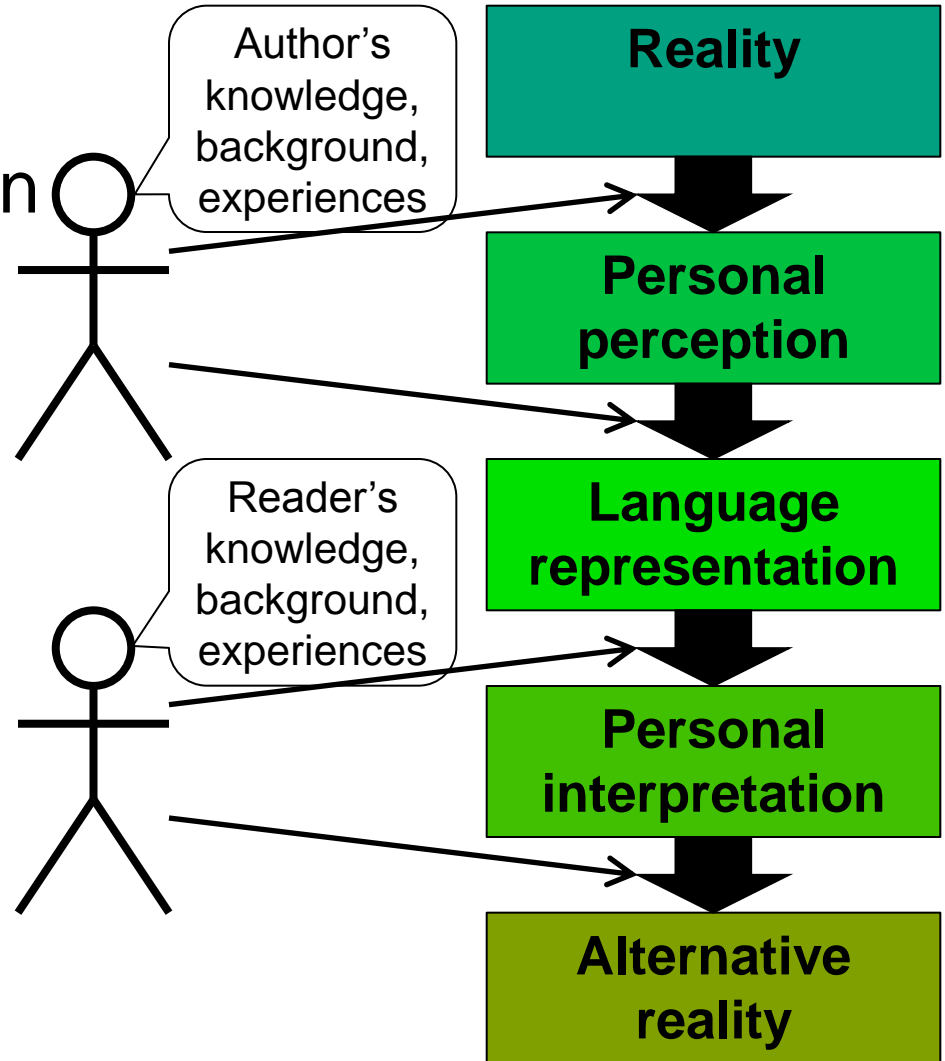


Effects of Natural Language

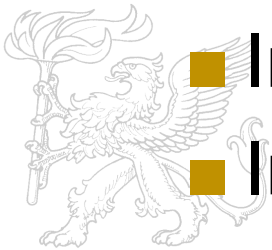
- ▶ Ambiguous
- ▶ Subjective perception
- ▶ Interpreted in different ways
- ▶ Transformational effects due to personal

- Knowledge
- Background
- Experiences



Transformational Processes

- ▶ The following transformational processes should be avoided during requirements documentation:
 - Nominalization
 - Nouns without reference index
 - Universal quantifiers
 - Incompletely specified conditions
 - Incompletely specified process verbs



Nominalization

- ▶ A detailed process is usually converted to a single event
 - transmit → transmission
- ▶ It is not necessary to avoid nominalization
- ▶ If applied, used terms must be explicitly describe the process
 - May require additional requirements or glossary entries

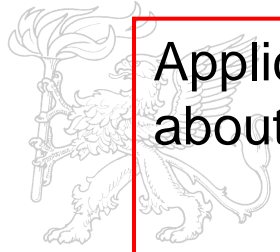
Daylight saving query for current location is performed by Clock application.

Daylight saving query: The application asks the Location server about daylight saving data in the given location.

Clock application asks the Location server about daylight saving data in the current location.

Nouns without reference index

- ▶ Nouns are usually incompletely specified
- ▶ Referenced items should be identified unambiguously even without the context
 - Typical nouns:
 - *the user, the system, the data, the function, ...*
 - Check terms (nouns), try to ask:
 - *what ...?; which ...?*

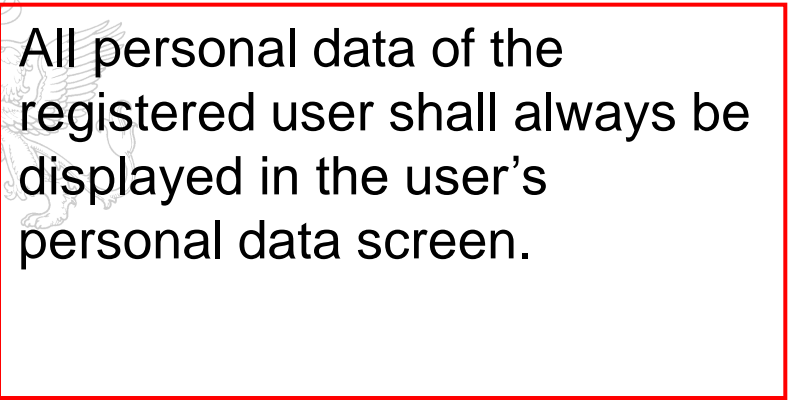


Application asks the server about data in the location.

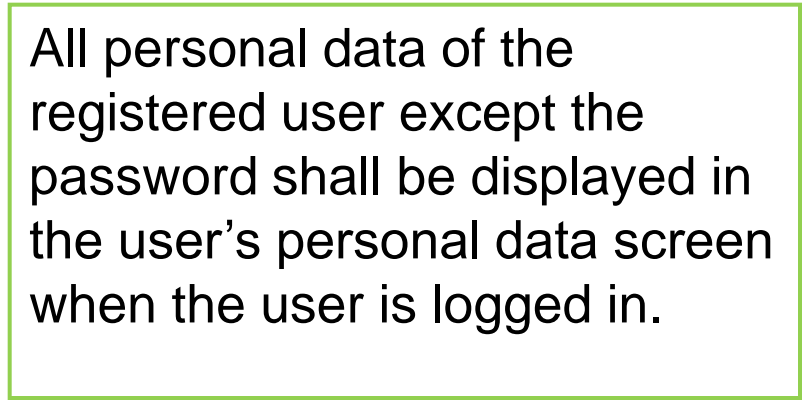
Clock application asks the Location server about daylight saving data in the current location.

Universal quantifiers

- ▶ Stakeholders usually group objects together even if their behavior is different
 - Trigger words:
 - *all, every, no, none, nothing, always, never, ...*
 - Try to ask:
 - *really all ...?; really never?*



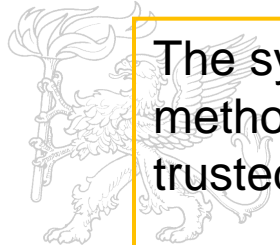
All personal data of the registered user shall always be displayed in the user's personal data screen.



All personal data of the registered user except the password shall be displayed in the user's personal data screen when the user is logged in.

Incomplete conditions

- ▶ Requirements specified for the case when a condition is met, but usually not for the case when the condition is not met
 - Trigger words:
 - *if ... then, in case, whether, depending on, ...*
 - Decision tables can be used to find unspecified behavior

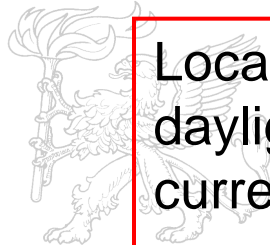


The system shall offer all payment methods if the user is from a trusted country.

The system shall offer all payment methods if the user is from a trusted country. The system shall offer all pre-delivery payment methods if the user is not from a trusted country.

Incomplete process verbs

- ▶ Some process verbs requires more attributes for complete specification
 - *data is entered* → *who enters the data and where?*
- ▶ Adjectives and adverbs may also need more supplements



Location server is asked about daylight saving data in the current location.

Clock application asks the Location server about daylight saving data in the current location.