Universität Zürich[UZH]

Universitärer Forschungsschwerpunkt Sprache und Raum

Exploring Space Conceptualization in the Alpine Context

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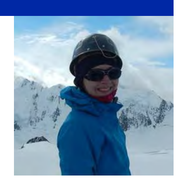
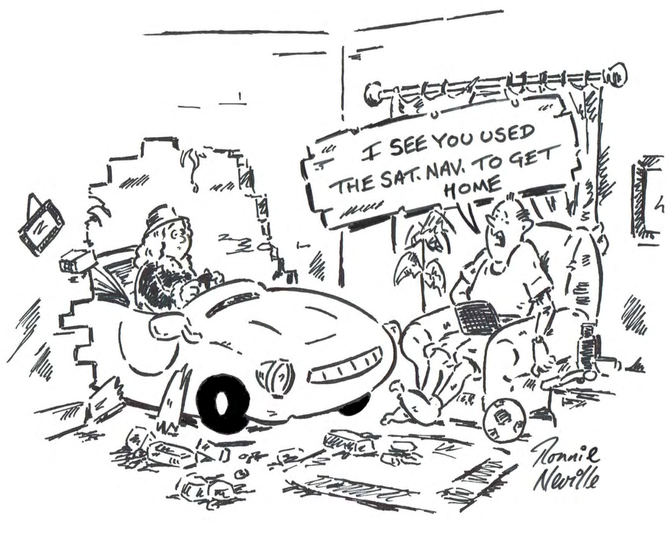


Project Motivation

Theoretical:

Naïve Geography[1] – increasing interest of GIScience in the way lay people conceptualize and describe various aspects of space (with the goal of implementing qualitative spatial reasoning into GISystems, e.g., navigation systems)



Context – role of specifics of space and activity in the way space is conceptualized

Methodological:

Data – user-generated content (online route directions, ascent reports) that helps overcome the "boundness" to certain places in previous, interview-based research; challenge – need for suitable methods to work with large corpora

General Research Questions

1. How do people conceptualize unstructured natural space in the context of the specific activity of mountaineering?

2. Which methods do we need to scale up qualitative research by working with large corpora?

Project Stages

First (Current) stage

- examination of a range of phenomena reflecting various aspects of space conceptualization (see case studies)
- data – small corpora or route directions or ascent reports
- methodology – Cognitive Discourse Analysis (CODA)[2] – analysis of linguistic choices, reflecting current conceptualization of a scene or event

Second stage

- employing methods from corpus and computational linguistics for the extraction of conceptual elements identified in the first stage and results validation
- data – a large corpus (compiled through web-crawling/digitalized version of BAC)

Case Study I

Where Snow Is a Landmark: Route Direction Elements in Alpine Contexts. [3]

Motivation. Specifics of space properties (scale, structure, line of sight, global and local landmarks, restriction of movement in all directions) and activity (routefinding and locomotion being conceptual goals of the activity) create a specific context for space conceptualization. How do the basic elements of alpine route directions reflect this context?

Data – 19 route directions from www.summitpost.org
Methodology – Cognitive Discourse Analysis

RQ 1. What is the content and scope of mountaineering route directions?

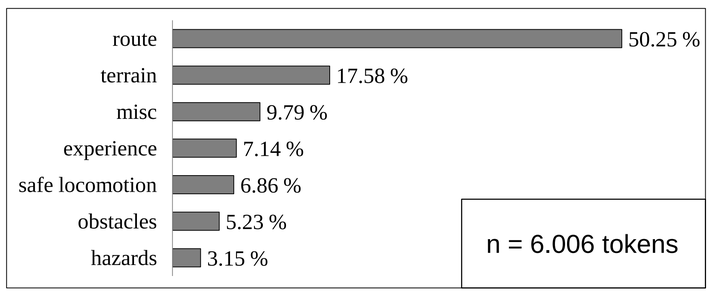


Fig. 1: Only half of information in alpine route directions focuses on the route; other categories reflect the importance of further aspects relevant for the mountaineering challenge.

RQ 2. What constitutes decision points in route directions? How are routes segmented?

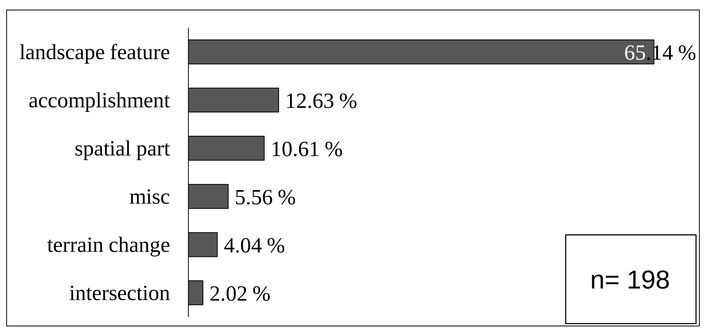


Fig. 2 Any **change of terrain** has the potential of a decision point. While the most common way of segmentation is on the basis of landscape features, the spatial part ("From the end of the ledge"), the accomplishment ("Once you have crossed the tricky section") and the terrain change ("When the ridge goes vertical") categories represent the zooming-in patterns reflecting the relevance of locomotion.

RQ 3. In what ways do landmarks and action descriptions reflect features of alpine space and activities?

Landmarks were found to echo granularity patterns found for decision points. Action prescriptions were found to be characterized by **rich Path semantics** variety, e.g.:
- global shape of the Path (*contour, swing, wrap*)
- approaching the Ground (*approach, get closer*)
- leaving/reaching the Ground (*obtain, arrive, come to*)
- avoiding the Ground (*detour, avoid*)

as well as various **conceptualizations of the geometric properties of the Ground**, e.g.:
- vertical container („top out of the Chute")
- extended linear feature („follow the ridge")
- two-dimensional feature („cross the field")

Conclusion

Close interaction with space is manifested in the creative **switching between the levels of granularity**, reflected in spatial properties of decision points and landmarks, as well as rich semantic variety of path verbs. Investigating alpine route directions can provide new insights into the way space and activity impact our mental and linguistic representation of space.

Current Work. Case Study II

Spatial Dynamism in Alpine Narratives.

Motivation. Motion events can be expressed through a variety of constructions, reflecting different conceptualizations of a scene[4]:

Ex.1 ***We*** *then* ***free climbed*** *a short 5.8 step…(factive motion)*
Ex.2 …from where 100m up a steep icy ***dome led to*** *the second summit. (fictive motion)*
Ex.3 Hard-packed ***snow allowed us rise*** *3,000' … (construction representing force dynamics)*

RQ. What does the use of specific constructions tell us about the current conceptualization of the motion event and, specifically, windowing of attention?

Methodology. We develop an annotation scheme that would allow us to capture major conceptual differences between these constructions, e.g.:
- encoding space (presence of starting point/trajector/goal)
- spatial properties of the landscape feature (e.g., spatial extension, as in "we follow the ridge in its entirety")

Current Work. Case Study III

New and Given Information in Alpine Route Directions.

Motivation.
Communication situation of online route directions:

anonymity – no opportunity to adjust directions to the knowledge of a recipient
availability of other sources of information to the recipient, e.g., maps
specifics of **activity** - Importance of locomotion

It was only 500 yds across but as he visualised the GPS blind spot the risks seemed immense.

RQ. How is the mental representation of mountains constructed? What is the new and the shared knowledge in route directions?

Hypothesis and Methodology. Applying the taxonomy of new and given information[5], we test the hypothesis that large scale landscape features are introduced as given (derivable from maps), while small scale features constitute new information, thus reflecting the hierarchical structure of mental spatial representations in the context of activity where locomotion is an important aspect

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