

Machines must be Wrong

Madrid Nicolás

University of Málaga
Edificio de Ingenierías.
C/ Doctor Ortiz Ramos s/n (Teatinos).
CP 29071. Málaga. Spain
E-mail: nicolas.madrid@uma.es

Making mistakes is an intrinsic human feature. But far to be an unwelcome feature, it is useful. For instance it bears us to learn, to review our beliefs and to support our decisions among others. This capability of using mistakes in our reasonings is already represented by Logic by means of the inference rule of “reduction ad absurdum”, which can be seen as a “supervised kind of mistake”. However in Computer Sciences, apart from the theoretical tools of “reductio ad absurdum” and methods obtained from it (as SLD resolution [1]), contradictions and mistakes are considered features that must be avoided. In some situations this behavior is understandable (e.g. the control of a train or a medical device) but in others, it represents a considerable limitation (e.g. in learning or optimization). Thus, considering knowledge systems involved in wrong information is not only an option for the scientific community, but a necessity.

In this talk we explain how wrongness can be represented as a fuzzy notion and why contradictory information must be considered as an important piece of information nowadays. Moreover, the consideration of inconsistent knowledge systems is motivated to show how we can retrieve informations from wrongness. We refer to readers interested in more information to [2, 3].

References

- [1] R.Kowalski and D.Kuehner: *Linear Resolution with Selection Function* Artificial Intelligence. **Vol.2** (1971) pp. 227–60.
- [2] N. Madrid and M. Ojeda-Aciego: *Measuring inconsistency in fuzzy answer set semantics*, IEEE Transactions on Fuzzy Systems, **vol. 19, no. 4**, (2011) pp. 605–622.
- [3] J. Grant and A. Hunter: *Measuring inconsistency in knowledge bases*, Journal of Intelligent Information Systems, **vol. 27, no. 2**, (2006) pp. 159–184.