

INTERNATIONAL PHONETIC CONGRESSES: THE SHIFT IN RESEARCH PRACTICES AND AREAS OF INTEREST OVER 44 YEARS

Pavel Šturm

Institute of Phonetics, Charles University in Prague, Czech Republic
pavel.sturm@ff.cuni.cz

ABSTRACT

There is no doubt that phonetics is nowadays a well-established research discipline with a long history of its existence. The success of the first phonetic congress held in 1932 in Amsterdam gave rise to a regular series of creative meetings of phoneticians and speech scientists from across various disciplines, presenting an opportunity for fruitful discussion. The current paper addresses the development of phonetics from the perspective of two congresses separated by 44 years, during which time the field was substantially transformed in many respects. The data are based on the proceedings from the 6th ICPHS (Prague, 1967) and the 17th ICPHS (Hong Kong, 2011). The two congresses are compared in terms of both participants and presented papers, with a special focus on topics of the papers and methods used in experiments.

Keywords: history of phonetics, development of phonetics, ICPHS.

1. INTRODUCTION

The tradition of phonetic congresses dates as far back as 1932, when the first International Congress of Phonetic Sciences (ICPhS) was held in Amsterdam. It was organized by leading Dutch phoneticians (J. van Ginneken, Louise Kaiser, A.W. de Groot) after an unsuccessful appeal of de Groot at the 1st linguistic congress four years earlier to establish an international journal of experimental linguistics [4]. The phonetic congress brought together experimental phoneticians on the one hand and linguists and phonologists on the other (including Trubetzkoy, a vigorous advocate of separating the two camps [12]), providing an opportunity to blunt the edges of their disagreements and, as was often the case, misunderstandings (compare e.g. [3]). The event was a pivotal point in the organized life of phonetics and it gave rise to a regular series of such creative gatherings, which was nevertheless interrupted by the Second World War, with a subsequent 20-year gap between the 3rd and 4th congresses.

The phonetic congresses intended from the very start to encourage cooperation among colleagues from different countries and fields and provide space for any well-founded phonetic research. More importantly, the ultimate objective was to initiate discussion among the participants and allow them to establish new contacts. As Peter Ladefoged states, although we cannot expect to find all the answers to our questions, “every four years we can get together and pool our knowledge” [6: 41]. This was especially important in the early days when the (non-)availability of literature and research reports severely limited the whole research process.

Necessarily, phonetics “then and now” (to borrow Ohala’s [9] term) shows marked differences. It is not only a question of logistics and gadgets, but crucially also of methodological demands and research topics. What could have passed for an excellent paper in the 1960s (a pioneering study based on two subjects) needs not be acceptable now. On the other hand, quite a few papers were written after thorough reflection and with grand insights. What changed more are probably research interests. Robert Ladd analysed the occurrence of the term “prosody” throughout history [5: Chapter 3] and found that there has been a steady (and marked) rise in its use in titles since 1970, when a new interest arose in this hitherto neglected area. This corroborates previous findings reported in [11: 14].

The current paper takes two phonetic congresses separated by 44 years (ICPhS from 1967 and 2011) as points of departure and compares them in terms of participants and presented papers. The results are analysed and interpreted with respect to the central aim, i.e. capturing the progress in phonetics. Therefore, some participants from the former congress were contacted as well and asked for their opinion on the development of the discipline, since the degree to which phonetics has developed is rather open to discussion. We cannot deny objective changes such as technological advances that make research easier and faster, but opinions may differ on whether this is a good thing (up to the point of asking whether there is *progress* at all). The current paper would like to make comments on these issues as well (for some personal views on the state of phonetics, see for instance [1], [3], [6], [8], [10]).

2. METHOD

The data are based on the published proceedings from two phonetic congresses: the 6th ICPHS held in Prague in 1967 [2] and the 17th ICPHS which took place in Hong Kong in 2011 [7]. The two congresses are compared in terms of participants and presented papers. In some cases information that was not clear from the proceedings (e.g. the gender of the participants) was searched on the internet or in other relevant sources.

The analysis of PARTICIPANTS was based on different data for the two congresses. For the Prague event, the list of registered participants was used in combination with author information, while for the Hong Kong congress, only the list of authors was used. Consequently, there is additional data for the participating non-authors at the former congress. Excluding these participants, each author was described with respect to gender and country, and the number of papers they authored and co-authored.

As regards the presented PAPERS, the number of authors per paper was ascertained, as well as the language in which it was written (always English for the 2011 congress). Additionally, the present author read both volumes and evaluated all contributions according to the following criteria:

- **type of research:** strictly *qualitative* × *quantitative*. It was clear in the vast majority of cases, but some papers were assigned to the categories with lesser confidence.
- **number of subjects:** in production studies, the number of speakers is given; in perception studies, the number of listeners is given (not the number of speakers used for recording the stimuli). If a paper presents several experiments, the totals are given. If the number is unclear, *N/K* is used (*not/known*).
- **number of items:** the total number of experimental items is given, i.e. it depends on the number of subjects. Again, multiple experiments are added up, and unclear cases are assigned *N/K*.
- **use of statistics:** papers that present quantitative data are analysed with respect to the statistics used (e.g. *none*, *ANOVA*, *t-test*).

Further, the content of the papers was examined and coded. A negligible number of papers were assigned to the categories with lesser confidence.

- **area:** denotes whether the article deals with *segments* (i.e. classification, measurement, perception etc. of segments or segmental phenomena, such as assimilation), *prosody* (encompasses the broadest sense of the term, including intonation, rhythm, prominence, tempo, voice quality) or *global features* (voice

characteristics, speaker characteristics, affective states, word recognition etc.). In addition, five more special areas had to be set up: *methods & devices*, *history of phonetics*, *pedagogy* (language teaching), *speech technology* (e.g. synthesis, ASR, acoustic models), and *animals*.

- **field:** the first three areas (segments, prosody, global features) were further analysed into fields, i.e. the perspective from which they were studied: *production/acoustics* (it was often difficult to differentiate speech production from speech acoustics, as most studies combined the two approaches), *perception*, *phonology* (applied and theoretical), *theory* (general phonetics, communication theory, psychology). Papers that combined both production and perception were labelled *production+perception*.

3. RESULTS

3.1. Participants

The left part of Figure 1 shows participant count divided into active (authors/presenters) and passive (attendees who did not have a paper). The number of authors increased 3.7 times (281 in 1967, 1032 in 2011). There are no passive participants for the 2011 congress since this information was not included in the proceedings. However, it may safely be assumed that their number would not comprise 50 % of all attendees as in the case of the 1967 congress. The right part of Figure 1 displays the authors at both congresses according to gender. The Prague congress was clearly male-dominated (75 %), while the Hong Kong one offered an equal opportunity to men and women (50 % of male authors), although this is obviously due to general shifts in research and work practices than to decisions of acceptance on part of the organizers.

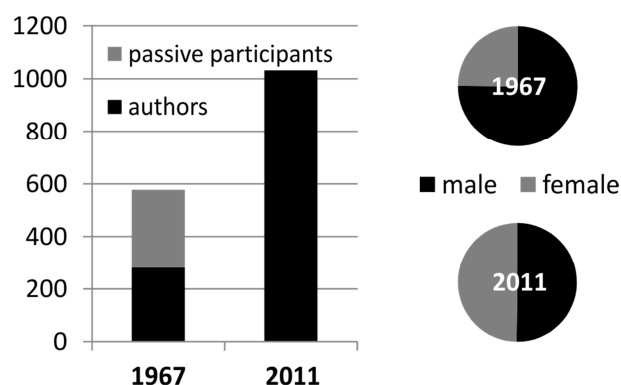


Figure 1: Number of participants (left) and gender of authors (right) at the 1967 and 2011 congresses.

Further, the affiliation of authors was analysed (Table 1) but caution must be taken since some of the countries have changed their political structure (Soviet Union, Yugoslavia, Czechoslovakia). Seen in the post-1989 state of affairs, Germany would have been the most numerous represented country at the 1967 congress. Nevertheless, it is evident that an important factor was the location of ICPhS: there were 37 participants from the “home” country of Czechoslovakia in 1967, while none came from the “distant” Hong Kong (and vice versa, 39 from Hong Kong in 2011 and 2 from former Czechoslovakia). Moreover, the Prague congress was dominated by European countries, while the Hong Kong congress attracted many people from nearby regions (Japan, Taiwan, China, Australia). The steady attendance of countries with strong phonetic traditions (USA, UK, Germany), partly explainable by economic considerations, is also apparent. In total, there were 27 countries represented in 1967 and 47 in 2011.

affiliated country	n	affiliated country	n
Czechoslovakia	37	USA	169
USSR	35	UK	109
USA	31	Germany	100
DDR (Germany)	25	France	83
BRD (Germany)	21	Japan	83
the Netherlands	10	China	67
Poland	10	the Netherlands	48
Romania	9	Hong Kong	39
UK	9	Australia	33
France	6	Canada	32
Italy	6	Taiwan	31
Yugoslavia	6	Sweden	23
15 other countries	33	35 other countries	215

Table 1: Affiliations of authors at the 1967 ICPhS (left) and the 2011 ICPhS (right).

In 1967, 241 authors had only one paper and 19 authors had two papers. The situation is dramatically different in 2011. Although the majority of authors (827) had only 1 paper, there were 129 authors with 2 papers, 54 with 3, 12 with 4, 5 with 5, 3 with 6 and 2 with 7 papers (!). Additionally, it was quite rare in 1967 to co-author papers, while in 2011 58 % of the authors were not first authors (they co-authored from 1 to 6 papers, with 1 being most common).

3.2. Papers

As Table 2 shows, 2.4 times more papers were produced in 2011 than in 1967. They were all written in English, while four languages were used in 1967: English (42 %), German (30 %), French (14 %) and Russian (14 %). The Prague congress included mostly single-authored papers (87 %), while in Hong Kong the number of authors per paper

descended as follows: 2 (37 %), 1 (28 %), 3 (20 %), 4 (10 %), 5 (3 %), 6 to 9 (2 %). The more than twofold drop in single authors is striking.

type of paper	1967	2011
plenary papers	5	7
section papers	232	572
<i>regular session</i>	232	542
<i>special session</i>	0	30
total	237	579

Table 2: Number of presented papers at the 1967 and 2011 congresses.

The prevalence of quantitative over qualitative research in 2011, but not in 1967, is evident from Figure 2. The figure also shows the proportion of papers with quantitative research that employ statistical methods. At the Prague congress 22 % of papers with quantitative data used statistics (t-tests, correlations or ANOVAs). The number increased to 76 % in Hong Kong. The most popular statistical method in 2011 was quite definitely ANOVA (used in 208 papers), followed by t-tests (in 70 papers), correlations (54), linear mixed-effects models (34), χ^2 (22), *p*-values without further specification (21), logistic regressions (17), linear regressions (12) and LDE (11). Over twenty other methods were used in less than 10 papers.

The number of subjects in an experiment was ascertained for each paper (Figure 3). The comparison reveals a drastic reduction of papers with no subjects (i.e., mostly theoretical or phonological papers), and of papers where it was not possible to obtain the information from the text.

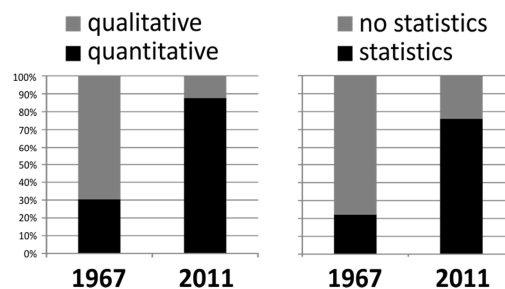


Figure 2: Type of research (left) and use of statistics in quantitative research (right) at the 1967 and 2011 congresses.

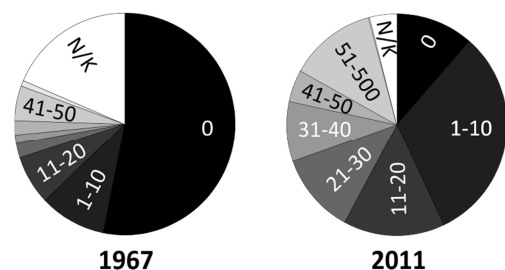


Figure 3: Distribution of the number of subjects used in experiments at the 1967 ICPhS (left) and the 2011 ICPhS (right). N/K denotes “not known”.

The number of items was also computed. The 2011 congress saw a reduction in papers with no items in experiments (again, due to the lesser number of theoretical papers), but there was no reduction of N/K papers. In fact, 144 papers (25 %) were written in such a way that it was impossible to establish the total number of items.

Figure 4 shows the division of the papers according to three basic Areas (special areas like *methods & devices* not included, but comprise 10 % of papers). Most notably, we see a marked increase in the proportion of papers that deal with prosody, concomitant with the decrease of strictly segmental papers. Moreover, Figure 5 suggests that there is an interaction of Area with Field. Segments became more popular for investigation from the acoustic and/or production point of view, which was not true for prosody. Surprisingly, perception was studied at the two congresses equally often. However, combining production and perception experiments seems to be a relatively new feature. Finally, as was already noted, phonology papers ceased to be popular at the 2011 congress (both in segments and prosody).

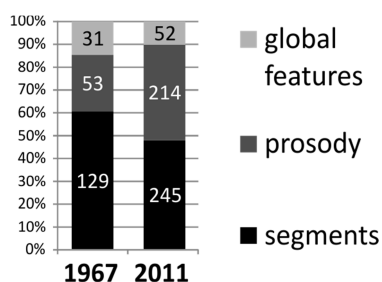


Figure 4: Division of papers presented at the 1967 and 2011 congresses into areas (see Method).

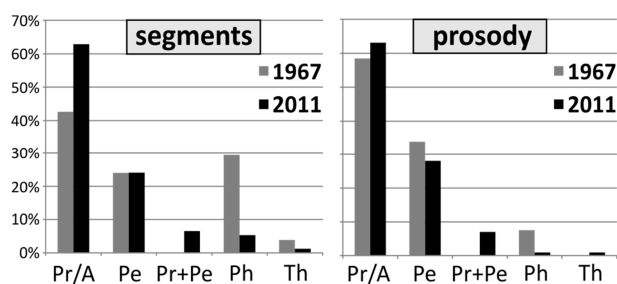


Figure 5: Division of two areas into fields (see Method). Pr/A = production or acoustics; Pe = perception; Ph = phonology; Th = theory.

4. DISCUSSION AND CONCLUSIONS

The present article inspected the proceedings of two phonetic congresses in order to estimate how phonetics developed during the 44 years. In addition to the expected rise in size (in terms of both papers and participants), other, less intuitive facts were revealed by the comparison.

First, the representation by country suggests how funding may play a crucial role in phonetic research. Depending on the country, flight tickets to distant destinations can be difficult or effortless to cover. There is always an additional surge of scientists from the local regions, supplementing the financially secure steady participants from leading universities. On the other hand, travelling is much easier than it was in 1967, and we might add the accessibility of electronic books and journals (searchable and written in English) as a bonus. However, there is a danger that given the present pressure on output and the resulting temptation to publish unpolished, fragmented data, freshly fished out from the statistical pool, we might lose the connection to real research and get lost in the unkempt jungle of (not always reliable) scientific publications. Perhaps the new preference for author partnership over single authorship stems from the same fact, and can occasionally be considered a “free ride” rather than true cooperation.

Second, the development of phonetics is characterized by a clear shift to quantitative data and use of statistical methods. Theoretical papers are massively replaced by experimental research that uses live subjects. However, it is surprising how many authors still inadequately describe their methodology, “concealing” the number of items (144 cases) or subjects (23 cases). Quite expectedly, prosody is nowadays under great scientific focus, corroborating Ladd’s [5] results, but it must be noted that already in 1967 25 % of the papers investigated prosodic issues. The same remark applies to speech perception, as perceptual experiments were reported in 1967 quite frequently (30 % of the papers).

Finally, the participants of 1967 who could still be contacted were interviewed. They mostly agree that prosody and perception was already on the rise at the Prague congress. They appreciated above all the chance to meet former colleagues and make new acquaintances, and stressed the interdisciplinary character of the congress. Also, as one interviewee put it, the 1967 congress *still* “represented the true spirit of a scientific meeting – getting together for discussion, old hands and novices meeting for fruitful interchange.”

The future of phonetics is not determined, though. Speech is the “most multidisciplinary of all scientific fields” [1: 19] on the one hand, but we are forced to “[sell] basic research under a cover of potential applications” [1: 16] on the other. Likewise, Ohala’s [8] free market of scientific ideas and Ladefoged’s [6] interpretation of ICPHS as a gathering of disparate scientists goes directly against Kohler’s [3] calling for the integration of phonetic science. We must wait to see which way the strongest wind blows.

7. REFERENCES

- [1] Fant, G. 2005. Historical notes. *TMH-QPSR* 47, 9–19.
- [2] Hála, B., Romportl, M., Janota, P. (eds.) 1970. *Proceedings of the Sixth International Congress of Phonetic Sciences*. Prague: Academia.
- [3] Kohler, K. 2000. The future of phonetics. *J. of the IPA* 30, 1–24.
- [4] Kohler, K. 2007. Two anniversaries: 75 years of International Congresses of Phonetic Sciences and 50 years of *Phonetica*. *Phonetica* 64, 73–79.
- [5] Ladd, R. 2014. *Simultaneous Structure in Phonology*. Oxford: OUP.
- [6] Ladefoged, P. 1988. A view of phonetics. *UCLA Working Papers in Phonetics* 70, 41.
- [7] Lee, W.-S., Zee, E. (eds.) 2011. *Proceedings of the 17th International Congress of Phonetic Sciences*. Hong Kong: City University of Hong Kong.
- [8] Ohala, J. 2000. Phonetics in the free market of scientific ideas and results. *J. of the IPA* 30, 25–29.
- [9] Ohala, J. 2004. Phonetics and phonology then, and then, and now. In: Quene, H., van Heuven, V. (eds.), *On speech and language: Studies for Sieb G. Nootboom*. Utrecht: LOT, 133–140.
- [10] Pols, L. 2004. Expanding phonetics. In: Quene, H., van Heuven, V. (eds.), *On speech and language: Studies for Sieb G. Nootboom*. Utrecht: LOT, 141–148.
- [11] Rossi, M. 2000. Intonation: Past, Present, Future. In: Botinis, A. (ed.), *Intonation: Analysis, Modelling and Technology*. Dordrecht: Kluwer, 13–52.
- [12] Trubetzkoy, N. 1939. *Grundzüge der Phonologie* [*Travaux du cercle linguistique de Prague* 7]. Prague.