COLLAGEN

Spoken Language Collaborative Interface Agents
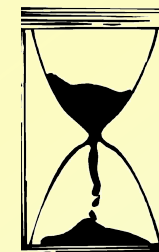
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2 goals

Make my grandfather use programs

Save time

Collaboration

Spoken Language **Collaborative** Interface Agents

communicate

observe   observe

manipulate   manipulate
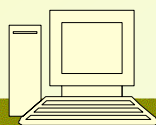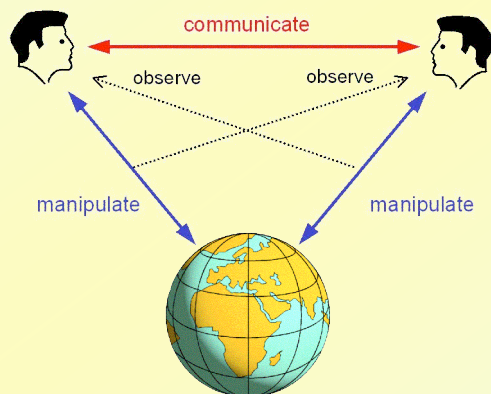
Collaborative agent

Spoken Language Collaborative Interface **Agents**

communicate

observe   observe

manipulate   manipulate
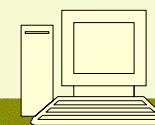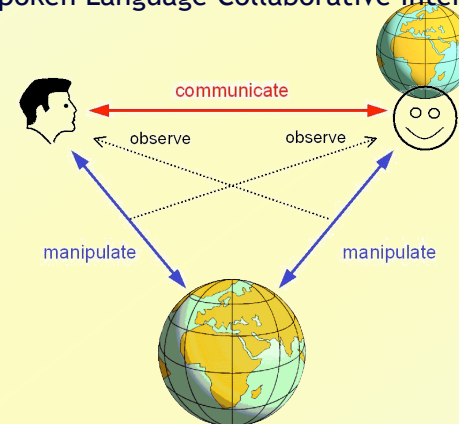
Slide 1 — Agent's knowledge
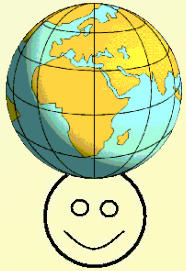
- *Primitive predicates:*

  „peter"   „mary"

- *Complex predicates:*

  „NotLove(peter, mary)"

- *Actions:*

  „falling-in-love(X, Y)"

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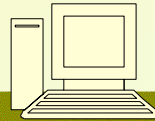
Slide 2 — Agent's knowledge: actions
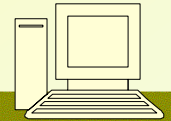
„falling-in-love(X, Y)"

-Preconditions:

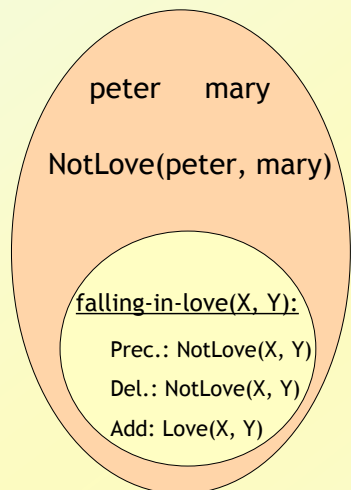 „NotLove(X, Y)"

-Delete-List:

  „NotLove(X, Y)"

-Add-List:
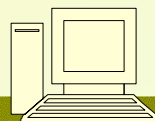
  „Love(X, Y)"

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Slide 3 — Example plan generation

peter   mary

NotLove(peter, mary)

falling-in-love(X, Y):
  Prec.: NotLove(X, Y)
  Del.: NotLove(X, Y)
  Add: Love(X, Y)

„I want Peter to love Mary."

Goal:

Love(peter, mary)

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Slide 4 — Generated plan

falling-in-love(peter, mary)

peter   mary

NotLove(peter, mary)

falling-in-love(X, Y):
  Prec.: NotLove(X, Y)
  Del.: NotLove(X, Y)
  Add: Love(X, Y)

peter   mary

Love(peter, mary)

falling-in-love(X, Y):
  Prec.: NotLove(X, Y)
  Del.: NotLove(X, Y)
  Add: Love(X, Y)

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Slide 1
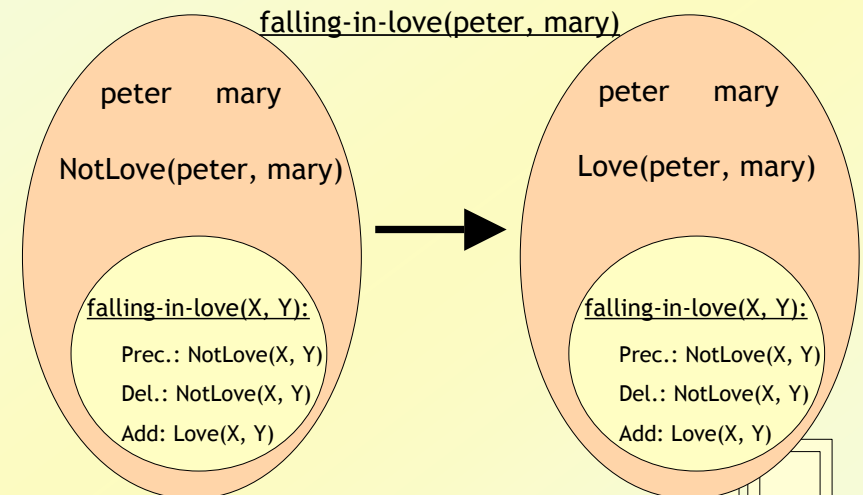
- Imagine a program like Outlook Express
- Known actions:
  - Manage email (delete, store, print)
  - Open and read email
  - Send preformatted responses to emails

Slide 2

„I want to send an email."

Goal:

EmailSent

„Who will be the receiver?"

„Please write a text."

```
action sendEmail(RECEIVER, TEXT) {
    Prec: …
    Del: …
    Add: EmailSent
}
```

Slide 3

- Scheduling for clients and colleagues
- Known actions:
  - Gather profiles
  - Create new profiles
  - Check schedules of people and rooms
  - New meeting entries
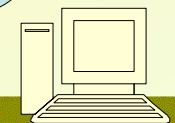 - Write preformatted invitation emails

Slide 4

How does the agent help?

Arrange a meeting with Peter and Mary at 5 PM on Thursday.

Will the user have time?
Will Peter have time?
Will Mary have time?
Will there be a free room?
E-mail Paul about the meeting.
E-mail Mary about the meeting.

Plan recognition

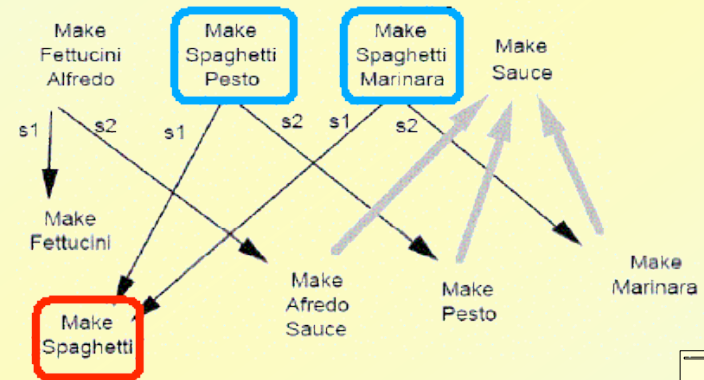- agent sees: primitive actions
- agent thinks: What are they good for?

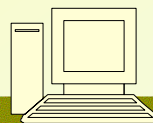## Plan recognition(2)

- agent sees: primitive actions
- agent thinks: What are they good for?

Plan recognition(3)

Reduces the amount of communication needed to achieve a goal.

If you want to cook Spaghetti Pesto, then relax and I'll do the rest of the cooking.
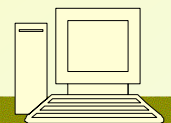
Usability: Video recorder agent

- No high-level tasks => saves no time
- User can rely on the agent asking for needed information

Improved usability

COLLAGEN

- Middleware between user and any GUI
- Must be implemented:
  - API to operate and observe the GUI
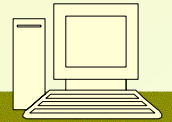 - Agent's knowledge including
    - States
    - Hierachy of actions

Summary

- Re-usable middleware
- Plan generation and execution
- Plan recognition
- Save time
- Improve usability

Thank you!

Thank you for listening!

sources:

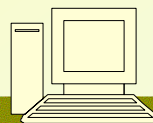http://w5.cs.uni-sb.de/teaching/ss08/KI/skript/KI2008_Skript.pdf

http://www.merl.com/projects/collagen/

http://www.senioren-computer-schulung.de/grafik/computer_180.gif

http://www.mathe-wettbewerbe-nrw.de/grundschulwettbewerb/grundschulen/Grundschulbilder/sanduhr.gif