Category Learning From Alignable Examples: An Application to Structural Geology

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Abstract: Geological forces shape the earth's crust. Normal faults, for example, form when extensional forces pull blocks of rock apart along a plane, whereas reverse faults are formed by compressional forces. Geologists classify faults to retrace the forces that have acted on an area; however, normal and reverse faults often look similar. In this study we investigated whether viewing superficially similar (highly alignable) images of a normal and reverse fault would help people learn to distinguish the two categories. Highly alignable examples highlight alignable differences—in this case, spatial relations that distinguish normal from reverse faults (e.g., Gentner & Markman, 1994). Participants were presented with two fault images—one normal, and one reverse—embedded in a text about faults. The images were either high or low in alignability. Participants then completed a 22-item fault classification test. Consistent with our predictions, participants who initially saw highly alignable images classified faults more accurately.