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**SUSANNE FUCHS, MARTINE TODA & MARZENA ŻYGIS**  
(eds.), *Turbulent sounds: An interdisciplinary guide*  
(Interface Explorations). Berlin: De Gruyter Mouton, 2010.  
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Indranil Dutta

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## REVIEWS

SUSANNE FUCHS, MARTINE TODA & MARZENA ŻYGIS (eds.), *Turbulent sounds: An interdisciplinary guide* (Interface Explorations). Berlin: De Gruyter Mouton, 2010. Pp. v + 384. ISBN: 9783110226577  
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Reviewed by **Indranil Dutta**  
The English and Foreign Languages University, India  
[indranil@efluniversity.ac.in](mailto:indranil@efluniversity.ac.in)

*Turbulent Sounds* is an excellent collection of articles that address the broader phonetic and phonological processes affecting turbulent sounds, namely, stops, affricates and fricatives, classically referred to as obstruents. In this collection, the editors have successfully brought together several aspects central to the understanding of turbulence in obstruents, ranging from their acoustic manifestation, phonological representations and aerodynamics to their articulation. The volume consists of ten articles that cover much of the gamut of experimental modalities that help shape our understanding of these classes of segments. The data for the articles come from an impressive list of unrelated languages that exhibit interesting contrasts; laryngeal contrasts in Korean fricatives, ejectives in several Caucasian languages, N|uu clicks, preaspiration in Scottish English fricatives, Hungarian and Slovak labiodental fricatives, and Polish sibilants.

The editors have taken care to include articles that investigate acoustic phonetic, aerodynamic, electropalatographic, ultrasound and MRI data on turbulence, thus providing an overview of the subject. The preface is correct in pointing out the distinct ways of describing fricatives acoustically and the need to follow an interdisciplinary approach to gain a complete understanding of the inner workings of obstruents and the associated turbulence (p. vi). Susanne Fuchs & Martine Toda explore the relationship between biological and sociophonetic factors influencing the production of /s/ and Fiona E. Gibbon & Alice Lee explore the impact of structural abnormalities, such as cleft-palate on the production of turbulence.

T. A. Hall & Marzena Żygis open the volume with an extensive phonological description of stops, affricates and fricatives, especially the treatment of this sub-category of obstruents within the broader distinctive feature theory. covering phonological processes that involve this group of segments and rules that alter features they underscore the need for augmenting feature theory with phonetic evidence that better explains certain processes.

John J. Ohala & Maria-Josep Solé contribute to the latter goal by presenting evidence from aerodynamic and palatographic studies of obstruents. They highlight purely generative phonological approaches, such as feature geometry and Optimality Theory, which fail to explain dependency patterns between friction and voicelessness. Convincingly, they point to several processes such as an interaction between articulatory gestures (interarticulatory timing within and between segments) and acoustic-auditory principles, which account for emergent stops between sonorant clusters (p. 75) and stridency in sonorants when they are devoiced (p. 42).

Zsuzsanna Bárkányi & Zoltán Kiss' study of the Hungarian and Slovak voiced labiodental fricative, /v/, supports the claim that articulatory and aerodynamic properties of /v/ explain the phonological patterning of this segment with respect to assimilatory processes, wherein the /v/ is a target of assimilation but is not a trigger of the same. This study, on the basis of two measures, voicing and median Harmonics-to-Noise Ratio (HNR), establishes that there are two distinct strategies adopted by the two languages when it comes to the phonetic manifestation of the /v/: while Hungarian chooses to devoice the /v/, Slovak tends to 'denoise' the fricative in aerodynamically 'unfavorable' positions. These findings dovetail with the assertion made

by Ohala & Solé that aerodynamic motivations may mitigate surface manifestations of relative turbulence in labiodental fricatives where contiguous obstruents are expected not to differ in voicing.

Hyunsoon Kim, Shinji Maeda, Kiyoshi Honda & Stephane Hans report on acoustic and aerodynamic experiments to validate the claim made in Kim, Maeda & Honda (2011) that the classical lenis–fortis distinction between the two voiceless coronal fricatives of Korean is better understood as a distinction in glottal opening than as the presence of aspiration, as suggested in earlier, related studies by Kagaya (1974) and following that by Iverson (1983). While the duration of aspiration was found to be significantly longer after the fortis coronal, aspiration duration was also found to be dependent on vowel quality of the following vowel. Higher airflow following the stops compared to the fricatives also suggests that a unified account of the obstruents in Korean is achieved by specifying them for [ $\pm$  spread glottis] and [ $\pm$  tense].

Olga B. Gordeeva & James M. Scobbie present data from Scottish Standard English transitional aspiration between vowels and following fricatives, which in the literature is also termed ‘preaspiration’, and relate the acoustic manifestation of this transitional turbulence to the phonological specification of [voice]. The authors use a number of spectral intensity measures, in addition to durational, and categorical binaries to establish that the presence of aperiodicity is correlated with [–voice] fricative singleton codas. They also find Zero-Crossing Rate (ZCR) to be a consistent predictor of categorical voice distinction. They consider the asymmetrical appearance of preaspiration before [–voice] fricatives and glottalization before [–voice] stops as a type of complementary distribution – two realisations of the abstract phonological feature of ‘voicelessness’ in Scottish Standard English.

Sven Grawunder, Adrian Simpson & Madzhid Khalilov’s extensive survey of ejectives in Caucasian languages is remarkable in that it presents acoustic and electroglottographic data from six languages: Georgian from South Caucasian and, North-East Caucasian, Avar, Ingush, Tsez, Bezhta and Lezgi. While, across the six languages and their speakers, the authors could not specify a single acoustic feature that may be related to the ejectives, they found consistent presence of a post-burst lag which they believe to be a primary acoustic cue for this class of ejectives. However, the number of languages represented here and the level of acoustic variation present in the production of ejectives, even in related languages, invites further investigation.

Amanda L. Miller’s study reports two experiments, one with a lexical database of N|uu clicks and another using ultrasound imaging. These experiments suggest that the Back Vowel Constraint (BVC), namely the absence of front vowels with plain clicks (Traill 1985), is explained better if the place and timing of the posterior constriction of the click is taken into account. Miller’s argument for the phonetic bases of the BVC is substantiated both by the findings of her lexico-statistical study of co-occurrence patterns of N|uu consonants and by vowels and the timing of the posterior constriction of the clicks.

As mentioned earlier, Fuchs & Toda investigate the biological and sociophonetic bases of /s/ production in females and males in English and German. They report on both electropalatographic (EPG) and acoustic studies, where evidence from palatal morphology suggests that the gender differences in /s/ production are obtained from biological factors in some cases, where there is a strong correlation between palatal length and the length of the front cavity. However, in English-speaking females, the consistently produced anterior constriction and the consequent shorter front cavity point towards a sociophonetic basis for the observed difference in /s/ production.

Fiona E. Gibbon & Alice Lee provide a detailed account of aspects of articulation in cleft palate speech where production of turbulence in obstruents is examined through extensive EPG studies. They attribute ‘compensatory errors’ in articulation to abnormal learning and not necessarily to the structural abnormality, and underscore the need to apply a multidisciplinary approach in addition to surgical intervention to correct compensatory errors. This may include using visual feedback from EPG to provide patients with cues for correct obstruent targets.

In the final chapter of this volume, Martine Toda, Shinji Maeda & Kiyoshi Honda set out to investigate the vocal tract shape for Polish sibilants, /s/, /ç/ and /ʂ/ (known also as apical post-alveolar), through three-dimensional MRI data. Acoustic simulations on models derived from MRI data are then used to specify formant–cavity affiliations. In addition to tongue constriction, the MRI data reveal a narrow constriction around the incisors. The article demonstrates that the spectra of the non-anterior /ç/ and /ʂ/ are a consequence of resonances in the front cavity, the palatal channel, and the lip cavity. This provides a more detailed picture of formant–cavity affiliation than the commonly held view that sibilant spectra are a consequence of generalized front cavity resonances.

This collection of articles presents a comprehensive view on turbulence associated with a number of obstruents from a wide variety of languages. The experimental and theoretical approaches fuse to offer a unified perspective, which constitutes an excellent introduction to the topic and a highly valuable resource for further study of turbulent sounds.

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EWA WANIEK-KLIMCZAK & LINDA R. SHOCKEY (eds.). *Teaching and researching English accents in native and non-native speakers*. Berlin: Springer, 2013. Pp. 212. ISBN: 978-3-642-24018-8  
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Reviewed by **Patti Price**  
PPRICE Speech and Language Technology Consulting  
[pjp@pprice.com](mailto:pjp@pprice.com)

*Teaching and Researching English Accents in Native and Non-Native Speakers* is a volume of eighteen papers on the theme of ‘accents’ in English. The papers are of variable quality and often present very preliminary work, but all try to push the theme of ‘accent’ into new, more multi-disciplinary areas. All but four of the papers are by authors affiliated with universities in Poland. The papers are organized into four sections: ‘Pronunciation: Production and perception’, ‘Pedagogy’, ‘Phonology’ and ‘Sociolinguistics’. The book might have benefitted from an introduction to each section, and certainly would have benefitted by including an index. As the title of the volume suggests, the papers try to strike a balance between a teaching perspective and a research perspective. It should be of interest to teachers and researchers looking to broaden their perspective on ‘accented’ English as well as to graduate students looking for novel and promising thesis topics.

The section on production and perception opens with a paper by Una Cunningham, ‘Teachability and learnability of English pronunciation features for Vietnamese-speaking learners’. This work compares teaching pronunciation in a classroom to use of home mp3 lessons. The mp3 and live lessons ‘covered the same points’ but there are no details given on the lessons or differences between the two. It is claimed that the mp3 group made no pronunciation progress, although the live lesson group did make progress on most of the pronunciation