

| Message Type | To WHOM | Purpose | What is returned |
|--------------|-----------------------------|-----------------------------------|------------------|
| Request | Agent name server | return addresses of all agents | Addresses |
| Request | All agents | return relationships | Relationships |
| Request | None, some or all agents | cc all messages | cc'ed messages |

Referring to Figure 12, the society tool allows a user to select a set of agents and view (a) the structural organisational relationships, and (b) the
 5 messaging between them. It therefore accesses the acquaintance models 215 stored in the individual agents. It can also set a flag that causes the message handlers 205 of the agents to copy all messages to the visualiser 140.

To view (a) or (b), users use menu items to send requests to designated subsets of agent requesting they update the tool instance with their current
 10 knowledge of the organisational relations, or to send copies of all their outgoing messages to the tool instance respectively.

The organisational relationships describe role relations such as superior, subordinate, co-worker or peer. Knowing these relationships is important during debugging because they affect how the agents might coordinate their activities.
 15 For example, the agents may be configured to try performing all tasks first, if that fails delegate to subordinates, if that fails subcontract to co-workers, and only if all fail subcontract to peers. The tool supports graphical layout of the agents according to role relationships. Current layouts include a vertical layout (as shown in Figure 12) emphasising the vertical superior-subordinate relationship, a horizontal
 20 circular layout emphasising co-workers, with groups of co-worker arranged in circles, a horizontal circular layout emphasising peers, with groups of peers arranged in circles, and a single agent-centred layout in which all the other agents are centred about a user-designated central agent. In the layout graphs the links between the agents are colour-coded according to their role relationship. Facilities
 25 are provided to collapse, expand, hide and show nodes of the various graphs. The different layouts are important especially when used with the messaging feature of the tool, because they allow the user to readily see the organisational structure of the agents and how coordination proceeds within that structure. This allows him