Text to Map

Rooms of Possibilities

Øyvind Eide

Unit for Digital Documentation

University of Oslo

Computer Applications and Quantitative Methods in Archaeology

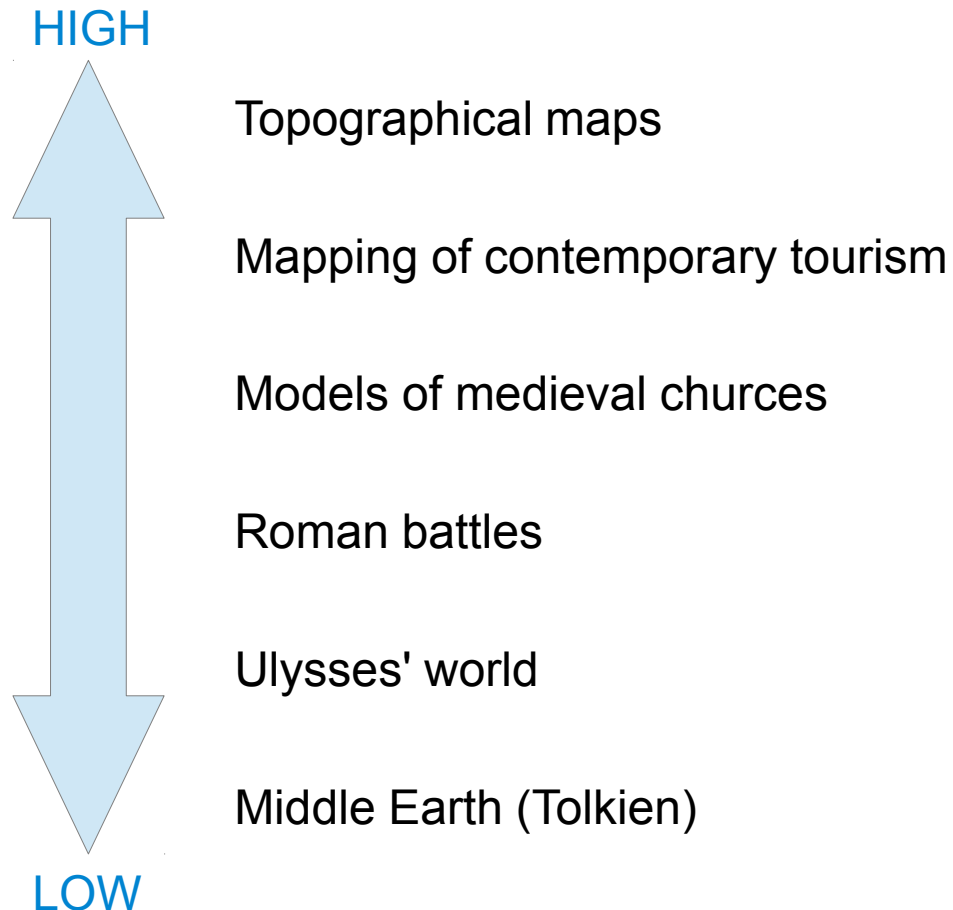Perth, Australia, March 25–28 2013

Introduction

- Reconstructing landscapes based on textual information

- Underspecification: different interpretations

- Choosing between them, or

- Keeping track of networks of possibilities?

Topographical maps

- Maps are creative products

- Underspecified and different from landscape, yet testable

- Map survey: hypothesis testing and modification

- This is not only about presentation, it is about the spatial data

Levels of testability

HIGH

Topographical maps

Mapping of contemporary tourism

Models of medieval churces

Roman battles

Ulysses' world

Middle Earth (Tolkien)

LOW

Underspecification in historical sources

Definition of under-specification:

"A verbal text describing a spatial phenomenon in a way that can be understood as two or more significantly different phenomena by a competent reader, thus, an ambiguity stemming from a lack of information."

Pre-exisiting maps

Map: Statens kartverk (Norway)
(cc-by-sa-3.0)

National Archives of Norway, Map
collection, GA 269, Peter Schnitler,
kart over Nordland amt 1744.

Example: Schnitler

- Scandinavia, 1740's
- From overlapping tax areas to borders between states
- Information gathering
- Common people seen as a source to information based on their knowledge, not on their status

interview

↓

aggregation

↓

map
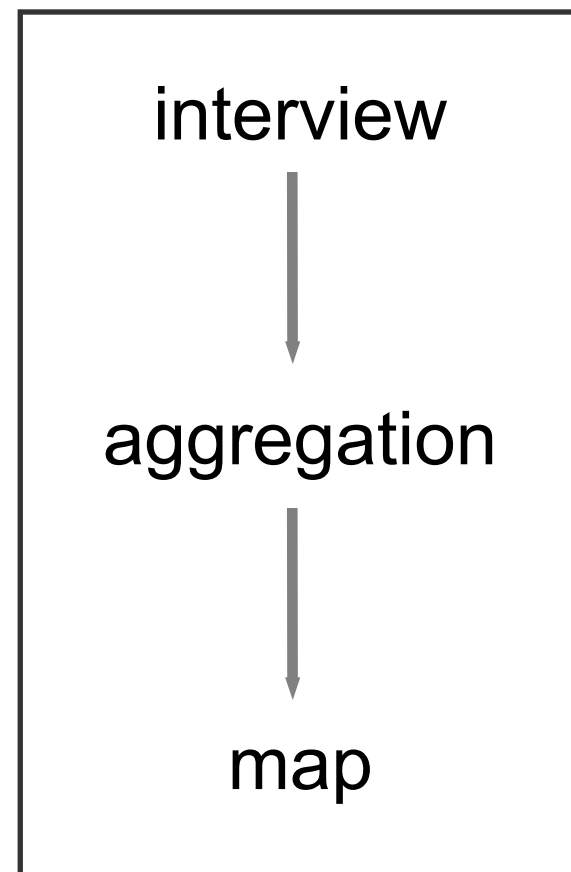
Sample text

3rd question: Answer: South of their settled farms is a 1/2 mile from there the farm Qvæljen, 1 mile the farm Leerbaken; the landscape in between there is spruce and birch forest with some mountain tops; In the area between the lake Frostviig and the lake Qvæ lies the 2 Qværn mountains under the farm Qvæljen; whose farmers, like the others in Northern Finlje lives from their meadows, fishing, shooting and often must stick to pine bread, as grain rarely grows there.

Schnitler, P. (1962). Major Peter Schnitlers grenseeksaminasjonsprotokoller 1742–1745. Vol. 1. Oslo: Norsk historisk kjeldeskrift-institutt. P. 142. Translated from Danish.

Statements

- name type place: Qvæljen (Schn1_42686)

- ...

- rs: place: their settled farms (node286)

  - direction: south: their settled farms → Qvæljen (Schn1_42686)
  - distance: 1/2 Miil: their settled farms → Qvæljen (Schn1_42686)
  - direction: south: their settled farms → Leerbaken (Schn1_42690)
  - distance: 1: miil: their settled farms → Leerbaken (Schn1_42690)

- rs: place: 2de Qværn mountains (node287)

  - part-of: 2de Qværn mountains → Qvæljen (Schn1_42714)
  - between: 2de Qværn mountains → the lake Frostviig (Schn1_42696)
  - between: 2de Qværn mountains → the lake Qvæ (Schn1_42701)

Choosing between interpretations

First map

1. South: $180°$, that is, straight south.

2. Default width and length of a place polygon when no measurements are given: $4000 * 6000$ meters.

3. Default distance in X and Y direction of something between something else, when distance is not given: $500 * 200$ meters.

4. The length of a mile when type is not specified: 8000 meters.

Second map

1. South: 160°, that is, straight south with a slight eastern bend; still, well within what must be accepted as south.

2. Default width and length of a place polygon when no measurements are given: $1000*500$ meters.

3. Default distance in X and Y direction of something between something else, when distance is not given: $1000*2000$ meters.

4. The length of a mile when type is not specified: 6000 meters.

Time: Holmen/Ore calculus (CAA 2009)

Holmen, Jon, and Christian-Emil Ore. "Deducing Event Chronology in a Cultural Heritage Documentation System." In *Making History Interactive. Computer Applications and Quantitative Methods in Archaeology (Caa). Proceedings of the 37th International Conference*, edited by Jane Webb Crawford and David Koller. Oxford: Archaeopress, 2010.

Document, dated 1660: "There are plans to build a church at place X".
Document, dated 1690: "On place X a church has been built".

Knowledge about the building activity A:
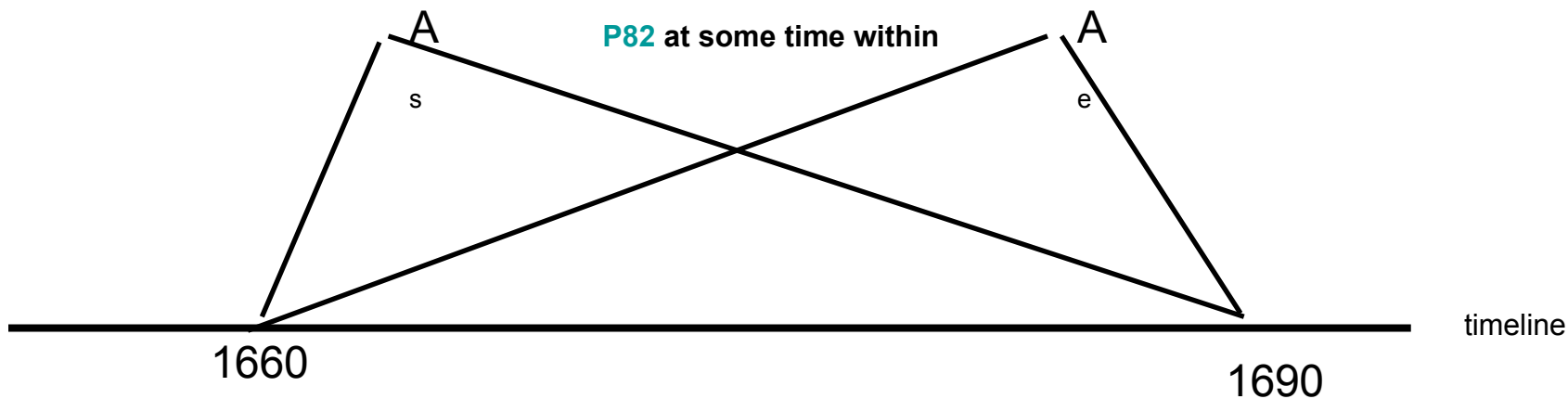
Time: Holmen/Ore calculus (CAA 2009)

Document, dated 1660: "There are plans to build a church at place X".
Document, dated 1690: "On place X a church has been built".
Document, dated 1711: "The construction of the church took at least 6 years

Knowledge about the building activity A:
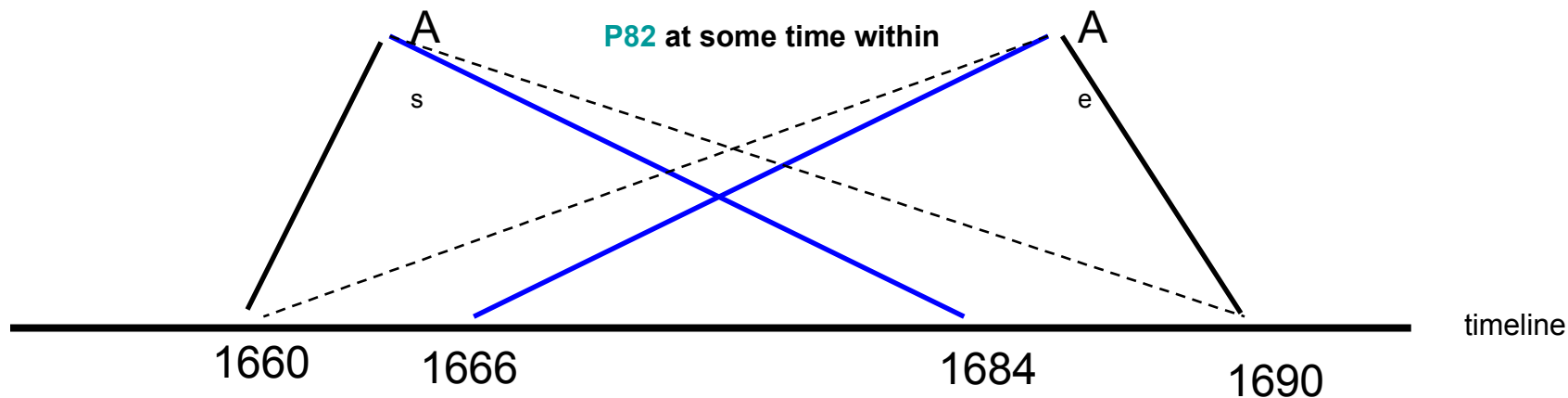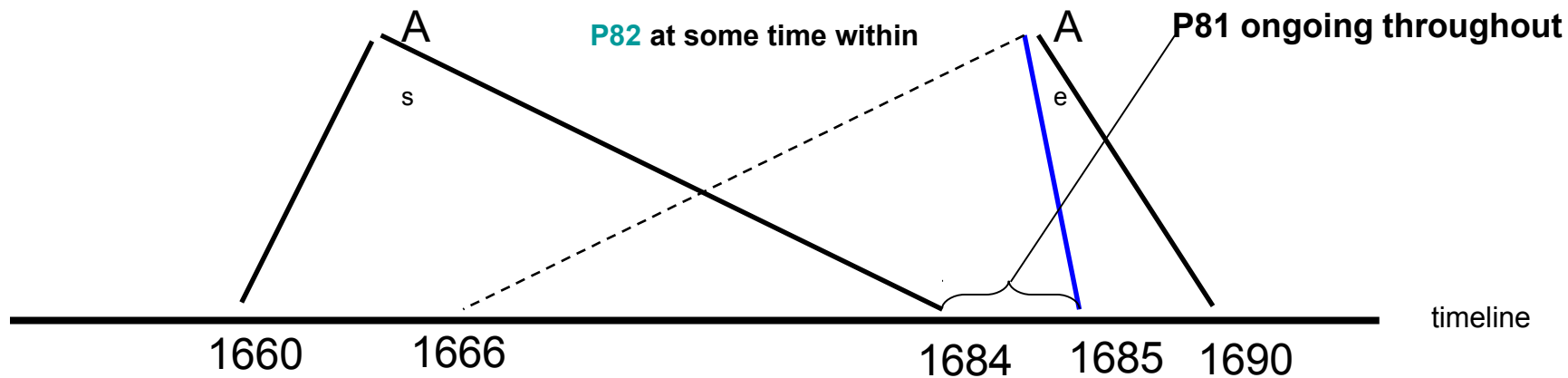
Time: Holmen/Ore calculus (CAA 2009)

Document, dated 1660: "There are plans to build a church at place X".
Document, dated 1690: "On place X a church has been built".
Document, dated 1711: "The construction of the church took at least 6 years
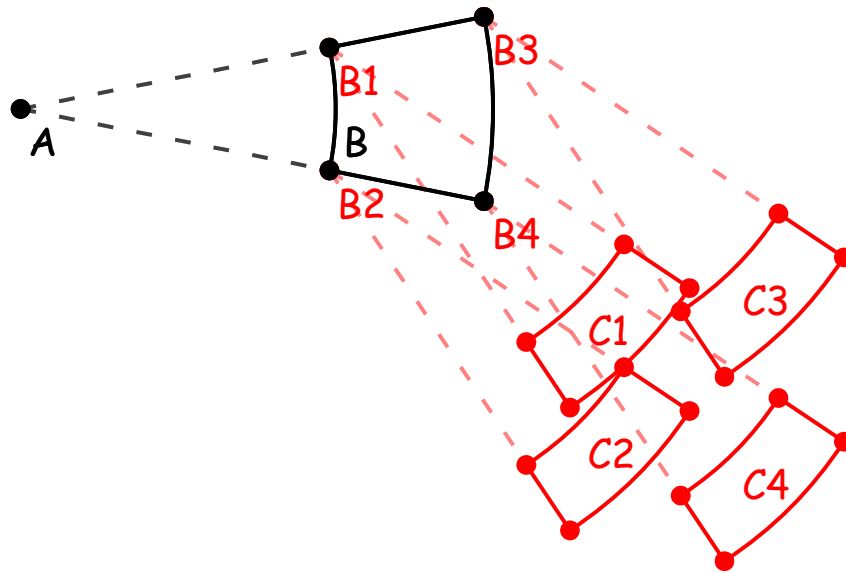Report, date 1984: A coin from the reign of James II was found in the foundation

Knowledge about the building activity A:

Back to space: rooms of possibilities
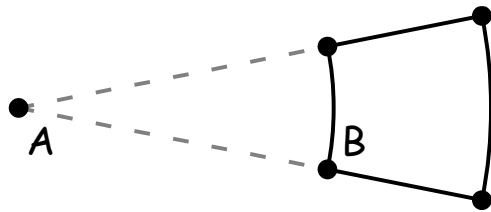
Back to space: rooms of possibilities

Testability

- Not only against landscape, but:

- Also agreed-upon representation: Tolkien

- Never objective in a strict sense

- Can never really test a historical source, but:

- Can connect to other data

- Pre-existing maps represent on type of other data
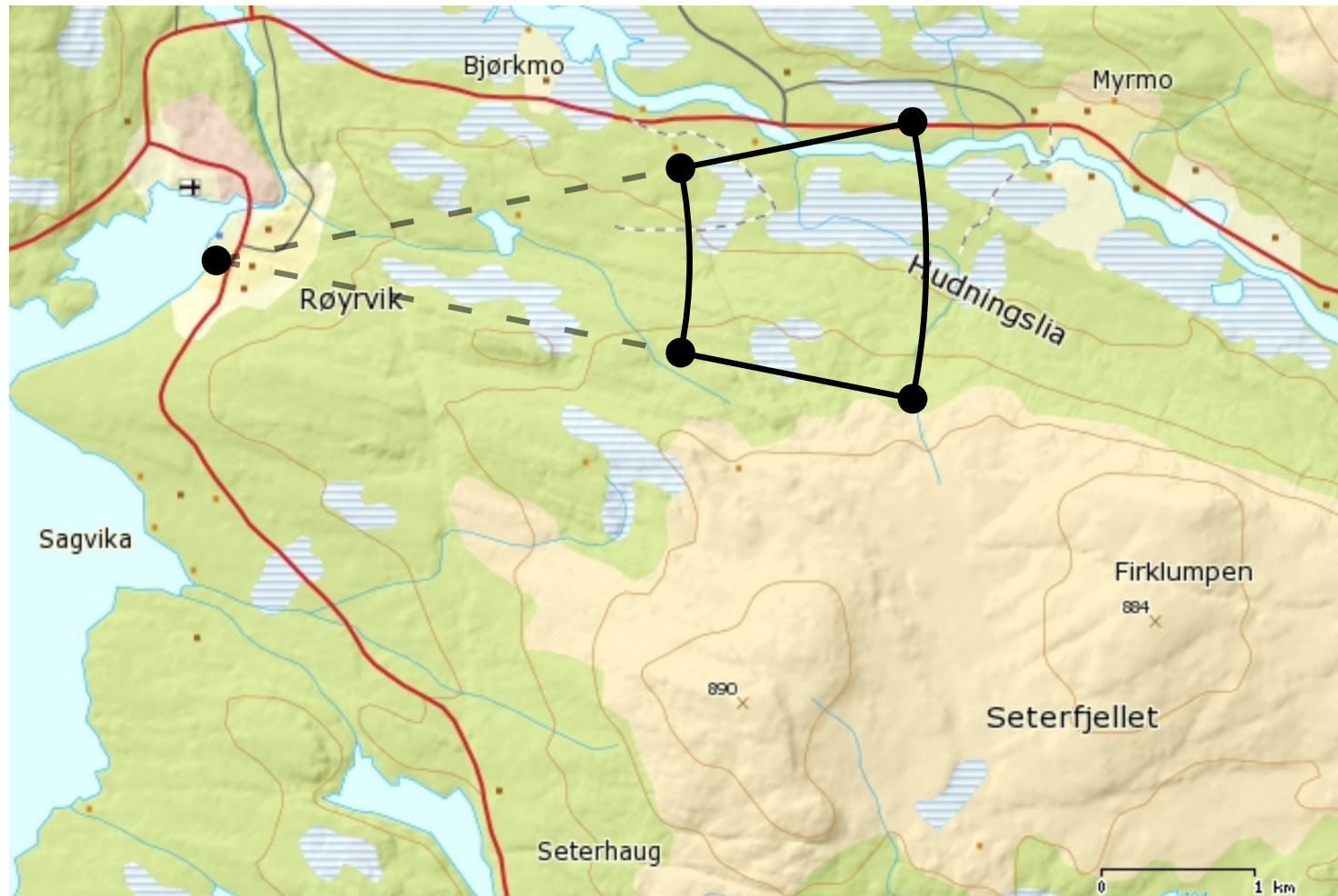
Underspecification remains

- Even with a pre-selected map, not everything is specified

- Seeing statements in connection can add data

- This may reduce underspecification
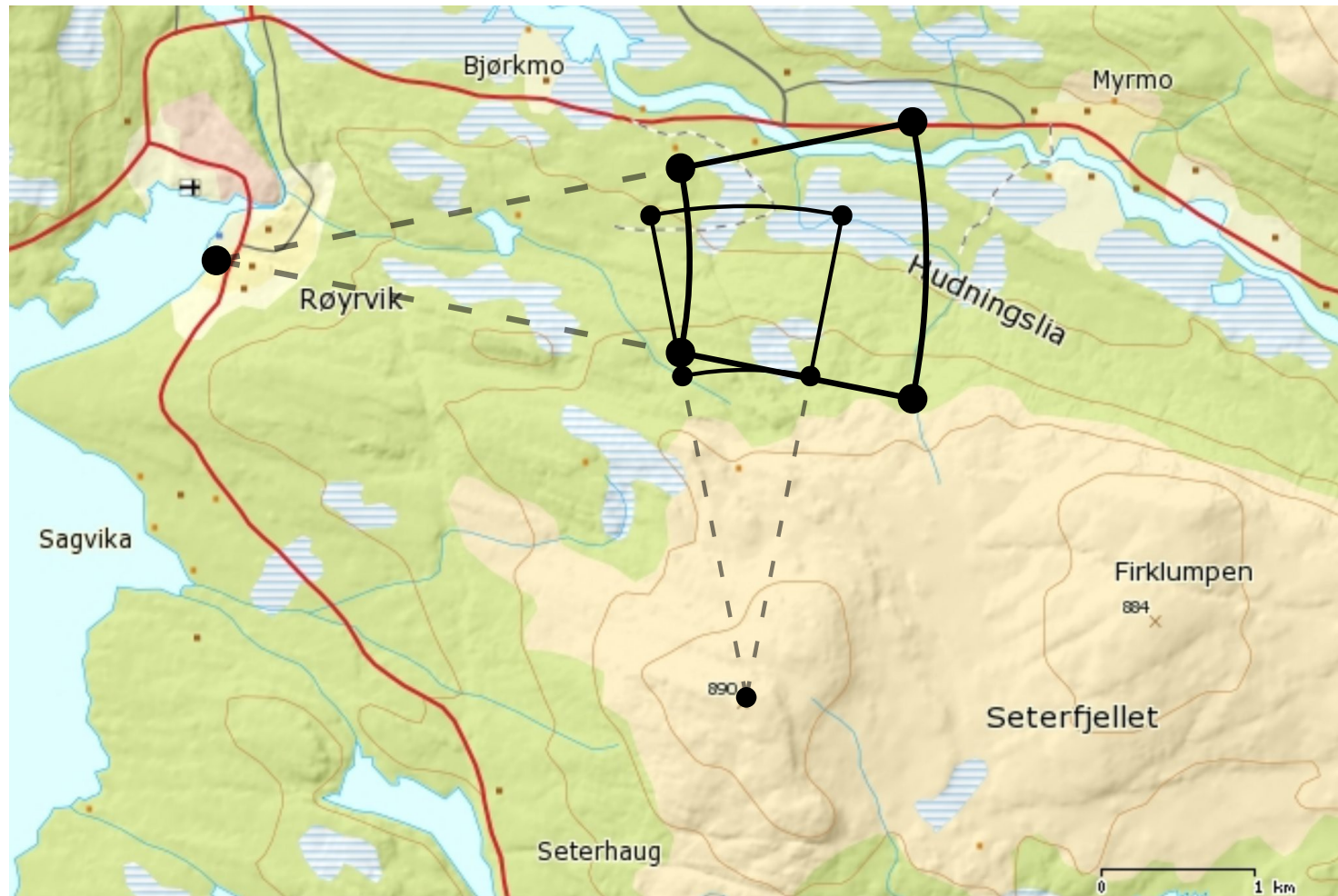
Rooms of possibilities on pre-existing map

Rooms of possibilities on pre-existing map

Rooms of possibilities on pre-existing map

Rooms of possibilities on pre-existing map

Base map: Statens kartverk (Norway) (cc-by-sa-3.0)
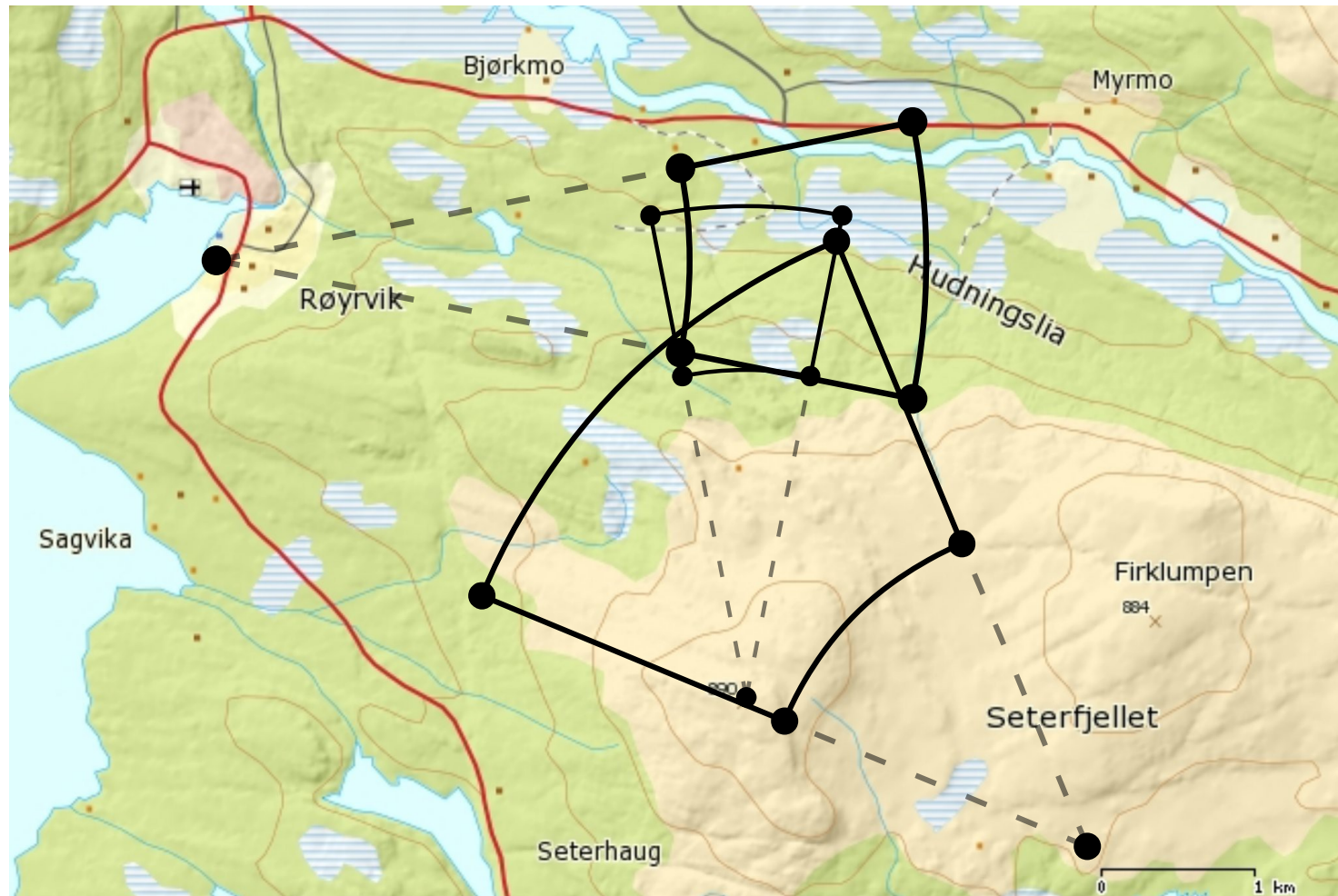
Rooms of possibilities on pre-existing map

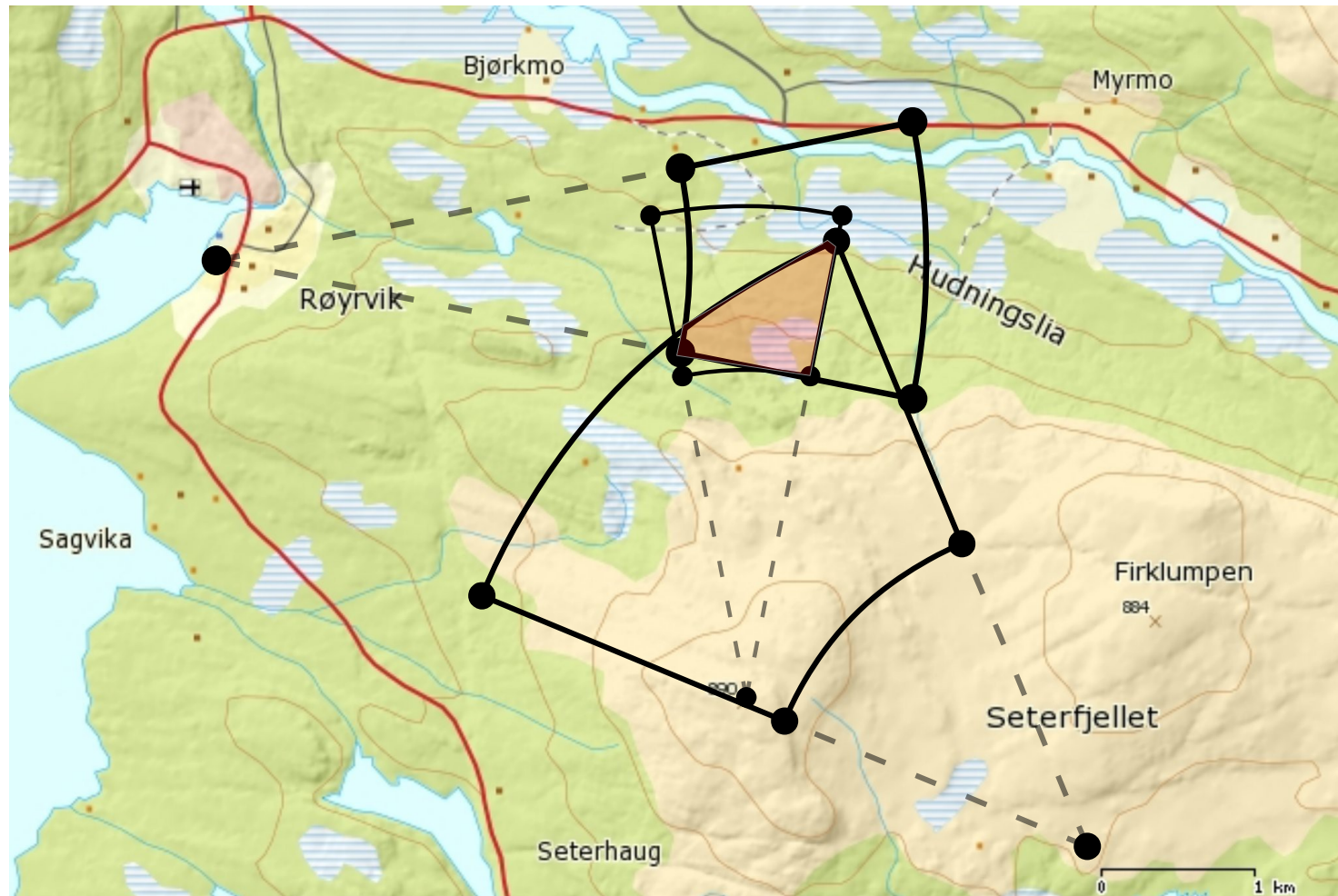# Known, knowable, precision

- What is unknown: theories can be put forward

- Levels of confidence—connect to the data?

- How to visualise the unknown

- Can present different maps as different hypothesis

Thank you!

http://www.oeide.no/