VISA: An Ambiguous Subtitles Dataset for Visual Scene-Aware Machine Translation

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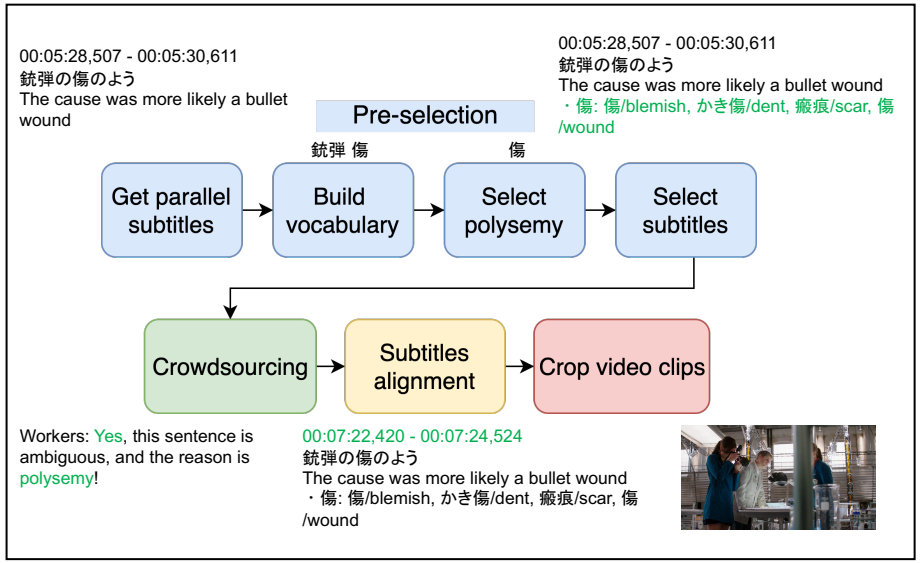
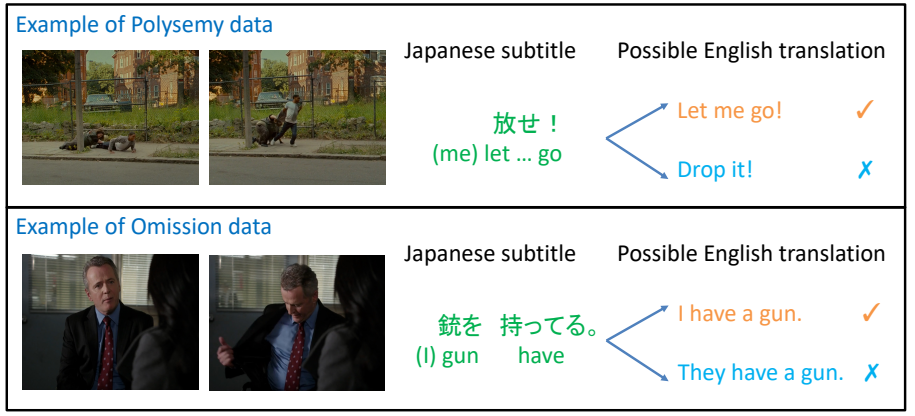
1.Introduction

- Lack of language ambiguity in existing **multimodal machine translation (MMT)** datasets [Caglayan et al., 2019]
  -- Do not require visual information
- We construct a new dataset VISA
  -- 40k Japanese--English parallel subtitles
  -- Corresponding video clips
- The dataset has following key features:
  (1) Subtitles from movies and TV episodes
  (2) Ambiguous source subtitles
  (3) Divided into Polysemy and Omission
- We conduct experiments on the VISA dataset with the latest **video-guided machine translation (VMT)** architecture to set a baseline for the dataset

2.Pipeline



3.Data Example



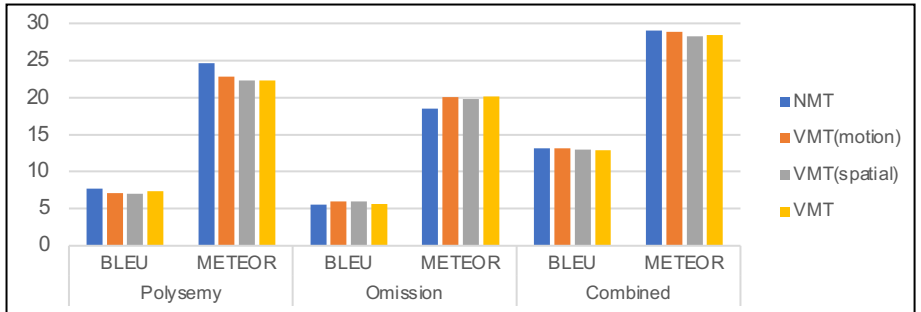
4.Splits

Split	Train	Validation	Test
Polysemy	18,666	1,000	1,000
Omission	17,214	1,000	1,000
Combined	35,880	2,000	2,000

5.Experiment Settings

- Datasets
  -- Polysemy part, Omission part, the whole VISA dataset
- Models
  -- 4 models based on the VMT architecture described in Gu et al. (2021)
- Metrics
  -- BLEU, METEOR, RIBES

6.Results and Discussion



- VMT works better on Omission while NMT works better on others
- Why doesn't the current VMT model work well on VISA?
  -- The videos do not necessarily contribute to the disambiguation
  -- Lack of speaker recognition
  -- Model can not capture emotional information