

The role of regional topography in route planning

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Abstract: When planning the most efficient route from one location to another, people tend to prefer southern routes over northern routes of equal length and complexity. This asymmetry has been attributed to implicit associations between cardinal direction and relative elevation (i.e., north = higher), and holds even when regional topography conflicts with these associations. No such asymmetry has been observed between eastern and western routes. Here we provide evidence for an eastern-western asymmetry in participants residing in an environment with east-west topography differences. Residents of Colorado Springs, CO, where topography is mountainous to the west, showed a reliable preference for eastern routes over equal-length western routes on a Colorado Springs map, but not an unfamiliar map. This pattern held even though the represented areas contain minimal elevation differences. Our findings suggest that regional topography can induce a novel, physically unfounded asymmetry in otherwise unbiased representations of the spatial environment.