CONTRASTIVE PHONOSTYLISTICS

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The aim of this paper is firstly to show rule relatedness and to give further illustration and substance to the assertions made by Gussmann (1975) and Fisiak (1975) that rules can be pronounced similar if they converge in both their formal shape and their order and depth of application and secondly to examine some pedagogical implications of contrastive phonostylistic analyses.

Generative phonological rules are typically in the form:

$$X \rightarrow Y \text{ in environ. } Z$$

Therefore, rules which are similar should converge in the three component parts of a phonological statement: input, output and environment.

Input convergence seems to be most straightforward. The class of segments undergoing the rule is defined in terms of universal distinctive features, consequently a comparison should be obvious. But even in such cases one has to be cautious in making statements of identity. The specification $\begin{bmatrix} -\text{contin} \\ +\text{del rel} \end{bmatrix}$ denotes the class of affricates. However, if it is an English rule the class membership will be different at different depths of a derivation. In the case of a deep phonological rule the input will include only |č| and |ǰ|. If, however, the rule applies late then its input will additionally cover |tr| and |dr|. More accurately, the scope of the above given specification depends on whether the low phonetic affrication rule turning the sequences of a dental stop and |r| into affricates has already applied or not. The need for such a rule is justified on several independent grounds: dental stop deletion, unvoicing and glottalization (cf. Rubach 1974). Quite obviously this kind of reasoning applies not only to inputs but also to other parts of phonological rules. The point of the above discussion is clear: it does not suffice to look only at distinctive features and the classes which they define — in deciding about the scope

of rules one has to go beyond purely formal comparisons and consider the effects of other rules.

Convergence in the output might seem to be reduced to the taxonomic procedures of comparing inventories of phonetic segments. Let us discuss here a few examples at some length. Surprising as it may appear, the following three statements are true assertions about the phonology of English and Polish:

(1) Voiceless stops are aspirated when prevocalic in the stressed syllable-initial position;
(2) Vowels are nasalized in nasal contexts;
(3) [š, ž] appear in both languages in the context of [č, j, š, ž]

Let us verify the validity of each of these statements by considering the rules which produce the outputs in question.

English has the following prevocalic aspiration rule:

$$(4)\ \begin{bmatrix}-\text{contin}\\-\text{del rel}\\-\text{voiced}\end{bmatrix}\rightarrow[+\text{aspirated}]/\left\{\begin{matrix}\#\\[-\text{strid}]\end{matrix}\right\}-\begin{bmatrix}\text{V}\\+\text{stress}\end{bmatrix}$$

Rule (4) accounts for phonetic variants of /p, t, k/ in *pose, impose, tend, intend, obtain, car, incur,* etc. The [−strid] specification correctly excludes *spot, stop, sky* (also *suspect, discuss,* etc. — after Gimson 1971:152) from the domain of (4). Although little is known about phonetic variation in Polish in this respect, there is no question that aspirated stops *may* occur in *panie* ("sir"), *taka ryba* ("such a fish"), *ale kiedy to zrobisz*? ("but when will you do it?") The rule is identical to (4) (perhaps with the exception of nonstrident restriction). Thus the requirement of formal similarity is ideally fulfilled. Are the rules similar then? The answer is negative: they are not. The fundamental difference lies not so much in the depth of rules (both are purely phonetic) as in their rank: the English rule is obligatory (a well-formedness condition), the Polish rule in phonostylistic with a heavy marking for highly emotional speech. Thus the statement made in (1) (output convergence) reveals only a fraction of the truth.

British English is normally described as having virtually no nasalization of vowels. This description is true but only when we disregard phonostylistic variation. It has been found instrumentally (William Ewan carried out some experiments for me at the University of California at Berkley) that vowels are heavily nasalized in rapid speech pronunciations of the final syllables in *agreement, improvement, component* etc. The rule seems to be limited to unstressed vowels appearing in the bilateral context of nasals:

$$(5)\ \begin{bmatrix}\text{V}\\-\text{stress}\end{bmatrix}\rightarrow[+\text{nas}]/[+\text{nas}]-[+\text{nas}]$$

Rule (5) is clearly phonostylistic. Therefore ,in order to avoid the mistake made previously, let us look for a Polish rule which would also be of a phonostylistic nature. The rule is not difficult to find:

$$(6)\ \text{V}\rightarrow[+\text{nas}]/-\begin{bmatrix}-\text{cons}\\-\text{syll}\\+\text{nas}\end{bmatrix}\ \#$$

Rule (6) accounts for phonostylistic variation of [ow̃] : [õw̃] and [ew̃] : [ẽw̃] in *niosą* ("they carry"), *nogą* ("leg" — instr.), *ręką* ("hand" — instr.), *niosę* ("I carry"), *nogę* ("leg" — acc.), *rękę* ("hand" — acc.), etc.[1] Rules (5) and (6) are similar in rank, consequently one should only worry, it seems, about their incomplete formal similarity. Here is another pitfall. If formal incompleteness were the only difference in phonostylistic nasalization in English and Polish then why would Poles commonly mispronounce *pence, difference, evidence* etc. as [pẽw̃s], [difərẽw̃s], [evidẽw̃s] (in spite of the fact that /Vns/ sequences in Polish are pronounced as such in many cases in slow speech) yet correctly produce *mission, button, bacon,* etc.? The answer is fairly complicated. Vowel nasalization is in most contexts obligatory for a vast majority of speakers of cultural Polish. If we want to contrast rule (5) with a comparable rule of a similar phonostylistic standing in Polish we should look not at vowel nasalization itself but rather at the phonostylistic rule of gliding. The relevant part of the phonostylistic gliding rule takes the form of (7) (for a complete version of this rule see Rubach, 1974):

$$(7)\ \begin{bmatrix}+\text{nas}\\+\text{coron}\\+\text{anter}\end{bmatrix}\rightarrow\begin{bmatrix}-\text{cons}\\-\text{syll}\\+\text{back}\end{bmatrix}/\text{V}-\begin{bmatrix}+\text{obstr}\\+\text{contin}\end{bmatrix}$$

Let us note that the rule is very productive and its conditioning is entirely phonetic. As it stands, (7) changes [n] to [w̃] in causal and/or rapid speech, viz. *szansa* ("chance"), *awans* ("promotion"), *sanskryt* ("Sanskrit"), *czynsz* ("rent"), *instynkt* ("instinct"), *precedens* ("precedence"), *konstrukcja* ("construction"), *informacja* ("information"), etc. Once this change has taken place then an *obligatory* rule of nasalization applies giving a nasal quality to the preceding vowel. The obligatory vowel nasalization has the shape of (8):

$$(8)\ \text{V}\rightarrow[+\text{nas}]/-\begin{bmatrix}-\text{cons}\\-\text{syll}\\+\text{nas}\end{bmatrix}\ \text{C}$$

Note that the requirement of a following consonant differentiates (8) from phonostylistic rule (6). A few sample derivations should clarify this complicated situation:

[1] The data come from Zagórska (1968).

	awans	*precedens*	*czynsz*	
Slow speech:	—vans	—dens	činš	
Casual	vaw̃s	dew̃s	čiw̃š	Rule (7) — phonostylistic
speech	vãw̃s	dẽw̃s	čĩw̃š	Rule (8) — obligatory

Now it becomes evident that English phonostylistic vowel nasalization corresponds as a type of process to three Polish rules: (6), (7), (8) out of which one is obligatory and one bears no formal resemblance to English rule (5) at all. In other words, although speaking in general terms we have equivalence of process there is only partial equivalence in rank and form.

The statement made in point three requires considerably more attention. English phonostylistics has a rule of strident assimilations:

$$(9)\quad \begin{bmatrix} +\text{strid} \\ +\text{coron} \\ +\text{anter} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{anter} \\ +\text{distrib} \end{bmatrix} \; / - ([-\text{seg}]) \; \begin{bmatrix} +\text{strid} \\ -\text{anter} \\ \langle +\text{cont} \rangle \end{bmatrix}$$

The rule changes [s, z] to [š, ž] in casual and/or rapid speech:

a) *Christian, question, suggestion, digestion, congestion;*

b) *apprenticeship, Peebleshire, Inverness-shire, case-shot, missahpen, newssheet, balancesheet, this ship.*

The assimilation here is not only in anteriority but also in the feature [distributed]. All palato-alveolars, i.e. the conditioning environment in (9), are [+distrib], hence the assimilated [s, z] acquire this property as well. This is important since [s, z] may sometimes assimilate only in anteriority remaining nondistributed, cf. postalveolar [s, z] *newsreel, horse-riding, grocery.*[2]

Polish has a similar phonostylistic rule of strident assimilation. The following data should be brought into consideration:

A. Dental stops are replaced by affricates whose place of articulation is determined by the consonant which follows. Thus we get:

a) alveolar [c, dz] before [c, dz, s, z]: *odcedzić* ("drain away"), *oddzwonić* ("call back"), *dowódca* ("commander"), *radca* ("adviser"), *od soboty* ("since Saturday"), *od zaraz* ("right away"), *odznaka* ("badge");

b) postalvеolar [š, ǰ] before [č, ǰ, š, ž]: *doświadczony* ("experienced"), *Irlandczyk* ("Irishman"), *od czasu do czasu* ("from time to time"), *brat Chilijczyka* ("the brother of the Chilean"), *pod drzewem* ("under the tree"), *trzeba* ("ought to"), *drzwi* ("door"), *budżet* ("budget");

[2] The rule of [s, z] retraction before [r] should be collapsed with (9) by attaching a variable to [distrib]. Here it has not been done because it is irrelevant to our discussion.

c) alveolo-palatal [ć, dź] before [ć, dź, ś, ź]: *odcinać* ("cut off"), *brat cię lubi* ("my brother likes you"); *odsiać* ("to sift"), *nad ziemią* ("over the earth").

B. There are similar changes of [s, z]:

a) to postalveolar [š, ž] before [š, ž, č, ǰ]: *zszarzeć* ("to become grey"), *zżółknąć* ("to become yellow"), *zczerwienieć* ("to become red"), *zdrzemnąć się* ("to take a nap"), *obraz rzeki* ("a picture of the river");

b) to alveolo-palatal [ś, ź] before [ś, ź, ć, dź]: *zsiąść* ("dismount"), *bez siły* ("without strength"), *podczas sierpnia* ("in August"), *przez zimę* ("over the winter"), *zdziwić się* ("to be surprised"), *przez dzień* ("in a day").

C. Along the same lines the alveolar affricates [c, dz] assimilate to:

a) [č, ǰ]: *Płocczanin* ("inhabitant of Płock"), *staroświecczyzna* ("old-fashionedness"), *pałac czarny* ("black palace"), *wieniec szary* ("grey wreath"), *pobiec szybko* ("run quickly");

b) [ć, dź]: *w occie* ("in vinegar"), *upiec ciasto* ("bake a cake"), *goniec dzisiaj* ("the runner... today"), *nic się nie da zrobić* ("one can't help it").

The above examples show that assimilation takes place before strident coronals (i.e. not [f, v]) and may apply both within words and across word boundaries of all types. Stated formally the rule has the following shape:

$$(10)\quad \begin{bmatrix} +\text{obstr} \\ +\text{coron} \\ +\text{anter} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{strid} \\ \alpha\text{anter} \\ \beta\text{distrib} \end{bmatrix} \; / - ([-\text{seg}]) \; \begin{bmatrix} +\text{strid} \\ +\text{coron} \\ \alpha\ \text{anter} \\ \beta\,\text{distrib} \end{bmatrix}$$

A few points call for clarification. The feature [±anter] divides coronals into two groups: dentals and alveolars are anterior, postalveolars and alveolo-palatals are nonanterior. The feature [±distrib] is taken as a relative one: it provides distinctions within the anterior and the nonanterior region separately. In the former it distinguishes dentals (nondistributed) from alveolars (distributed), in the latter postalveolars from alveolo-palatals (these, additionally, are always [+high]). A sample derivation for *magistrze* ("M. A." — voc.) illustrates the operation of (10):

Slow speech form:	—stše	
Casual speech forms:	sčše	Rule (10)
	ščše	Rule (10)

Now let us try to compare rules (9) and (10). They are equivalent in rank as they have a phonostylistic status. The inputs are different: in rule (10) — all dental obstruents, in (9) — only [s, z]. Consequently, if we want to talk

about equivalence holding between the rules we can only consider the fricative inputs. This restriction brings the environmental conditionings of (9) and (10) much closer together. It is true that the changes of [s, z] in Polish take place only before nonanteriors (postalveolars and alveolo-palatals). The coronality restriction in the environment of (10) corresponds to the phonotactic restrictions of (9): [+coron] need not be included in (9) since all nonanterior stridents are [+coron]. This fact confirms our earlier statement that in order to adequetely compare two rules from the formal point of view, it is not sufficient to confine oneself to procedures like feature count. Although given these considerations the similarity of phonostylistic [s, z] changes in English and Polish is much more evident, it would be premature to make statements of equivalence. Firstly, the restrictions in the comparison made above do not cancel some other formal differences between (9) and (10). Rule (9) can apply across boundaries only if the conditioning segment is a continuant, i e , it applies to *this shop* but not to *this church*. This is not true rule (10). Secondly, although there is no difference in the status of the rules (both are phonostylistic), there are differences in rule relatedness. In English stridency assimilation is a purely phonostylistic process (i.e. a new rule), in Polish the relevant rule is a reflex of the obligatory phonological rule which operates within words,[3] viz. *jazda — jeździe* ("journey" — nom., dat.), *gwizd — gwiżdżę* ("whistle", "I whistle"), *list — liście* ("letter" — nom., loc.), *trzask — trzeszczy* ("a crack", "it cracks"). This fact seems to explain why Poles use the assimilated forms of dental — strident combinations in all styles of speech except very careful and monitored pronunciation (English stridency assimilation seems to require a higher degree of casualness).

Our discussion above has already touched on several points referring to considerations of environment convergance. To give more substance to this issue let us mention a case of environmental overlap. In English there is an obligatory rule of syllabicity — imposing and it has the form of (11).

$$(11)\ \begin{bmatrix}+\text{sonor}\\+\text{cons}\end{bmatrix} \rightarrow [+\text{syll}]/[+\text{obstr}] - \begin{Bmatrix}\text{C}\\\#\end{Bmatrix}$$

Rule (11) accounts for syllabic resonants in *little, people, muscle, fickle, castle, cycle, spectacle* where the context is that of an obstruent and an external word boundary, and also in *simpleton*, etc. where the right hand environment is a consonant. If the required word boundary is of an internal type, rule (11) applies but its effect may be undone by a phonostylistic syllabicity — releasing rule (cf. Rubach 1974): *bottling, wrestler, settling*, etc. The left hand

[3] There are exceptions like *Zdzisław* (a name). They become regularized in casual and/or rapid speech, i.e. due to the operation of rule (10).

environment of an obstruent is motivated by the lack of syllabic consonants in *film, kiln, helm*, etc.

Now let us look at two rules of sonorant unvoicing in Polish. Liquids are obligatorily unvoiced in the context between voiceless obstruents:

$$(12)\ \begin{bmatrix}-\text{syll}\\+\text{sonor}\\-\text{nas}\end{bmatrix} \rightarrow [\text{-voiced}]/[\text{-voiced}] - [\text{-voiced}]$$

The examples are: [r] *Piotrków* (a name), *Piotrka* ("Peter" — gen.), [w] *upiekłszy* ("having baked"), *rzekłszy* ("having said"), *płci* ("sex" — gen.) where the phonetic [w] is derived from the underlying back lateral /ł/. Rule (12) does not apply to nasals, viz. *czosnku, pierwiosnka* ("garlic", "primrose" — gen.) which may become voiceless but only in casual and/or rapid speech. In other words, there is a phonostylistic rule of unvoicing which corresponds to (12) and accounts for voiceless sonorants in:

a) *czosnku, piosnka* ("song"), *rzemieślnik* ("craftsman"), *umyślnie* ("purposefully"), etc.
b) *pieśń* ("song"), *pleśń* ("mould"), *pism, pasm* ("journals", "stripes" — gen.), *spektakl* ("spectacle"), *myśl* ("thought"), *wiatr* ("wind"), *łotr* ("rascal"), *umysł* ("mind"), *upiekł* ("he baked") etc.

The phonostylistic rule in question is (13):[4]

$$(13)\ \begin{bmatrix}-\text{syll}\\-\text{obstr}\end{bmatrix} \rightarrow [-\text{voiced}]/[-\text{voiced}] - \begin{Bmatrix}\text{C}\\\#\end{Bmatrix}$$

Now let us look back at rule (11). There is no doubt that the English and the Polish rules represent entirely different processes — syllabicity-imposing and sonorant unvoicing. This, however, does not mean that the rules are not formally similar: we have an almost complete overlap of environment. In the Polish rules the left hand specification of [-voiced] can only refer to obstruents, hence we have a direct correspondence of the left environment. There is one difference: the English rule would also permit voiced obstruents as an environment (cf. syllabic consonants in *syllable, handle, puzzle, strangle, handling*, etc.), the Polish rules exclude such a possibility. The correspondence of the right hand environment is evident: in (11) and (12) the equivalence is partial and holds only in one subcase — that of a consonant (in the English rule there could be any consonant, in the Polish rule it must be a voiceless obstruent), in (11) and (13) the equivalence is complete. The comparison of the above rules and the fact that they show a considerable overlap in environments

[4] Actually (13) is a mirror image rule: it applies also if the left and right environments are reversed, viz. *ziarnko* ("grain"), *rtęć* ("mercury"). We omit this fact and the % notation as not relevant to our discussion, see, however, Rubach (1974).

explains why Poles mispronounce words like *simple, simpleton, battle*, etc — they replace the syllabic and only partly unvoiced [l] by the nonsyllabic and completely voiceless [l]. There is still one more fact of phonological interference which the above discussion has not clarified. It often happens (though less frequently than with *simple*, etc.) that *syllable, puzzle, handle* are also realized as sequences of voiceless obstruents and unvoiced sonorants: [siləp̥l̥] etc. In order to clarify this point we have to consider yet another rule of phonostylistic unvoicing in Polish. Obstruent unvoicing may, as it were, jump over a nonsyllabic sonorant:

$$(14)\ [+\text{obstr}] \rightarrow [-\text{voiced}]/-\begin{bmatrix}+\text{sonor}\\-\text{syll}\end{bmatrix}\quad\begin{Bmatrix}\#\\[-\text{voiced}]\\+\text{mi}\end{Bmatrix}$$

Rule (14) operates in the context of:

a) a word boundary: *mógł* ("he could"), *zjadł* ("he has eaten"), *znalazł* ("he has found"), *kadr* ("staffs" — gen.), *módl* ("pray" — imp.), *żubr* ("bison"), *mechanizm* ("mechanism"), *przyjaźń* ("friendship"), *blizn* ("scars" — gen.)
b) a voiceless segment: *biegłszy* ("having run"), *mędrca* ("sage" — gen.), *Jędrka* ("Andy" — gen.)
c) the morpheme *my*: *módlmy się* ("let's pray").

In order to sum up our complicated discussion let us have a look at some sample derivations.

ENGLISH:

	little /litl/	*syllable* /silæbl/[5]	
Obligatory derivation	—	siləbl	V-reduction
	litl	siləbl	Rule (11)
	l̥itl̥	—	Partial unvoicing
Phonostylistic derivation	none		

POLISH:

	spektakl /—akl/	*namydl* /—dl/	*Piotrka* /—tr+ek+a/	*Jędrka* /—ndr+ek+a/	
Obligatory derivation	—	—	tr+k+a	ndr+k+a	e-drop
	—	—	tr̥+k+a	—	Rule (12)
Phonostylistic derivation	—	tl̥	—	ntr+k+a	Rule (14)
	akl̥	tl̥	—	nti+k+a	Rule (13)

[5] For the motivation of /æ/ cf. *syllabic*.

All our analyses have important pedagogical implications. These are basically of two types:

— One can make use of phonostylistic rules of the native language in teaching the obligatory rules of the target language. A case in point is the rule of aspiration in Polish and its obligatory status in English. The acquisition of aspiration by Poles learning English can be basically reduced to a change in rank: from phonostylistic to obligatory.

— In order to avoid nasalized pronunciations of words like *pence, performance*, etc. it is sufficient to block the application of phonostylistic gliding. Once it has been done the application of the vowel nasalization rule will be automatically inhibited. In other words, we have to look for the rule which triggers the whole process and this is not necessarily the one which produces the final effect.

— A good contrastive comparison will enable us to make predictions about phonological interference. It is suggested that such interference is strongest in cases of environmental overlap. Thus for a Pole who knows the obligatory processes of English a derivation for words like *syllable* does not finish at the point where all the obligatory rules have been applied. He may extend it by applying phonostylistic rules of Polish phonology. The distinction between obligatory and the phonostylistic rank of rules permits us to predict that Poles will incorrectly unvoice the [l] of *simpleton* (if they do not insert a vowel, which is also incorrect) much more often than the [l] of *syllable* or even that of *simple* (cf. rules (12) and (13) along with (14)).

The above statements are valid only on the condition that an adequate comparison has been made between the rules of the two languages concerned. The analyses made in this paper show that such adequacy can be reached only if:

a) a distinction between obligatory and phonostylistic rules has been made, i.e., the rules are compared with full consideration of their rank;

b) the rules to be compared are considered not in isolation but within the framework of other rules, no matter whether these are ordered after or before the relevant rules. It has been shown that an adequate comparison of vowel nasalization in English and Polish must take into account a whole array of rules: placing two rules side by side, even with the rank equivalence satisfactorily fulfilled, reveals very little, if anything, about the actual similarity in linguistic mechanism;

c) the convergence of input, output, and environment is determined after a careful inspection of the actual (i.e. true for the moment when the rule applies) meaning of the feature specifications. The same features may denote different classes of segments depending on the depth at which the rule applies, i.e. depending on the effects of other rules which have already applied and the predictions of the effects of the rules which are to be applied later;

d) the correspondence in feature specifications is taken broadly and not narrowly from the formal point of view: [—voiced] in rule (12) corresponds in part to [+obstr] in rule (11) since it can only refer to voiceless obstruents at the depth at which the rule applies;

e) segment inventories are used only to check the scope of the class denoted by the feature specifications in the rules: coronal stridents in English are limited to six segments [s, z, š, č, ž, ǰ] while in Polish they include twelve segments [s, z, c, dz, š, ž, č, ǰ, ś, ź, ć, dź]. As has been shown by the analysis of the statements in (1), (2) and (3), comparing segment inventories by themselves with no reference to phonological rules may be highly misleading and of little use.

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