**Phonotactic Grammar: Theories and Models**
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# Explaining phonotactics using NAD.

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In this talk I will present a model of phonotactic grammar in which well-formedness of consonant clusters is measured by NAD. NAD stands for a Net Auditory Distance obtaining between segments in a cluster. The auditory distance is a net reflection of the differences between segments in terms of manner (MOA) and place of articulation (POA). It is calculated according to the Principle which states that a cluster is preferred if it satisfies a pattern of distances specified by the universal phonotactic preference relevant for its position in a word. Every position of a cluster in a word, i.e. initial, medial and final, is defined by a respective well-formedness ("goodness of cluster") preference. The universal phonotactic preferences stem from the assumption that there is a preferred pattern of distances between segments to maintain a natural (relatively unmarked) sequence. Since CV is a preferred phonological structure and clusters of consonants tend to be avoided across languages and in performance, there must be a phonological means to let them function in lexicon relatively naturally. This is achieved by auditory contrast and its proper distribution across the word. NAD Principle makes finer predictions than the sonority sequencing generalization. For example, it predicts that initial pr- is "better" (more preferred) that tr-, and they are both better than ps- or rt-, while the latter two are of comparable value.

However, phonology alone does not fully account for clusters. Inflection, word-formation and compounding contribute to the creation of consonant clusters to an extent relative to a morphological type of a language. Therefore, a phonotactic grammar operates on basic, non-derived, lexical forms, while morphonotactics takes care of the remaining, morphologically complex, forms. Interaction between phonotactics and morphonotactics provides a richer insight into the understanding of cluster complexity.

In the talk I will use the new data from Polish and English obtained within a project *Phonotactics and morphonotactics of Polish and English: description, tools and applications* (N N104382540). My collaborators in the project are: Michał Jankowski, Piotr Wierzchoń, Paulina Zydorowicz, Paula Orzechowska and Dawid Pietrala.