Inter-Agency cooperation for the sharing and production of Semantic Resources

Daniel GALARRETA

Space System Ontology – Brainstorming Workshop

ESTEC - 25/06/2010

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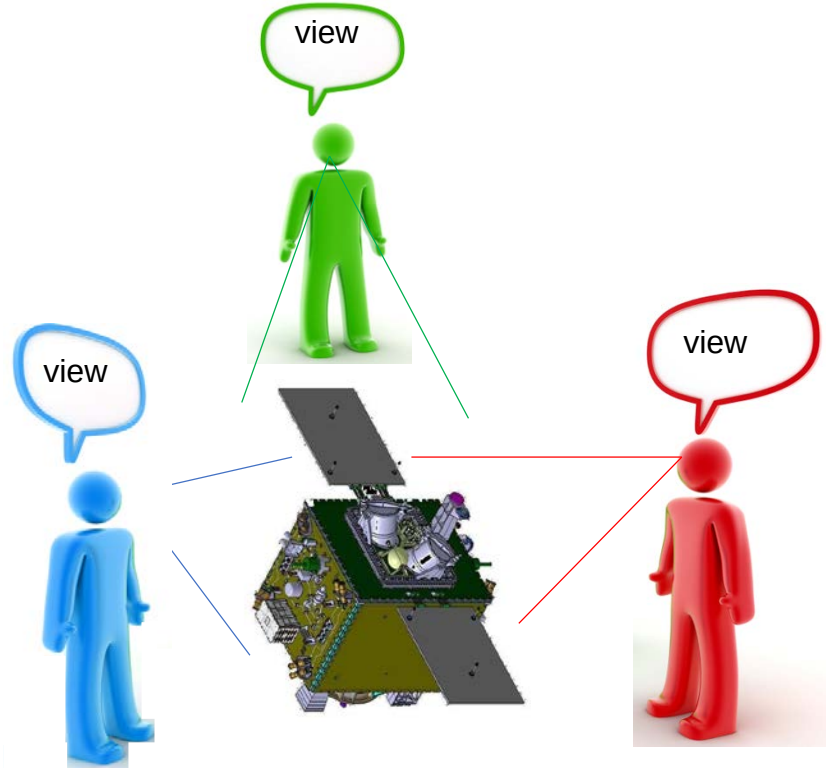
CENTRE NATIONAL D'ÉTUDES SPATIALES

Space Systems are Complex



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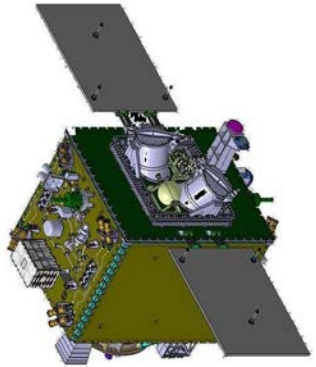
The representations of Space System by the different stakeholders



Are partial, and sometimes, incompatible

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How to capture the existence of real-world objects ?

INFORMATION,

KNOWLEDGE,

DATA

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INFORMATION

Saami people: 318 words for snow

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KNOWLEDGE

Several Viewpoints

Different Communities

NEGOTIATION!

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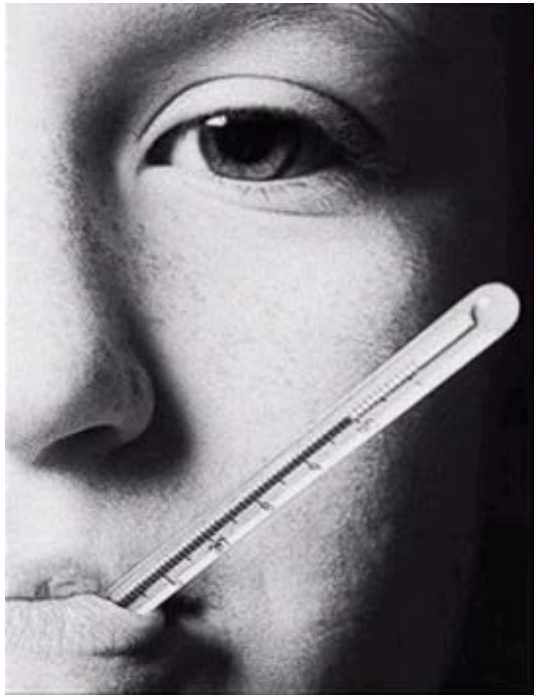
DATA

38.5°C

“Raw data is both an oxymoron and a bad idea”

Geoffrey C. Bowker 2013



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A little bit of linguistics

Example:

Cloud

Visible mass consisting of a large quantity of water droplets suspended in the atmosphere

From a meteorological viewpoint

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Expression (signifier)

Content (signified)

38.5 °C

Normal temperature of a healthy dog

From a veterinarian's viewpoint

38.5

Decimal number between 38.0 and 39.0, etc.

From a mathematical viewpoint

38.5 °C

Temperature of a person with a fever

From a doctor's viewpoint

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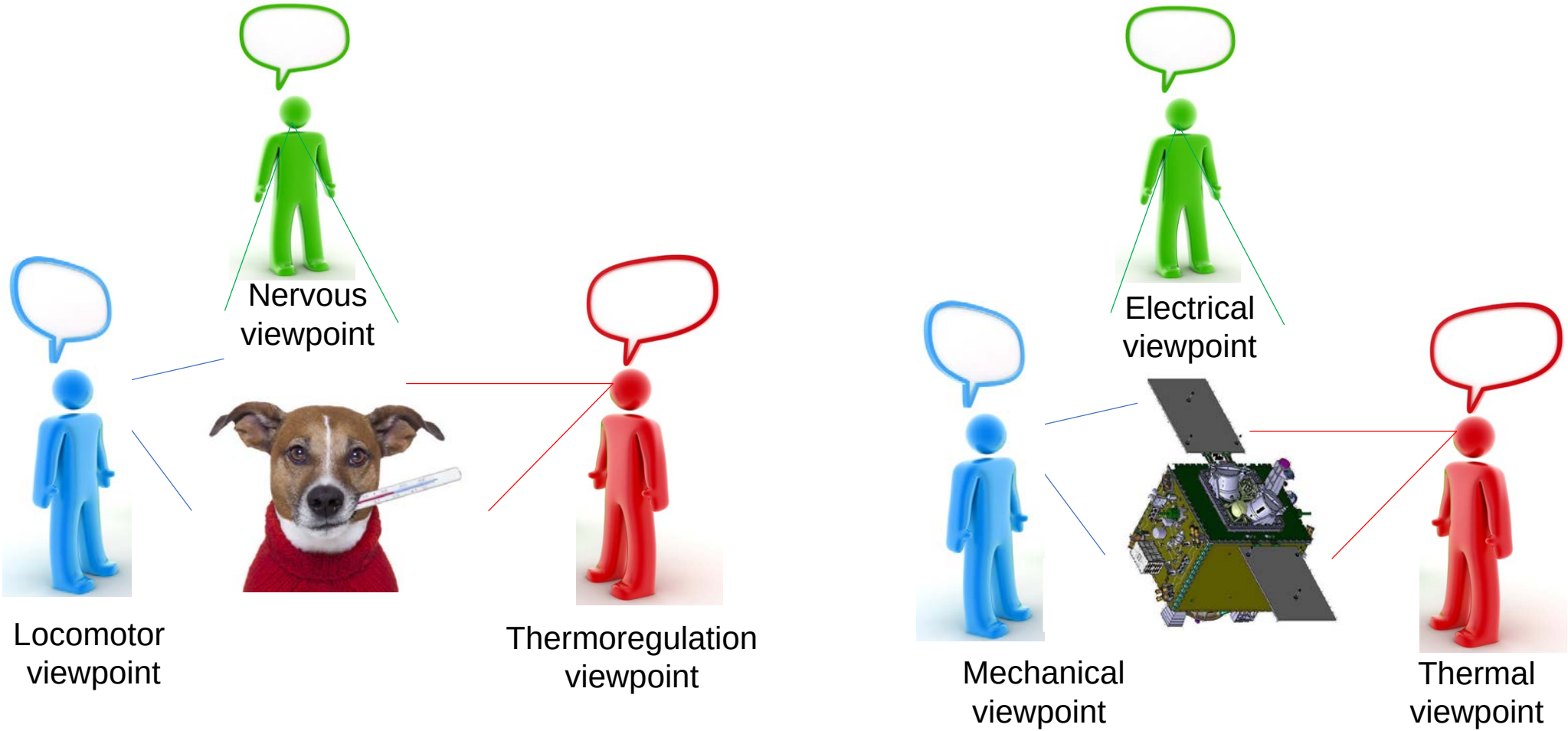
Nervous viewpoint
Electrical viewpoint
Locomotor viewpoint
Thermoregulation viewpoint
Mechanical viewpoint
Thermal viewpoint

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SEMANTIC RESOURCES ARE DATA

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WHAT ARE SEMANTIC RESOURCES?

- **Lexicon**
- **Glossaries**
- **Dictionaries**
- **Taxonomies**
- **Semantic networks**
- **Ontologies**

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A few examples

A dictionary:

car

NOUN

1 A road vehicle, typically with four wheels, powered by an internal combustion engine and able to carry a small number of people.
'we're going by car'
[as modifier] 'a car crash'
+ More example sentences + Synonyms

1.1 A railway carriage.
'the first-class cars'
+ More example sentences + Synonyms

1.2 The passenger compartment of a lift, cableway, or balloon.
'he was in the lift when the car stuck'
+ More example sentences

1.3 *literary* A chariot.
+ Example sentences

Origin
Late Middle English (in the general sense 'wheeled vehicle'): from Old Northern French carre, based on Latin carrum, carrus, of Celtic origin.

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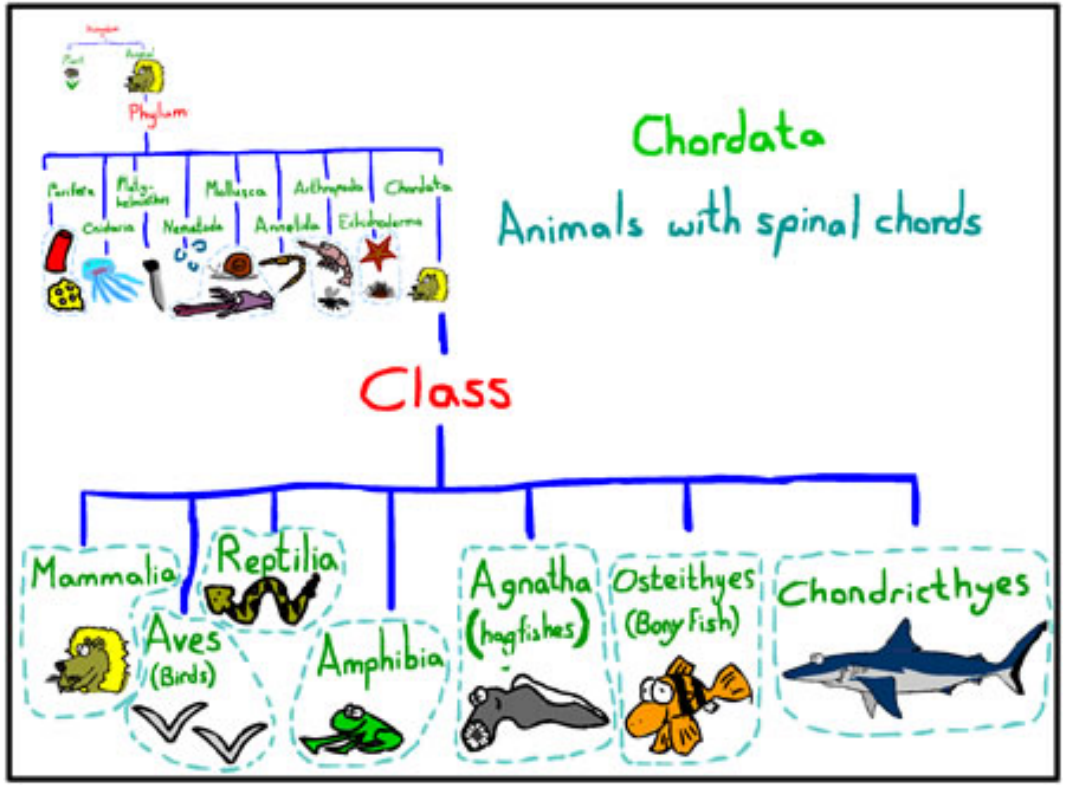
A few examples

A taxonomy



Which organizes *classes* NOT *terms*

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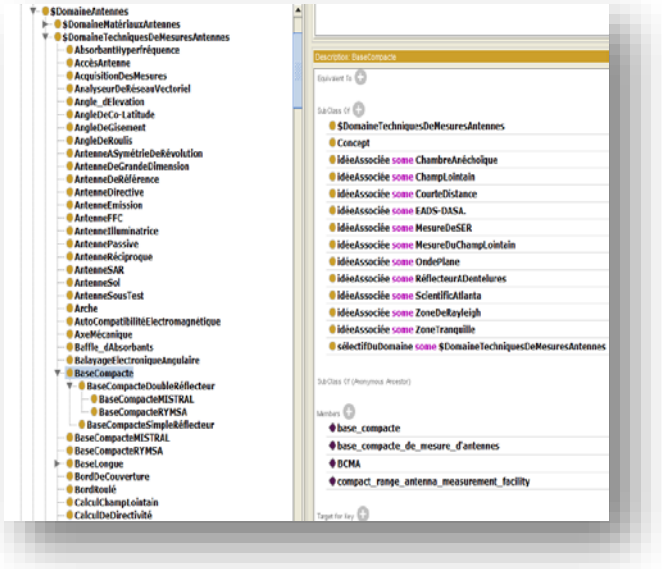
A few examples

Semantic networks



Ontologies: an explicit specification of a conceptualization (Grüber 1993)

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Semantic resources are obtained through negotiation between several viepoints

Necessarily, viewpoints are put in brackets (kept aside) in the establishment of these resources

Therefore the semantic resources produced by these viewpoints are data on the texts (text collection or corpus) that were used to produce them.

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When we limit ourselves only to the points of view that are involved in producing data (semantic or not), these data are assimilated to knowledge for which we can implement a knowledge management approach

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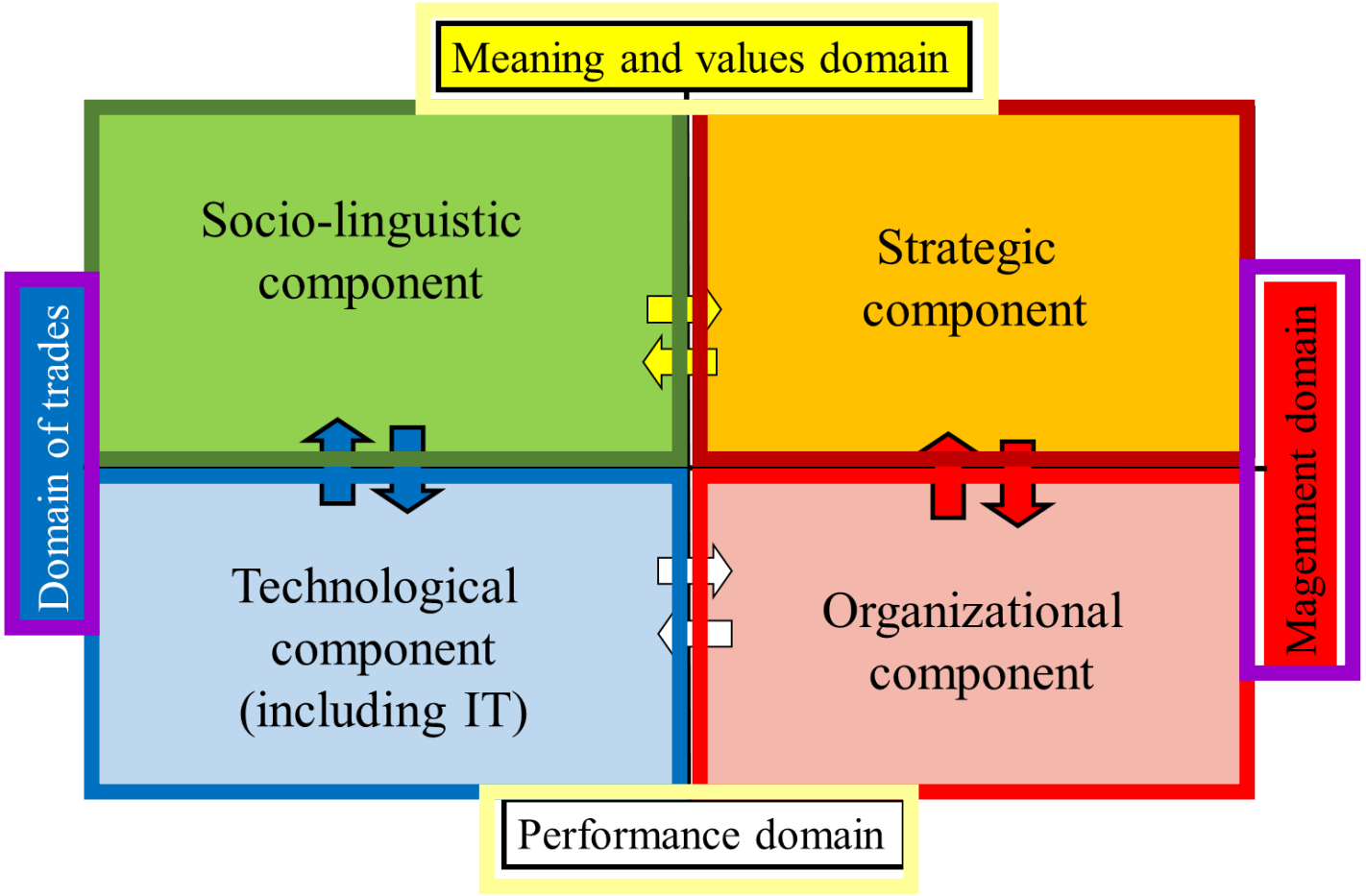
KNOWLEDGE MANAGEMENT OF SEMANTIC RESOURCES



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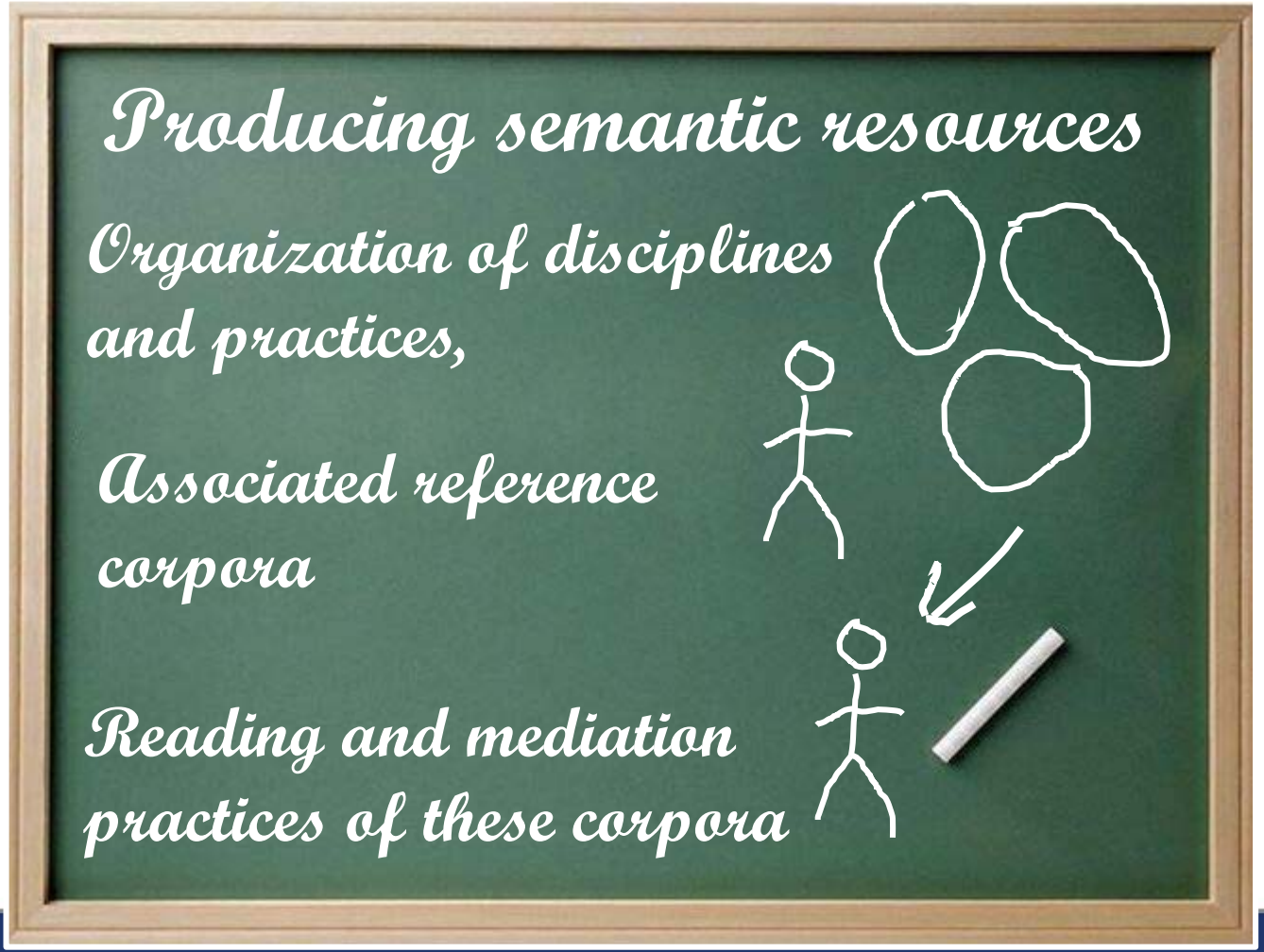
Issues concerning the socio-linguistic component



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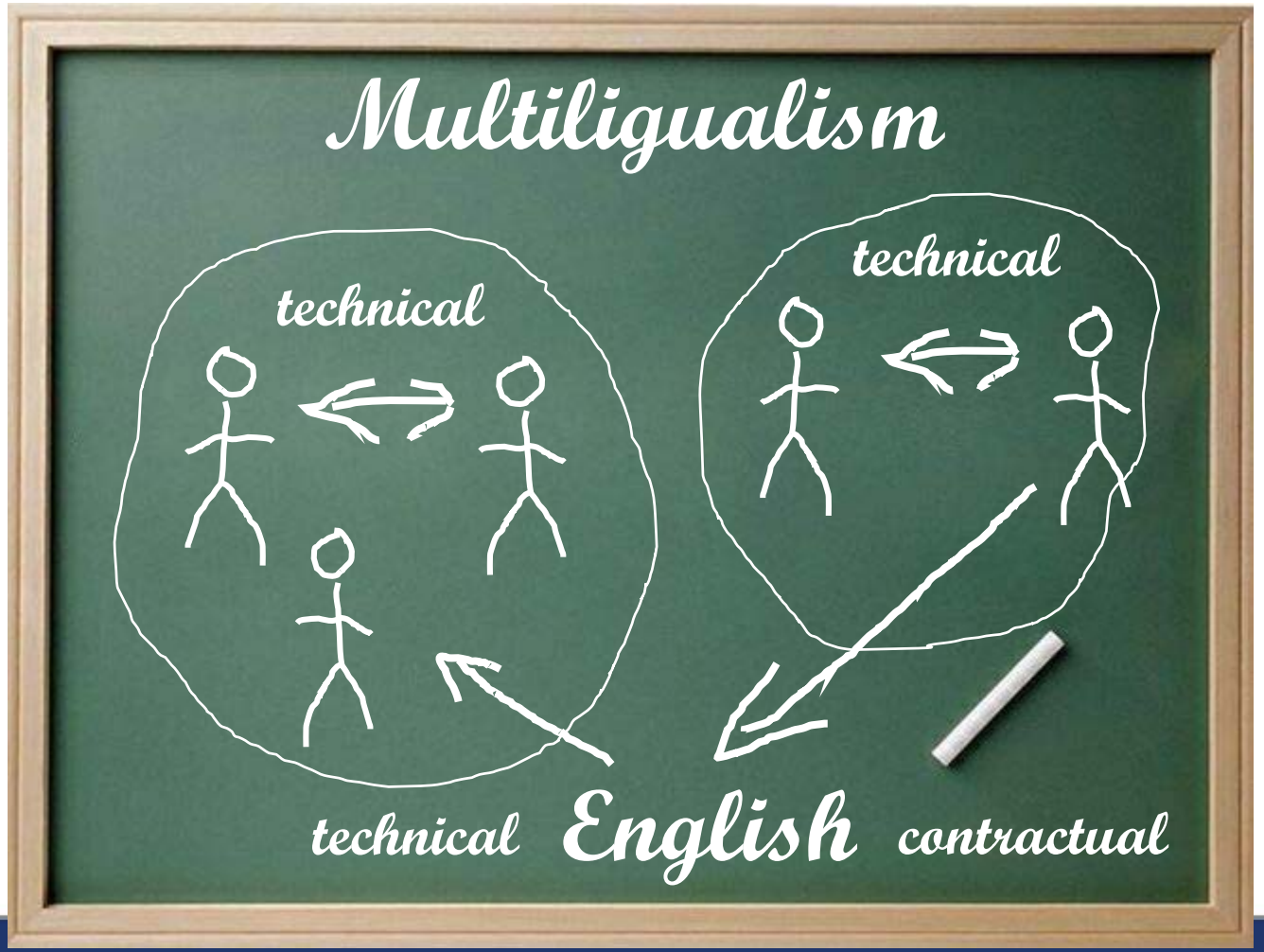

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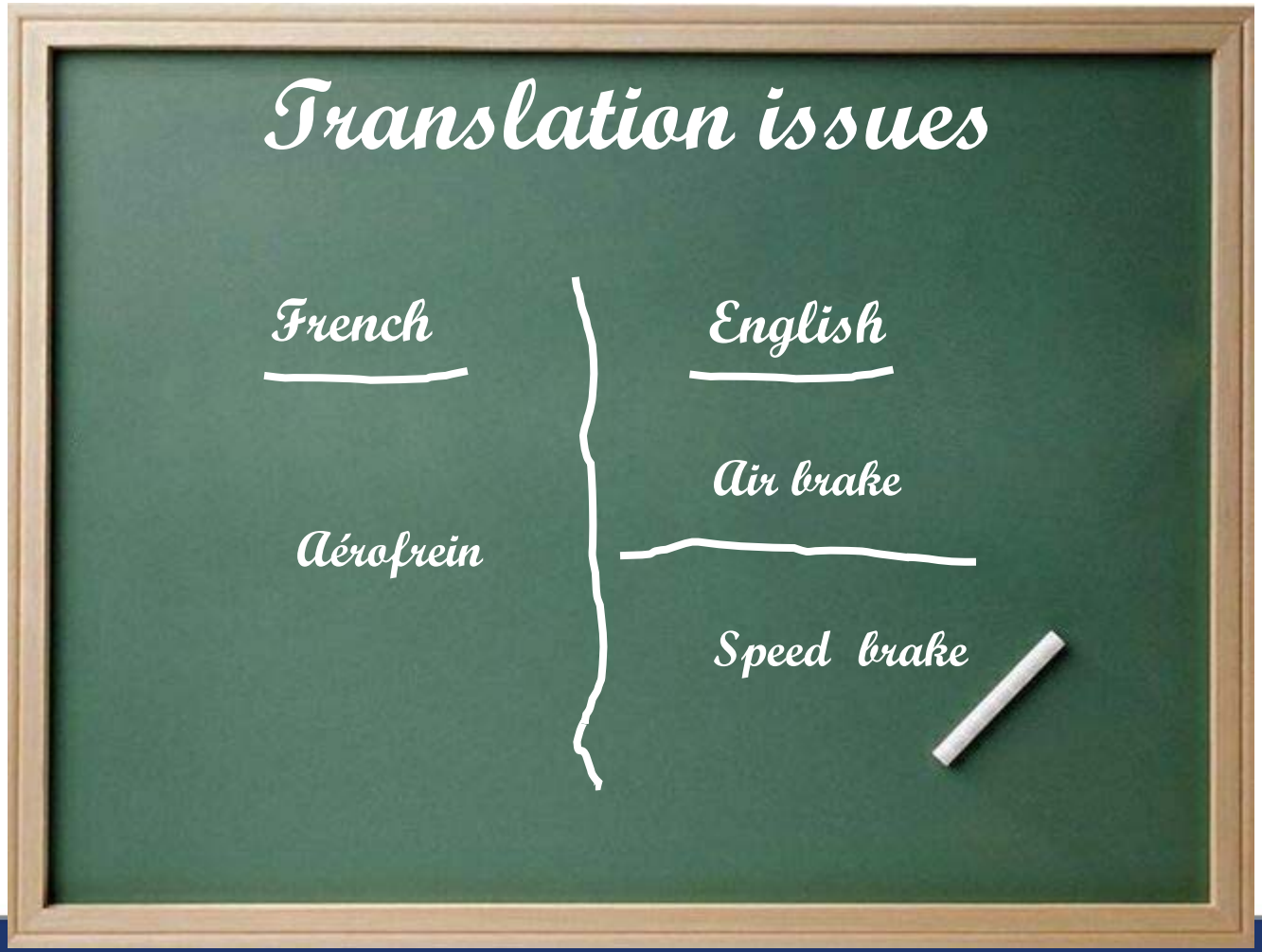

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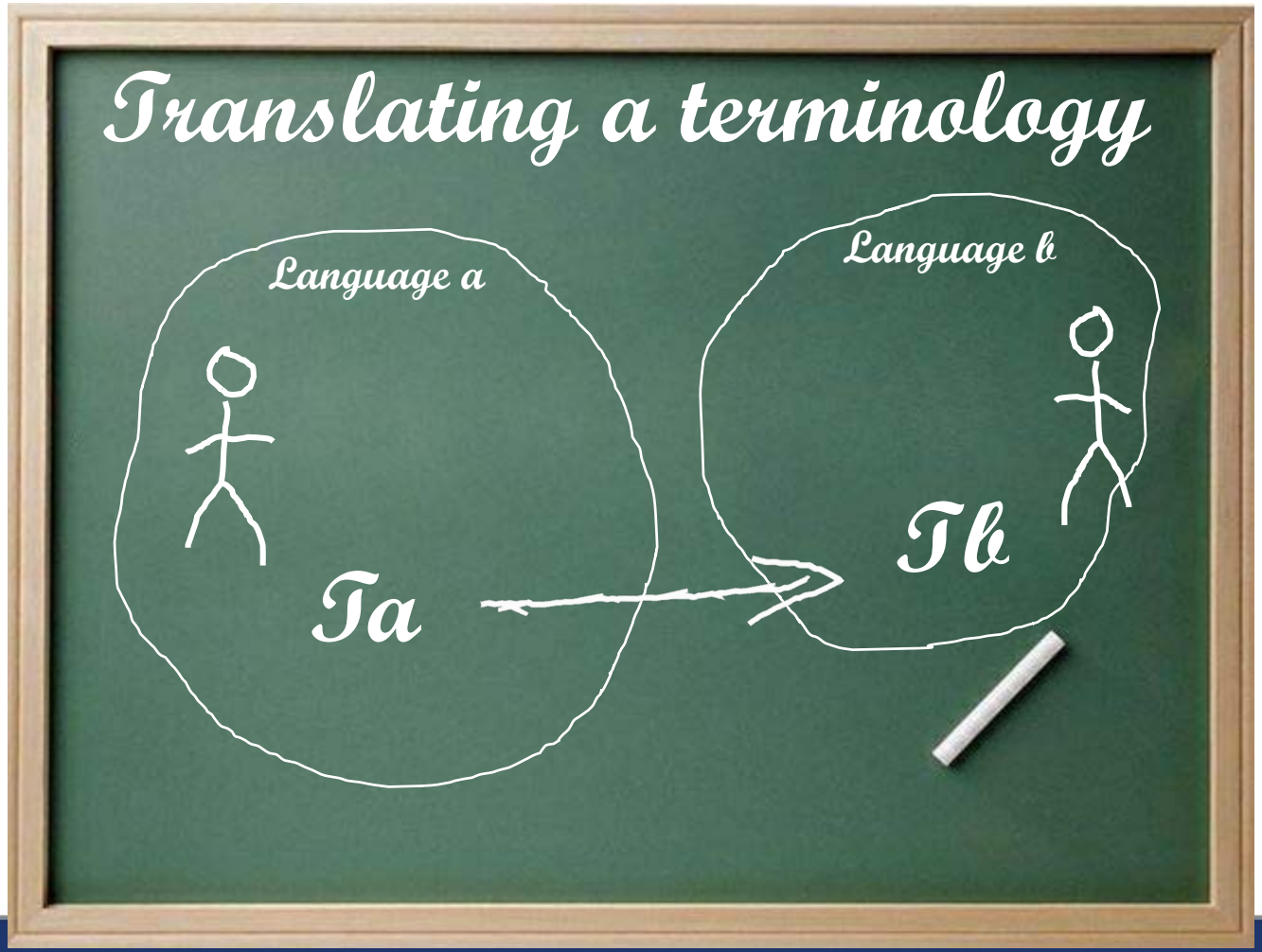

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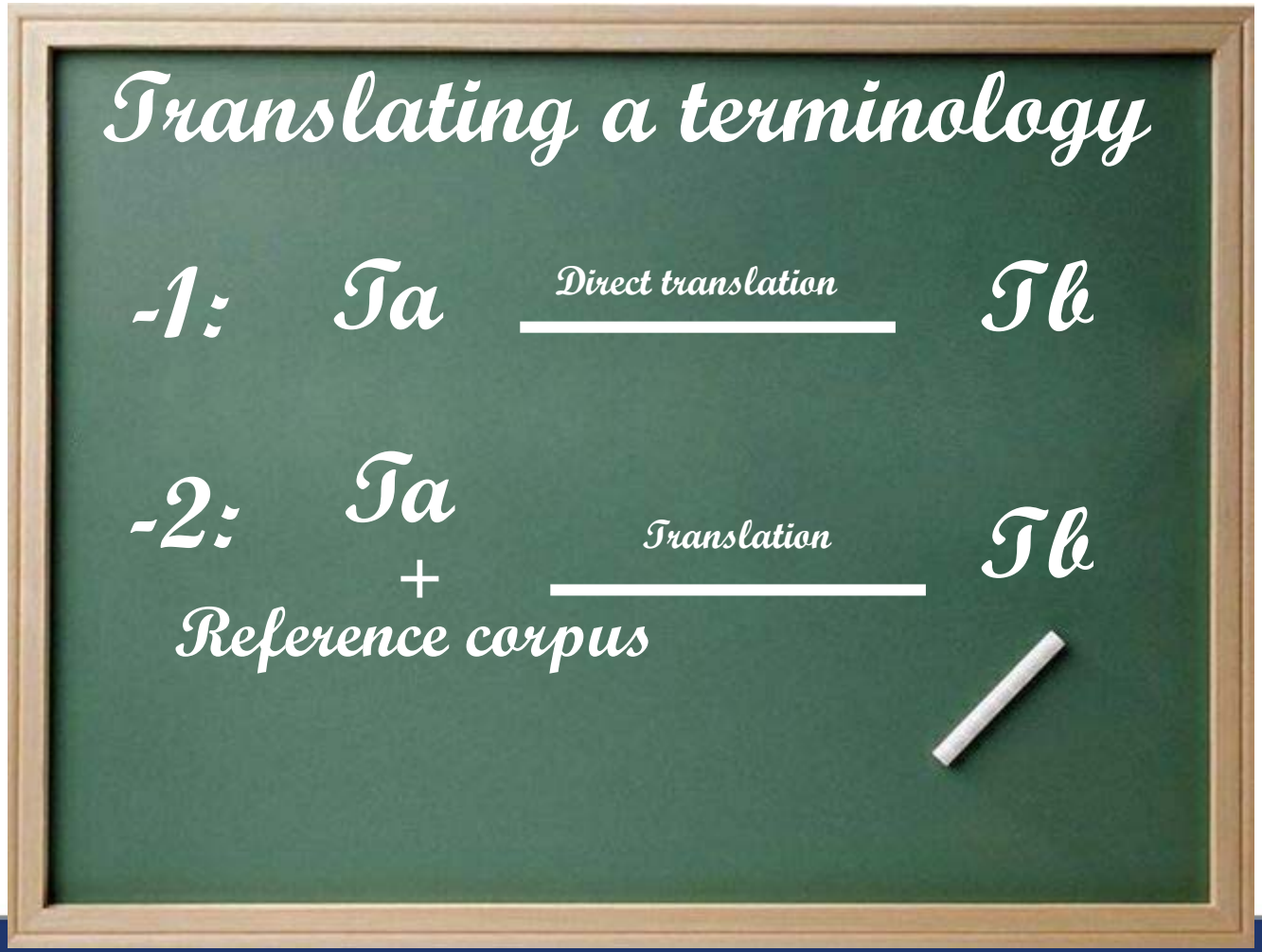

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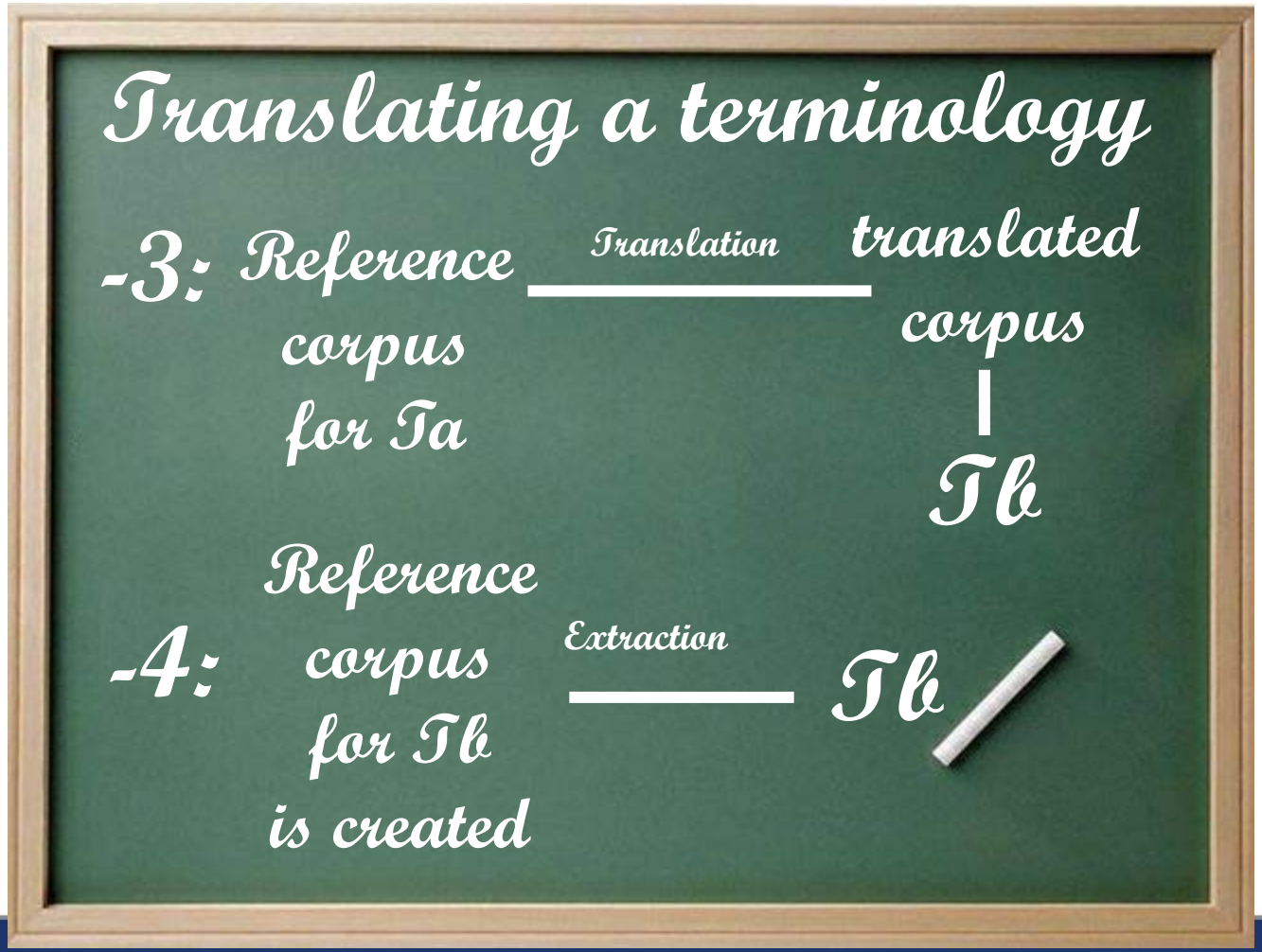
Translating a terminology
-3: Reference corpus for Ta
Translation
translated corpus
Tb
-4: Reference corpus for Tb is created
Extraction
Tb

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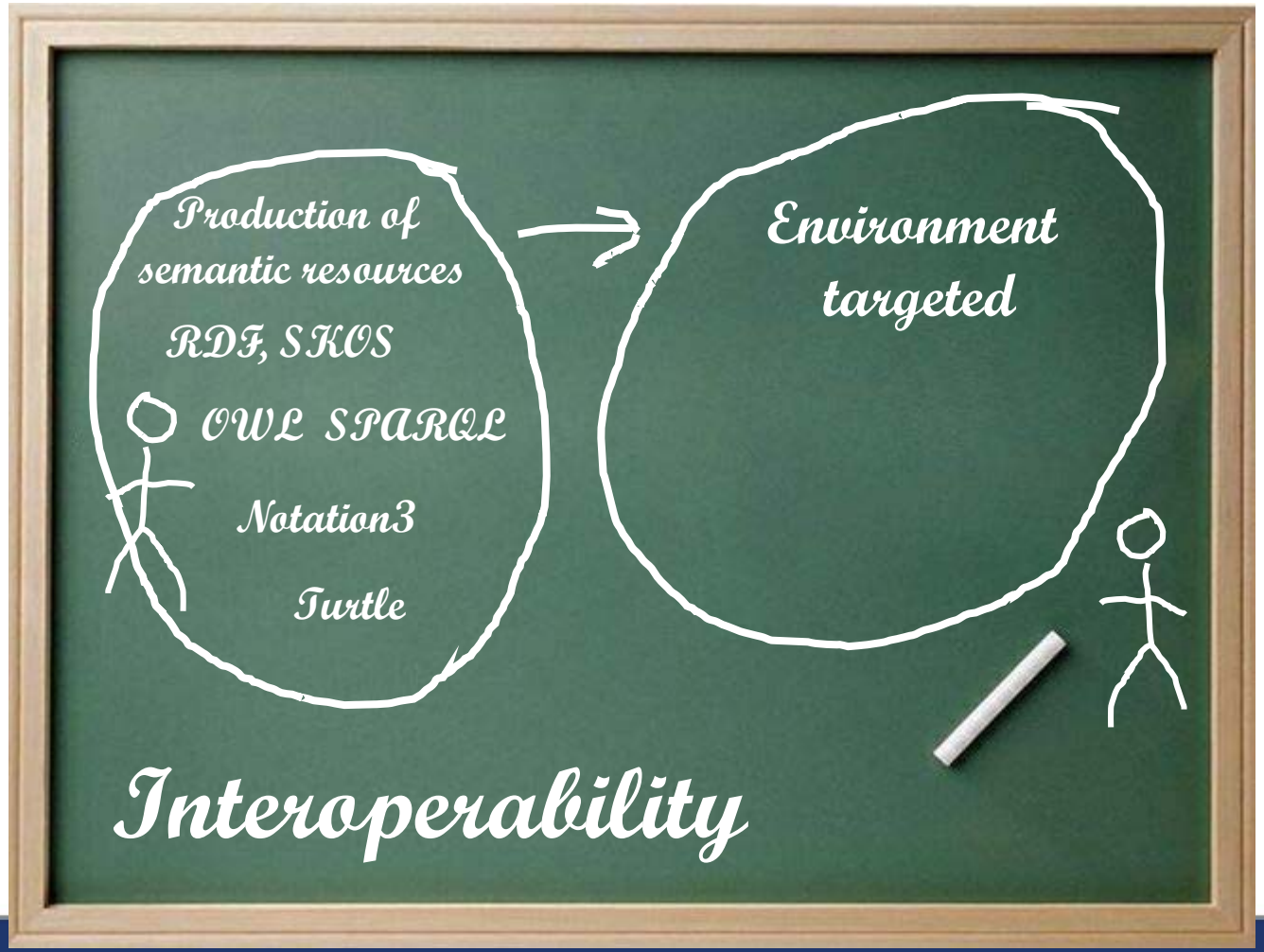
Issues concerning the technological component



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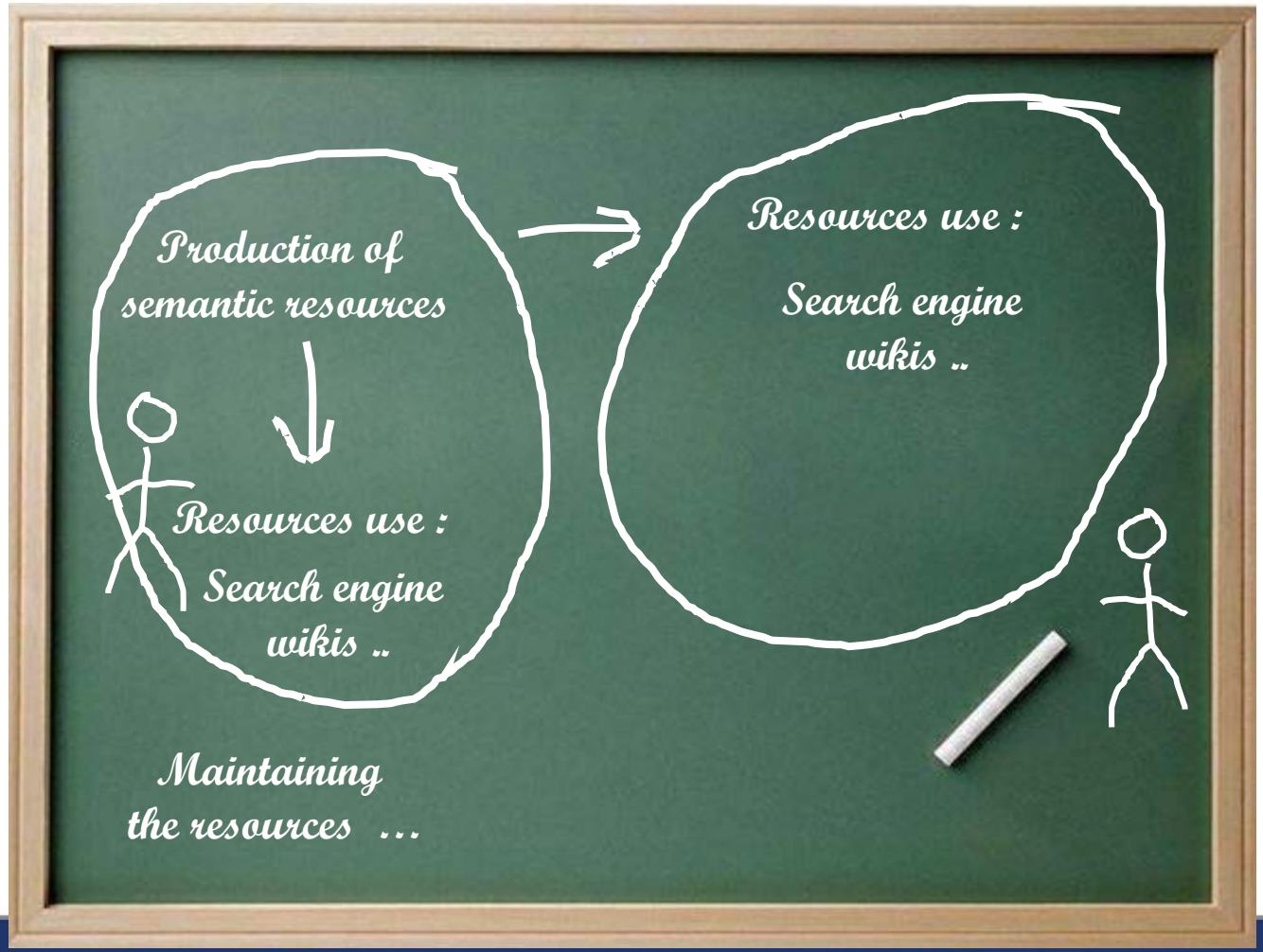
Issues concerning the organizational component



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Issues concerning the strategic level

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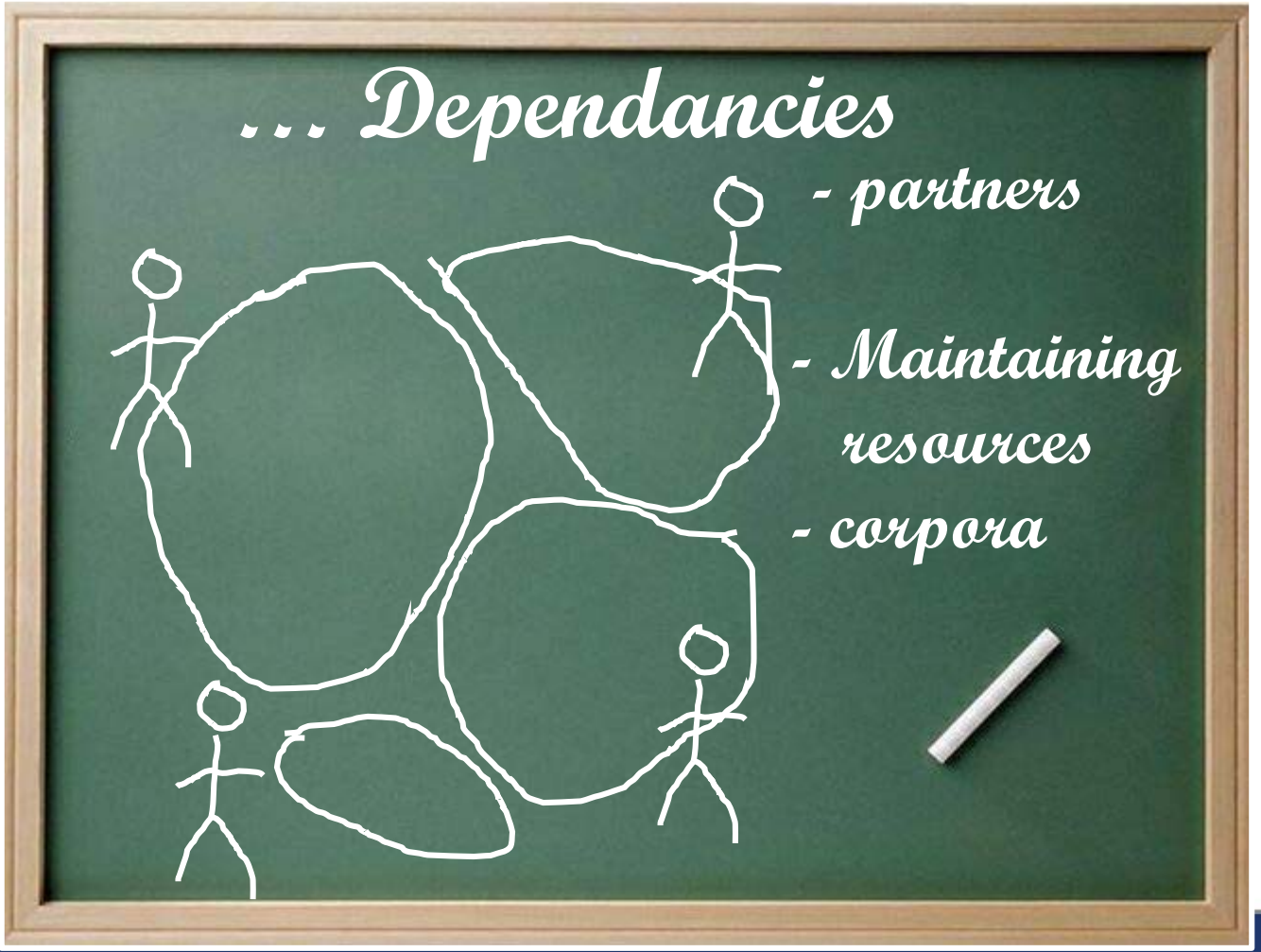
Issues concerning the strategic level



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SOME CONDITIONS OF PRODUCTION AND OF MAINTENANCE OF SEMANTIC RESOURCES

The production of semantic resources requires the availability of reference corpus,

The maintenance of these resources requires:

- the availability of these corpora
- and the ability to regularly question the adequacy of these resources to the new available corpora

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TO CONCLUDE

Sharing semantic resources between agencies requires sharing the reference corpora from which these resources were produced

The translation activity is both a constraint and an opportunity to reactivate the knowledge value of these resources

Even if other problems remain to be solved …

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THANKS

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