GUEST EDITOR'S NOTE

Looking back in the history of Hungarian phonetics, one fact stands out clearly: Hungarian scientists were either the very first in the world to do high quality research in the field—like Farkas Kempelen—or ones whose work fit in well with the new trends of the time, like those pioneers who did the first speech experiments in this country. The first landmark of institutional Hungarian phonetic research was the formation of a Phonetics Laboratory at the beginning of the 20th century. This laboratory belonged to what was called the Eastern Trade Academy and aimed at studying Hungarian speech and dialects as well as conducting experimental research for practical language teaching purposes. Unfortunately, no continuation of this laboratory can be traced after World War I. The Linguistics Institute of the Hungarian Academy of Sciences was founded in 1949 and included a Phonetics Department right from the beginning. The main activity of phonetics at that time focused on collecting and recording Hungarian dialects, and on theoretical and experimental study of the articulation characteristics of speech. Starting from the 60s acoustic phonetics became part of the investigations along with a large-scale development of the equipment of the department's laboratory. By the 80s a relatively modern, well-equipped laboratory served the researchers in their work in various fields of phonetics. Hungarian speech synthesis developments started at the end of the 70s. Following the nature of the history of Hungarian phonetics, not only theoretical and experimental research but also various applications started developing. Speech technology began to develop after 1970. Since that time the quality of speech research—both phonetics and speech technology—reached the international level and some of its results are even pioneering achievements of the field. The Hungarian equivalent of 'phonology' can be traced back to the 1840s with the meaning of 'phonetics'. Phonology developed in the 19th and 20th centuries sometimes closer to and sometimes farther away from phonetics, generally depending on the persons dealing with its problems. By the end of the 20th century—similarly to the international situation—phonology and phonetics seem to have come to support each other developing hand in hand in solving many common problems. During the past decade the main results that the field can be characterized by are as follows:

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- Description of the articulatory patterns of all speech sounds in terms of palatography, labiography, and X-ray examinations
- Acoustic-phonetic description of all Hungarian speech sounds and sound combinations in syllable context
- Thorough analysis of the temporal factors of Hungarian speech (segmental duration and speech tempo)
- Language-specific theory and experimental results on the processes of speech perception
- Systematic analysis and modelling of the F_0-structure and stress realizations of Hungarian for speech synthesis
- Modern description of Hungarian phonology

Results of applied phonetics are used in various fields of practice (GOH hearing screening procedure using synthesised monosyllables, Hungarian text-to-speech synthesis used in telecommunication dialogue systems, and applied in medical therapy methods, GMP-diagnostics—phonetically based test-package for the evaluation of speech perception and comprehension processes of children, SMS-reading tool, etc.)

At present, Hungarian speech research has got two main trends. One of them focuses on the analysis of spontaneous speech while the other one deals with applied research and speech technology. Having explored the acoustic structures of the speech sounds occurring in isolated words, the characteristic melody patterns of sentences in isolation, and the basic patterns of speech perception, researchers have now turned to new issues concerning the nature of the segmental and suprasegmental levels in spontaneous speech. The most important ongoing investigations aim at analysing (i) the temporal structures of fluent speech, (ii) the intonation structures of texts and dialogues, (iii) the interface between phonology and phonetics, (iv) the types of disfluency patterns, and (v) problems of speech technology like speaker identification, automatic speech recognition, improvement of naturalness of synthetic speech.

Researchers of the field try to keep the quality of their work up to the international expectations. The editor's aim was to show the diversity of present-day Hungarian phonetics and the most up-to-date investigations. This volume provides an overview of the current results of phonetics and phonology as well as speech technology.

The paper entitled 'Temporal coding of voicing assimilation in speech production' by Mária Gósy opens the volume, demonstrating the interrelations of phonetics and phonology through an analysis of the temporal patterns in speech production that arise from one of the strongest phonological rules of Hungarian. This paper is followed by the description of the prosodic struc-

ture of Hungarian by Gábor Olaszy. László Varga's approach—as opposed to Olaszy's—is based on phonology while using acoustic-phonetic data to support the theory. The temporal structure of Hungarian is discussed in two papers. One of them, by Gábor Olaszy, deals with modelling the complex time structure of speech sounds in continuous speech while the other one, by Krisztina Menyhárt, discusses monolingual and bilingual children's articulation and speech tempo. The dissociation of speech production and speech perception is discussed by Mária Gósy, based on the author's experimental data, in the framework of current theories of language acquisition. Speech technology research is represented by two papers in this volume. The practical challenge of creating a Hungarian e-mail reader initiated Géza Németh and Csaba Zainkó's work to carry out a statistical text analysis of corpora in three languages aiming at confirming Zipf's law. The automatic phonetic transcription process as part of automatic speech recognition requires solving the problem of various language-specific phonological processes that characterise Hungarian pronunciation. The paper by Péter Mihajlik, Tibor Révész and Péter Tatai provides a possible solution in terms of a computerised algorithm. Turning back to phonology to finish with, the last paper of the volume, by Péter Siptár and Szilárd Szentgyörgyi, describes the behaviour of *H*-type segments in Hungarian both in terms of a rule-based derivational approach and within the framework of Optimality Theory.

Mária Gósy