A Note on Phonological Explanations of Phonetic Failures

The acquisition of good pronunciation in a foreign language presents a number of difficulties of a few distinct types. These are overcome, to a greater or lesser extent, in the process of language learning. One of the most obvious difficulties arises when a student faces sounds in the language he is learning /L₂/ that do not exist in his native tongue /L₁/. Some familiar examples come to mind: any Polish student of English is likely to have some difficulty in the acquisition of a proper pronunciation of the English interdental consonants designated by the letter combination th, simply because these sounds do not appear in the inventory of Polish sounds. Likewise, he will find it difficult to pronounce the most common English variant of the /r/ group of sounds, as the typical Polish sound is drastically different from it. The same goes for a great number of other sounds that differ considerably in the two languages. It is the sum of these small differences that creates the impression of a foreign accent in the speech of those who have acquired a reasonably good standard of pronunciation.

There are, however, a few other things that prove troublesome in the process of acquiring the vocal side of a language. L₂ may contain in its inventory elements which exist in the inventory of sounds in L₁ but these still may constitute considerable obstacles for a foreigner. Some such difficulties are due to combinations, i.e. the appearance of sounds in clusters. Thus there...
exists in Polish the final sound of the English words **sing**, **bring**, **climb** etc. but in Polish it only appears preceding a velar plosive consonant, i.e. **k** or **g**. In such a situation we can say that the appearance of a certain sound is uniquely determined by its context, i.e. by the sounds which precede or follow the segment in question. Thus we get the following words in Polish **bank**, **tango**, **make**, **kota** etc., where the nasal consonant appearing directly before the velar stop is identical with the English final velar nasal consonant. This consonant, however, presents serious difficulties for a Polish student as in his language it appears exclusively in one environment. In English it may appear in the same context as in Polish /cf. **bank**, **tango**/ and here it will, of course, cause no problems but, much more frequently, it occurs in situations unknown in Polish, i.e. in the word final position or pre-vocally /cf.: **sing-sing**, **cling- cling** etc./.

A slightly more intricate case of the influence of L₁ on L₂ can be seen in the case of the Polish final consonant unvoicing. As is well known, Polish final stops, fricatives and affricates lose the feature of voice when they appear at the end of the word before a pause. Thus we have **grob**, **row**, **sreć**, **wid**, **strat**, **pad**, **brad** but **Archi**, **row**, **mór**, **gray**, **mod**, **stretz**, **pasja**, **bója**, **brąz** etc. This is clearly a very general process in Polish¹ and is said to constitute a part of Polish phonology, i.e. the branch of linguistics that studies relationships between sounds as opposed to phonetics that studies sounds without regard for the processes in which they may be involved. Given the Polish words **but** and **bud** we will say that they are phonetically identical /they are pronounced in exactly the same way/ while they are phonologically different for the second of them ends in a voiced consonant /cf. **buty** – **budy**/. Consequently we can say that the phonology of Polish contains a

rule² which unvoices certain consonants in the word final position. The existence of such a rule explains the frequent mistakes that the Polish students of English make while pronouncing the words **bad**, **tid**, **beag**, **bride** as if they were **hat**, **hit**, **beak**, **breach** etc.

But the situation is not as simple as that; for our students also tend to voice the final consonants in **ig**, **og** in some contexts /e.g.: if I knew, of our time/ while unvoicing them in others /e.g.: if she knew, of course/. The result is sometimes correct and sometimes not. Again we must look for an explanation in the phonology of Polish. A closer scrutiny reveals that the rule of final unvoicing is only a part of a larger process operative in Polish, namely, of what we might call "voice assimilation" whereby a word final consonant becomes voiceless if followed by a pause or a word beginning with a voiceless consonant but becomes voice² when followed by a vocal or a voiced consonant, e.g.: **wróg** /siew**t/, **wróg** /siew**t/ *The existence of such a rule in Polish provides a next explanation for the mistakes in English.*

Clearly a part of learning a foreign language consists not only in mastering new and unfamiliar sounds, i.e. in acquiring the phonetics of L₂, but also in acquiring the phonological representations of words and the rules specifying the relationships between sounds in the phonology of L₂. The former point is perhaps slightly less obvious so an example may be called for. Suppose one hears a Polish surname which appears phonetically as /beloz/. On the basis of this phonetic representation one cannot, with any certainty, construct the phonological representation. It may in fact end in a voiced consonant and then we would get e.g. **pans** /beloz/ or in a voiceless one and then we could have e.g. **pans** /beloz/². Evidently the knowledge of a language covers also the knowledge of the phonological representations of words. This would, in our
example, refer to the fact that the final consonant may be either voiced or voiceless phonologically but the speaker of the language must know the form precisely.

Some familiarity with the phonology of L₁ and L₂ is necessary for the teacher of a foreign language — it helps him to predict the mistakes his students are likely to make and thus allows him to take steps towards their prevention and elimination.

The phonology of a language is not always so simple and straightforward as the above examples may have suggested. Quite often it is an exercise in abstraction where considerations of various sorts come into play and the solution of a problem is anything but self-evident. It is, however, the explanatory power of the solution that makes up for its apparent complexity. In what follows I propose to examine a few facts of the phonology of English in view of the mistakes made by some Polish speakers of English, mistakes it may be added, that at first sight appear puzzling and confusing.

As stated above the acquisition of a phonology consists in the acquisition of rules that govern the sound structure of the language. Obviously acquiring long sets of rules is an involved process that must be viewed as extending over years of learning. Thus, at any given moment, a student will have acquired some rules or rule parts that will be expanded and modified in the course of further studies. Acquiring the rules of L₂ is very much like acquiring the rules of L₁, i.e., it is a subconscious process whereby a student deduces the rules from the material presented to him. Needless to say, the construction of the rules of L₂ is always under some control, whether this comes from the teacher or from the student himself. This is not necessarily the case with L₁ where, by the time children receive any systematic instruction, the bulk of the rules has already been acquired. Thus the acquisition of the rules of L₂ could be said to be a more rational or conscious process than that of L₁. As implied above the student may, at times, misconstruct the rules or representations of L₂ and this will be reflected in his pronunciation, although he may be otherwise very fluent in the language. Some Polish speakers of English tend to voice the inter-vocalic /s/ in a rather erratic way. Thus some speakers will correctly voice /ə/ in words of column A, will, again correctly, leave the /ə/ in B unvoiced but will voice them again in column C, this time incorrectly.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>design</td>
<td>misapply</td>
<td>disallow</td>
</tr>
<tr>
<td>resolve</td>
<td>misinform</td>
<td>philosophy</td>
</tr>
<tr>
<td>deserve</td>
<td>assemble</td>
<td>philosophical</td>
</tr>
<tr>
<td>resound</td>
<td>consist</td>
<td>disappear</td>
</tr>
<tr>
<td>resemble</td>
<td>assist</td>
<td>disappoint</td>
</tr>
</tbody>
</table>

The question arises as to the source of the mispronunciation in column C in contrast to the correct pronunciation of words in columns A and B. Again a closer inspection of the workings of English phonology helps to clarify the situation.

One can note in English certain prefixes, among others: -con-, -pre-, -in-, -trans-, -ex-, -dis-, -sub-, -re-, -mis- as well as some stems, which usually have no meanings of their own, such as -for-, -sist-, -sum-, -pel-, -mit and others. From a combination of these we get the following sample lists of words:

1. confer, consist, convey, consume, compel, consent, commit, contain
2. expel, exclain, extend, expose, excuse, excite
3. infer, insist, invade, impose, impel, inform, incite
4. permit, persist, persuade, persist
5. transform, transfer, transpose
As noted above all these words consist of a prefix followed by a stem. We can mark this situation by introducing a special prefix boundary \(= \) into the phonological representations of these words\(^6\).

Furthermore in all cases where the stem starts with an \(a\) followed by a vowel and the prefix ends in a vowel, the \(a\) becomes voiced. Thus it appears that there is a rule in English which can be informally formulated as follows:

\[
\text{a} \xrightarrow{\text{V}} \text{V}
\]

i.e. \(a\) becomes \(a\) when it appears after a vowel /V/ followed by a prefix boundary \(/a\)/ if this is in turn followed by another vowel.

Given now the words:

resist, consume, conserve, design

consist, resume, reserve, consign

desist, suspend, deserve, resign

our rule will correctly voice the stem initial \(a\) if it is preceded and followed by a vowel /e.g. resist, resume, deserve, design/ and it will have no effect otherwise /e.g. consist, consume, conserve, consign/.

The cases still unaccounted for are words like assist, assign, assume where \(a\) appears phonetically between two vowels, and those like persist and lucrative where an apparently similar situation obtains. But the reason here is almost self-evident: in the former case the suffix and the stem both contain an \(a\) in their phonological representations for alongside of assist we find insist with the stem initial \(a\) and aspire with the suffix final \(a\). Likewise we get as-

\[\text{assign but consign and assume but consume. Thus these words would phonologically contain a prefix boundary between the two a's: assist, assign, assume, and the rule of a-voicing as formulated above would have no effect on them.}\]

Words like persist can be accounted for if we assume that their phonological representations contain the suffix ending in \(a\) which blocks the application of the a-voicing rule and the \(a\) is later deleted, at least in the case of Southern British English by a general rule which drops \(a\) before consonants and at the end of the word before a pause /cf. Far West vs. Far East/. The r-deleting rule also accounts for the limited distribution of /ar/ in the phonetics of English: in fact /ar/ appears much more frequently in phonological representations where it is later deleted by the rule just mentioned. It is interesting to note that the rule of r-deletion is not operative in a number of English dialects, i.e. that the /ar/ actually does appear phonetically\(^8\).

All in all we see that the voicing of \(a\) in some positions can be predicted with a fair degree of accuracy by means of a few general rules. It must be stressed, however, that the presence of the prefix boundary is crucial for the proper formulation of this rule. Notice that there is no voicing in words without any boundaries, e.g. 'can, ayl, aseme, some or where some other, non-prefix boundary, intervenes. Thus there is no voicing in recall, prototype, complementary, as all these words contain a word boundary /notice that recall, prototype, complementary are all independent words/. Likewise in parasite, philosophical we get a morpheme boundary after para-, and philo-/of: parasitic, philosophical etc./. We can go even further by pointing to pairs of words in those dialects of English where the difference between column A and column B words consists in the voicing of \(a\) in the former and not in the latter case.
and produces an incorrect phonetic representation. In the case of
the prefix *dis*- the a-voicing rule would have to be slightly
modified to accommodate *a* on both sides of the prefix boundary.

Quite obviously, part of what a native speaker knows about his
language consists in the ability to divide sentences into words
and words into smaller parts. Thus, to take a trivial example, no
matter how similar the English word *cate* may sound to the Polish
word *koc*, no English speaker would ever be convinced that the /ta/
in the English word represents one sound for he knows that a morph-
eme boundary falls between the /t/ and the /a/. Similarly, no Pol-
ish speaker would feel in his bones that the initial *s* in *case*
is a compound of two sounds /i.e.: *t*as/ because for him *ss* rep-
resents a single sound and this feeling can be easily strengthened
by pointing out that no boundary ever falls between the alleged
components of the sound /e.g. no syllable boundary comes into the
middle of *ss* / and all Polish speakers will easily distinguish
between *zawala* vs. *trzynsta*, a task which proves impossible for an
English speaker even if phonetically trained.

Summing up, what must be acquired when studying the phonetics of
a foreign language is not only sounds, combinations of sounds but
also phonological rules and the subtleties of morphological divi-
sions which for the native speaker are as real as the sounds them-
selves.

Another remark seems called for. The type of phonological ana-
lysis followed in this paper may be something of a novelty to most
teachers, i.e. the usual apparatus of phonological analysis with its
concentration on the notion of the phoneme and related procedures
was not used here, and preference was given to the notions of rules
and phonological representation. This was done on purpose because
conventional phonemics proves at its worst when confronted with the
problems we have discussed. To mention but one of a host of things, let us observe that structural phonology strictly disallows reference to any non-phonetic criteria in phonemic analysis. Without reference to the various boundaries which are, to all intents and purposes, non-phonetic properties, the problem of e-voicing would have to be seen as completely irregular and erratic, and furthermore, no explanation could be offered for the mispronunciations discussed above. Clearly /s/ and /z/ would be viewed as phonemes in both Polish and English (cf. *kossa* vs. *bus* vs. *buzz*); thus there is no apparent reason why a Polish speaker should mix them up and, what is more, do it in a consistent way.

The generative analysis presented above explains this phenomenon very easily by making reference to those elements / boundaries/ which are strictly forbidden in any structural analysis. This provides a strong argument for the greater explanatory power of the former. It also suggests that a contrastive generative analysis of Polish and English phonology may prove of great help for teachers of the respective languages. For, the ability to prevent mistakes and to successfully correct them when they arise requires an understanding of their origin and their workings, which is tantamount to saying that it requires explanatory and revealing phonologies of the languages involved.

Footnotes

1. In fact this process is even more general, for the unvoicing of consonants exists also within words (cf. *strewa*, *stodzy*, *opudzię* vs. *trewa*, *stody*, *opudzię*). These cases are irrelevant here and will be disregarded in the following discussion.

2. The term "rule" should be understood in the descriptive and not in the normative sense.
Bibliography


Teocty Rott-Żebrowski

ROZNICE MIEZY PONIĘTKĄ POLSKĄ I ROSTGJKĄ

§ 1. Pomieszchoną nawet obserwacja języka rosyjskiego prowadzi do wniosku, że ma on duże właściwości wspólnych z językiem polskim. Jednocześnie obserwacja ta przekonuje nas, że w wymowie większości wyrazów występują pewne różnice, gdyż wyrazów całkowicie identycznych pod względem dźwiękowym nie jest wiele. Różnice te występują znanym w sposób regularny. Tym właśnie różnicom dźwiękowym poświęcamy pracę niniejszą. Ujawniły je w grupy i wyjaśniamy w jaki sposób i kiedy one powstały. Każdy przecięci język przedstawia sobą twór historycznie ukształtowany. Aby zrozumieć fakty współczesnego języka powinniśmy znać, dzięki i jak one powstały. Odnajdy miąc różnice związane z historycznymi zmianami fonetycznymi wychodzą na ładojenia, o którym jeszcze Czeżmyewski pisze, że bez historii przedmiotu nie ma teorii przedmiotu, a bez teorii przedmiotu nie ma pojęcia o przedmiocie. Lenin mał czasz: "...mę zamachować osobnej historicycznej связи, смотреть на каждый вопрос с точки зрения того, как известное явление в истории возникло, какие главные этапы в своем развитии это явление проходило, и с точки зрения этого его развития смотреть, чем сегодня стала товарищ" /В.И.Ленин, Сочинения, кн.29, т.29 с.428/.