

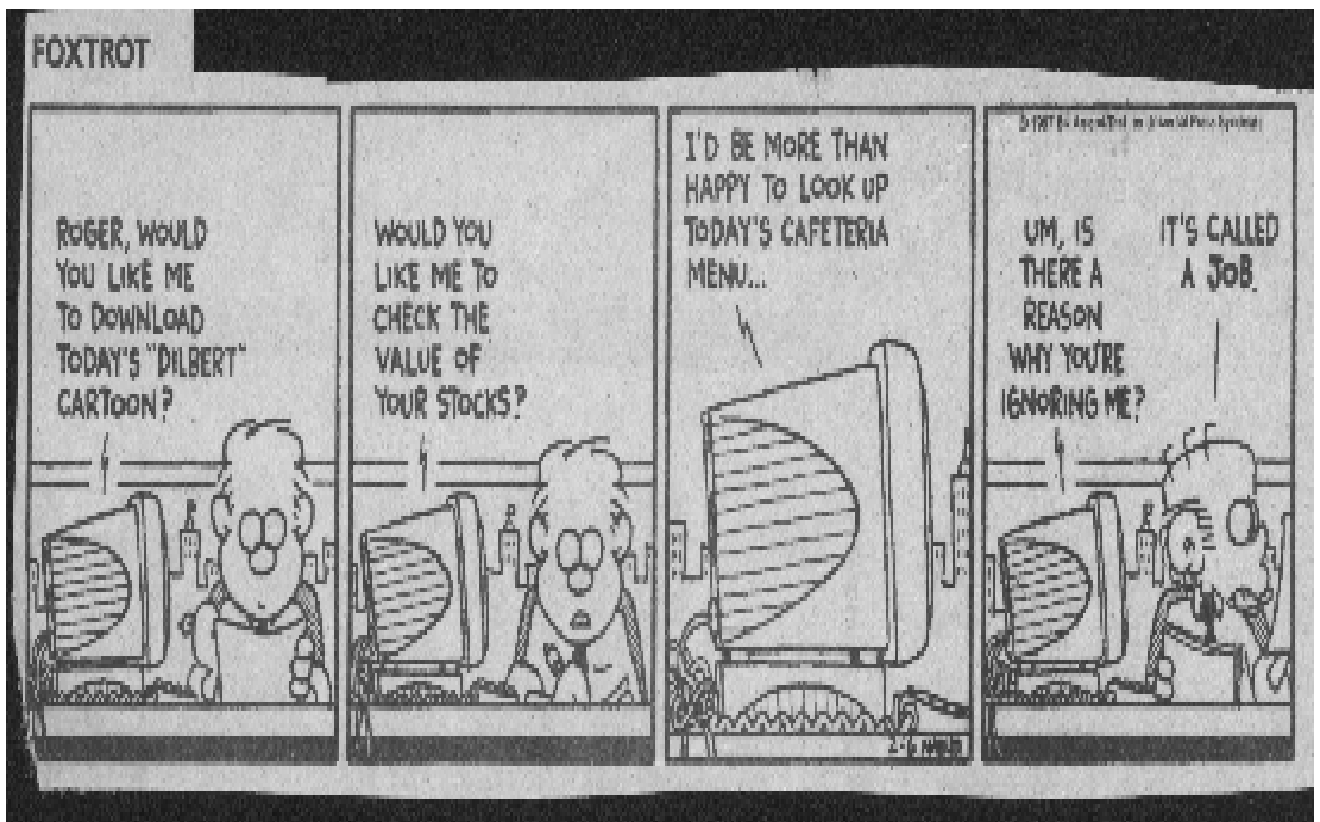
AGENT

UI Agent

Agency

Autonomous Agent

Yet To Come...?



AGENCY

- Direct Manipulation
 - User initiates actions and carries them out directly
- Indirect Management
 - Cooperative process where human and computer both initiate actions



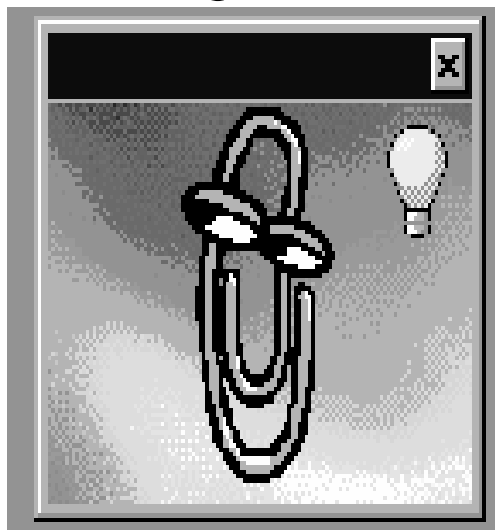
AUTONOMOUS AGENT

- Personal assistant who collaborates with user to accomplish tasks
 - Level of autonomy can vary
 - Takes directions
 - Takes initiative
 - May learn user's preferences
 - Human appearance?



Ack! It's the Paper Clip

- Two challenges exist
 - Competence - Does the agent have the requisite knowledge to truly assist the user?
 - Trust - Does the user feel comfortable delegating task to agent?



More help...



- What could agents do for us?

Agency Approaches

- 1. Application is semi-autonomous agent
 - User programs rules a priori for how agent should perform
- 2. Knowledge-based
 - Give the agent interface domain knowledge and user knowledge
- 3. Learning approach
 - Give agent minimal domain knowledge, then have it watch user and learn behaviors

Learning Approach

- Like a personal assistant who gets better and better
- Learns by
 - 1. Looking over shoulder, watching actions
 - 2. Direct and indirect feedback
 - 3. Hypothetical examples
 - 4. Asking other agents for advice

Examples

- Email agent
 - Prioritize, delete, sort, ...
 - Looks at fields to make decisions (How weighted?)
 - Has “tell-me” and “do-it” thresholds for individual actions
 - Has facial expressions to communicate state
- Meeting scheduler
 - Very personalized behaviors
- News filtering
 - Watches what you read, then does filtering
 - Uses keywords
 - Needs deeper natural language help

Examples

- Entertainment agent
 - Agent memorizes user's preferences
 - Goes out and talks to other agents and looks for correlations
 - Makes recommendations

Issues

- Should agents be made human-like?
- If so, should they have personalities?
- How can we guarantee privacy if agent collaboration occurs?
- Should someone be held responsible for what their agent does?