

## IMAGACT E-learning Platform for Basic Action Types

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### Abstract

Action verbs express important information in a sentence and they are the most frequent elements in speech, but they are also one of the most difficult part of the lexicon to learn for L2 language learners, because languages segment these concepts in very different ways. The two sentences Mary folds her shirt and Mary folds her arms refer to two completely different types of action, as becomes evident when they are translated into another language (e.g., in Italian they would be written as Maria piega la camicia, and Maria incrocia le braccia respectively). ImagAct e-learning platform aims to make these differences evident by creating an interlinguistic ontology of action types, whose nodes consist of 3D scenes, each of which relates to one action type.

In order to identify these types, contexts of use have been extracted from English and Italian corpora for around 600 action verbs (for each language). All instances that refer to similar events (e.g., fold the shirt/the blanket) are grouped under one single action type: each one of these types is then represented by a linguistic best example and a short video that represents simple actions (e.g. a man taking a glass on a table). The action types extracted for Italian and English are compared and merged into one interlinguistic ontology of action: by selecting each scene and viewing the best examples associated with it, learners can directly understand the range of applicability of each verb. The project is now almost completed for the Italian and English lexicon, data extraction for Chinese is on-going and as future work also Spanish will be included.

Thanks to an easy interface, an user can access to the English/Italian (Chinese when available) best examples chosen for each type (John takes the glass/Mary grasp the pen/John prende l'accendino/Mary afferra la matita) and to all standardized sentences extracted from corpora that have been assigned to that type, that show the actual use of the verb when referring to a specific type of action. Also, an user can access these data by lemma: for example, searching for the verb "to take", he will be presented with a number of scenes, showing the different action types associated to that verb, with their related information. Scenes, and their associated best examples, represent the variation of all action verbs considered and constitute the IMAGACT ontology of action.