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SofiAI

The system that I propose to you includes the fine modeling in **French** (the most important is the structure, any translation is easily possible), carried out manually, of a **transparent embodied social being:**

• Its **specification** in the form of a UML analysis based on 500 use cases organized hierarchically, taking into account all facets of the human experience (see Figure 1, below).

• Its **representation of the world** (see Figure 2, below) based on more than 30,000 UML classes, 100,000 relationships, managing all grammatical classes, distributed in 5000 class diagrams, and sorted into packages in a logical way. Developed with the open source tool BO-UML, the diagrams are constructed in such a way as to allow “Smart navigation”, allowing human control of the complexity of the model: this mechanism allows a holistic view which reduces the cognitive load to understand with simplicity and precision of information. These diagrams can be used to instruct AI to teach them a synthetic visual representation, facilitate understanding and memorization, make them closer to our natural thought patterns and reason better (by pragmatic, logical, semantic inference, etc.) Unlike ontologies and other knowledge bases (Wordnet, Cyc, etc.), the system was produced manually with the greatest care (clarity, consistency, extensibility, precision, genericity), with a view to exploitation by all AI paradigms for all types of processing (such as accelerating deductive, inductive and abductive inference engines).

• A **categorization of topics for reflection** (see Figure 3, below) from all disciplines using a polymath approach, based on a common template and linked to the model. The holistic vision of all problems can suggest rational resolutions and philosophical, scientific and technological generalizations.

• The **interoperability** of the entire project is ensured by an export in XMI format (600_000 lines) which can be converted to Semantic Web and AI formats (RDF, OWL, Triplestore, etc.).

Here is how my system could improve AI:

• **Development of AI models:** My universal model, with its synthetic, transparent and precise modeling of the world, could improve LLMs (and other reflective systems): better reasoning skills and better explainability skills, which is online with the objective of developing multimodal generative AI models without hallucination, overcoming their notable limitations in terms of semantic representation (due to their statistical basis and due to the difficulties in understanding and extracting the reasoning due to the immense amount of data processed and ground into the hidden layers of the models.). Furthermore, my model specification describes very concretely the required needs encompassing those

of A.I.G., but going beyond them for embodied characteristics. These can be a structured basis for an optimal research program.

• **Sharing discoveries**: By providing algorithms with data from my model to extract connections and structure, we will make it easier to share discoveries with the entire AI ecosystem.

• **Training of future AI experts**: My model offers a learning opportunity for master's students, doctoral students and post-docs : transparency, model usable with a simple PC, free tool, including through “Smart navigation”, formal rigor.

(PJ : the figures below)

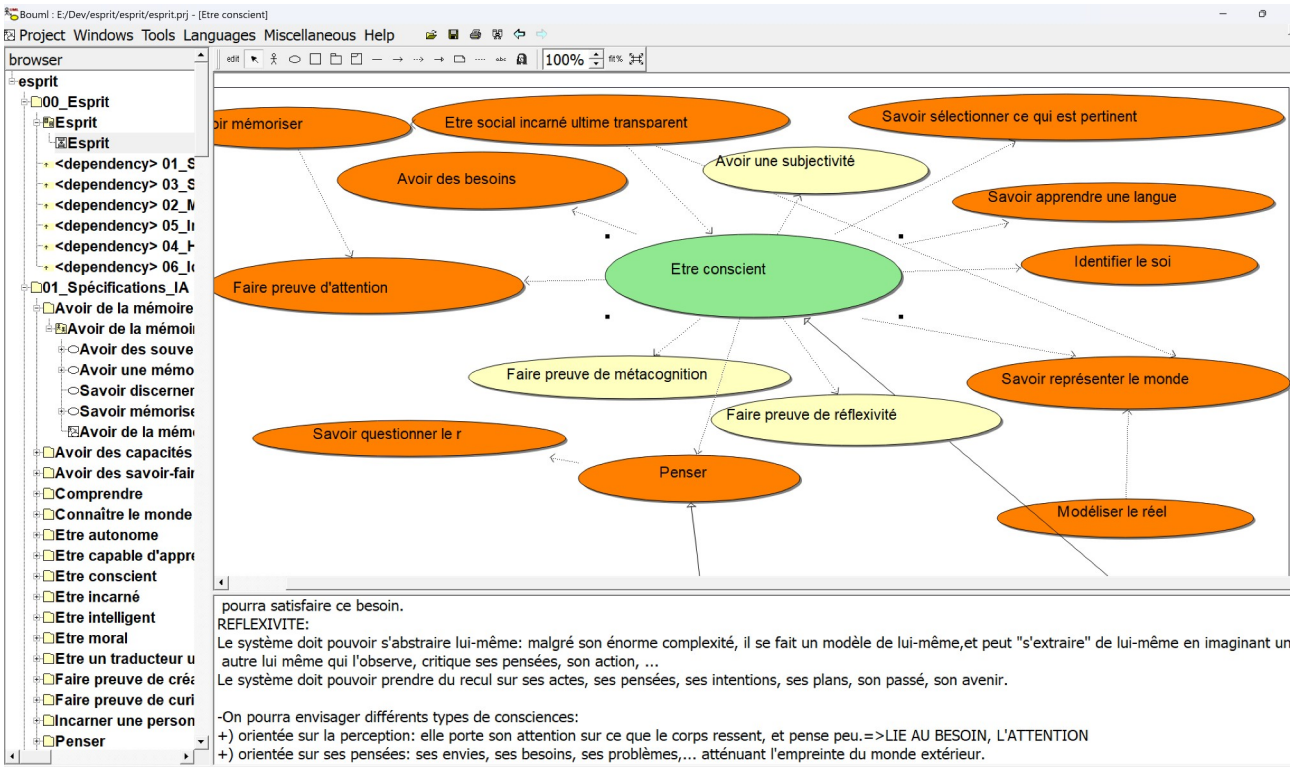

Figure 1: example of Use case

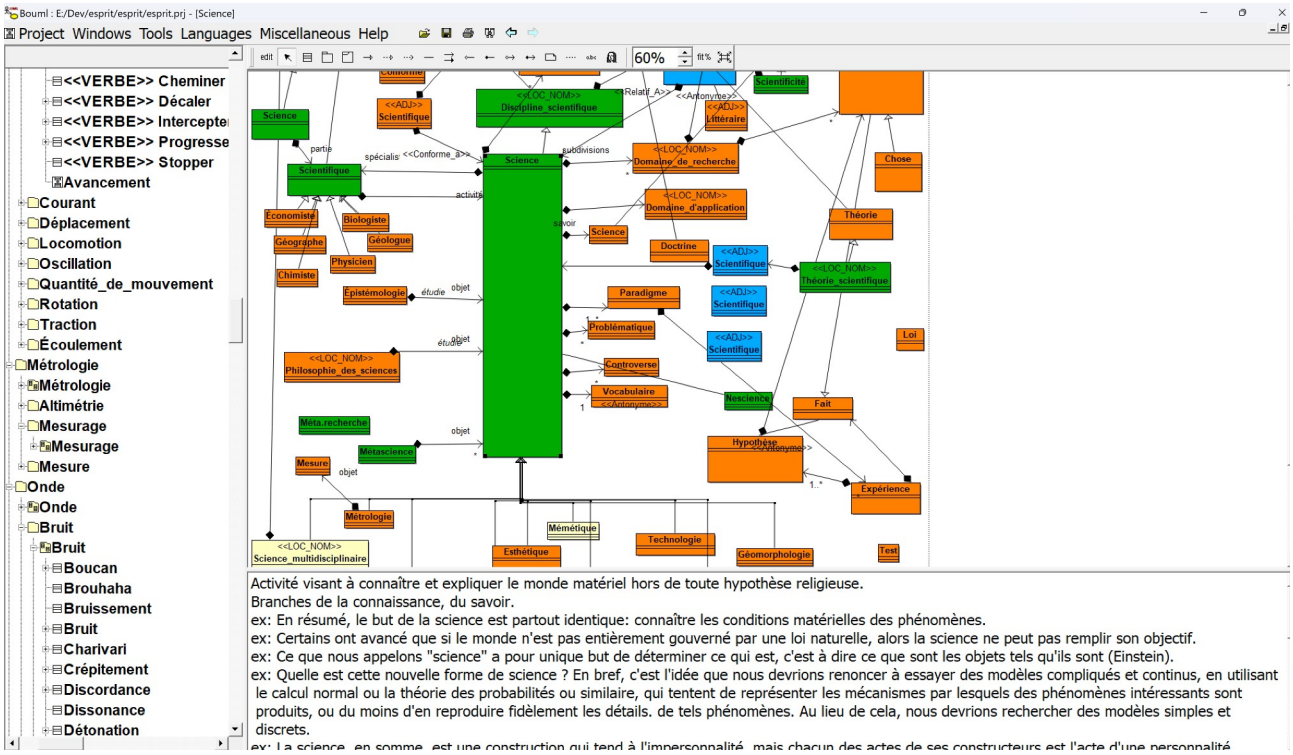

Figure 2 Exemple de diagramme de classes.

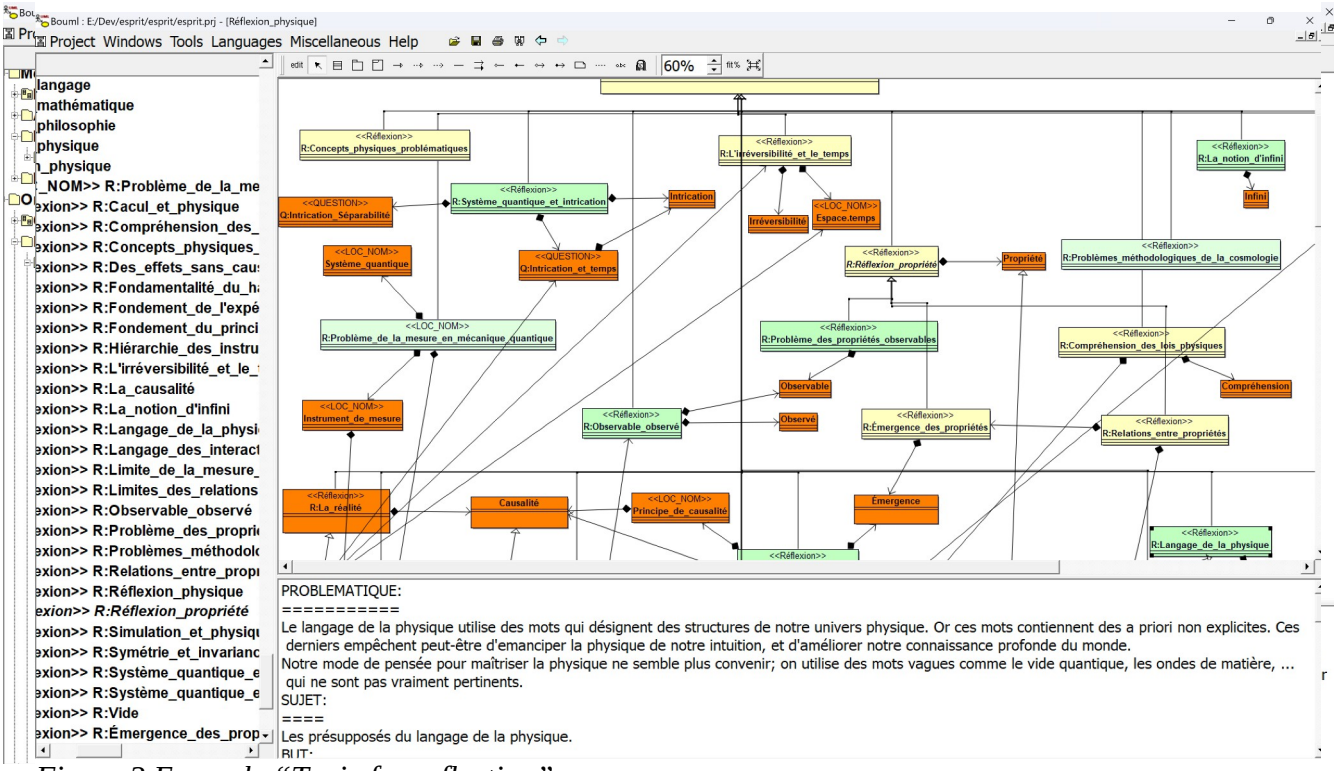

Figure 3 Example "Topic for reflection"