**TECHNOLOGICAL OBSTACLES**

**HOW AUTOMATE THE SEGMENTATION PROCESS?**

**PROVIDE INTENSITY MEASUREMENTS IN PHONS (LOUDNESS) AND DBFS (AMPLITUDE)?**

**HOW AUTOMATE MEASUREMENTS FOR FORMANTS F1 & F2?**

**HOW AUTOMATE PROJECTION OF FORMANTS ONTO IPA SPACE?**

**HOW MEASURE DISTANCE BETWEEN VOWELS IN IPA SPACE?**

**HOW GENERATE 3D SPECTROGRAPHIC ENVIRONMENT?**

**METHODOLOGICAL OBSTACLES**

**PERCEPTUAL MODEL VS PERCEPTUALLY ‘INFORMED’ STUDY**

**MAPPING VOWEL FORMANTS W/INSTRUMENTAL TIMBRES**

**APPLY TO POLYPHONIC EXAMPLES**

**SPECTRAL MORPHOLOGY PARAMETERS / CHANGE OVER TIME**