rate had declared they did not) know the language. The subjects were asked to write down what they heard in ordinary Italian spelling, "as if the words perceived were Italian words", using the nearest letter or group of letters for any sounds they found "strange". Short of using a test group of trained phoneticians able to do a phonetic dictation - but clearly no such group was available, and even if it had been, its members were highly unlikely to have no knowledge of English - this procedure, despite its obvious limitations, seemed the most likely to provide the desired results. University students, who it must be supposed know the orthographic rules of Italian, were ideally suited for this sort of experiment, which consisted of five separate tests, which were administered to different groups of participants. In two of the tests they were asked to write down the words as they heard them, in another they were asked to write down the initial, medial and final consonants of certain words, whereas others were to be transcribed in full. In all cases the tests were devised so as to bring out certain significant sound constrasts in English. In the other two tests the participants were told that "English has long and short vowels, just like Latin" (which all of them had studied or were studying), and they were merely asked to indicate whether the vowel in the word read out was long or short. One of the tests was constructed so as to ascertain to what extent the phonetic context ("long" vowel in a fortis context) conditioned their perception of what is a long and a short vowel in English. The other test sought to verify the hypothesis (considered somewhat unlikely from the start) that Italian speak-

ers might hear a long vowel in a context in which in Italian the vowel would be long; i.e.: in a stressed open syllable, e.g. in "sala" ['sa:la] as opposed to "salto", in which the /a/ is short, and consequently English words were chosen in which analogous contextual conditions obtained. It should be said at once that this hypothesis was entirely unfounded: there was no significant relation between this type of context and the subjects' judgment of what vowels are long or short in English. The hypothesis was considered to be unlikely and the test showed this to be so.

In all cases the word was read out once in isolation, then in a brief phrase or sentence so as to make it sound less artificial, and then once again in isolation, after which the participants were asked to write it down or mark it as long or short. The tape was relayed in some cases via highly sensitive semi-professional loudspeakers in a fairly quiet room, in others via earphones in a language laboratory: listening conditions were therefore pretty favourable.

As we all know from direct experience, the first impact with a completely unknown language can be traumatic and leave the speaker entirely disoriented: he finds it very hard to establish where the word boundaries come - not surprisingly, since in most languages word boundaries are based not on phonological, but on morphological criteria -, to follow the intonation contours of the sound continuum perceived, and even "familiar" sounds often seem odd. Questions of word boundaries or intonation did not, as we have said, form part of the tests, but the difficulties encountered with apparently "familiar" sounds was fully demonstrated in a significant number of cases, although it was not worth while to quantify these. Participants failed at times to recognize what might be called the general "phonetic shape" of a word, its "bone structure", i.e. its essential consonant structure. Examples of this kind of mishearing are "brus" for *roof*, "vouc" for *warp*, "tomb" for *tall*. In such cases it is hardly possible to speak of a regular or predictable line of interference, but, as we shall see, there are regular lines of interference and the "mistakes" are therefore entirely predictable. It should be added that, in addition to the specific sound segments or oppositions which the tests were devised to provide information about,

there were a number of "incidental" results, which are among the most interesting of the whole experiment: a test designed to elicit information about the perception of certain vowel segments might provide more interesting results about consonant segments than the test specifically aimed at these [11]. Full consideration of these interrferences will be found under the appropriate categories further on in this paper.

6. The basic assumption behind using ordinary Italian spelling rules as a test of sound perception was of course that if a particular sound is identified by a subject as a phoneme it would be consistently represented by the same letter or set of letters. This may at first sight appear to be too strong an assumption in dealing with a language quite unknown to the participants, but considering the great importance attached to correct spelling in our culture as an index of education, and perhaps even more so in Italian than in English, also in consideration of the greater degree of regularity of the Italian system as compared with that of English, it is probably a valid working hypothesis. The objection that a naive, but educated speaker will represent the "same" sound sometimes in one way and sometimes in another, precisely because it "sounds strange" and he therefore does not know whether it is closer, shall we say, to [i] or to [e], merely means that the person tested has failed to identify the sounds perceived as belonging to the same category, i.e. as being members of the same phoneme. This failure may of course be due either to the "strangeness" of the sound itself, i.e. to the fact that the two systems are incongruous at that particular point, or to different contextual constraints operating in the two languages, and it is the latter that are more significant. For example, there is some evidence of over - differentiation on the part of our test group, some of whom hear distinctions irrelevant in English and are therefore either not generally perceived by English speakers or considered entirely marginal. Such is the case of those sub-

11 The explanation might be the following: for certain consonants participants were asked merely to indicate the consonant in question and their interest was therefore concentrated on that particular segment, whereas in the more general tests this was not so and their responses were therefore more spontaneous.

jects who correctly assign "clear l" [l] to the /l/ phoneme, but hear, even if not consistently, "dark l" [ɫ] as a different sound, which they resolve in terms of a back vowel, so that *pale* is transcribed as "peio" or *veal* as "vio". In other cases we find that a distinction was made between short vowels in a fortis context and the same vowel in a lenis context, a fact which from a purely phonetic point of view is of course entirely justified: this was particularly the case with /æ/, which, as we shall see shortly, was identified with [a], but heard as long, i.e. transcribed as "aa", when followed by a /d/ or a nasal, examples being "paan" for *pan* or "laam" for *lamb*, as compared with "cat" or "kat" for *cat*. These and similar contextual contraints are of course not marginal to the problem of phonemic theory: a phoneme is not a phonetic but a functional unit albeit with certain identifiable phonetic characteristics. It might therefore be objected that naive speakers are able to identify sounds, but not phonemes, since they can have no idea of the functions these sounds have within the language system. One of the purposes of the experiment was therefore to find out to what extent naive speakers are able to perceive the fundamental unity underlying the different phones grouped together in the linguistic (not phonetic) category we call a phoneme. The correct recognition of the phonemic system and of its discrete elements of a foreign language is of course *conditio sine qua non* to understanding it in its spoken form. In our experiment, as has already been said, all linguistic cues were deliberatly excluded in order to see what "sense speakers make" of the phonic continuum they perceive. Given the very pronounced phonemic basis of the Italian spelling system, in what follows we shall therefore assume that if there is more than a purely sporadic tendency to use different transcriptions for the same English phoneme, the subject has failed to identify it as such: put in this way, such an assumption seems almost too self-evident to be stated.

7. Let us now look at some of the results of the different tests, starting with the vowel system. A brief glance bach at Figs. 3 and 4 will help to clarify what diffuculties Italian speakers are likely to encounter here. In the first place, the Italian areas are contiguous, whereas the English vowels partly overlap, with a

regular correspondence between long and short, which, as we know, are features that are in part determined contextually, and degree of aperture. In the second palce, the English system is much "richer" than that of standard Italian, not to mention forms of Italian in which no distinction is made between /e/ and / ɛ/, /o/ and /ɔ/, which means that the English vowels are often closer together than their Italian counterparts and that there are fewer empty spaces in the English vowel area than in Italian. These factors are likey to produce under-differentiation: 12 "pure" vowels, not to mention the diphthongs, have to be interpreted in terms of 7 or even 5 distinctive units, though as we have seen already there may also be cases of over-differentiation due to contextual constraints operating on vowel length in English.

The near-open front vowel /æ/ was given in 29 out of 35 cases as either "a" or "aa", the latter, as we have already mentioned, all in a context of a final lenis stop consonant or a nasal; in only 2 cases do we get "e", and these may be considered sporadic mishearings. Only one subject seemed uncertain as to how to classify /æ/, for she gave 4 transcriptions in terms of "a" (once with "aa"), and 3 in terms of "ae", which may represent an attempt to indicate the more slightly closed quality of the English vowel as compared with Italian /a/. It should however be pointed out that since /æ/ was tested in opposition to /eɪ/ and / e /, the solution in terms of [a] seems natural. It is perhaps also worth pointing out that in the Campania accents of the test group /ɛ/ has a slightly closer realization than in standard Italian [12], so that English /æ/ would tend to be heard as decidedly more open than Italian /ɛ/.

The other two English phonemes attiguous to /æ/ in half-open to half-close position are /e/ and the diphthong /eɪ/. We will deal with these first, and then return to the phonemes roughly in the [a] area. The first element in /eɪ/ is very close to standard Italian /e/ as in "seme", and it is to be noted that in examples such as the above, i.e. in an open accented syllable, the quantity of Italian /e/ is more or less the same as that of the English diph-

[12] Cfr. Canepari, p. 219.

thong. [13] In the regional speech of the test group /e/ however represents a more open variety of the vowel as compared with standard Italian, and in the speech of many speakers of the Campania region the contrast between /e/ and /ɛ/ is probably neutralized. It should however be pointed out in passing that the speech habits of the participants in the experiment were not specifically tested, as this was not felt to be relevant to the purposes of the experiment itself. Without wishing to go into the rather complex question of the status of /e/ and /ɛ/ (and analogously of /o/ [14] and /ɔ /) and the distribution of particular lexical items between the two - a question that frequently arouses a great deal of controversy among ordinary Italian speakers from different regions - it may be proper to observe that these contrasts have very little functional load in Italian: minimal pairs like "pesca" with /e/ = *fishing* and with /ɛ/ = *peach* or "botte" with /o/ = *cask* and with /ɔ/ = *blow* can of course be found, but they are rather rare and this comparative infrequency of occurence undoubtedly favours the merging of the two phonemes. What is more, it is not unlikey that the half-open/half-close contrast is felt to be "unimportant", somehow irrelevant, as normal Italian spelling has no way of distinguishing /e/ from /ɛ/ or /o/ from /ɔ/, and that, paradoxically, educated speakers without phonetic training, like those in our sample, whose phonetic perception, if not their production, as well as "judgments" are heavily conditioned by the spelling conventions of their native language, may well intuitively refuse to recognize differences not represented or representable in the written language [15].

13 This statement is based purely on auditory impression: the author is not aware of any studies based on instrumental analysis of the comparative length of English and Italian vowels.

14 /o/ is however frequently diphthongized in certain positions in the Campania region.

15 The position is of course different for English speakers, who cannot help but be aware that there is no one-to-one correspondence between phoneme and grapheme. Even so, such phenomena as "spelling pronunciations" clearly indicate the influence of spelling conventions on the "phonetic consciousness" of speakers.

Let us now return to the two phonemes in the [e] area. As was to be expected, English /e/ was regularly transcribed as "e", though there is clearly no way of telling whether this is supposed to represent [e] or [ɛ] for the subjects tested, always provided that this contrast operates for them. Only one highly sophisticated suject, who used a series of diacritical marks explained at the foot of the test sheet, gave English /e/ generally as [e] and only once as [ɛ] (= "e largo") in a context in which it is followed by /ɪ/, a fact which evidently gave her the impression of a more open vowel. The same subject gave /e/ as long in one case in which it appears in a lenis context. Similar indications of length (i.e. "ee") also appear in the tests of other subjects, but in these cases the phonetic context is not always relevant. There are also sporadic indications of /e/ in terms of diphthongs ("ei" or "ae"), but it is to be doubted whether any valid inferences can be drawn from such transcriptions, and they may perhaps be attributed to the disorientation caused by the sudden impact for a naive speaker with the sound system of a foreign language, to which we have already referred, even in cases where the two phonemes have very similar realizations in the two languages.

What is far more interesting is that for the majority of subjects the vowels in *let* and *late* are consistently distinguished, i.e. represent different phonemes, the latter being in almost all cases identified as a diphthong, generally as "ei", in one case as "ehi", which presumably represents [eːɪ] (the word being *lame*), in another as "ej", which may be taken as being more or less equivalent to "ei". The sophisticated subject mentioned above, while consistently giving /e/ as a diphthong "ei", in two out of four cases marks it as "ěi", i.e. [ɛɪ] , a clear case of over-differentiation quite unwarranted by contextual constraints, which may perhaps be attributed to psychological factors, to a desire to be as accurate as possible, which leads the subject to hear non-existent differences [16]. The conslusions to be drawn are that in almost all cases /eɪ/ is correctly identified as a diphthong and clearly distinguished from /e/ as well as from /æ/.

16 The results of this particular subject were in any case anomalous. Though tests were of course anonymous, the person concerned was probably a "contrattista" of Geography aged about 35 who volunteered to take part in the experiment; this person claimed, much to her regret, to have no knowledge of English.

Since, as we have seen, /æ / was assigned by practically all subjects - at least in the contrasts specifically tested for [17] - to an [a] type of sound, with which it is undoubtedly contiguous, but hardly identical, it comes into conflict in this area with two other English phonemes, namely / ʌ/ and /ɑ:/. Though /ʌ/ falls within an "empty space" in the Italian vowel diagram, it is acoustically certainly nearer to Italian /a/ than to English /æ/; as for English /ɑ:/, its timbre is very similar to that of Italian /a/, particularly in its Neapolitan variety, which is more retracted than standard Italian /a/[18] and consequently occupies practically the same position as English /ɑ:/. According to Gimson (p. 105) this phoneme varies less in length than say /i:/ according to the type of environment (fortis/lenis), in which it is found, so that the difference in quantity between /ʌ/ and /ɑ:/ is more constant than between /ɪ/ and /i:/, where the contextual constraints seem to be stronger in determining vowel quantity [19], and for RP at least the difference in length between, for example, *cad* and *cat* seems distinctly greater than between *cud* and *cut* or *card* and *cart*.

Let us now look at how the unrounded open or near open back vowels are perceived by out test group. Most of the subjects tested transcibe /ʌ/ as "a" and consistently fail to distinguish between this phoneme and /ɑ:/, though length is occasionally

17 It must admitted that, as hindsight shows, /æ/ should have been tested not only in contrast with /e/ and /eɪ/, but also with /ʌ/ and /ɑ:/. i.e. in cases like *hat, hut, heart*. Any future experiments should certainly take this into account.

18 Cfr. Canepari, p. 194.

19 This contention is not borne out by the results obtained by House from experimental evidence, though it must of course be remembered that House's findings relate to American speech. According to these, the difference in duration of the "short" (or lax) vowels according to whether they are found in a fortis or lenis environment is less than the corresponding difference for the "long" (or tense) vowels. According to House's chart, /i:/ is the vowel that varies most in length, but there seems to be no significant difference between the variation in length among the group of long vowels, whereas the short (or lax) vowels consistently vary less in relation to the fortis/lenis environment in which they are found. In American speech /æ/ is of course a "long" vowel, its average length being the same as that of /ɑ:/ and slightly less than that of /i:/. For the sake of convenience, the transcription used here is the same as in the rest of this paper, even though it is hardly applicable to the realities of American speech.

indicated for the latter by writing double "a". The question of post-vocalic "r" will be dealt with later. Only one of ten subjects tested for this particular contrast consistently attempts to distinguish between /ʌ/ and /ɑ:/, and she declared that she had a "scholastic" knowledge of English. Very occasionally /ʌ/ is given as "o", but these cases are probably devoid of significance, as "o" is clearly reserved for /ɒ/, the unrounded character of this phoneme being clearly perceived in the great majority of cases. We may therefore say that the area covered by Italian /a/, and indicated by the letter "a", has to do service for three distinct English (RP) phonemes: /æ/, as we have seen, /ʌ/ and /ɑ:/. A vague awareness may extist among subjects tested that they represent distinct sounds within the English vowel system, but they are unable either to identify this difference clearly or to make a consistent distinction between the phonemes in question.

/ɒ/ presents few problems: practically all subjects gave it as "o" and only in a very few cases was an attempt made to distinguish the lengthened form of this vowel in a lenis context [20]. Any difference in length here is either not perceived or held to be irrelevant. On the other hand, both length and the different quality of English /ɔ:/, which, as Figs. 3 and 4 show, is however much closer to Italian /ɔ/ than English /ɒ/, are clearly perceived by many, if not the majority of subjects tested. Apart from the question of post-vocalic "r", which is however not found in the accent of the speaker on the tape, except in the case of /ɜ:/ (*her*, etc.) where a distinct, if not very strong r-colouring can be heard, a glide of some kind is perceived by subjects who transcribe /ɔ:/ as "oa", "ou", whereas in other case we get a mere indication of length, i.e. "oo". Most of the participants in the test do make some attempt to distinguish /ɒ/ and /ɔ:/ and the conclusion that our naive speakers tend *not* to equate the sounds in *pot* and *port* seems entirely justified, even if it is not always quite clear to them what this difference consists of.

The third phoneme that falls clearly within the half-open, half-close back area is the English diphthong /əʊ/ [21]. This pho-

20 These attempts are much more frequent, as we have seen, in respect of /æ/.

21 This phoneme is realized by the speaker on the tape according to its average contemporary RP value, not in a particularly "advanced" form like [ɘ̟ʊ] or [æ̟ʊ].

neme was tested mainly in contrast with /ɔ:/. One thing that emerges, though admittedly in this case the sample is somewhat limited, is that the majority of subjects fail to identify this sound as a distinct phoneme: this can be deduced from the haphazard way in which the various examples are transcribed, which can hardly be attributed to contextual variants. The other significant fact is that, whereas it is true that we have a perception in terms of "o" (but we have no means of saying whether this represents [ɔ] or [o], the diphtohongal character of this phoneme is clearly identified in many cases, so that we get transcriptions like "ou" (which we also found for /ɔ:/), but also frequently with a letter "e", a typical case being "seu" for *so*, or even "e" on its own; "fhem" and "fem" for *foam*. This indicates that the mid-high central vowel which is the starting point of this phoneme in its contemporary realization, is clearly perceived by many of our subjects, and it is perhaps precisely this "strangeness" of a vowel that falls largely within an empty space in the Italian vowel chart that militates against its being identified as a phoneme: subjects are aware that they are hearing a sound that is "out-side" their own system, they attempt to indicate its phonetic characteristics with varying degree of success, but they fail to realize the functional unity of the sounds they attempt to represent; a conclusion that seems hardly surprising in the light of what we have already said about the linguistic, functional character of the phoneme.

Let us now pass on to the close vowels, dealing first with those in the front area. As Fig. 3 clearly shows, there is considerable overlap between Englis /i:/ and /ɪ/ on the one hand and also between English /ɪ/ and Italian /e/ on the other, and especially of a close variety of Italian /e/, which is however not characteristic of the accent of the Campania region. This overlap is amply borne out by the uncertainty shown by many of the participants in the test as to whether to assign English /ɪ/ to the [i] or to the [e] area. Some subjects have a preponderance of [i] as opposed to [e], others interpret the "short" vowel primararily in terms of [e]. We pass from one transcription out of 8 in terms of [e], the other 7 being obviously in terms of [i], to a maximum of 7 cases out of 8 in which /ɪ/ is given as "e". Only 2, including the sophisitcated subject we have already

mentioned above, out of 24 subjects consistently transcibe /ɪ/ as "i", i.e. assign it definite to a phoneme in the [i] area. Phonetic context is perceived to be relevant by some subjects, /ɪ/ in lenis contexts being given as "ii", i.e. as long, whereas in fortis contexts we have a short form of the vowel, but there is no absolute consistency in this. Some subjects perceive the /i:/ - /ɪ/ contrast mainly in terms of quantity: for example, in one case, 5 out of 7 instances of /i:/ are transcribed as "ii". i.e. as long, and our sophisticated subject too distinguishes the two phonemes in terms of length. On the other hand, another member of the test group fails to distinguish between /i:/ and /ɪ/ at all, so that *sit* and *seat* are both given as "sit", *cheap* and *chip* as "cip", *deep* and *dip* as "dip", etc. These transcriptions should be compared with the results of the tests concerning vowel length, which will be discussed below. But apart from such extreme cases, it seems fair to conclude that most subjects have some awareness of the /i:/ - /ɪ/ contrast, which some resolve predominantly in terms of vowel aperture, others in terms of quantity, though there is no absolute consistency in this and contextual constraints too play their part in determining vowel quantity, at least for those subjects who perceive quantity as being the relevant distinguishing feature. English /i:/ is more naturally identified with Italian /i/, since it is phonetically more similar [22] to the Italian phoneme than /ɪ/, which is often felt to be strange, some kind of in-between sound, the exact classification of which presents a problem.

The position of the close, rounded back vowels is almost exactly parallel to that of the front vowels, and it would therefore be reasonable to expect our subjects to perceive them in a more or less analogous fashion. This is in fact exactly what we find: the phoneme identified with Italian /u/ is English /u:/, whereas subjects were uncertain how to classify English /ʊ/, which is at times assigned to the [u] region, and at others to [o]. In fact, out of 24 subjects in whose tests the /u:/ - /ʊ/ contrast is relevant, 12 transcribe at least some words with the letter "o" [23].

[22] More similar, not identical with: all English long vowels can be treated as diphthongs of the [ii] or [ij] variety. Cfr. note 4 above.

[23] But this represents more than 50%, as some of the 24 tests can be described either as "useless" or else "contaminated" by a knowledge of English.

The results vary considerably: we have cases of "u" being given in all instances, and others in which "o" appears in all words with /ʊ/ tested, but this kind of absolute consistency is not the rule. Out of the 12 who have at least some instances of "o", only 3 give it in all cases and 6 in a majority of cases. The perception of /ʊ/ can therefore be seen to be exactly parallel to that of /ɪ/, which is in fact exactly what we would expect from a glance at the vowel diagrams. /u:/ is predictably transcribed as "u", which for those subjects - but as we have seen they are a minority - who do not use "o" for /ʊ/ generally means a failure to distinguish between the two phonemes [24]. In some cases we get transcriptions of /u:/ as "uo", e.g. *root* = "ruot" [25], but on the whole length is not perceived to be a relevant feature, for cases of "uu", i.e. [u:], are comparatively rare: only 2 out of 24 subjects indicate length consistently, whereas in a few other cases length is dependant on contextual constraints. For example, whereas *move* is given as long, *loose* (i.e. /u:/ + fortis consonant) is given as short. To sum up: 50% or more of our subjects transcribe /ɪ/ and /ʊ/ at least sometimes in terms of the more open vowels with which they are contiguous, but whereas length is felt to be more relevant for /i:/, there are fewer cases of /u:/ being given as long. Again, as with /ɪ/, subjects may perceive /ʊ/ to be in the [o] area, but have no means of distinguishing [o] from [ɔ], so that even though *put* and *pot* may both be transcribed as "pot", we cannot necessarily assume that they are perceived as being identical, for we must always remember that

24 What is perhaps surprising is not that some subjects should fail to distinguish between the two, but that so many should succeed in doing so, for it is far from certain that all English speakers would clearly identify the vowels in say *put* and *root* as "different" sounds. This purely impressionistic, untested assertion is borne out by a number of facts: the historical instability of the two phonemes, shown also by some degree of free variation in the present-day pronunciation of certain words, e.g. *book* = RP /buk/, but also /bu:k/, which is considered either old-fashioned and/or slightly dialectical (northern) in character; the comparatively low frequency of the phonemes in question, not to mention the extremely low functional load of the opposition /u/ - /u:/. On the other hand, the speaker on the tape has a particularly close, somewhat centralized pronunciation of /u:/, with a distinct off-glide, something like [üa], which may partly account for the results obtained.

25 Cfr. note 24 above on the realization of this vowel by the speaker on the tape.

recourse to ordinary Italian spelling is a very rough-and-ready instrument of phonetic analysis, with severe limits which it would be foolish to ignore.

It is of course in the central area, where, as a glance at Figs. 3 and 4 shows, the Italian vowel diagram is empty [26], that one might expect Italian speakers to have particular difficulties. Subjects were tested for /ɜ:/ in contrast with the two centring diphthongs /ɪə/ and /ɛə/, which will be dealt with below. The results, which unfortunately concern only a rather limited group of participants, do not allow us to say with any degree of certainty whether the subjects tested were able to identify the phoneme or not. It should be pointed out that, as we have already mentioned, though speaker on the tape has as a whole a non-rhotic accent, in the case of /ɜ:/ a distinct, though not very strong r-colouring can be heard, whereas /ɪə/ and /ɛə/ are generally speaking free of r-colouring, and this must be borne in mind in interpreting the results of the tests. On the whole it can be said that most subjects seem to identify /ɜ:/, perhaps precisely because this phoneme is "strange", i.e. falls quite outside the Italian vowel system, although their transcription of it is far from uniform. In most cases we find a prevalent representation (or "interpretation") in terms of [o] + [r], in others in terms of [a] + [r]; these vowels are therefore felt to be the nearest Italian equivalents to /ɜ:/. It is to be noted that the only identification of /ɜ:/ in terms of a front vowel, i.e. [e], occurs in the tests of students who have done some English (3rd year university students of English, though in other respects their performance reflects somewhat negatively on their achievement). The actual transcriptions vary between "aar", "ar", "o", "or", "oor", "our", "oar" and "oer": the transcriptions with two vowels may be held to indicate the indeterminate (central) quality of the English vowel, or alternatively the perception of an off-glide associated

26 It should however be noted that in the dialcet and regional speech of Campania there exists a form of /ə/ in post-tonic position, rather like English /ə/ in words like *teacher*. Subjects were however not tested for vowels in unstressed syllables, as it was felt that the identification of such vowels in a language like English, with strong tonic stress and consequent weakening of practically all undtressed vowels, would have presented insurmountable difficulties for our test group and provided useless or uninterpretable results.

with r-colouring. In one case, that of the person we have described as "sophisticated subject", the "r" is enclosed in brackets and glossed as "quasi muto", the vowel itself being given as "o", which is described as "suono intermedio tra due vocali", or in another instance as "o(e)r", where (e) is taken to indicate "quasi muto". The conclusion to be drawn from this part of the experiment is that /ɜ:/ is perceived to be a sound difficult to define, but probably felt to be a distinct unit in the English vowel system.

The two centring diphthongs /ɪə/ and /ɛə/ do not on the whole represent great problems for our test group. Even though the transcriptions of any single subject are seldom uniform, most of them probably succeeded in in identifying the two phonemes in question. /ɪə/ is given as "ie", "ia", "ier", "iar", or "ir" and /ɛə/ as "ea", "ear" or "eer", which shows that the first element is correctly identified as [i] and [ɛ] respectively [27], and that subjects found it difficult to place the central vowel (or glide towards a central vowel) which constitutes the second element of the diphthongs concerned. Practically all subjects at one time or another hear a post-vocalic [r] , though as has been said, no r-colouring is present in the pronunciation of these diphthongs by the speaker on the tape, or at any rate were heard by the author of this paper. In one case we have the intrusion of "l" instead of "r", which would seem to represent an attempt to indicate a glide element. One final remark about our frequently mentioned "sophisticated" subject: all her trascriptions have "r", but about half of them are enclosed in brackets (= "quasi muto") - in other words, what is heard is not a clear enunciation of post-vocalic [r] of the kind that might be found in an Italian word like "porto", but a slight r-colouring, a proof of the contention that ignorance of a language can at times go together with very precise perception. On the other hand it should be pointed out that in such cases as *fork* or *port* in the tests concerned with /ɔ:/, there were far fewer cases of transcriptions with "r", but a detailed examination of this divergence would be more appropriate to an analysis of the speaker on the tape than to

27 Or [e] , we have no means of telling: it certainly falls somewhere in the area between half-close and half-open.

the perception of the participants in the experiment. Other aspects of the perception of [r] will be dealt with below. The perception at the third centring diphthong /ʊə/ was not tested.

Since it was felt that the other diphthongs, i.e. /aɪ/, /aʊ/ and /ɔɪ/, all present in very similar forms in Italian, did not present particular problems, no words containing them were included in the tests.

8. As we have seen in the treatment of such vowels as /i:/ and /u:/ in particular, some of our subjects, but by no means the majority, are aware of the fact that vowel quantity is a distinguishing feature of the English vowel system, and therefore indicate vowel length, albeit somewhat inconsistently, usually by means of writing a double vowel. In test 2, which was administered after the transcription test [28], participants were asked to indicate whether a certain vowel segment was long or short. The test, which contained the same words as the first transcription test, and like it was divided into two parts, each containing 40 words [29], was devised so as to test "long" and "short" vowels in different phonetic contexts, in order to assertain to what extent this influenced the subjects' judgment of quantity. 22 participants were involved in this test, and the results varied considerably. The maximum score of correct answers was 38 out of 40, but the two subjects who scored 38 (and one who scored 37) claimed to have done some English before. The best score for a naive speaker was 36 out of 40, i.e. 90%, the worst 18 (= 45%), the average score, discounting those subjects who had some knowledge of the language, being 33 (= 82.5%). Perhaps the most significant part of the test, howevere, consisted of the mistakes made, which in the great majority of cases must be attributed to the influence of the phonetic environment. For example, out of the 22 mistakes made by the subject with the lowest score, 16 are to be attributed to contextual factors: 9

28 We have already dealt briefly with Test 4, which was also concerned with vowel quantity: nothing more needs to be said about this test.

29 Thre mechanism was the following: Group 1 did Test 1 (a), i.e. 1-40 as a transcription test and Test 1 (b), i.e. 41-80 as a test of vowel quantity; Group 2 did 1 (b) as a transcription test and 1 (a) as a test of vowel quantity.

short vowels given as long in a lenis environment and 7 long vowels as short in a fortis environment. Another characteristic case is that of a subject who scores 29 (= 72.5%): all of her 11 mistakes were of this nature; 3 short vowels given as long in a lenis environment, 8 long vowels given as short in a fortis environment; or again a subject with a score of 30 (= 75%), who gave 3 short vowels as long in a lenis environment and 7 long vowels as short in a fortis context. About the same number of short vowels are perceived as short in a fortis environment as vice versa, i.e. 72 and 79 respectively out of the total count, even though, according to the graphs produced by House [30] there is a greater difference between the maximum and minimun values of long vowels than of short vowels, i.e. the lengthening process of the short vowels is less marked than the shortening process of the long vowels. Nevertheless, given our very limited sample population, it would be extremely hazardous to read too much into the difference of 7 mistakes in favour of reduced long vowels as compared with extended short vowels, quite apart from the fact that House's results were obtained in laboratory conditions and are valid for American English and perhaps only partly so for RP. What is however certainly significant is that only 4 out of the 22 members of the test group made more than 3 "unjustified" mistakes, and that these latter amounted to a total of 46 as compared with the 151 mistakes attributable to contextual constraints.

The relative "success" of our subjects in identifying quantity in this test as compared with their failure in many cases (more particularly in the [u] than in the [i] area) to perceive length as a distinctive feature in the trascription tests can probably be ascribed to the fact that vowel quantity in Italian is entirely dependant on contextual constraints and not an intrinsic feature of the vowel phonemes as such, so that when the speaker's attention was drawn to this feature, they were able to identify it with some degree of success, whereas in a free transcription vowel quantity is not felt to be of primary significance. The native Italian speaker does not "hear" vowel quantity in the same way as the native English speaker, and it is surely not devoid of significance that of those subjects who distinguished /i:/ from /ɪ/ and /u:/ from /ʊ/, phonemes which provide the clearest examples of this kind of opposition, more did so in terms of vowel aperture than in terms of vowel quantity. These findings, if confirmed by further and more sophisticated tests, have interesting implications as far as the teaching of the English sound system to Italian students is concerned.

[30] Cfr. note 19 above.

9. In comparing the consonant systems of English and Italian we have already mentioned the difficulty occasionally encountered by our test group in recognizing what we have termed the "bone structure" or general shape of English words. Let us now look in greater detail at the way English consonants were perceived by the participants in the experiment. It is a commonplace that the consonant systems of the two languages, with the exception of the "difficult" consonants /θ/ and /ð/, which are not present in Italian, are basically congruent [31]. The results of the tests show this assumption to be far too simplistic. Participants encountered considerable difficulties with certain consonant segments that might at first sight appear somewhat surprising, but that more accurate analysis shows to be entirely predictable.

Let us look in the first place at how subjects dealt with the obvious incongruence between the two consonant systems, which apart from the two dental fricatives /θ/ and /ð/ which we have already mentioned, comprise /ŋ/, at least on the phonemic level [32], and /h/. Both /θ/ and /ð/ were tested in all positions in which they occur in English words. In initial position the most common interpretation of /θ/ was as a fricative [f] (in 13 cases out of 28), whereas the next most common interpretation (in 6 cases out of 28) was in terms of a dental plosive [t]. One subject gave "t" or "f", which clearly shows this uncertainty as to how to classify the consonant in question. There were also 2 cases of [s] and 4 transcriptions as "th", but 2 of these were by subjects who had done some English, so that we can safely disregard them for our

[31] A contrastive analysis which takes English as L_1 and Italian a L_2 would of course have to take into account also Italian /ʎ/ and /ɲ/, which represent problems for English speakers.

[32] For the status of English /ŋ/, cfr. note 9 above.

purposes. In word final position, practically all our subjects hear /θ/ as [f], with the exception of 3 who had some knowledge of the language, and there are 2 cases of [s] and one of [v] and in one case uncertainty between [f] and [v]. The same pattern is repeated also for /θ/ in word medial position, where we also get 7 transcriptions as "ff". It is of course natural that subjects should perceive a fricative as more intense in an inter-vocalic position, since it would tend to wave greater prominence threre than elsewhere. Most subjects therefore preserve the fricative character of /θ/, shifting the place of articulation slightly forward, whereas the next most common group perceive the dental character of the English consonant, but alter its mode of articulation from fricative to plosive. This latter interpretation is found particularly in word initial position. It might of course be objected that subjects, even if they perceived /θ/ correctly, had no means of transcribing it, but it should be observed that they were asked to represent any "strange" sound by the nearest Italian equivalent. Our comments on the results might therefore be reformulated in the following terms: more than twice as many subjects heard initial /θ/ as being nearest to Italian /f/ as to those who heard it as being nearest to /t/, whereas in medial and final position in the great majority of cases the fricative character of the consonant is held to be most significant. A similar pattern is found also for /ð/: in initial position 15 subjects give [v] and 6 give [d] though there are also 7 cases of transcriptions in terms of "th", many of which may however be attributed to some knowledge of the language. In inter-vocalic positions [d] predominates: there are in fact 11 cases of [d] and only 4 of [v], but also 7 of "th", on which we have already commented. Four cases of [t] seem somewhat anomalous, and 2 cases of transcriptions as "dh" and "h" undoubtedly represent attempts to catch the exact phonetic configuration of the English phoneme.

Let us now pass on to English /ŋ/. Perhaps the most significant feature here, in spite of a considerable number of transcriptions as "ng", is that in two instances in which minimal pairs were present in the test (*sin/sing* and *gone/gong*), which were dictated in succession to each other, practically none of the subjects succeeded in distinguishing between them and in most cases identical, or quasi-identical transcriptions were given. The Italian

speaker uses [ŋ] correctly in velar contexts, but is unable to identify it as such and therefore fails to perceive its distinctive nature in contrast with [n] [33]. Though it must of course be observed that the functional load of this opposition is not very heavy in English, failure to identify it may lead to occasional misunderstandings.

As regards /h/, it may be assumed that most Italian speakers are vaguely aware of an [h] sound, but frequently fail to distinguish it. In one test, only 3 out of 14 subjj cts perceived initial /h/ in *heather*, and one of the three had some knowledge of English. In another test, in 2 out of 9 cases initial /h/ was omitted, though it should again be observed that 4 of the 7 subjects who did insert initial /h/ (in *horse*) had done some English. On the other hand, 2 naive subjects inserted an initial [h] where none was present in English. The perception as well as the production of /h/ clearly does represent some problems for Italian speakers, a fact which is not only entirely predictable from an analysis of the consonant systems of the two languages, but also familiar to all practical teachers of the language.

One consonant that is present in both systems, but has a different realizations in most varieties of English as compared with its Italian "equivalent", is /r/. The speaker on the tape used the most common variety of this phoneme in present-day British English, namely - at least in most cases - a frictionless continuant. The different phonetic quality of this English consonant is clearly perceived by many subjects, especially of course in word initial position, so much so that in a number of cases they failed to identify it as some kind of [r], as is testified by transcriptions like "ui", "v" or "w" ("uid" or "vid" for *read*, "wourf" for *roof*, etc.), whereas in other cases it was given as "ru", "vr" or "wr", e.g. "ruan" for *run* and "vriid" for *read*, which may be taken as attempts to come to terms with the exact nature of English /r/, i.e. [i]. In extreme cases, as we have seen, this may result in a failure to identify the phoneme correctly, though

[33] This observation will be borne out by anyone who has ever taught English pronunciation to Italian students, who, in so far as they have no training in the phonetics of their mother tongue, are frequantly surprised when told that the "sound" [ŋ]" exists as an allophone of /n/.

it must be pointed out that such cases were not very frequent, and if subjects are awere of the "strangeness" of English /r/, for most of them this did not represent an insurmountable obstacle to its recognition.

As regards other unfamiliar allphones of consonants present in both systems, it was noticed that "dark" or velarized /l/, i.e. [ɫ] was frequently perceived as a vowel segment in the back region [34], or at any rate that an instrusive vowel in that area was heard to be part of final /l/. Thus *tall* is transcribed as "tu" or "tuu", *toll* as "tou", *pale* as "peiu" or "peio" or even "payer", *veal* as "vio", *veil* as "veo" and *zeal* as "zio", whereas in other cases we get *wool* transcribed as "vuol", where the letter "o" almost certainly represents an attempt to transcribe the velarized character of the final consonant rather than the quality of the vowel. In all but the last of these cases it is clear that subjects failed to regognize "dark" /l/ as belonging to the family of lateral consonants, though to an ear "contaminated" by a knowledge of the English sound system, not to mention that of a native speaker, the acoustic difference between the two allophones of the /l/ phoneme in English might well seem minimal. We have here a case of over-differentiation, or at least attemped over-differentiation.

But undoubtedly the most frequent type of mishearing consisted of the tendency to confuse the voiced and unvoiced pairs of the English stop consonants. This phenomenon is present both as an "incidental" result in tests designed to ascertain vowel perception and also in a test in which subjects were asked to indicate only the consonant (initial, medial or final) of the words read out. Confusion here takes two principal forms: initial lenis consonants were given as unvoiced, whereas final fortis stops were given as voiced. To cite a few examplea of a qhenomenon that was found in the tests of practically all subjects: in the first category we get *dig* given as "tegh", *boot* as "but", *deep* as "tip", *bib* as "pib", *blood* as "plad", *do* ad "to", *game* as "ken" (notice aldo "n" for /m/), *gate* as "keit" to mention only some. On the other hand in final position we find *knit* transcribed as "ned",

[34] This was one of the "incidental" results of the experiment, i.e. not specifically tested for.

soup as "sub", *peak* as "pige", *fork* as "foeg" or "fough" and also "foorg" and "foag", *root* as "rud", *mop* as "mob", *lark* as "lag", *kick* as "chig", etc. Transcriptions like "pudt" for *boot* or "dib(p)" for *deep* show uncertainty as to how to classify the final plosive. At other times we get a double confusion, with initial lenis stops being unvoiced and final fortis stops voiced within the same word, e.g. *boot* appeared ad "pud" or *deep* as "tibe". On the other hand there are also some cases in which a final lenis stop is unvoiced, e.g. *bed* is given as "beth" or elsewhere as "bedt", *bad* as "bat", *said* as "senth". If we examine the test in which subjects were required to indicate merely the initial consonant, we find that out of 14 who took part in this test, only 4 made no mistakes, and of these 4, only one subject declared she had never done any English; of the remaining 10, one made 4 mistakes out of 6 (i.e. gave 4 initial lenis stops as unvoiced), two made 3 mistakes out of 0, one made 2 mistakes and was uncertain about one case, two made 2 mistakes and the other four made one mistake each. In the test in which subjects were asked to indicate the final consonant of a word the score was rather better, i.e. in most cases not more than one out of six final fortis stops was given as voiced, though many appeared to be uncertain as to the status of these segments: characteristic mistakes here were /b/ (in *knob* or *hob*) given as "v" or even "e" or in some cases being confused with "g", whereas /h/ (in *bag*) also turned up as "b". Confusion tends to be less marked where medial stops are concerned, though here too we get one or two cases of /g/ being given as "k" or /d/ as "t", but these cases were confined to subjects who obtained a low score in the initial consonant test, and who may therefore be presumed to have a generally poor perception of consonant segments.

How are we to interpret these results? As we have seen, the two most common errors consist of devoicing of initial lenis stops and vice versa, voicing of final fortis stops [35]. The answer is surely not far to seek. We have consistently used the terms lenis/fortis for the English consonants as rather than unvoiced/

[35] There were also some cases of devoicing of lenis fricatives, especially /v/, particularly in word-final position, e.g. *love* was given as "laf", but such transcriptions were not frequent.

voiced, because all recent textbooks on English phonetics [36] insist that the distinctive oppositional feature of the series /p t k/ as compared with /b d g/ is to be treated in terms of tension (fortis/lenis) rather than of voicing [37]: initial and final lenis consonants are only partially voiced, i.e. in an initial position voice onset is somewhat delayed, so that there is a moment or fraction of a second when there is no vocal fold vibration associated with the production of the consonant [38]. In Italian /b d g/ are fully voiced and clearly Italian speakers tend at times to perceive these partially voiced lenis consonants as unvoiced. It is interesting to note that in some cases subjects were uncertain how to classify the sounds perceived and therefore gave both letters, say "d" and "t", as alternatives. It should of course be added that one of the clues in the correct perception of the opposition /b d g/ and /p t k/ for English speakers is the presence of aspiration in an initial position associated with the latter series, a feature entirely absent in the corresponding Italian series. Aspiration was fairly marked in the production of these phonemes by the speaker on the tape and threre were occasional attempts to indicate this in the transcriptions in the tests: for example, *too* was given as "thu" and in one case as "t(c)iú" in another as "tiu", *tore* as "thoa", *pear* as "phea" and *pier* as "phia", all of which are undoubtedly interesting, as they represent attempts on the part of naive speakers with a sensitive ear to convey the particular quality of the allophone of these English consonants.

Another element in the situation may perhaps be attributed to the regional accent of the speakers tested: the partial voicing of unvoiced consonsnts like /k/ ([gɑ:nə] or rather [g̊ɑ:nə] for standard Italian [kɑ:nɛ] = "cane") is one of the best-known and most frequently commented on characteristics of the speech of the Campania region. If the opposition of such pairs as "gallo" and "callo" therefore tends to be neutralized in this region, this would account for, or be an additional explanation of, the uncertainty connected with the exact nature, or representation of the consonants in question.

But if the delay in voice onset may account for the frequent interpretation of initial English lenis stops as voiceless members of the pair, how are we to explain the opposite phenomenon, no less frequent, of final fortis stops being confused with the voiceless members of the pairs concerned? One answer is probably to be found in what we have said about the regional accent of the subjects tested, and in order to verify this, the experiment would have to be repeated with speakers from other regions of Italy. Stop consonants of course never occur in word final position in either standard Italian or in the speech of the Campania region, so that English monosyllables like *soup* or *knit* represent lexical items that in any case sound unnatural to the Italian ear, and that is perhaps why we get occasional transcriptions like "pige" for *peak* or "tibe" for *deep*, with confusion of both consonants as we have already pointed out. But such cases are comparatively rare. The pronunciation of words like Italian "lato" as [l̥ɑ:d̥ɔ] in the Campania region may have conditioned the perception of our subjects also in cases where the stop occurs in word final position, so that *soup* turns up at "sub", etc. Another explanation of the frequent occurrence of voiced consonants in word final position in place of the fortis member of the pair may lie in the nature of the articulation of the consonants concerned: /p t k/ in words like *deep, let* and *sick* generally only have incomplete plosion, or no plosive solution at all in certain contexts, e.g.: in a sequence like *let me* in ordinary colloquial speech, and this weakening of the final segment, combined with the fact that a word ending in a consonant must in any case sound strange to an Italian ear, may also partly account for the phenomenon described above. Both explanations must, by the nature of things, remain speculative: what is unquestionable is that our test group found considerable difficulty in identifying the feature of voice in the English stop consontants, in spite of the apparent congruence of the two systems. Only further experiments conducted in different parts of Italy and with a larger sample population will show to what extent the findings obtained in the experiment described in this paper can be generalized. The explanations we have offered in terms of auditory phonetics would lead one to

36 Cfr. for example Gimson, p. 147.

37 The same applies of course also to the fricatives, but we are not concerned with these here.

38 Cfr. Fry, pp. 135-136.

believe that at least some generalization is warranted, but in view of the fact that our experiment must be considered very much in the nature of a pilot project it would unwise to be dogmatic.

In conclusion we may say that though many of the findings described above were by no means unexpected or unknown to practical teachers of English, the experiment confirmed on an empirical basis what we know from a theoretical analysis of the two phonological systems, and this in itself, if nothing else, seems to the present writer to make it of more than passing interest.

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The English vowels (RP)

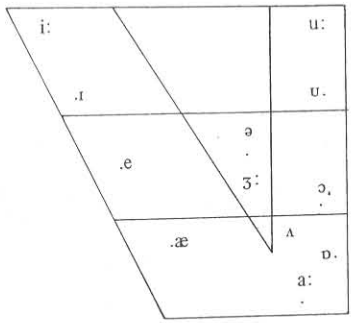

Fig. 1

The Italian vowels (standard Italian)

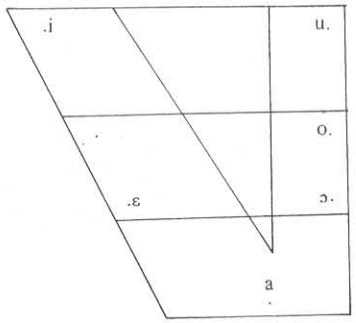

Fig. 2

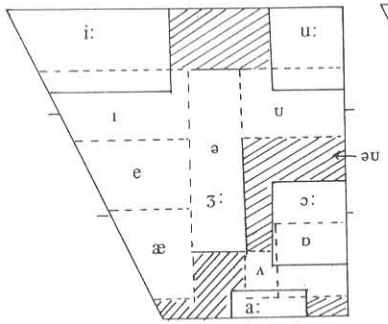

Fig. 3

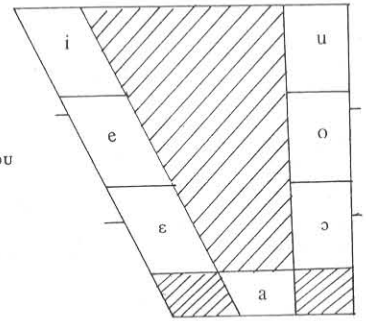

Fig. 4

——— delimits the "long" vowels
- - - - delimits the "short" vowels

"empty" areas

The English diphthongs

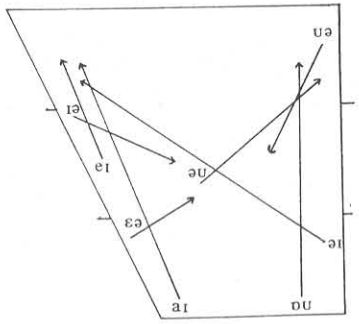

Fig. 5

Fig. 6

THE CONSONANTS OF ENGLISH
AND OF ITALIAN

	BILABIAL	LABIO-DENTAL	INTER-DENTAL	DENTAL	ALVEOLAR	PALATO-ALVEOLAR	PALATAL	VELAR	GLOTTAL
FRICATIVE		f v (ʧ ʋ)	θ ð		s z (s z)	ʃ ʒ (ʃ)			
AFFRICATIVE				(ts dz)		ʧ ʤ (ʧ ʤ)			
PLOSIVE	p b (p b)			(t d)	t d			k g (k g)	
ROLL / FLAP				r* (r)					
LATERAL				l (l)			(ʎ)		
NASAL	m (m)			n (n)			(ɲ)	ŋ	
FRICTIONLESS CONTINUANT	w (w)			ɹ*			j (j)		h

English consonants are given outside brackets, Italian consonants are enclosed in brackets.

* [r] and [ɹ] represent variants of the some phoneme.