How do video content creation goals impact which concepts people prioritize when generating B-roll imagery?

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Overview

Compelling videos often combine a main video narrative (*A-Roll*) and supplemental images (*B-Roll*) to convey impactful messaging to viewers.

But what makes great B-Roll content?

We developed a large-scale behavioral benchmark (N > 800 participants) of how people with different video content creation goals prioritize words in their transcripts to illustrate as B-Roll images.

poster

paper

Experimental task

Highlight words to make an **entertaining video**

Example video transcript: Kopi Luwak

Kopi Luwak, also known as civet coffee, is a unique and enigmatic coffee variety celebrated for its unusual production process. This coffee gains distinction from its association with the Asian palm civet, a small, cat-like mammal that plays a crucial role in its production. The unique coffee originates from Southeast Asia, particularly countries like Indonesia, Vietnam, and the Philippines.

Kopi Luwak coffee beans appear similar to traditional coffee beans, but their unique journey through the civet's digestive system imparts distinct qualities. The beans are often slightly larger and their flavor is altered by enzymes present in the civet's stomach. They are medium to dark brown in color and possess a smoother surface.

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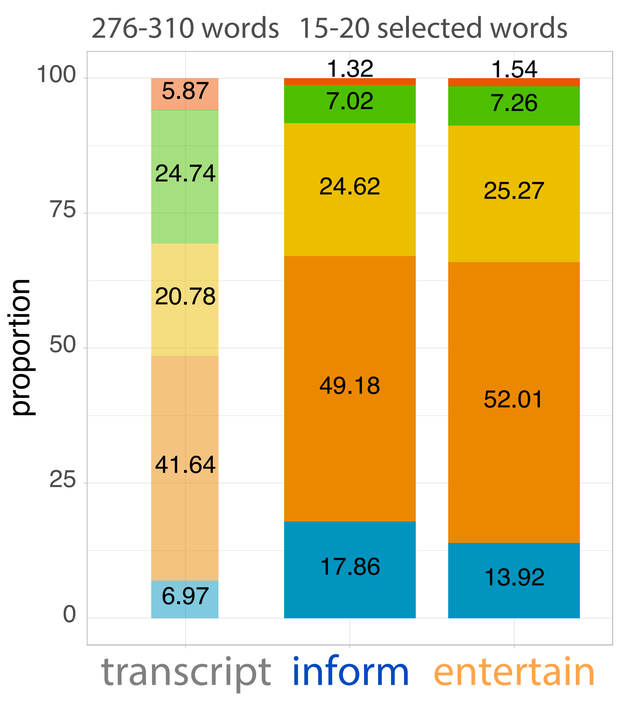
The rarity of Kopi Luwak stems from its labor-intensive and unconventional production process. The limited number of civets in the wild, combined with their naturally selective feeding habits, makes the collection of the coffee beans a challenging and time-consuming task. Additionally, ethical concerns have arisen regarding the treatment of captive civets for commercial production, leading to a focus on responsible sourcing and sustainable practices but elevating the value of Kopi Luwak as a highly prized coffee variety.

Highlight words to make an **informative video**

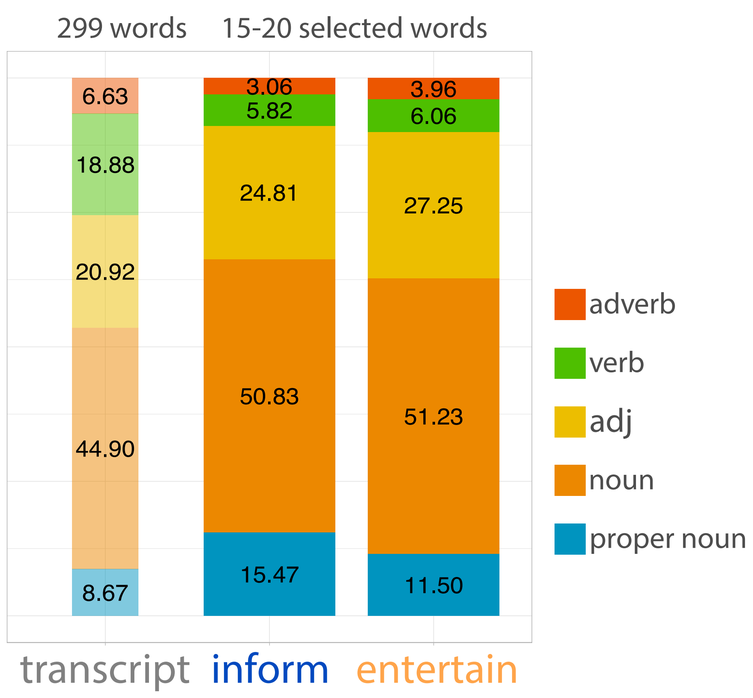
Participants annotated 12 transcripts spanning 4 popular video topics: *food, fashion, city travel, animals*
Randomly assigned to highlight words to display as B-Roll images in videos either meant to **entertain** or **inform** viewers

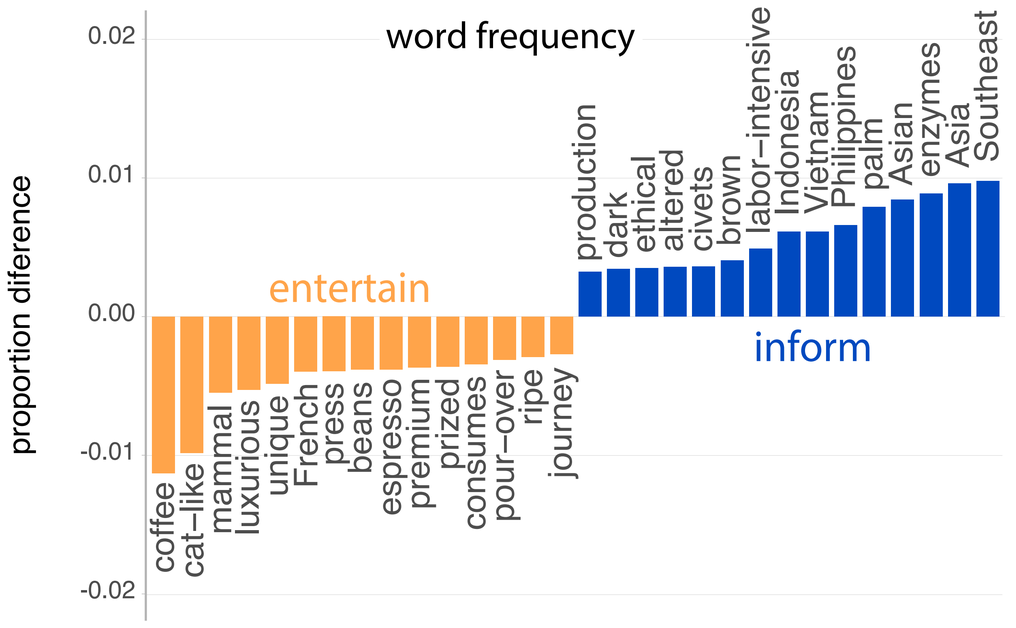
Results: Measuring impact of video goals on human visual concept selection

A all transcripts



B Kopi Luwak

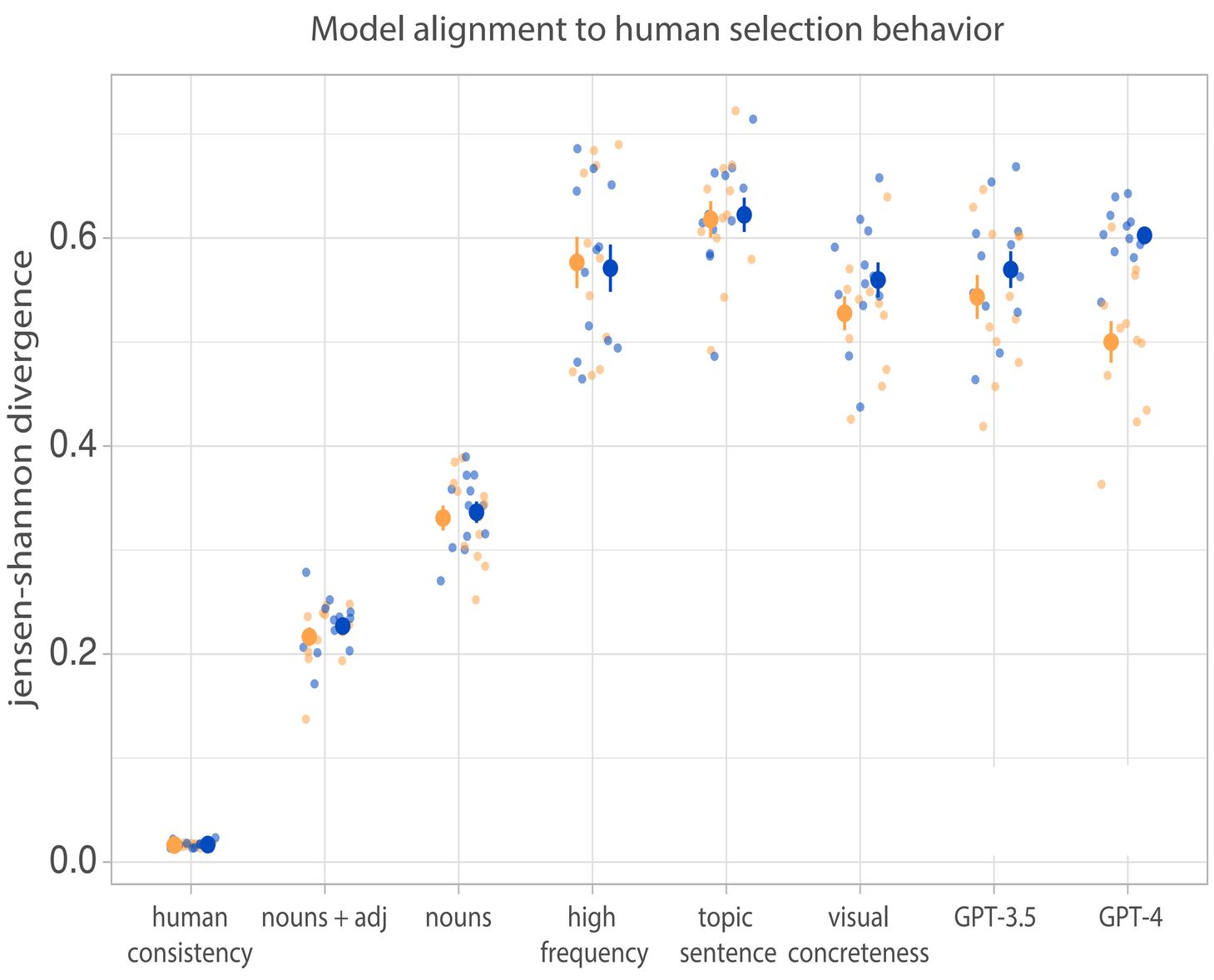




People prioritize nouns & adjectives but different words depending on goal

Model comparison: Predicting human visual concept selection using text selection models

Model alignment to human selection behavior



Substantial gap remains between human behavior & models

Parts-of-speech model sampling noun & adjectives best approximates human selection behavior

To approximate human selection behavior, we randomly sampled words from transcripts using the following procedures:

Baseline models

- Nouns — *random keyword selection*
- Nouns & adjs — *random keyword selection*

Heuristic models

- High frequency words — *relevant keywords based on frequency of inclusion in transcripts*
- Topic sentence words — *relevant keywords based on topic sentences capturing the main idea of each pararaph*
- Visually concrete words — *relevant keywords based on more visually concrete words evoke more visual imagery needed for B-Roll*

LLMs

ChatGPT3.5 and 4 prompted with the same task instructions given to human participants in the different video conditions

Summary

People systematically prioritize different visual concepts to illustrate as B-Roll *depending* on their goals to make **entertaining** or **informative** videos.

Results can help guide improvements for text-to-image systems aimed at supporting different content creation goals.

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