# Project overview and thoughts

### Hypothesis:

When listening to any sound, people estimate the source or sources that gave rise to it. This perceptual organization likely also shapes working memory, such that features of a single auditory object are automatically stored together.

### Straightly speaking:

complex\_tone------better S/D; daily\_sound -----better P/A (desired behavior)

### Challenge:

* The experiment stimuli are not consistent, because the everyday sound can be recalled multi-dimension; whereas tone is a single dimension
* Solution: Use a unitary sequence that includes both pitch and words to achieve consistency (version 2)

### Current experiment design (version 2) and the questions it answers

1. S/D
   1. Attend pitch: how does pitch (only pitch) affect the performance on this task-> focus on the pitch difference only
      1. same/diff pitches | same words
      2. Good: the sequence of the same words makes the pitches only variance.
   2. Attend words: how do words (only words) affect the performance on this task
      1. same/diff words |same pitches
      2. Good: the sequence of the same pitches makes the words only variance.
2. P/A
   1. Attend pitch: how does pitch (only pitch) affect the performance on this task ->

How does pitch (only pitch) affect memory encoding and retrieving

* + 1. P/A pitches | same words
    2. Challenge: subjects can convert to the same/different problem
       1. Remembering the pitch/word as a pair, use the word as a source to determine whether this pair sounds the same or different
       2. Answer: a pure short memory task on remembering #sound pair (a word with its pitch)
       3. Ex: 1 try your best to rely on the pitch 2. Try to use the word as information
    3. Solution: use P/A pitch but absent words to create a new pair (use the absent word to minimize the confusion (unproven))
       1. Force the participants to focus and rely on the pitch for this task
       2. Prevent the word to be used as a recall dimension
  1. Attend words: how do words (only words) affect the performance on this task
     1. P/A words | same pitches
     2. Challenge:
        1. subjects can convert to the same/different problem (less a problem)
        2. Consistency of the experiment; Since P/A of attending to the pitch, we choose the different word and we should choose the absent pitch for the same reason; It would change the result much because the word is way easier to recall than the pitches.
     3. Solution: use P/A words but absent pitches to create a new pair

Two perspective on the project

1. Active attention on contour or individual stimuli : How does attention to the contour of the stimuli sequence vs individual stimuli of the sequence affect the shortterm memory task

Why we want to learn this? Why this can be useful,

Shinn-2017 attention pattern differs depends on perceptual organization

a sequence of individual events falls into one continuous stream people can maintain attention to it, while when it is perceived as a series of separate objects, people must orient to each individually (How might this affect the memory

because it might seems intuitive to me intentionally store the information affect the information stored.

1. **Short term memory depend on their perceived object structure ---** similar spectrotemporal qualities

Passive attention to the sound but not to specific feature: How does acoustic feature affect the perception of sequence of stimuli as a stream or separate. A stream of sequence or a fractured sequence affect the passive short memory encoding.

* 1. Pitch with ba da ga, (Yes contour, Easy contour, complex contore )
     1. neutral interms of notes and nature sound
     2. More acoustic feature focused instead of semantic or other uncontrolled features
  2. Explosive vs non explosive
  3. Fade of loudness (Yes contour, Easy contour, complex contore )
  4. Frequence distribution

1. Why adj
2. Can cheat & word more dimension
3. Paying attention for both might be different