Analogy-making as grounding relations and establishing partial matches

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What is analogy

• Analogy is a kind of similarity in which the same relations holds across different sets of elements (Gentner & Maravilla, 2017)





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Why should you care?

- Categorization of inputs entails tolerating some differences (Hofstadter, 2006)
- "In general, we see that understanding a sentence involves finding the best match between what was spoken and our current mental state" (Feldman, 2008)
- Conceptual metaphor: most of our concepts are understood in terms of other concepts (Lakoff & Johnson, 1980)
 - E.g. HAPPY is UP and SAD is DOWN
 - That boosted my spirits
 - My spirits rose
 - I'm feeling down
 - ...

Visual analogy and grounding



(Lipinski et al., 2009)



<--- grounding ---

A big green circle above the small green circle

Visual analogy and grounding



Architecture



Visual search





(Grieben et al, 2021)

Concepts



Concepts









Relation



Relation camera input ►B2 Ref- Concepts centered Ref tar → B5 0← 0¥ 0≯ reference field target field Tar Spatial Selection relational candidates field (Richter et al., 2021)

Discarding & Hypothesis rejection



Demonstration

• in CEDAR...



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