Intelligent Management of Measurement Units Equivalences in Food Databases*

*Note: The full contents of this paper have been published in the volume *Lecture Notes in Artificial Intelligence 11160* (LNAI 11160)

Beatriz Sevilla-Villanueva, Karina Gibert
Department of Statistics and Operations Research
Universitat Politècnica de Catalunya-BarcelonaTech (UPC)
Barcelona, Spain

Miquel Sànchez-Marrè
Department of Computer Science
Universitat Politècnica de Catalunya-BarcelonaTech (UPC)
Barcelona, Spain

***Abstract*—It is currently well-known that diet plays an important role in the promotion of healthy lifestyle and the prevention of chronic diseases. The Diet4You project is conceived to support the creation of an intelligent decision support system that provides personalized menus fitting a nutritional plan and taking into account the characteristics, needs and preferences of the person. The system involves a background food database, recording a collection of foods and prepared dishes with their standard portions as well as their nutritional decomposition in different food families.This DB is used to search the best combination of dishes approaching the total intake of different nutrients specified in the prescribed nutritional plan. The available background databases, specify the quantities of standard portions of several foods based on different measurement units which are not standardized, and it happens that the weight specified by one cup of melon is different from that of one cup of berries, among others. This arises the need of applying variable conversion factors to the dish description, before assessing whereas the total quantities of a certain menu fit well to the prescription. In this paper, a knowledge based approach is presented to the automatically management. An annotated reference food ontology is built on the basis of additional documentation. However the granularity of the information provided is heterogeneous and non exhaustive. The ontology-based missing values imputation is presented to overcome this limitations.**

***Index Terms*—Ontology, Missing Imputation, Database**