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**Rapport sur la mission effectuée à l'Université de Séville (Espagne), du 17 au 20 octobre 2009 avec le soutien financier partiel de l'UMR 8163 « Savoirs, Textes, Langage »**

Objet : conférence donnée à une session spéciale du Séminaire de la Logique et du Langage (*Seminario de Lógica y Lenguaje*) le 19 octobre 2009. Site du séminaire : <http://grupo.us.es/ghum609/php/node/19>

### **Déroulement de la mission**

*Résumé de la communication « A Survey on IF Modal Logic » :*

A simple variant of IF modal logic – or: independence friendly modal logic – is syntactically obtained from basic modal logic (in negation normal form) by introducing a mechanism by means of which to indicate that a diamond symbol is "independent" of a syntactically preceding box symbol. What does "independent" mean here? It means that when specifying a witness for this diamond symbol, the "semantic value" or "interpretation" corresponding to that box symbol is not available to be used: the witness must be provided by a function that does not employ the state interpreting the box as an argument.

We will present different variants of IF modal logic. Their semantics can be conveniently formulated in game-theoretic terms. In such a setting the above mentioned "independence" appears as "imperfect information" concerning the previous course of a play.

We survey results about the expressive power of variants of IF modal logic when compared to basic modal logic, first-order logic (FO), finite-variable fragments of FO and the guarded fragment of FO. Known complexity results about certain versions of IF modal logic will be mentioned. Finally, we comment on the relationship of IF modal logic and the hybrid logic with  $\downarrow$  and  $@$ , stressing the difference in the ideas by means of which these two logics increase the expressive power of basic modal logic; some systematic comparative remarks will be presented as well.

*Des autres aspects de la mission :*

J'avais l'occasion de rencontrer des collègues travaillant sur des thèmes liés à mes intérêts scientifiques et de prendre les premiers pas vers une collaboration avec eux, voir [http://investigacion.us.es/sisius/sis\\_depgrupos.php?seltext=59&selfield=IdDpto](http://investigacion.us.es/sisius/sis_depgrupos.php?seltext=59&selfield=IdDpto), *Grupo de Lógica, Lenguaje e Información*. Aussi, j'assistais à une conférence donné le 20 octobre par le Pr Paul Gochet (Liège).