other agents E, F and G. Subjob J1 may also be split, agent B retaining responsibility for a subjob J11 but allocating a subjob J12 to agent D.

The important thing is to ensure each top level job, such as job J, has a unique identifier which is maintained even if subjobs (and subsubjobs, etc) of this top-level job get generated. This is recorded in each agent by means of the commitment table of Figure 9 and as a result of decisions by the co-ordination engine and reasoning system 210. So when Agent A splits a job having identifier "J" into subjobs J1 and J2 and allocates them to other agents, these other agents maintain the identifier "J", even when they themselves further split the subjobs (J1, J2, etc) into yet further subjobs and allocate them to yet other agents. Note that a subjob "J1" has added its own identifier "1" in addition to "J" to trace where it originates from if it gets further decomposed, and this applies when a subjob such as "J1" gets further decomposed into "J11" and "J12". In this case, both identifiers "J" and "1" have been retained.

Thus, using a root goal identifier and parent-child links, the report tool can graph a global task decomposition across the society. In fact, the same mechanism is used in the society tool to colour-code messages by goals.

Hence, the algorithm of the Reports tool for processing the data (retrieved from all the agents) is as follows:

i) for some Agent "A", select a job/goal owned by that agent;

ii) retrieve the unique identifier for the goal, for example "J";

iii) do a search to retrieve all other jobs/goals with that identifier and return both the jobs/goals and their relationships (with respect to the selected goal "J");

iv) Graph the relationships (and states), as shown in Figure 7.

Referring again to Figure 7, consider the scenario with three agents A, B, and E. In order to perform a job, J1 say, Agent A might delegate a subpart (J11) of this job to Agent B, who in turn delegates a subpart (J111) of J11 to Agent E. Because of the autonomy of the individual agents, Agent A is only aware of the subpart of J1 it is scheduled to perform, and the subpart (J11) it delegated to Agent B; it remains unaware of the subpart (J111) delegated by Agent B to Agent E. Thus, a user viewing any one of the agents in isolation gets an incomplete picture of the problem solving effort of the society. So if, for example, Agent A