

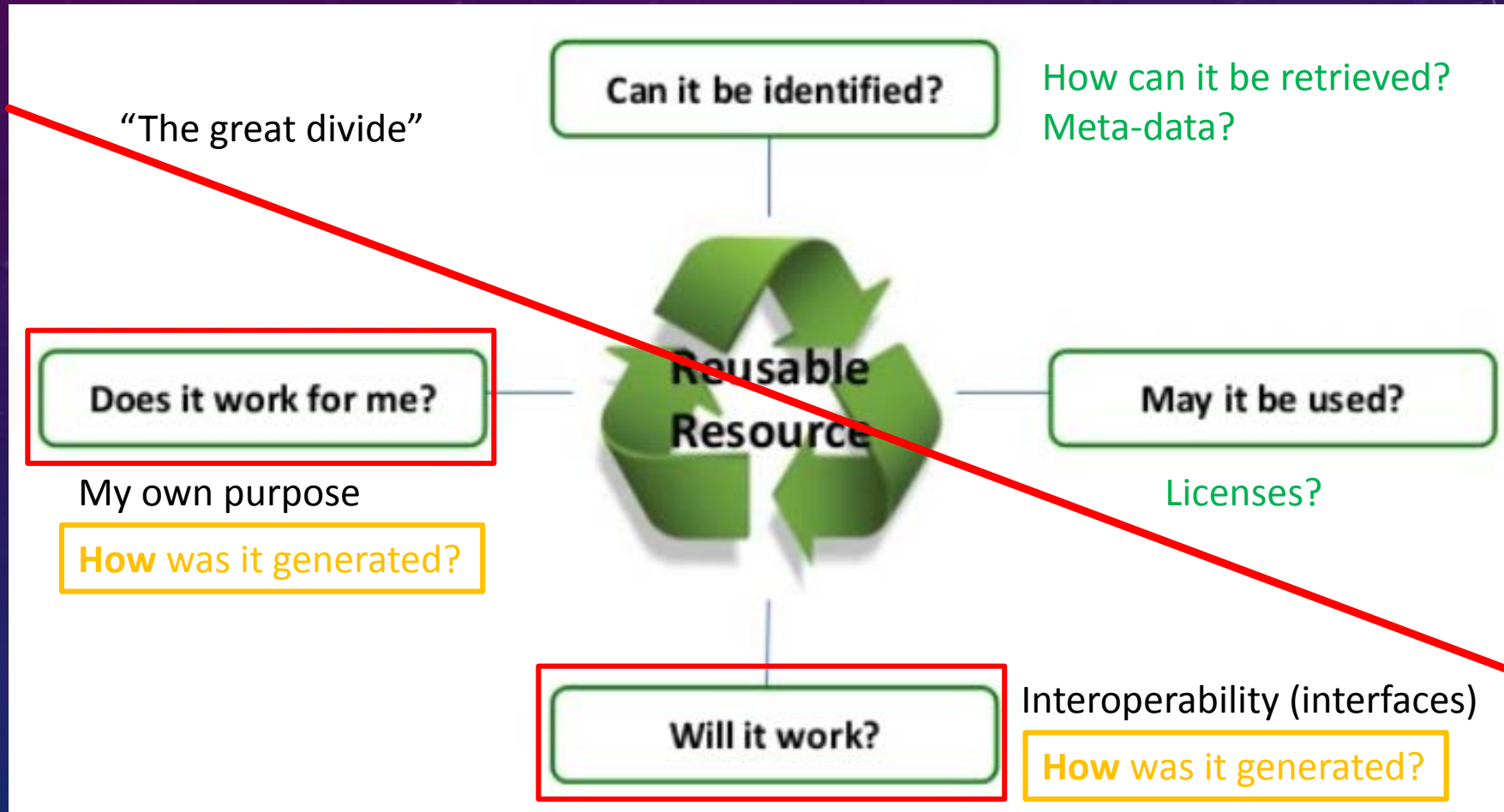
The background features a dark blue gradient with a subtle pattern of white dots. Overlaid on this are several circular and semi-circular elements in a lighter blue color. On the left side, there is a large circular scale with numerical markings from 140 to 260 in increments of 10. Several smaller circles, some with dashed outlines and arrows, are scattered across the slide, suggesting a process or cycle. The main title is centered in a large, white, sans-serif font.

REUSING SPATIO-TEMPORAL ANALYSES

SIMON SCHEIDER, DEPARTMENT OF HUMAN GEOGRAPHY
AND SPATIAL PLANNING, UNIVERSITEIT UTRECHT

IGNITE TALK AT THE O2R PROJECT WORKSHOP, MÜNSTER, MAY 17TH

REQUIREMENTS FOR REUSABILITY OF RESOURCES



EX 1: A CHOROPLETH MAP



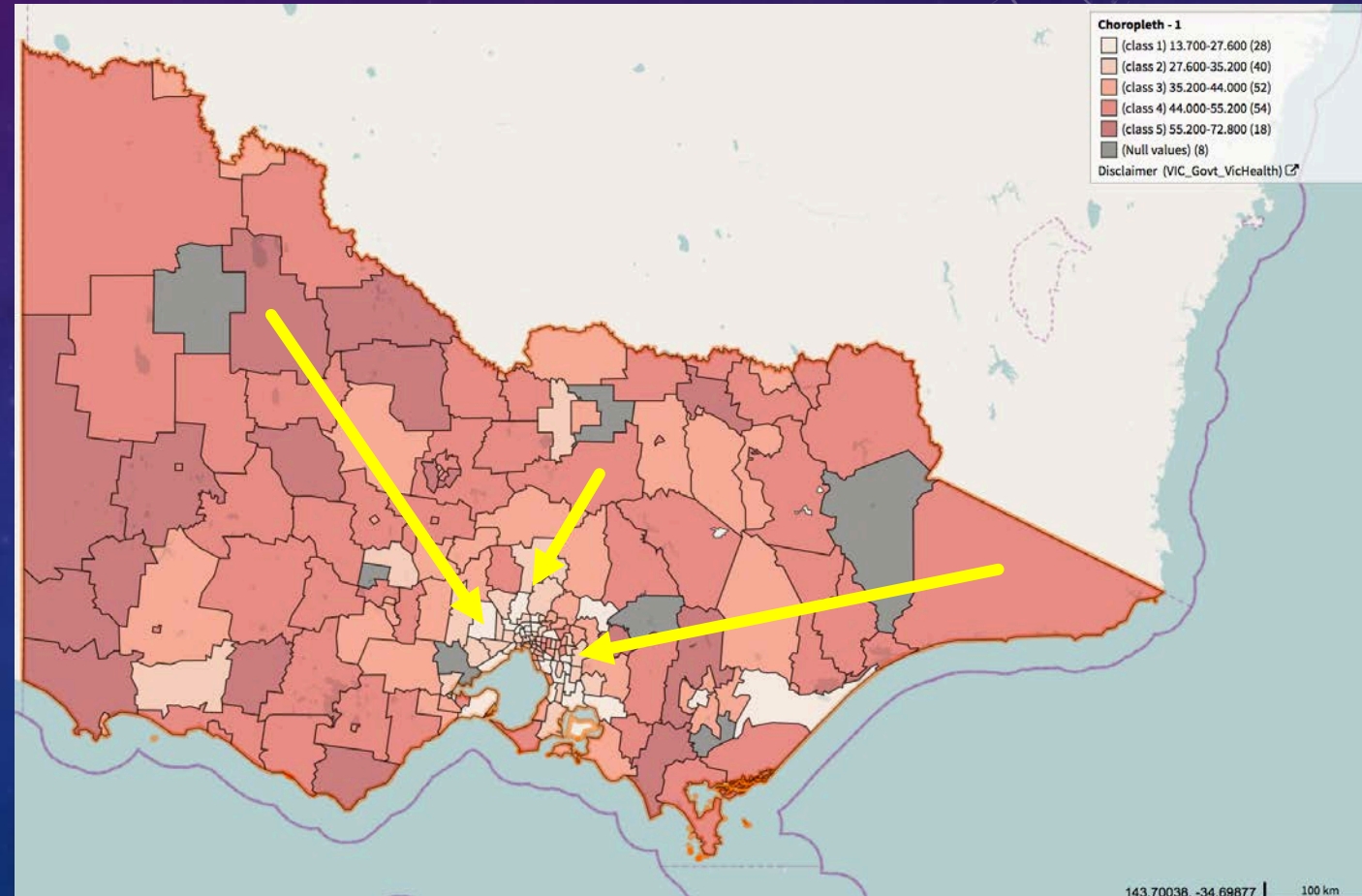
... allows us to **compare** data in space

- here: percentage of population taking part in volunteering work

Works under the conditions that:

- *Measures share the (attribute) Reference System (RS)*
- *Support regions share the spatial RS*
- *Support times are identical*

- ...



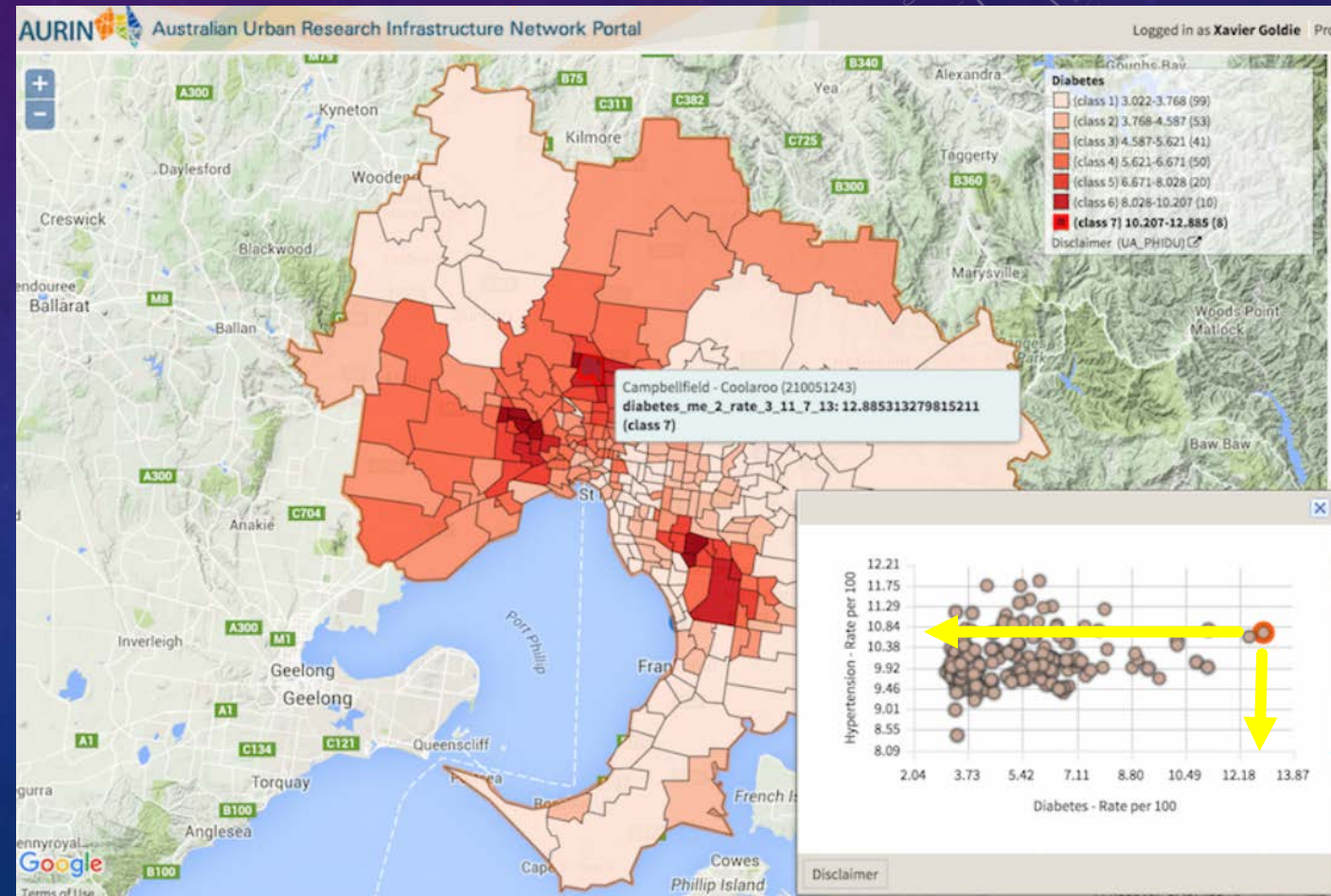
EX 2: A SCATTERPLOT

... allows us to **combine** data

- here: Diabetes rate and Hypertension rate
- Forming a multidimensional space and a joint distribution (co-variance)

Works under the conditions that:

- *Measures may have different RS*
- *Scale level is at least interval*
- *Support regions are identical*
- *Support times are identical*
- ...



HOW CAN WE KNOW THAT IT WORKS?

Traditional metadata covers

content of product

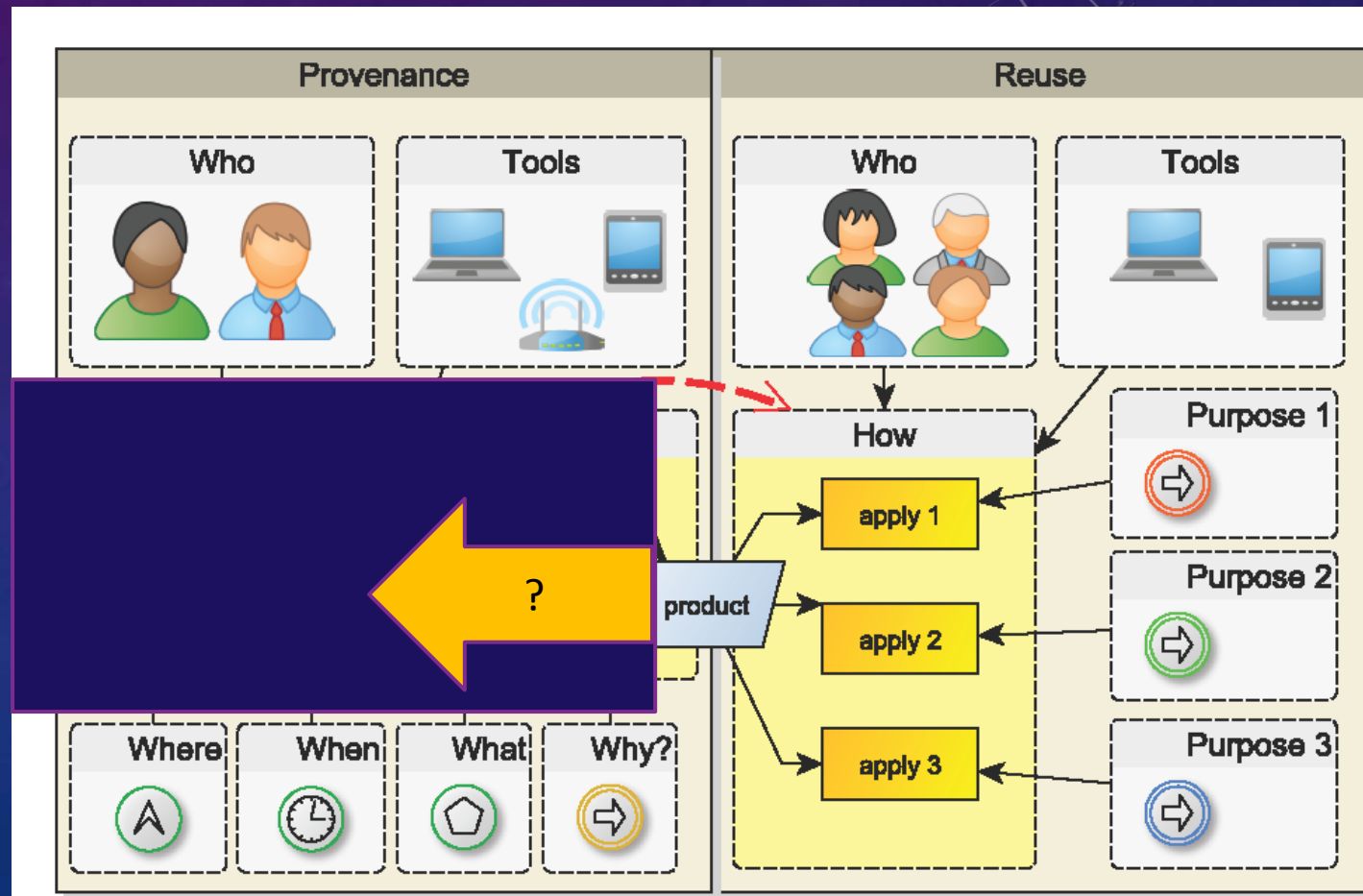
- what ?

context of production (provenance):

- who?, tools?, when?

But, ...

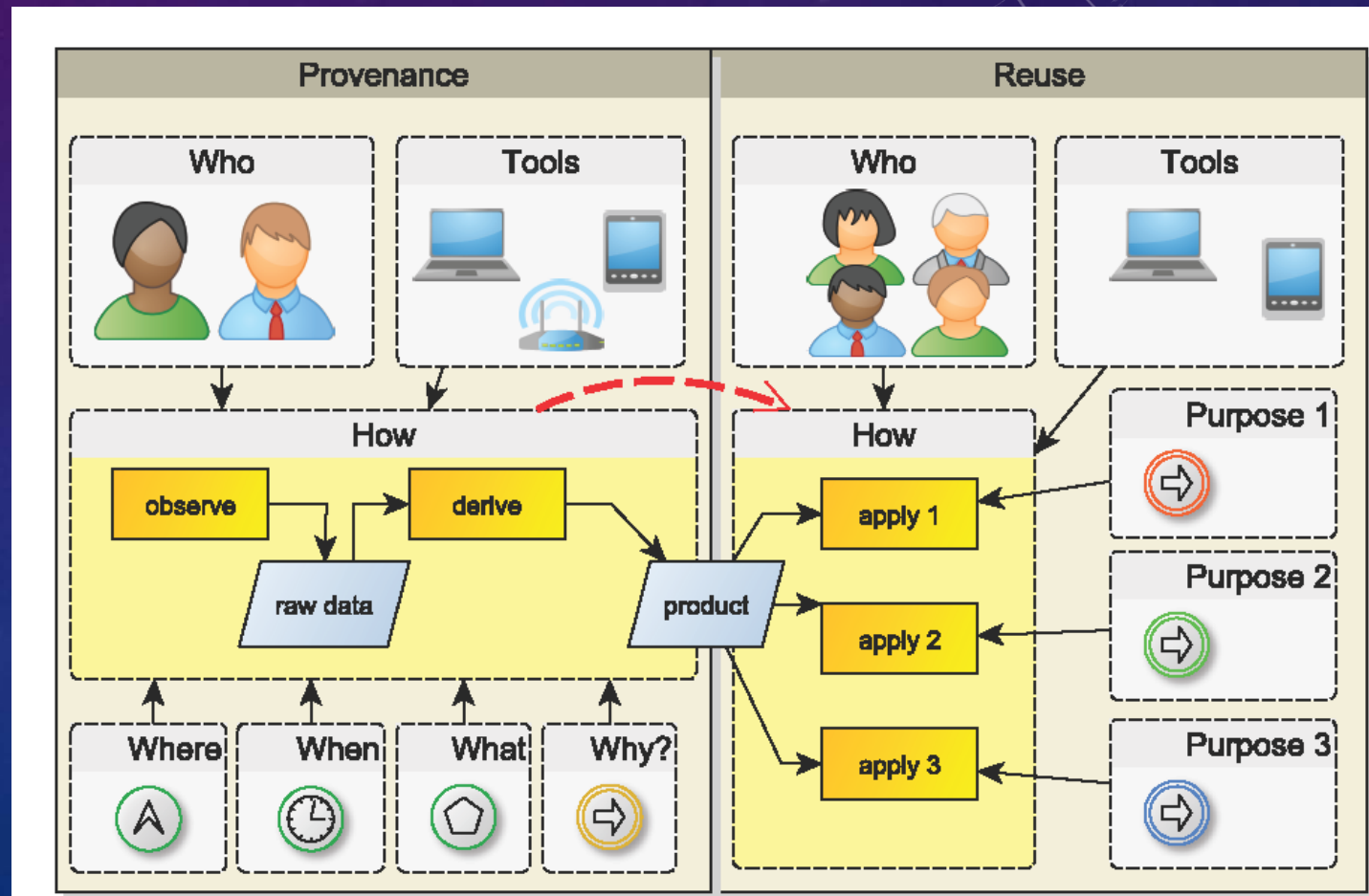
Whether it works depends more on how it was generated!



HOW CAN WE KNOW THAT IT WORKS?

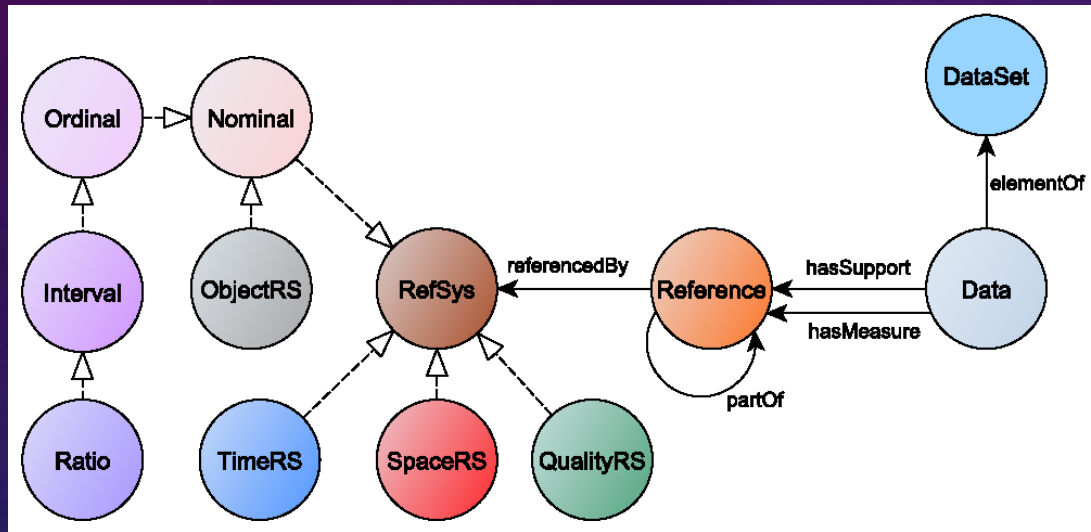
... i.e.

- How was it observed?
 - Which reference system?
 - On which scale level?
 - Where and when was it measured?
 - What was support and what was measure?
- How was it derived?
 - How was it combined?
 - How was it compared?
 - ...



TOWARDS REUSABLE SPATIO-TEMPORAL ANALYSIS

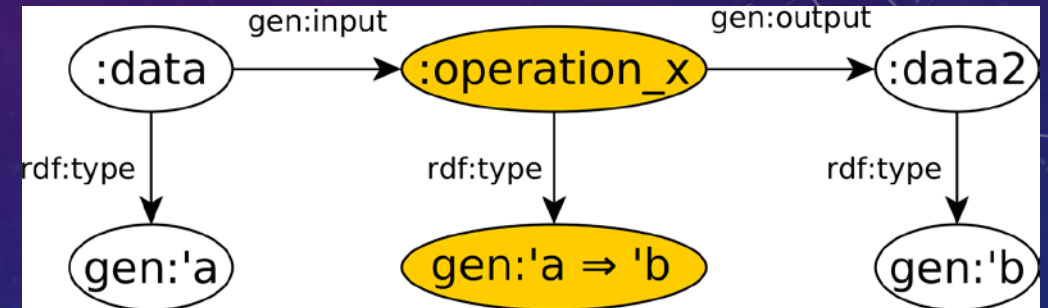
How it was observed ...



1) An LOD vocabulary for ST analysis

Scheider, Tomko (2016): Knowing whether spatio-temporal analysis procedures are applicable to datasets

How it was derived ...



2) A generative algebra for ST analysis

Scheider, Gräler, Pebesma, Stasch (2016): modeling spatiotemporal information generation