Translations and Model Theory

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We propose a formalism for expressing general properties of abstract logics (conceived as two-sorted first-order structures in the sense of [1]) and translations between them (where translations are conceived as homomorphisms between such structures). The concept of translation between logics (see for example [5] and [3]) is a powerful tool for relating abstract logical systems and for conveying meaning to heterodox logics through the notion of possible-translations semantics (cf.[2]).

However, a general theory able to express general properties of abstract logics and explain the meaning of translations between them is still missing. This paper contributes to this question, introducing a formal framework in which abstract logics and their translations can be treated and understood. We show (details given in [4]) that interesting results from the point of view of combination of abstract logics can also be obtained. In particular, it is possible to prove that the category of abstract logics is closed under ultraproducts and that the process of fibring (cf. [6]) is also expressable in the proposed formalism.

We stress how classical results of model theory can be used to establish several properties of translations between abstract logics, helping to assign a philosophical meaning to this concept.

References

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