Hello and welcome to your training for GRBAS and CAPE-V perceptual analysis. You will be using both of these forms to assess two samples from each subject. The first sample is an /a/ sound that has been concatenated, while the second sample is a short /a/ sound before concatenation of normal and pathological voices. For CAPE-V, you will be judging the voice quality on overall severity, roughness, breathiness, strain, pitch, and loudness (definitions in appendix 1). In GRBAS, you will be rating the segments on grade, roughness, breathiness, asthenia, and strain (definitions in CAPE-V and GRBAS terms at the bottom). The rating methods differ based on their criteria.

When rating with CAPE-V, you will use a computer program with lines correlating to the assessment points (severity, roughness, breathiness, etc…). The acronyms below the line represent: MI for mildly deviant (0-25), MO for moderately deviant (26-60), and SE for severely deviant (60-100). Choose a value on the line that you think correlates to the acronym and value between 0-100. The colors that fill the line correlate to your selected acronym (MI, MO, or SE). In addition, for pitch and loudness, select a direction that they deviate from the normal by choosing either high or low. For instance, if the segment is much louder, select high for loudness.

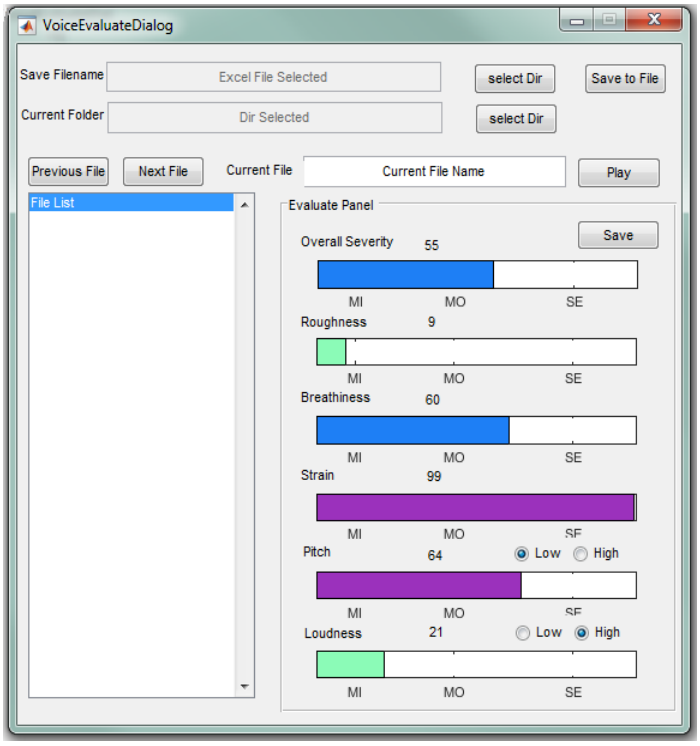


Figure 1: Computer program for CAPE-V. MI is from 0-25 and is green, MO is 26-60 and is blue, and SE is 60-100 and is purple. The values here are arbitrary to demonstrate the different options.

GRBAS has a similar scale but is less complicated. These are rated on a 0-3 integer scale (0 is normal, 1 is a slight degree, 2 is a mild degree, and 3 is a severe degree of deviation). During the experiment simply record your answers in excel under the correct subject.

We would now like you to gain experience practicing these scales. Go to https://csd.wisc.edu/slpgames/sims.html and go through the modules 2, 4, 5, 6, and 7.

Especially important is to note:

- Use our control /a/ sound to relate back to throughout your rating. The control /a/ sound will give you an idea of a normal vowel segment for men and women.

- Only observe the /a/ sound in the modules
- Make sure the computer is set to one volume the entire time of analysis.
- Observe how a professional rater rated the same segments you rated.
- Rate and listen to all of the subjects in each module.
- Pay attention to the lesson: what does strain, a normal voice, a disordered voice sound like?
- Although GRBAS is not evaluated in these modules, practice rating it yourself. There should be a high level of correlation between that and the CAPE-V rating.

Now it is time to rate the segments for the experiment. Employ the same skills you learned from the modules. If at any time you feel that you could benefit from going back and listening and rating the modules again, please do so. Also utilize the control /a/ sound to familiarize yourself with a normal voice. Finally, read through the disease list. There you will find details on some of the diseases that these patients have and how they would affect the produced sound.

## CAPE-V AND GRBAS TERMS

CAPE-V

- **Overall severity:** General impression of how much the voice deviated from normality.
- **Roughness:** An irregularity in the voice causing the voice to not sound smooth (usually sounding raspy).
- **Breathiness:** If there is an airy aspect or if you can hear air escaping during the trial.
- **Strain:** Perception of how hard or how difficult it is for the speaker to phonate.

GRBAS

- Roughness, breathiness, and strain are all the same definition as in CAPE-V.
- **Grade:** The overall deviation and quality of the speaker's voice.
- **Asthenia:** The strength of the voice. Weaker voices are more deviant from normal.

## DISEASES AND SYMPTOMS AFFECTING VOICE PRODUCTION

- **Edema**: hoarseness, rough voice, low voice, vocal fatigue, inability to speak at the high vocal range (voicefoundation.org).

- **Nodules:** breathiness, hoarseness, "rough" or "scratchy" voice, harshness, decreased pitch ability (ASHA.org).
- **Paresis:** hoarseness, breathy voice, inability to speak loudly, small scale of pitch, loudness variation (ASHA.org).
- **A-P squeezing (anterior-posterior constriction):** normal to extremely squeezed and tight. May sound rough.
- **Parkinson's disease:** become quieter, breathy or hoarse sound (Roberts-South).
- **Dysphagia:** Hoarseness, difficulty talking loudly, vocal fatigue, excess throat mucus (otolaryngology-assoc.com).
- **Lesions:** raspy rough voice, crack in your voice (BMC.edu), vocal fatigue, low pitch, increased effort to communicate (ENTnet.org).