



Policy

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state s1: action < Human: reach cup, Robot: reach spoon>
state s2: action < Human: pour to bowl, Robot: stir in bowl>
state s3: action < Human: place cup , Robot: place spoon>
      .
      .
state s7: action < Human: reach bottle, Robot: reach cup>
state s8: action < Human: pour to bowl, Robot: pour to bowl>
state s9: action < Human: place bottle, Robot: place cup>
      .
      .

```

Fig. 3: Collaborative planning by the robot. In order to collaborate with the human on a *recipe following* task, the robot learns the activity model from RGB-D videos of human preparing a recipe (left), represents the environment via affordances and uses our planning algorithm (middle) to generate a policy for jointly performing the activity with the human (right).