



University of  
Zurich<sup>UZH</sup>

Department of Geography



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# Extracting positive descriptions and exploring landscape value using text analysis in the Cairngorms National Park

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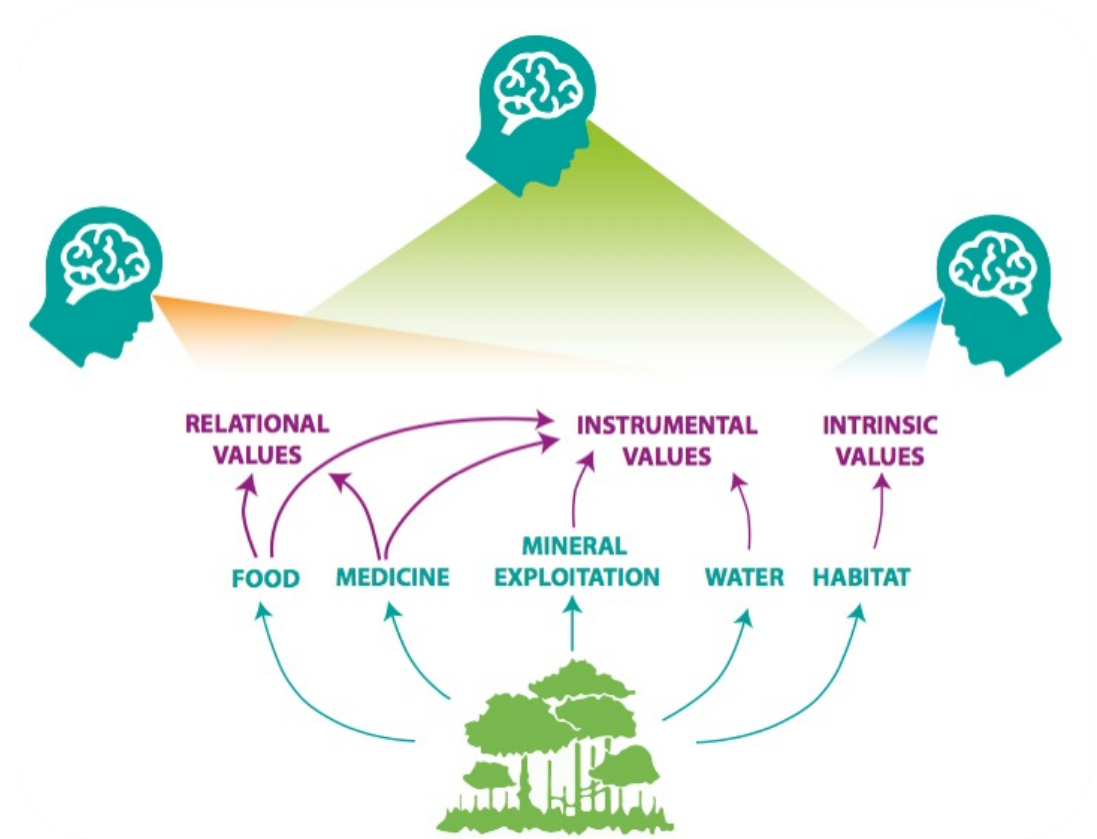
# Introduction

Nature contribute to our lives → values of nature

- How can we find those properties?
- What are those contributions or values?

Valuation of nature → perception-based

- Statement: description of the place
- Behavior: motivation of being in the place



@IPBES, 2023. Diverse worldviews & diverse values

# Introduction

Nature contribute to our lives → values of nature

- How can we find those properties?
- What are those contributions or values?

Valuation of nature → protect nature

- Statement: description of the place
- Behavior: motivation of being in the place

	Valuation method families			
	Nature-based valuation	Statement-based valuation	Behaviour-based valuation	Integrated valuation
What is assessed? What is the source of information	Nature, physical or ecological components of nature and nature's contributions to people	What people say or express when asked about the importance of nature and nature's contributions to people	What people do in nature, for nature, with nature, to nature or nature's contributions to people	Different outputs from one or more methods to support decision-making
Examples of methods and approaches	Biodiversity inventory, ecosystem services mapping, Delphi method, participatory mapping of ecological values	Group discussions, Q-methodology, contingent valuation, choice experiments, deliberative methods	Participant observation, travel cost method, cost-based methods, hedonic pricing, livelihood dependence, photo-series analysis	Ecosystem service valuation, cost-benefit analysis, multi-criteria decision analysis, integrated modelling, scenario building, deliberative decision methods

@IPBES, 2022. Overview of main valuation methods.

# Research challenge

## Values of nature

- Positive experiences are hedonic well-being (e.g., lovely).
- Emotions refer to valued objects (e.g., beach).

*'Nearly 60 miles from the sea  
and there is a lovely sandy  
beach to walk on at the  
western end of Loch Avon.'*



*By Adam Ward, 2011 - Geograph*

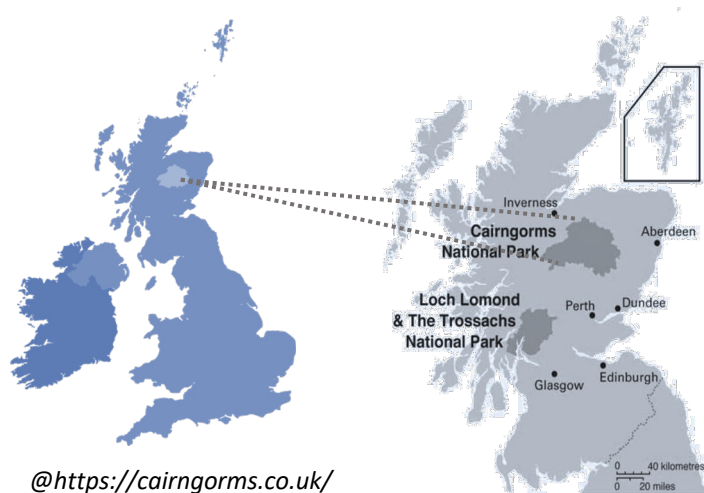
## Semantic patterns

- Computational linguistics for text processing.
- Lexical segmentation with transducers.
- Sequence parsing of emotions & objects

# Study site and data

## Cairngorms National Park

- Location: Northeast Scotland
- Designation: 2003 (extension 2013)
- Protected area: 4528km<sup>2</sup> (6% U.K.)



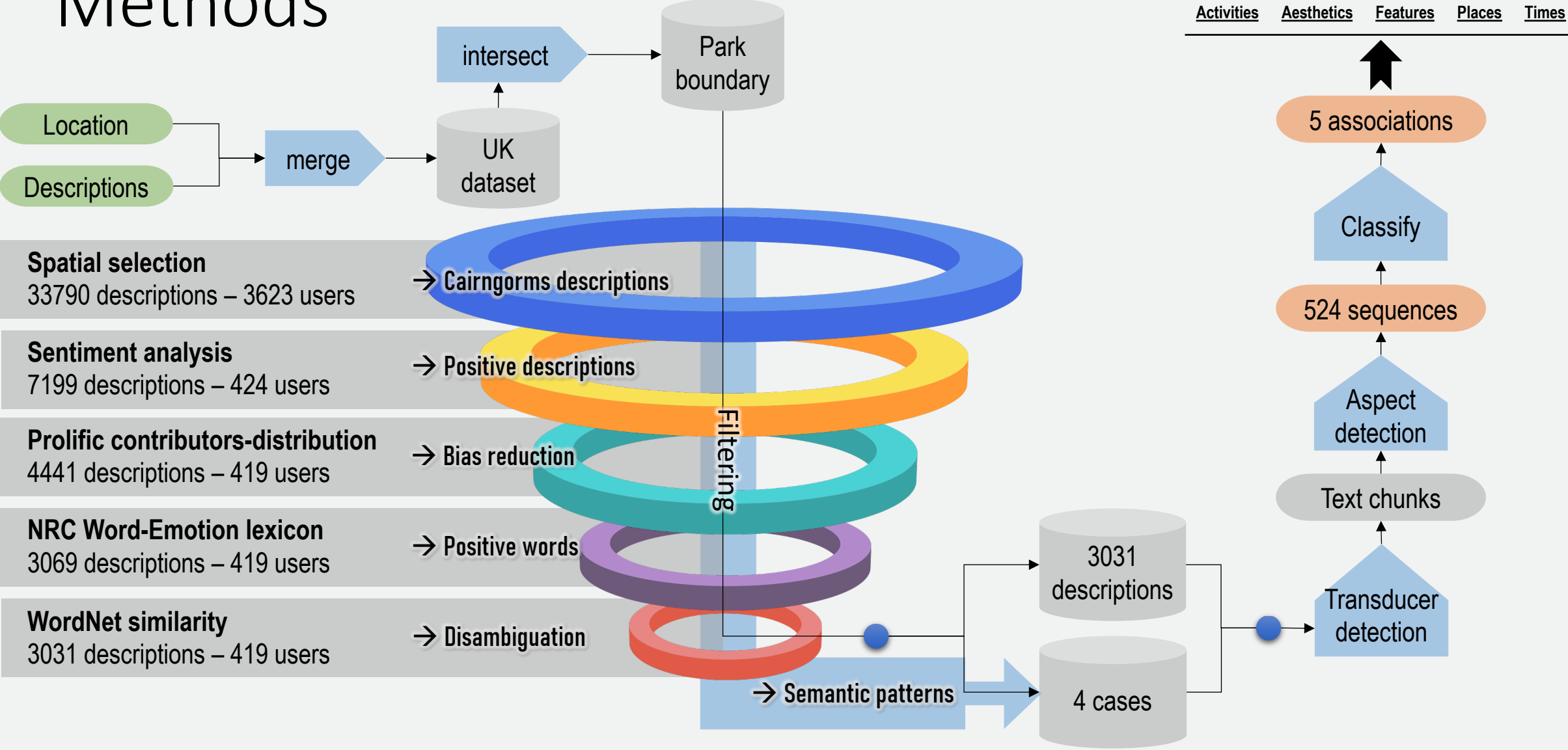
## Geograph Britain and Ireland project

- Images with descriptions: >7 million
- Contributors: >13000 users

## In Cairngorms National Park:

- Descriptions: 33760 points
- Contributors: 3623 users

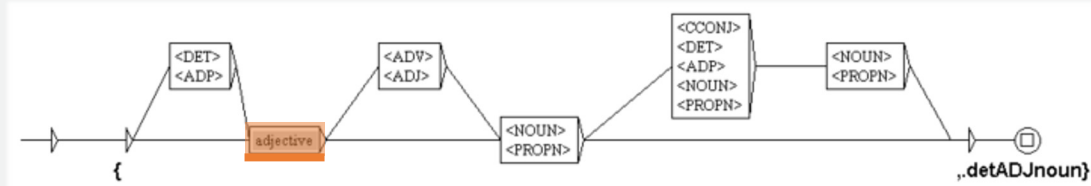
# Methods



# Methods

## Case A: adjective + noun

Object = time



Coming back from a wonderful sunny afternoon in the Highland Folk Museum in Newtonmore.

## Case B: verb + adjective + noun

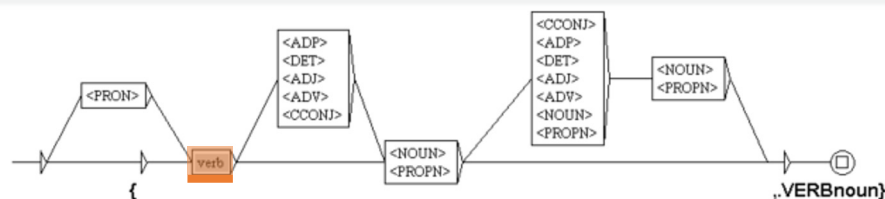
Object = aesthetic



These pines have a magnificent view north towards Caenlochan Glen with Monega Hill in the background.

## Case C: verb + noun

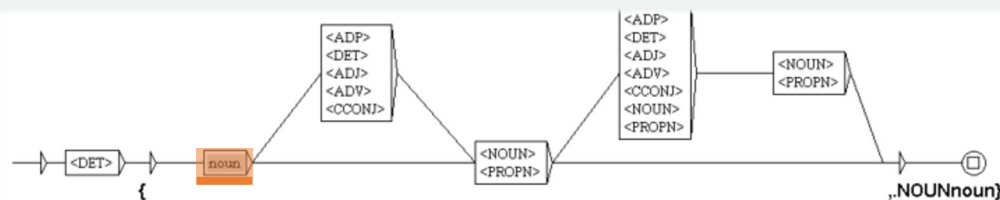
Object = activity



She was evidently enjoying a dip in her icy pond.

## Case D: noun + noun

Object = feature



The beauty and subtlety of the snow is revealed in black and white.

# Results

## What are the contributions?

- Activities: *picnic, walking*
- Aesthetics: *clarity, view*
- Features: *bridge, lochan, path*
- Places: *area, location, spot*
- Times: *afternoon, day, September*

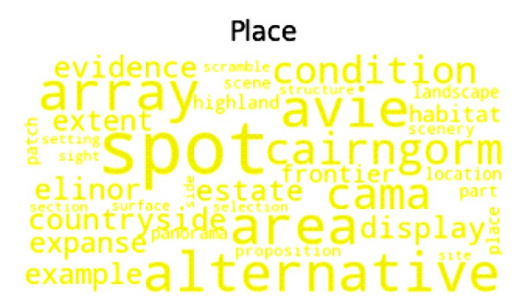
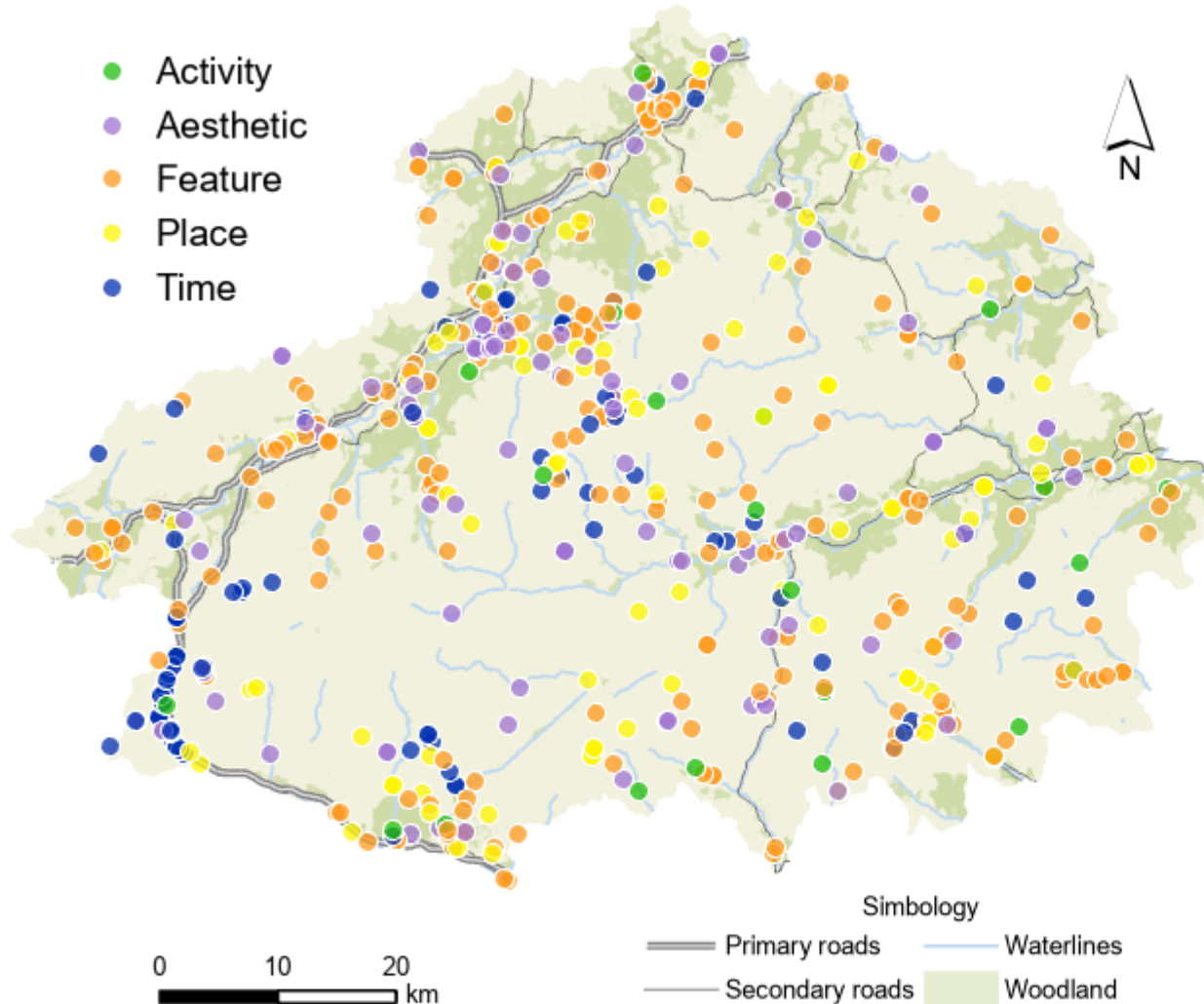
## How are locations valued?

- Activities are services of the place
- Aesthetics refer to visual appreciation.
- Features value specific landscape objects.
- Places are generic locations.
- Times are ephemeral conditions and times.

Sequences		Associations				
		Activities	Aesthetics	Features	Places	Times
<b>Case A</b>	331	9	38	157	61	66
<b>Case B</b>	118	8	33	46	26	5
<b>Case C</b>	33	6	11	11	3	2
<b>Case D</b>	42	2	6	23	8	3
<b>Total</b>	524	25	88	237	98	76
<b>Unique terms</b>		19	22	146	38	25



# Results



# Conclusions and further work

- The extraction of positive descriptions and objects is feasible.
- The objects associations are relevant properties in the landscapes.
- The pipeline was time consuming and decision-dependent.
- In further studies, we aim to compare all Great Britain's national parks and explore potential variations.



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# Thank you

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