

that the domain expert considers best. It might be that the domain expert for instance bases a decision on where control processes have to be carried out in the domain. However, the preferred approach is to emphasise *autonomous decision-making ability* as the main criterion for identifying the initial set of candidates for agents in the domain. The level of granularity at which the domain is modelled will be determined by the domain expert and will determine the boundaries of the candidate agents. As a starting point, candidate agents will usually be identified wherever there is a decision-making entity in the domain.

The user input at this stage will simply be a list of agent identifiers, representing the set of candidate agents selected by the domain expert as likely to provide a reasonable model of, and therefore workable control structure for, the domain. The CABS system will allocate each of the identifiers a copy of the agent shell 300 and the output of Step 1 is this set of agent shells 300.

If at a later stage it is found that there is conflict, for instance a candidate agent having to be allocated decisions in respect of a process it cannot influence in practice, then the list of agent identifiers can be amended to adjust the set of candidate agents, for instance to introduce a new one, and the design process will be reiterated to reflect the changes.

No specific editor is necessary for agent identification.

Another important user input is the vocabulary of the domain. This is input using the ontology editor 340. An ontology or data dictionary for a domain describes all the possible concepts or objects that can exist in the domain. In CABS, an object-attribute-value formalism is used for describing domain objects and concepts. The ontology editor 340 simply provides templates for describing these objects, that is (i) the different object types, (ii) the list of attributes of each of these object types, (iii) the type of values of that each attribute takes, and (iv) the default values (if any) for each attribute.

This editor provides a template or form so that you can describe the vocabulary of the domain which the agents will be controlling.

The ontology editor 340 allows the user to identify an ENTITY, its ATTRIBUTES, the VALUES the attributes take, and typical DEFAULT values. An example in the communications network field would be as follows: