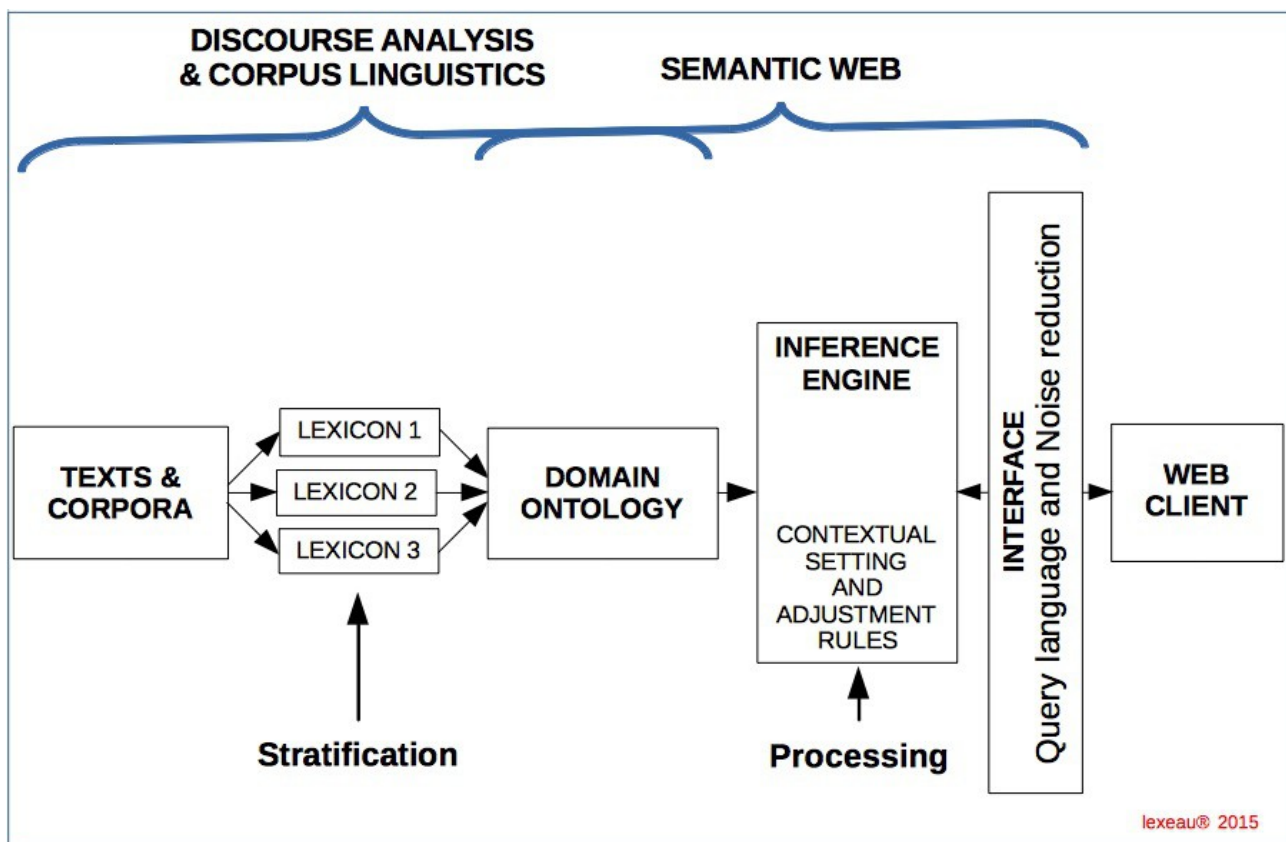


The dictionary of the French Water Academy (lexeau® project)

A bilingual collaborative project¹

The dictionary of the French Water Academy (lexeau® project) aims to improve mutual understanding between actors in the water domain, from the resource manager, the legislator and the decision-maker in charge of public or private funds to the simple user (all of us), via the scientist. The dictionary will be free to access on the web in a bilingual interface (French-English). The structural and functional diagram of the device is presented below (Fig. 1):

Fig. 1 Structural and functional schema of the device



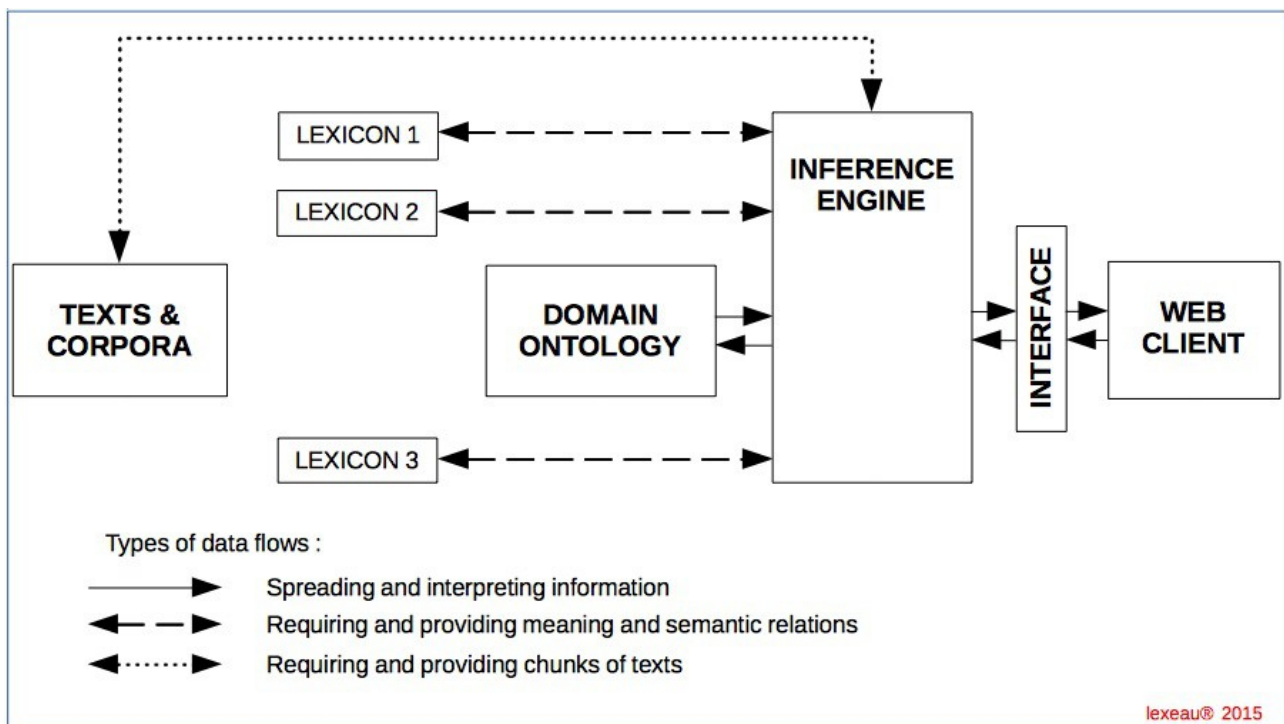
The texts grouped together in corpora (see above, on the left), provide the basis of the linguistic discourse analysis which leads to a tri-stratified lexicon. We postulate the existence of three discursive strata that correspond to three distinct audiences: technical-scientific (communications, articles, scientific books), technical-administrative (laws, European directives, regulations, forms) and the general public (media, political discourse). The author chooses a discursive stratum to be heard and to enhance his exchanges with the different audiences of the domain.

The possibility of a plurality of meanings between strata for the same word or the same expression allows to take into account the variability and instability of the meaning in a text for the general public while preserving the stability of words and expressions of the scientific discourse which will

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be transferred into conceptual elements of the domain ontology, placed in the device's heart with its classes and its relationships. The technical-administrative discourse is also subject to a requirement of meaning stability of the words and the expressions used within a shared scientific, legal and cultural background, also transferred into concepts and relationships of the ontology. By their intrinsic stability, translatable from one language to another, the meaning reached in the technical-scientific discursive stratum serves as a pivot to the other senses of the same word or the same expression in other strata. This facilitates mutual understanding between actors in the same field by pointing out the difficulties of interpretation between discursive strata and from one language to another. The schema of the data flows during a dictionary consultation is shown below (Figure 2).

Fig. 2 Schema of the dictionary consultation data flows



In a web consultation, the customer expresses his request in the interface in a way which has still to be completed and tested (free text or choice in a cloud of words, a given theme, context and point of view, a discursive stratum, along with a named entity, etc.). The query is processed by the inference engine which will search for entries (lexemes, collocations) and other lexical elements (proper names, brand names). These items are returned to the applicant with their definition, their quotations and other related entries within semantic relationships (hyponyms, hypernyms, meronyms, synonyms). It may be completed with other information from the ontology (conceptual relationships, models, textual/numeric data, etc.). The engine will also search in the corpora for selected referenced pieces of texts and return them directly or through links on the internet.

The bilingual OWL ontology of the device is edited with Protégé 4.3. It has been tested on many texts, including the 2000 [European] Water Framework Directive. The current research work focuses on the choice of a linguistic discourse analysis software tool. The project started in 2014. The last working meeting took place on July 6th, 2015. The next meeting is scheduled for Monday, October 19th, at the *Société Hydrotechnique de France*, in Paris. Future partnership is sought with English speaking institutions to join the project group and possibly attend the next meeting.