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ABSTRACT

Introduction to topics and principles of mutual relevance for phonetics and the model of Natural Phonology (NPh)

Among various concrete and/or phonetically oriented phonological theories (4, 10, 27, 33, 50) there is the model of Natural Phonology (NPh) as founded by Stampe (48) and later developed in various directions (49, 11, 13, 3, 8, 18, 19, 21, 38, 39). The selection of our topic for a symposium gives evidence for the congress organizers' recognition that phonetics and NPh hold a particular relevance for one another. In this introduction to our symposium I want to briefly explore this mutual relevance.

1) NPh delimitates the field of phonology in a way which facilitates cooperation with phoneticians:

a) Boundaries to morphonology are defined rather sharply (notwithstanding diachronic transition phenomena), sharper than e.g. Lexical Phonology (40): phonological processes of a given language represent constraints on production and perception (cf. already 5, 46), morphological rules do not. Thus both phonemic and allophonic processes of final obstruent devoicing in many languages (e.g. German and Polish) are phonological, whereas Russian final devoicing may approach a transitional stage towards

mophonology (cf. final voiced stops in bab ! and abbreviations such as MID). The consequences for phonetic experimentation are obvious.

b) No boundaries are set towards phonetics, there is no despise of 'low level rules' or of 'performance factors' (note NPh work on speech errors as in 36, 22), i.e. there is no puristic dichotomy between phonology and phonetics as often in structural phonemics or Natural Generative Phonology (50). Therefore the division between phonetics and phonology is rather a division of labor.

2) In contradistinction to Generative Phonology (2, 25) NPh acknowledges and investigates the extralinguistic bases of its principles (18, 19, 9). These bases lie generally in phonetics, but also in neurological, psychological, and social phenomena, and in general properties of semiosis. Thus phonetics is a founding discipline of phonology. This comes out in NPh as a great concern for phonological universals.

3) NPh and phonetics share a functional perspective (34, see Basbøll and Bertinetto at this symposium).

a) In order to avoid proliferating functional ad hoc assumptions it seems useful to subsume functional considerations into a semiotic metatheory (18, 19; for other semiotic approaches to phonology see

31, 1, 47). Clearly all phonetic acts involved in production and perception are parts of semiosis, because acts of semiosis (or sign chains) mediate between "substance and form". In this perspective the pernicious dichotomy between sound substance as domain of phonetics and sound form as domain of phonology can be eliminated.

b) Any functional explanation has to account for functional conflicts: NPh has highlighted two contrasts well-known to many linguistic and phonetic schools for a long time:

A) phonological-phonetic vs. morphological tendencies, whose diachronic version has been heralded by the Neogrammarian "Lautgesetz und Analogie" (cf. now 45, 19, 51, 30);

B) tendencies towards "ease of articulation" vs. "optimal perception". NPh has elaborated on a classification of opposed universal phonological process types of fortition (foregrounding) vs. lenition (backgrounding) with opposed hierarchies (see 12, 24, 19). The single process types can be classified according to the following antagonistic subgroups: processes of dissimilation (polarization incl. diphthongization) vs. assimilation (incl. fusion), strengthening vs. weakening, lengthening vs. shortening, insertion vs. deletion. The calculation of these conflicts needs psycholinguistic, sociolinguistic models, and phonetic operationalization (see I below).

c) function-form relations are typically many-to-many, as can be seen in overlapping phonetic explanations of e.g. vowel lengthening before voiced stops: This draw-back of functionalism unfortunately makes falsifiability more difficult (cf. 19).

On the other hand functional considerations can prevent the assumption of ad hoc hypotheses (cf. Bertinetto at this symposium).

4) NPh does not assume an abyss between competence and performance or langue et parole which would be difficult to bridge. Thus NPh has been open to (and directly attackable by) experimental evidence, even before Ohala's important design of Experimental Phonology (cf. now 43). Nor does NPh restrict its domains to the analysis of citation forms (of native informants) or spelling pronunciations (of grammars and dictionaries). Since its very beginnings NPh has emphasized the importance of studying first language acquisition (48, 24), phonological variation (49, 14, 15, 20, 23, 26, 41) as well as other fields of external/substantive evidence (16, 18, 19, 8, 37, cf. 53), e.g. second language acquisition where NPh can better cooperate with phonetics than other models (cf. 28, 29, Dziubalska at this symposium).

Among other specific fields of common inquiry for phonetics and NPh I would like to single out the following ones:

I) Concepts of "ease of articulation" and "optimal perception" (3bB) have been shunned as too vague by many investigators. Lindner's (35) model of context free and context sensitive articulation gestures represents an important step forwards for the first concept. Clearly "ease" may mean either "local" application of one given phonological process in cross-linguistic and universalist studies, e.g. hierarchies of consonant palatalization or vowel centralizations and deletions irrespective of the phonotactic results, or "global" effects in terms

of prosody or consonant/vowel clusters (e.g. avoidance or elimination of consonant clusters resulting from vowel deletion).

More detailed phonetic investigations are needed to help phonologists differentiate process types, e.g. is intervocalic lenition of stops a weakening or an assimilation process? Or should we rather envisage overlapping parameters?

Optimization of perception is studied by Angenot (partially referred to at this symposium, cf. also Basbøll and Dogil).

II) Following Beaudouin de Courtenay (5, cf. now 37, 9, 42) phonemes are defined as sound intentions within NPh. This entails selection of phonemes to occur on a more conscious level than other acts of phonological semiosis. One of many consequences can be seen in phonological variation: If speakers select a dialect phoneme instead of a standard phoneme then this choice can be much better controlled by speakers (and perceived/evaluated by hearers) than other phenomena of dialect mixing (23, 41). However this does not entail that phonetic realizations are entirely unconscious, automatic consequences, as studies of coarticulation have shown. Since all phonetic acts are parts of semiosis, all-or-nothing distinctions between phonemic intentionality and unintentional application of phonological processes must be wrong from a deductive point of view as well. However the fine-grading of "consciousness" or "intentionality" awaits further empirical elucidation. E.g. should one draw a clear line between segment deletion and physical articulatory undershoot?

III) A similar gradience must be allowed for phon-

etic-phonological realization phenomena in studies on automatic speech processing/recognition (cf. e.g. 6). Such empirical studies may lead to a radical reformulation of some phonological processes, at least at "lower levels" (cf. Dogil at this symposium).

IV) NPh is the only model of process phonology where considerable attention has been paid to speech disturbances (17, 24, 52, 32, 44, 22). Here as well a similar gradience comes into play (cf. Dogil's unpublished work on aphasia vs. dysarthria).

Of all these and other interesting matters only some can be discussed in this symposium. More at the next Phonologietagung! (Sixth International Phonology Meeting, Krems, July 1-4, 1988, organized by the Institut für Sprachwissenschaft der Universität Wien)

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