Increment Detection - Probe is incremented in the signal interval (or ear, in the interaural conditions), and there is no change in the non-signal interval/ear.

Decrement Detection - Probe is decremented in the signal interval/ear.

**Discrimination -** One interval/ear has an incremented probe, the other has a decremented probe.

Decrement w/Contra - Same as 2-interval "Decrement Detection" except with a fixed (N = 30 dB) noise presented to the right ear in both intervals. Carriers were identical in both ears.

Forward-fringe duration = 0, 0.5, 1, 2.5, 5, 10, 15, 25, 30, 35, 40, and 45 ms. No ramps were applied to the onset or offset of the 5-ms probe segment (unless those coincided with ramps at the onset or offset of the entire 50-ms signal).

Procedure: Threshold differences in intensity in dB [10 log (\(I/I_0\))] between the probe segments were measured adaptively. Each threshold is based on the mean threshold measured in four adaptive runs. Data are plotted in units of 10 log dB.

Before each block of interaural trials each listener was allowed to listen repeatedly to a diotic broadband noise burst and was instructed to adjust the headphones so that the stimulus produced an intracranial image at the centre of his or her head.

**RESULTS AND DISCUSSION**

Left panel of Fig. 2: Monaural discrimination thresholds appear to be driven primarily by detection of increments, particularly at short forward-fringe durations. For longer forward-fringe durations, monaural discrimination thresholds are slightly larger than increment-detection thresholds. If increments and decrements are detected as assigned changes (Bernstein, 1971), discrimination will be more difficult when they are nearly equally detectable, as they are for longer forward fringe durations.

Right panel of Fig. 2: Thresholds for interaural decrement detection are much larger than those for interaural increment detection. However, decrements that are well below their interaural detection thresholds appear to contribute to discrimination such that discrimination thresholds are slightly lower than interaural increment-detection thresholds.

**CONCLUSIONS**

1) Monaural and interaural decrement-detection thresholds are larger than monaural increment detection thresholds. The difference is much larger for interaural thresholds.

2) Thresholds for detecting the ear in which decrement occurs are much higher than thresholds for simply detecting a decrement in one ear with a fixed level stimulus in the other ear. This indicates that there is a range of intensity changes for which listeners can detect a decrement in one ear but they cannot identify the ear in which it occurred.

3) Decrements that are well below the threshold for identifying the ear of presentation and slightly below detection threshold contribute to lower interaural discrimination thresholds.

**References:**


