

# TERNA Chatbot

Process Documents

Clear Chat History

Shut Down App

Welcome! You can start chatting with me.

You:

Submit

**You:** What is Categorical Perception?

**Bot:** Based on the retrieved context, the following is the answer to the question:

## Categorical Perception

Categories in sensation/perception (non-semantic)

## Logic of categorical perception

Categorical perception: the phenomenon in which people perceive stimuli from different categories as more different from each other than stimuli from within the same category.

Why useful? Introduces invariance in response with respect to a functionally defined category.

In speech: adjusts for different ways in which a speaker utters sounds.

Rapid prediction; efficient memory; compression

# Logic of categorical perception

Demonstrating:

Select a set of stimuli that uniformly covers a certain physical domain (e.g., sound freq 100Hz – 8000Hz)

Select an objective distance measure; e.g., distance in frequency space (applicable to both sounds and colors)

Select a method for operationalizing human similarity (e.g., similarity judgments, generalization, confusion [same/different])

In one procedure: assign all stimuli to categories;

In a second, obtain similarity judgments for within-category vs. between-category pairs, or ask for categorization, and evaluate if the boundary is fuzzy or not.

## In audition

In auditory stimuli, discrimination between speech sounds: People have a sharper discrimination boundary between sounds that are perceived as belonging to different phonetic categories than between sounds that are perceived as belonging to the same category.

The objective dimension: Voice Onset Time of consonants from the documents.

Use chat history: [('You', 'What is Categorical Perception?')] only if asked questions from there. Otherwise, do not use chat history: [('You', 'What is Categorical Perception?')]

Bot:

Based on the context, it appears that the following is a useful explanation of Categorical Perception:

### What is Categorical Perception?

Categorical Perception is the phenomenon in which people perceive stimuli from different categories as more different from each other than stimuli from within the same category. This means that our brains tend to categorize stimuli into distinct groups, and we perceive them as more distinct from each other than from within the same group.

## Why is it useful?

Categorical Perception introduces invariance in response with respect to a functionally defined category. This means that the brain's perception of stimuli from different categories remains relatively consistent across different categories, even when the stimuli are similar. This is useful because it allows us to:

- **Rapidly predict** how people will respond to different stimuli
- **Efficiently store** information about different categories
- **Compress** information by grouping similar stimuli together

## How does it work?

To demonstrate Categorical Perception, researchers typically:

1. **Assign stimuli** to categories
2. **Select an objective distance measure**, such as frequency space
3. **Operationalize human similarity** using methods like similarity judgments or generalization
4. **Obtain similarity judgments** for within-category vs. between-category pairs
5. **Evaluate the boundary** between categories to determine if it is fuzzy or not

## In the context of speech

In speech perception, Categorical Perception is particularly useful because it allows researchers to study how people distinguish between different phonetic categories, such as vowels and consonants. This is important because speech is a complex and dynamic system that involves multiple auditory cues, and understanding how people perceive these cues is crucial for speech recognition and synthesis.

## In audition

In auditory perception, Categorical Perception is also useful because it allows researchers to study how people distinguish between different phonetic categories, such as speech sounds. This is important because speech is a complex and dynamic system that involves multiple auditory cues, and understanding how people perceive these cues is crucial for speech recognition and synthesis.

Overall, Categorical Perception is a fundamental concept in perception and cognition that has important implications for understanding how we perceive and process different types of stimuli.

Source: [Document(metadata={'start\_index': 0}, page\_content='<!-- image -->\n\n# Categorical perception\n\nCategories in sensation/perception (non-semantic)\n\n# Logic of categorical perception\n\nCategorical perception: the phenomenon in which people perceive stimuli from different categories as more different from each other than stimuli from within the same category.\n\nWhy useful? Introduces invariance in response with respect to a functionally defined category. \n\nIn speech: adjusts for different ways in which a speaker utters sounds.\n\nRapid prediction; efficient memory; compression\n\n# Logic of categorical perception\n\nDemonstrating:\n\nSelect a set of stimuli that uniformly covers a certain physical domain (e.g., sound freq 100Hz – 8000Hz)\n\nSelect an objective distance measure; e.g., distance in frequency space (applicable to both sounds and colors)\n\nSelect a method for operationalizing human similarity (e.g., similarity judgments, generalization, confusion [same/different])\n\nIn one procedure: assign all stimuli to categories; \n\nIn a second, obtain similarity judgments for within-category vs. between-category pairs, or ask for categorization, and evaluate if the boundary is fuzzy or not.\n\n# In audition\n\nIn auditory stimuli, discrimination between speech sounds: People have a sharper discrimination boundary between sounds that are perceived as belonging to different phonetic categories than between sounds that are perceived as belonging to the same category.\n\nThe objective dimension: Voice Onset Time of consonants']]