



Reasons for the spatial aggregation of indicators: A case study in water management

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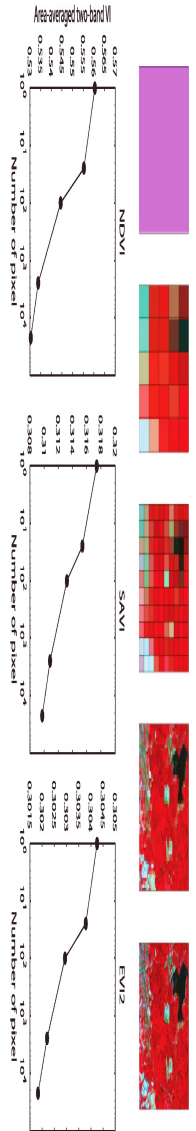
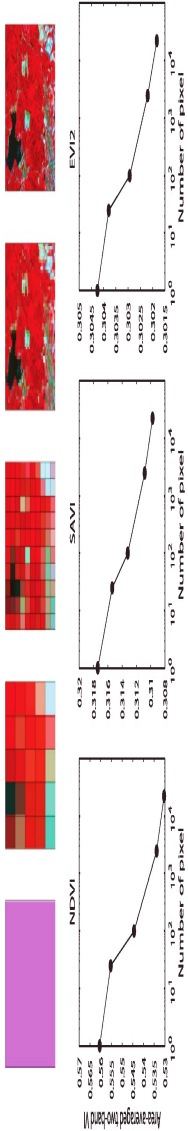
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Reasons for the Spatial Aggregation of Indicators

A case study in water management

Sandrine Allain, Gaël Plumecocq, Delphine Leenhardt
ESEE Conference, Budapest, 2017

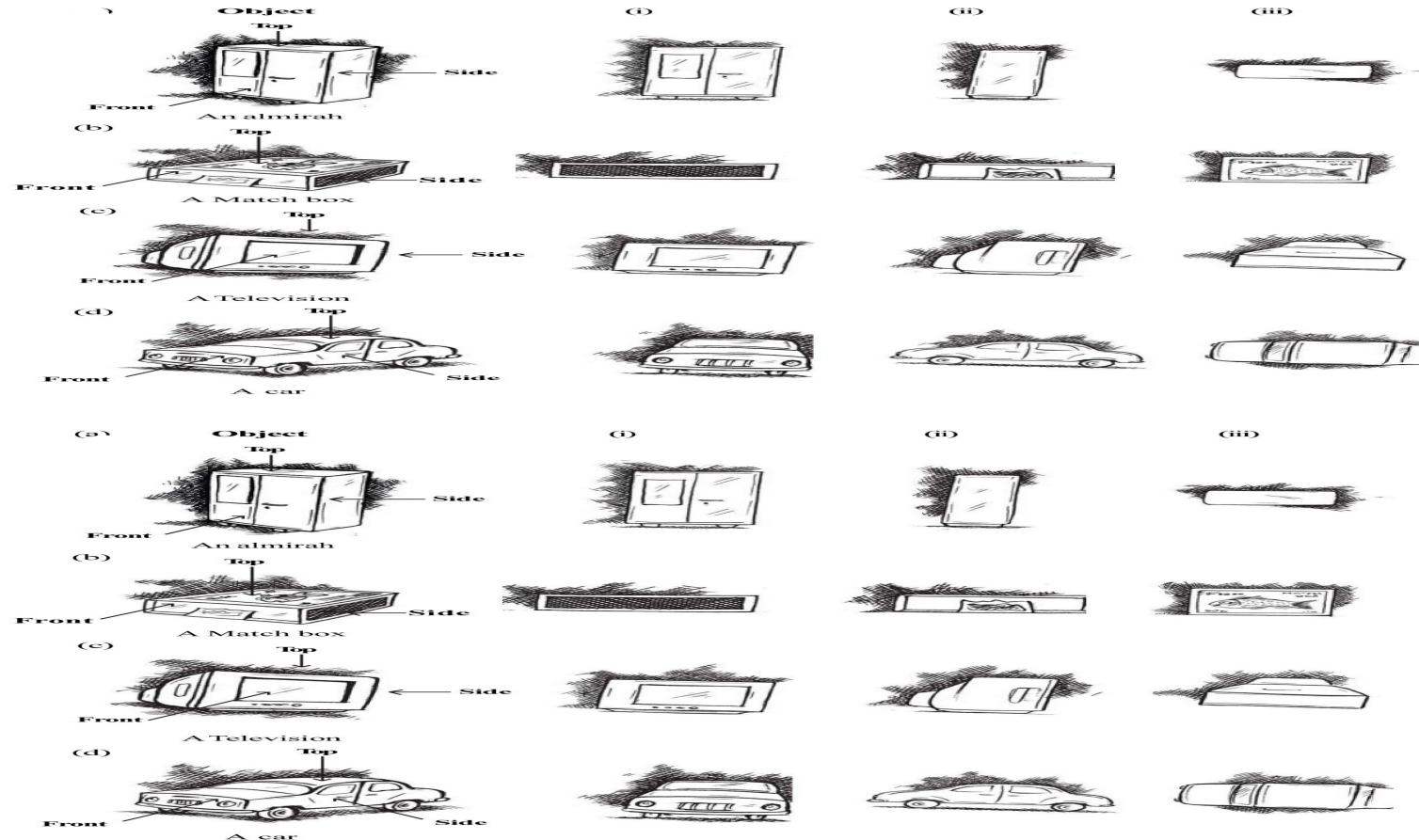
Special session: Negotiating diverging values, interests and institutions in the spatial governance of commons



Outline

- Introduction : spatial aggregation in the development of indicators
- Our case study, our material
- Results: reasons underlying aggregations
- Discussion

1. Intro: Information compressions

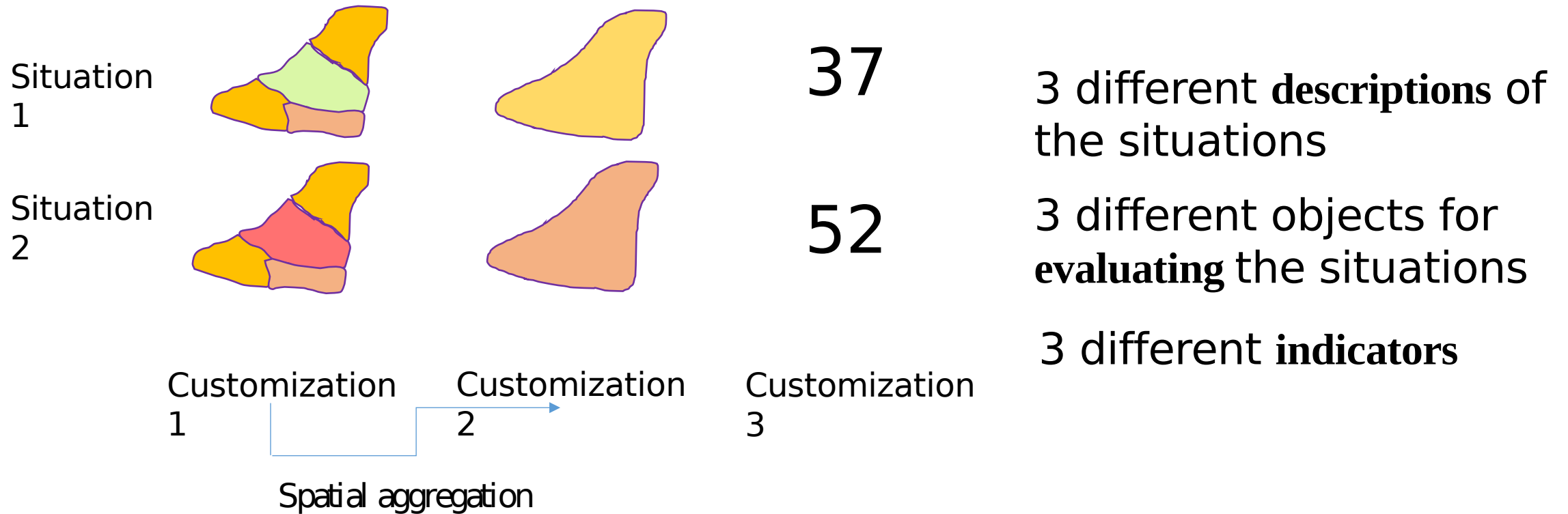


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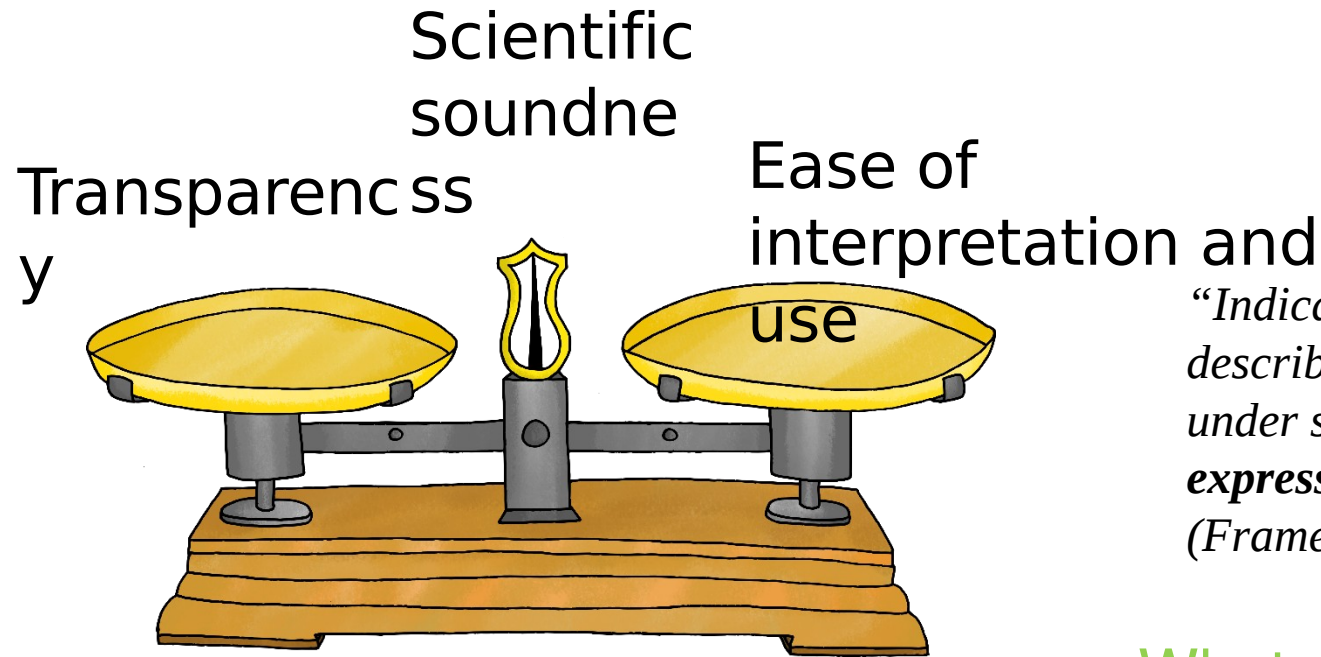
A watershed

1. Intro: What's the matter?

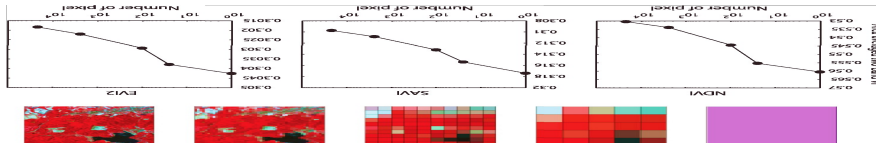
Average number of water use restrictions per year



1. Intro: How to make a « good » aggregation choice?



The descriptive balance



*“Indicators have a dual role. They should describe aspects of the situation or options under scrutiny, **and also permit protagonists to express normative judgments.**”*
(Frame and O’Connor, 2011)

What about normative claims ?

Test based on justifications for aggregation choices

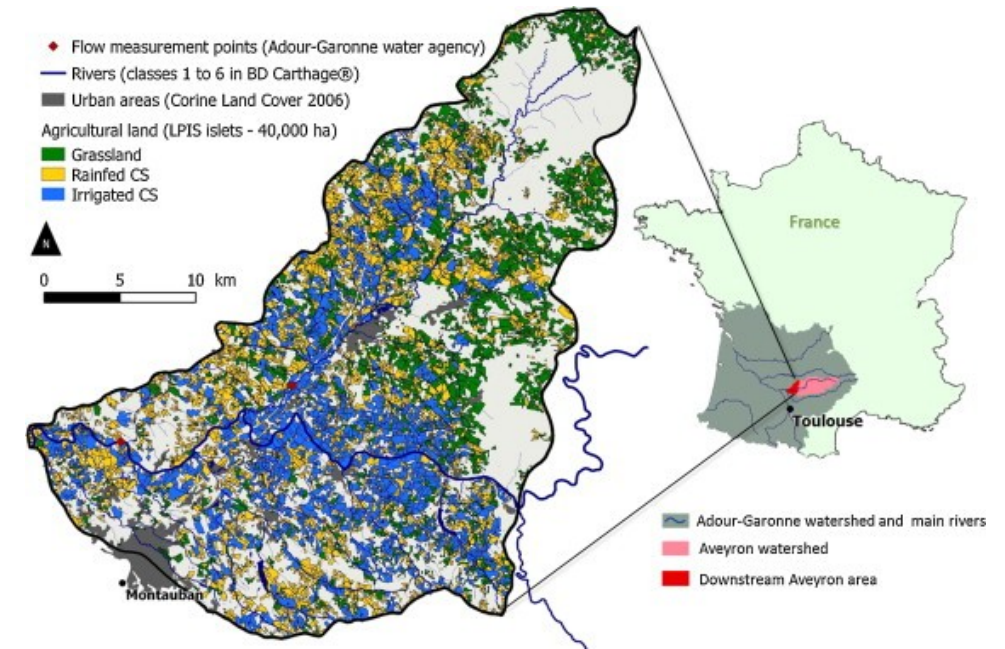
2. Case study: water management in an agricultural landscape

- Water = « fugitive » common (Giordano, 2005) -> asymetries, distributional issues
- Watershed scale = spatially-explicit data available -> spatial aggregation choices

~~Which pathways / methods?~~

Who makes them?
(developer vs user)

How are those
choices justified?



The downstream of the Aveyron watershed (South-Western France)

2. Material: a list of indicator profiles

- 11 evaluation criteria translated into 146 indicator profiles

« Number of days when the low-water target flow is crossed »



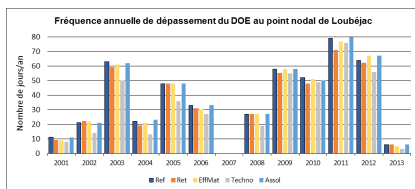
Definition

Meaning: related criteria, justification

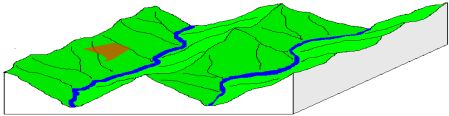

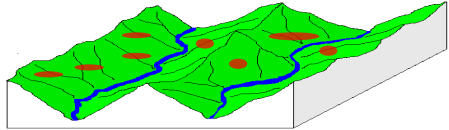

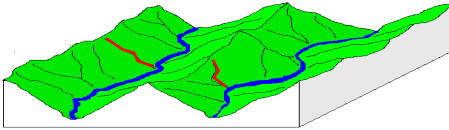
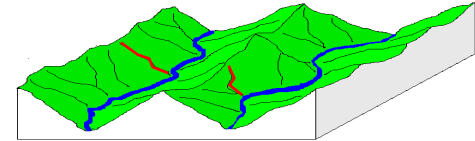
Estimation: estimation mode, **scale of raw data**

Customization: representation, **aggregation scale**

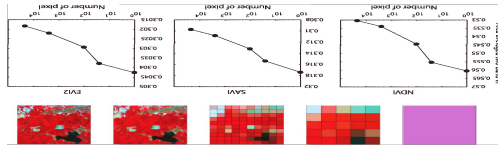
...



3. Results: some examples

Indicator name (given by experts)	Scale of raw data available	Aggregation scale (given by experts)
« Variation of water stored in soils »		
« Fit bw storing capacities and needs of farmers »		
« Frequency, distance and severity of water flow disruptions »		
	Adequation to the criteria	
	Expression of a social rationality	
	Accounting for uncertainties	
	Plural interpretations	
	Contextualizing information	
	Knowledge gap	

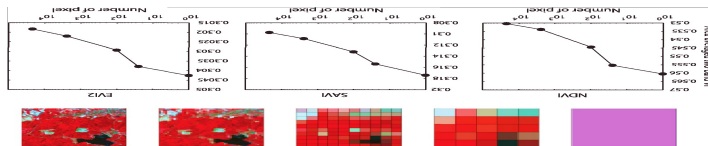
3. Results: Developer-led aggregations



Partial aggregations

To highlight contrasts
To increase readability

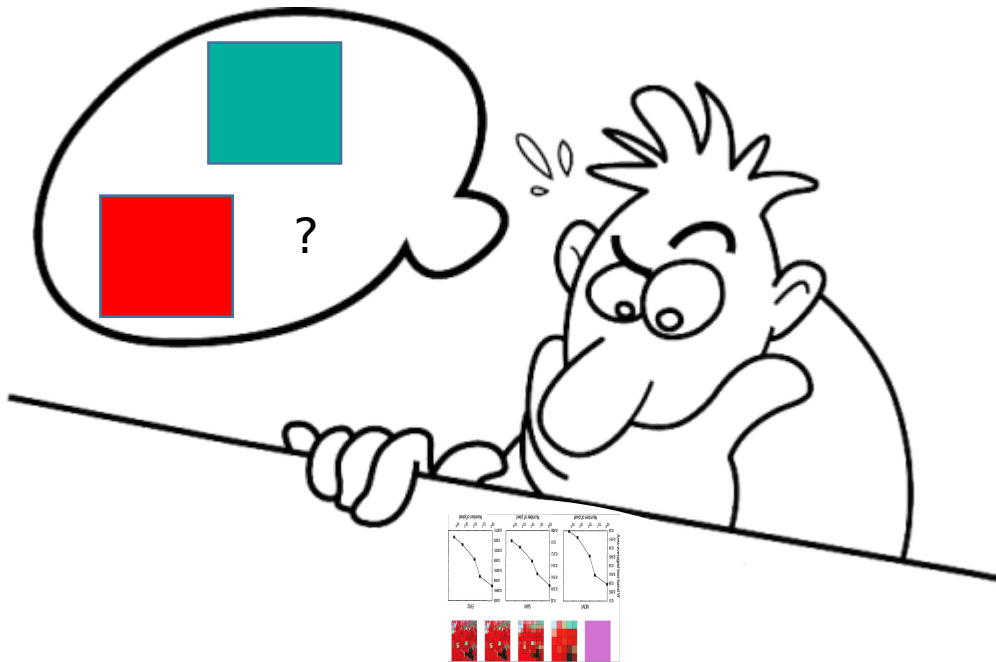
To fit to the criteria targeted
To fit to the process scale



Complete aggregations

To facilitate comparison bw options
To integrate uncertainties
To force the expression of a social rationality

3. Results: User-led aggregations



To visualize variability
To favour diverse
interpretations
To contextualize information
To acknowledge a
knowledge gap

4. Discussion: Descriptive claims...

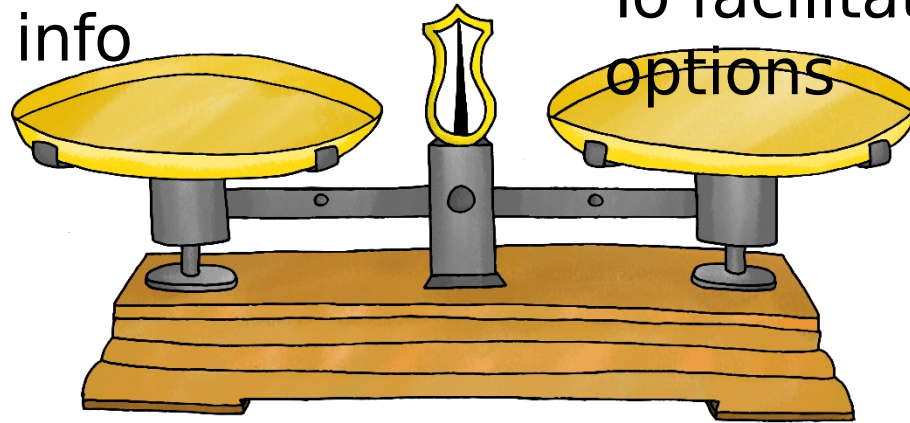
To fit to the criteria /process

To acknowledge a targeted knowledge gap

To contextualize info

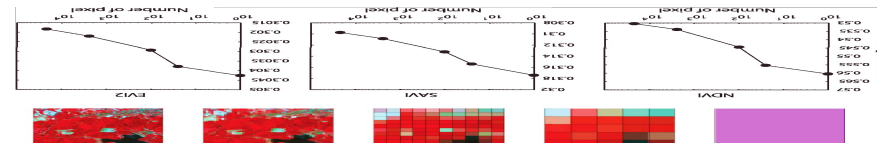
To increase readability

To facilitate comparison bw options

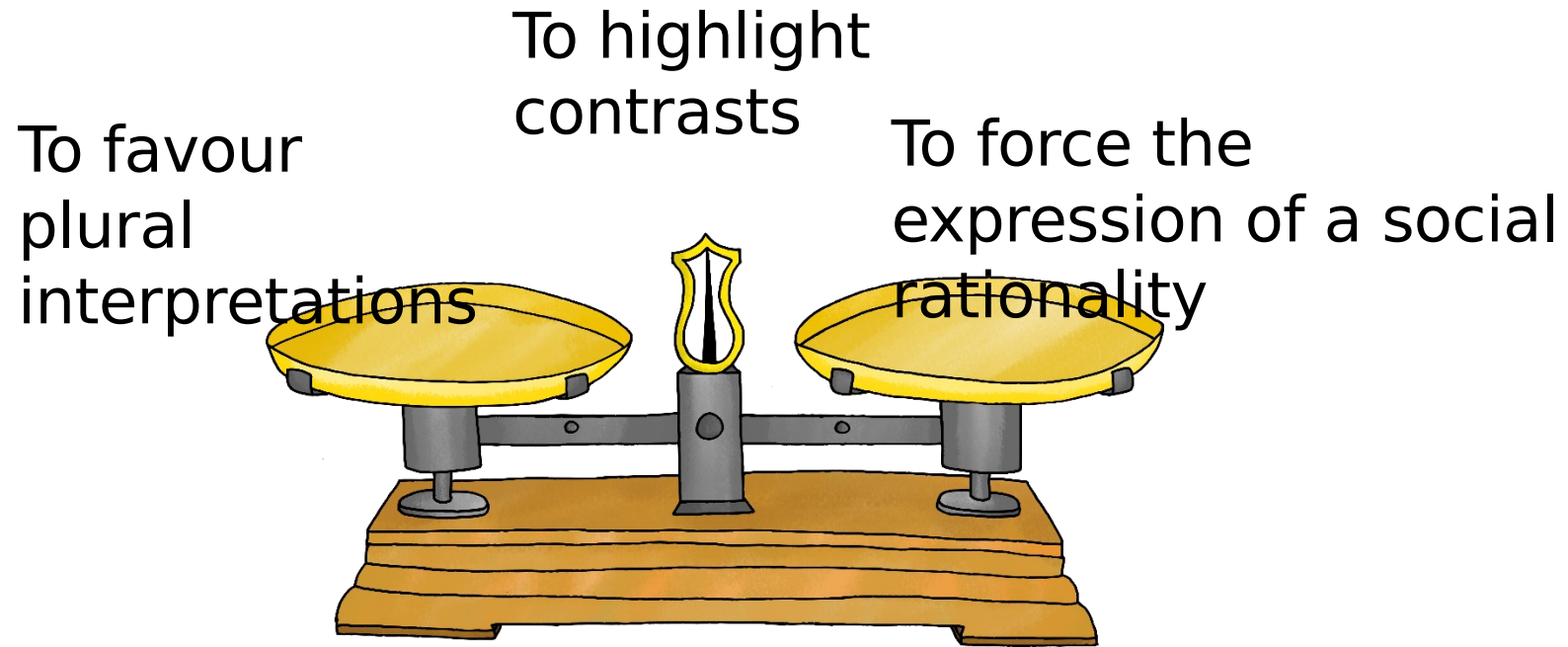


But not only ...

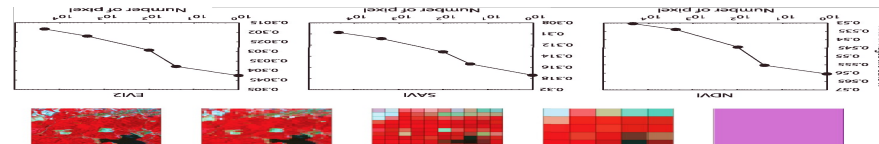
The descriptive balance



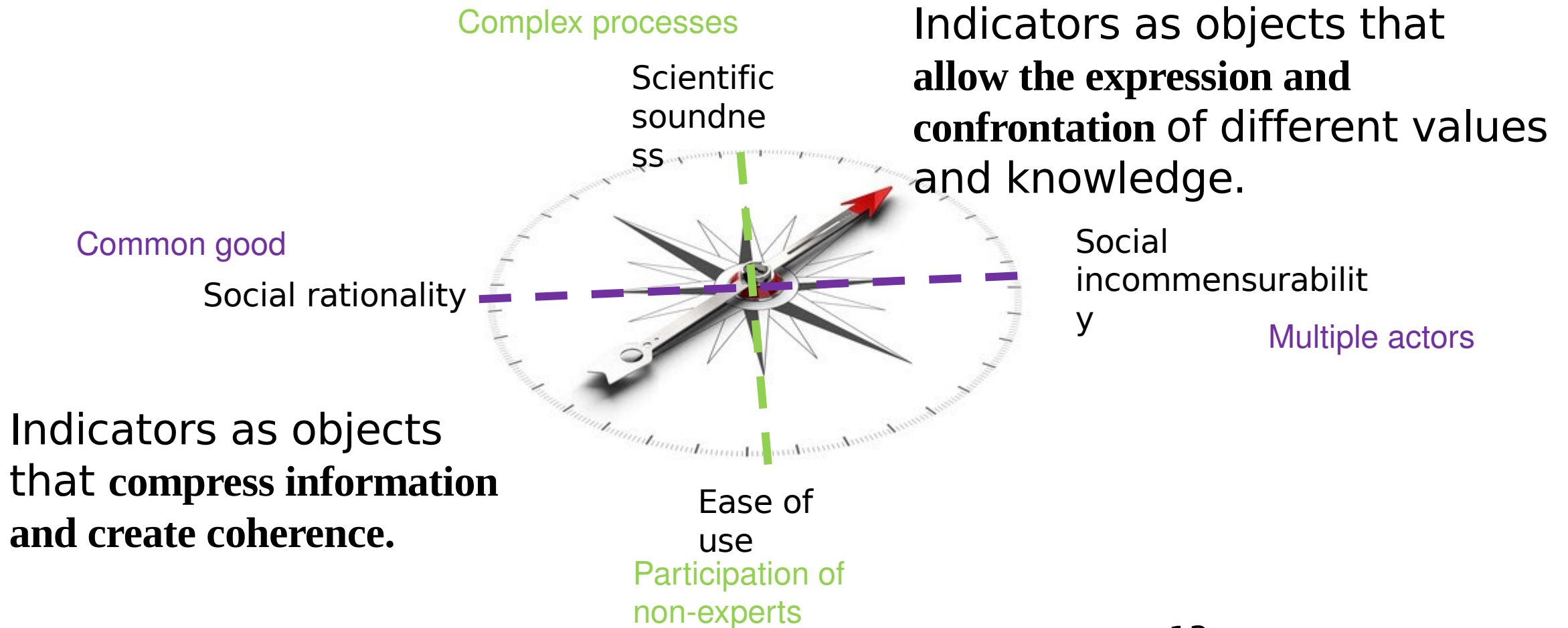
4. ... coexist with normative claims



The normative balance

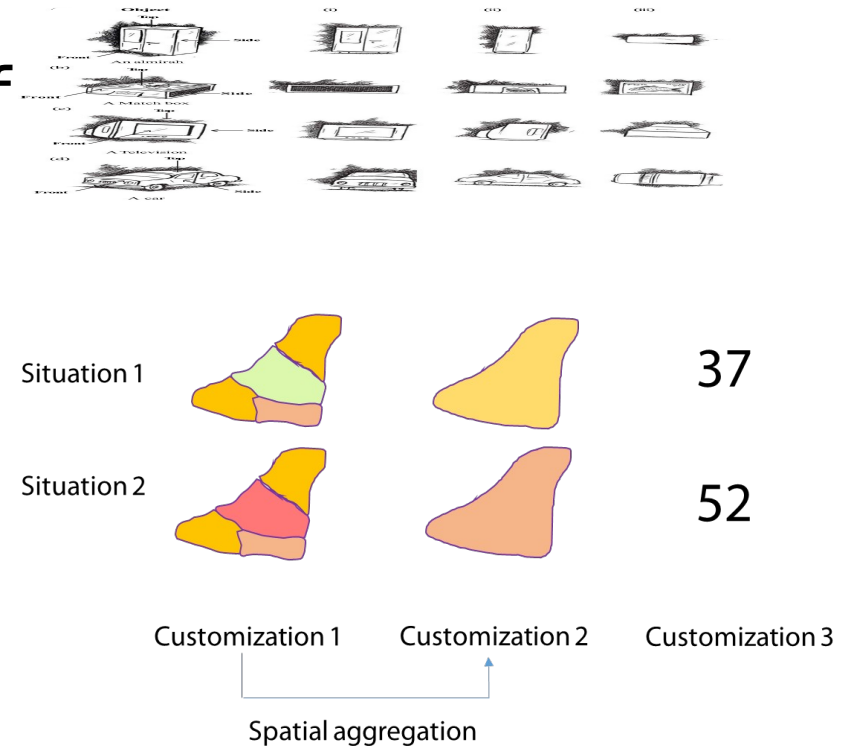


4. Discussion: Both make sense for the governance of commons



5. Conclusion

- Spatial aggregation is one example of information compression that bears both a descriptive and normative aspect.
- The choices made contribute to expanding / reducing the array for different uses of indicators.
- The way indicators are customized deserves more attention.



Thank you!

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