

PHONETIC AND PHONOLOGICAL ASPECTS OF 'DEEP STRUCTURES'

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In the modern linguistic research the term DEEP STRUCTURE refers to sets of hypothetical (potential) elements assumed to underlie the SURFACE STRUCTURES, i.e., the directly observable concrete lingual phenomena. While the former form a finite system, internalized in the mentality of the bearer of the given language, the latter find their expression (GENERATE) in an infinite number of manifestations. Studies of GENERATIVE or TRANSFORMATIONAL grammar have been so far concerned primarily with syntax (Chomsky 1955, 1957, 1965, a.o.)¹ and morphology (Worth 1967, 1968, a.o.). Little has been done in the field of phonetics and phonology, although these linguistic domains present some important angles of interpretation and can considerably contribute to the understanding and confirmation of the two levels of 'generative' or 'transformational' process of the given language system (to name here: Chomsky and Halle 1965, 1968, Chomsky, Halle, and Lukoff 1956, Thelin 1971, a.o.). Lately Shovkun had stated, "Vse tvorčeskie potencii jazyka sosredotočeny na syntaksise, semantika že i fonologija (javljajutsja) čisto interpretacionnymi disciplinami" (Shovkun 1970:7). Although it is true that the 'transformational' description of a language has generally repudiated the postulate of the separate 'phonetic' and 'phonemic' levels of investigation, the two basic principles, that of the 'distinctive features' and the 'ordered phonological rules' greatly contributed to the development of the 'generative' linguistic thinking, even before it was defined and introduced in the modern linguistic research by Chomsky (1955) and his followers.

The purpose of the present paper is to build a bridge between syntactic, phonetic and phonological 'generative' description and to present some facts which confirm the possibility of the verification of the hypothetical elements of the "deep structures", either on the strength of the historical (etymological) data of the given language and /or on the basis of its comparison with other languages. It is quite clear that our discussion must be limited in time and space, yet it is the author's intention to extend it later in a more detailed, richer illustrated, study.

¹ The scholarly interest in "transformational" syntax is best illustrated by the December 1970 issue of *Language* (Vol. 46, No. 4) almost entirely devoted to 'sentence structures', 'coördinate conjoined structures', 'non-verbal sentences', etc., etc.

One of the most striking and hitherto neglected fields of research in the syntactic, phonological and phonetic coincidence is the domain of *sandhi* or — to use the ‘transformational’ terminology — ‘deep-and-surface-level-interaction’ regarding the end of the preceding and the beginning of the following word.

Examples from the standard and colloquial English in North America might serve here as good material for an introduction to the problem. It is well known, e.g., that the phrase *as yet* is often pronounced in colloquial speech: [æz’jet] with a lesser or greater degree of palatalization of the consonant [z’]. In terms of the ‘transformational’ theory we are faced here with the following phenomenon:

syntactic deep level (*sdl*): *as yet*

phonological (deep) level (*phl*): [æz jet]

surface levels:

phonetic standard realization (*ssl*): [æz jet]

phonetic colloquial realization (*csl*): [æz’jet]

phonetic colloquial realization₁

(-a variable of *csl*): [æž jet].

Formula: $sdl = phl = ssl \neq csl \parallel csl_1$ —

is to be read as follows: syntactic deep level of the English phrase *as yet* is identical with its phonological and standard surface (phonetic) realization, but differs from its colloquial pronunciation [æz’jet] existing parallelly to its palatal variable [æž jet]. In other words, the “transformation” of the syntactic deep level phrase *as yet*, phonologically internalized in the mentality of speakers of the 20th century as [æz jet] and so realized on the surface level of the standardized English orthoepy, has a colloquial variable [æz’ jet] with a coronally palatalized [z’], or even [æž jet] with a dorsal palatal [ž].

Another, more complicated, example is found in the phrase: *last year*. The end of the first component *last* is voiceless and this voicelessness is observable on both the deep and surface levels. However, the element of regressive assimilation (palatalization) appears in the colloquial pronunciation, viz.

<i>sdl</i>	<i>phl</i>	<i>ssl</i>	<i>csl</i>	<i>csl₁</i>
<i>last year</i>	[last jə:]	[last jə:]	[last’ jə:]	[las’š jə:]

Accordingly, the formula for *last year* would be as follows:

$sdl \neq phl = ssl - csl \parallel csl_1$.

One can go on and on with such examples as (he) *has your* (book), (come) *as you* (are), *would you* (do it), etc., to arrive at the nearly identical colloquial pronunciations of the kind:

watch your (name) } what’s your (name) }	[wə’ís juə (nejm)]
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As a supra-categorical phenomenon *sandhi* offers a great variety of concrete cases where syntactic, phonological and phonetic interrelations are observable not only in synchronic description but also in diachronic perspective.

As is known, the loss of weak jers and jors in the twelfth century in OES led to voicing and unvoicing of consonants in the Russian language of the thirteenth and following centuries. Yet, they were retained in their original (voiced or unvoiced) form before the voiced or unvoiced consonants. It is clear that the former processes were surface level (phonetical) innovations, whereas the phonological (deep) level situations were kept without changes. Thus, e.g., the Mod Ru. (*sdl*)s *det’mi* ‘with children’ assimilated phonetically already in the 14th century to (*ssl*)здьтъмя (Matthews 1960:163) is so pronounced today; it displays the following formula:

$$sdl = phl \neq ssl$$

<i>s det’mi</i>	[s d’et’mi]	[z d’etmi].
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In confronting the phonetic habits which developed in Russian inter-lexical *sandhi* in the thirteenth and the following centuries, namely consonantal assimilations, with the above formula, we find that it is valid for both voicing of unvoiced and unvoicing of voiced consonants today viz.:

$sdl = phl \neq ssl$.

Examples: (a) for voicing an unvoiced consonant:

<i>sdl</i>	<i>phl</i>	<i>ssl</i>
<i>s bábuškoj</i> ‘with grandmother’	<i>s bábuškoj</i>	[z bábuškəj]

(b) for unvoicing a voiced consonant:

<i>sdl</i>	<i>phl</i>	<i>ssl</i>
<i>pod krýšej</i> ‘under the roof’	<i>pod krýšej</i>	[pət krýšəj]

Like in Russian, in most other Slavic languages the above assimilations occur. Thus, e.g., the formula: $sdl = phl \neq ssl$ is applicable as a general rule for Polish.

Examples: for voicing:

<i>sdl</i>	<i>phl</i>	<i>ssl</i>
<i>nas było (dwoje)</i> ‘we were both’	<i>nas było (dwoje)</i>	[naz było] (dwoje)

and for unvoicing:

<i>bez tata</i> ‘without father’	<i>bez tata</i>	[bes tata]
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Polish, Slovak and Western Ukrainian dialects display a very interesting, and unusual for Slavic, *sandhi* phenomenon: the voicing of unvoiced consonants before vowels, sonorous sounds *r*, *l*, *m*, *n*, and *j* or *v*. One of the first investigators of this phenomenon, K. Nitsch (1910:394-422), illustrates it with the following examples:

[<i>brad ojca</i>]	instead of <i>brat ojca</i>	'brother of the father'
[<i>tag on</i>]	" "	<i>tak on</i> 'so he (does)'
[<i>kod albo pies</i>]	" "	<i>kot albo pies</i> 'cat or dog'
[<i>brad robi</i>]	" "	<i>brat robi</i> 'brother is doing'
[<i>kludź leży</i>]	" "	<i>klucz leży</i> 'key is lying'
[<i>bog lewy</i>]	" "	<i>bok lewy</i> 'left side'
[<i>bug ma</i>]	" "	<i>buk ma</i> = <i>Bóg ma</i> 'God has'
[<i>głos narodu</i>]	" "	<i>głos narodu</i> 'vox populi'
[<i>brad jego</i>]	" "	<i>brat jego</i> 'his brother'
[<i>noz wielki</i>]	" "	<i>nos wielki</i> 'big nose', etc.

The present writer's field records from the central Carpathian region (called Boikovia), which were made in 1935-36, confirm the above observations of Nitsch and later findings of J. Zilynskyj (1928:301-311). In confronting the collected data (Rudnyckyj 1938:A107) with the proposed *sandhi* analysis of 'deep' and 'surface' structures, the following might be observed:

(a) voicing before vowels:

<i>sdl</i>	<i>phl</i>	<i>csl</i>
<i>u nas ode</i> 'here at our place'	<i>u nas ode</i>	[u naz óde]
<i>tak utišyw</i> 'so pleased'	<i>tak utišyw</i>	[tag ut'išyɯ] ²
<i>des'ynde</i> 'on the other place'	<i>des'ynde</i>	[dez'ýnde]
<i>lis o!</i> 'the forest, down there'	<i>lis o!</i>	[l'iz o !]
<i>u nas išče</i> 'at our place yet'	<i>u nas išče</i>	[u naz'išcé]
<i>nič ide</i> 'night comes'	<i>nič ide</i>	[nídž ydé]

(b) voicing before *r*, *l*, *m*, *n* and *v* or *j*:

<i>pobič néji</i> 'near her'	<i>pobič néji</i>	[pobidž néji]
<i>nyč novóho</i> 'nothing new'	<i>nyč novóho</i>	[nydž novóho]
<i>pič malějka</i> 'oven is small'	<i>pič malějka</i>	[pidž malějka]
<i>vel'át meni</i> 'they order me'	<i>vel'át meni</i>	[vel'ad meni]
<i>jak jem byw</i> 'how I was'	<i>jak jem byw</i>	[jag jem byɯ] (see footnote 2)

(c) voicing before other voiced consonants:

<i>raz na rik bil'u</i> 'I paint once a year'	<i>raz na rik bil'u</i>	[raz na rig bil'u]
<i>namečit dósta</i> 'throw enough'	<i>namečit dósta</i>	[namečid dósta]
<i>idit zdoróvy</i> 'go healthy'	<i>idit zdoróvy</i>	[ydíd zdoróvy]
<i>jakás' diwčyna</i> 'some girl'	<i>jakás' diwčyna</i>	[jakáz' diwčyna]
<i>cap drow</i> 'a pile of wood'	<i>cap drow</i>	[cab droɯ]
<i>nas habájut</i> 'they bother us'	<i>nas habájut</i>	[naz habájut]

² Strangely enough the letter *g*, existing not only in this context, was abolished in the USSR.

In all those cases the 'surface' level is modified according to *sandhi* changes, however the 'deep structure' of syntactic combination and its phonological patterns remain identical. In other words, the variation of the phonological form on the 'surface' level does not influence in any way the 'deep' structure. It has its roots in the historical processes with regard to diachronic *priors* and *posteriors* and also with regard to a steady comparative mechanism within the language system itself and in confrontation with other, related, languages.

In the former case the continuous interference of the majority of utterances with phonological and phonetic [æz] in such expressions as *as he*, *as she*, *as it*, *as we*, *as they*, etc., etc., causes the identification of the expression *as yet* (on both the 'syntactic deep level' and in the phonological pattern) with the form [æz] known from those infinite utterances of *as*. Yet, the phonetic 'surface' result effects in an allophone [æz'] in the colloquial speech with a more or less palatalized final [z']:[ž]. The same might be said of Russian *s det'mi* allophoned on the surface level to [z d'et'mi]; yet in view of infinite examples with *s* as [s], e.g. *s nim* 'with him', *s tobój* 'with you', *s nami* 'with us', *s vámi* 'with you', etc., or even *so svjatými* 'with saints', *so stráxom* 'with fear', etc., where *s* is both phonologically and phonetically identical, the allophone [z] in [z d'et'mi] must be considered on both 'deep levels', syntactic and phonological, *s* and not [z].

The above comparisons refer to the same language systems, English and Russian respectively. Yet, there are other possible comparisons as well. They can be best observed in bilingual situations, on the territories where the standard language is official, another unofficial, regional, or even a dialect of another literary language. The above-mentioned *Boikovia* territory with a spoken Boikish-Ukrainian dialect was under the Polish official administration between 1919-1939. In all cases where the above-presented voicing of voiceless consonants occurred, the standard Polish pronunciation was voiceless, e.g., *u nas*, *tak ucieszyl*, *gdzieś indzie*, etc. In confrontation with this official utterance of the respective expressions (and, naturally, in comparison with many other own cases with non-voiced final consonants in the Boikish dialect itself) the allophones with [z], [g], [z'], etc., in the above mentioned examples were treated as voiceless [s], [k], [s'], etc., on the syntactic and phonological "deep levels" of the respective dialect system.

On the basis of the foregoing considerations, the following conclusions may be drawn:

(1) The phonetic and phonological aspects of the 'syntactic deep structures' are important for the proper understanding and interpretation of 'generative' or 'transformational' grammar;

(2) One of the most interesting phenomena in this respect is the inter-lexical *sandhi* offering a methodological link between syntax and phonology with phonetics;

(3) Both the historical and comparative aspects should be considered in the eventual application of the *sandhi* data;

(4) A further research, in particular with regard to internal *sandhi* is badly needed and highly recommended.

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