Chapter 4
Modeling Tools and Techniques

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ABSTRACT

- The MOT+ Visual Model Editor
- Overview of the Modeling Process
  - Principles defining a model's orientations
  - Principles for selecting a model type.
  - Constructing the initial main model
- Priorizing Knowledge Objects to Be Developed
  - Assessing competency gaps for target populations
  - Creating a multilevel model
- Defining and Co-Referencing Knowledge Objects in Other Domains
- Validating and documenting models

In the previous chapters, we emphasized the "what" and "why" dimensions of knowledge modeling. In this chapter, we will focus on the "how" dimension. We will first present MOT+, a graphic editor that fully respects the syntax and grammar rules of modeling using objet types presented in Chapter 2, Table 5.[1] We will then use this tool as part of a technical description of the modeling process itself.

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4.1 THE MOT+ VISUAL MODEL EDITOR[2]

MOT+ is a model editor enabling users to construct visual models for the various fields of knowledge. With it, it is possible to build four types of visual models: Standard, Flowchart, Educational scenarios and Ontology. In this chapter, we will mainly present and use the *standard* modeling module of MOT+. The Educational scenario (IMS-LD) and Ontology modules will be presented in further chapters.

Upon opening, MOT+ displays the model creation and editing work window. Figure 1 presents the main aspects of this window.

The MOT+ editor has advanced editing capabilities. You can edit most graphic attributes of an object such as color, frame, font, alignment, as well as the relative position of objects through layering, alignment, spacing, etc. The menu bar and the main toolbar contain editing features similar to most advanced software like those in Microsoft or Open Office.

Graphic objects can be associated to any type of document using the OLE standards used in text editors, slide presentations, Web pages, spreadsheets, or database files. These associated documents can be displayed by clicking on the MOT graphic symbol.

Mot+ export tools allows you to convert visual models into formatted Excel spreadsheets, HTML pages, Access databases, XML files, image files, XML OWL, XML IMS-LD files, and Export Project Tree to MSExcel. In particular, exporting to XML provides the possibility for visual models to be processed by software agents respecting for example the IMS LD or OWL schemas.

In the editing toolbar, you can choose the MOT knowledge type such as concept, procedure, principle, example, trace, or statement. You can also choose to draw C, S, I, P, R, I/P or A links between two objects.

The editor also allows you to use a rectangle with rounded corners to represent untyped objects or links defined by the user. Such elements allow the user to create representations that differ from

Figure 1. MOT+ work window