Learning to Perform Action Sequences
The question:
How that which is inside a person might change over time as a consequence of repeated interactions with a task world.
Rules of the game

- Functional (representational) specifications only, implementational details are still unknown.
- Pay attention to the nature of experience in interaction with the world.
A place where space matters
Engine-Out Procedure

- Control
- Airspeed
- Mixture
- Propellers
- Power
- Flaps
- Gear

- Identify
- Verify
- Feather
- Cutoff
- Secure
Cockpit
Absolutely Sinful Chocolate Chocolate Chip Cookies

• Submitted by: Marsha
• "This recipe was given to me by my grandmother 10 years ago. They were always a HUGE hit at work pig-outs and now my family loves them! A wonderful soft cookie that is incredibly chocolaty."

• Makes 2 dozen

• Prep Time: 15 Minutes
  Cook Time: 12 Minutes
  Ready in: 40 Minutes
Ingredients

• 2 1/2 (1 ounce) squares unsweetened chocolate
• 1/2 cup butter
• 2 cups all-purpose flour
• 1/2 teaspoon baking soda
• 1 teaspoon baking powder
• 1/4 teaspoon salt
• 1 1/4 cups white sugar
• 2 eggs
• 1 teaspoon vanilla extract
• 2/3 cup sour cream
• 2 cups semisweet chocolate chips
Directions

- Preheat oven to 375 degrees F (190 degrees C).
- In the microwave or over a double boiler, melt unsweetened chocolate and butter together, stirring occasionally until smooth.
- Sift together flour, baking soda, baking powder, and salt; set aside.
- In a medium bowl, beat sugar, eggs, and vanilla until light.
- Mix in the chocolate mixture until well blended.
- Stir in the sifted ingredients alternately with sour cream,
- then mix in chocolate chips.
- Drop by rounded tablespoonfuls onto ungreased cookie sheets.
- Bake for 8 to 10 minutes in the preheated oven.
- Allow cookies to cool on baking sheet for 5 minutes before transferring to a wire rack to cool completely.
- Store in an airtight container.
Condensed Directions

- Preheat
- Melt
- Sift dry stuff
- Beat sugar with wet stuff
- Mix melted with wet
- Stir in dry stuff
- Add chocolate chips
- Drop onto sheet
- Bake
- Cool
- Store
Preheat

Melt

Sift dry stuff

Beat sugar with wet stuff

Mix melted with wet

Stir in dry stuff

Add chocolate chips

Drop onto sheet

Bake

Cool

Store

Mix melted with wet

Beat sugar with wet stuff

Melt

Stir in dry stuff

Add chocolate chips

Cool

Store
A sequential reading strategy applied to the spatial relations of the items produces a temporal sequence
Reading skills applied to the written item produce an internal (auditory and/or visual) representation of the words

Printed words

Preheat oven to 375 F

The sounds of “Preheat oven to 375 F”
Deep language skills and the constraints of the task world are coordinated with the item to produce a meaning. Meaning and words are mutually constraining.

Your knowledge of English language

The oven and it’s temp controls

What you imagine the words mean

The sounds of “Preheat oven to 375 F”
Motor processes in coordination with the meaning of the step and the physical constraints of the task world shape the action.

- Your motor processes
- What it means to set the oven temperature: “the movie”
- The oven and its temperature controls
- The action taken on the oven temperature control
With practice the skills are brought together in a smooth series from written representation to action.
The sequence of interactions with the written medium produces a sequence of internal states.
The internal representation of what the steps say can be used to control the sequence of actions.
Once trained, the lexical medium can produce the sequence of meaning states corresponding to the steps of the procedure.
The sequence relationships among the steps may be mediated by knowledge of the conceptual dependencies among the steps.

Cookies come out of the oven hot and moist. Reduce the temperature of the cookies from Oven-hot to room temperature

Cool

Store

Place the cookies in tupperware container

Hot cookies will sweat in the storage container ICKY
The semantic medium may come to be able to produce the sequence of actions without mediation of the names of the steps.
The assembled tissue of coordination.
The system operates by the propagation of representational state across media, and the media themselves acquire functional organization as a consequence of the repeated impositions of representational state upon them.
Lessons

- Soften the boundary of the person
- Examine coordination, entrainment, and resonance with the world
Lessons

• Learning as the gradual propagation of pattern or organization in a system
• What it means to “know” a procedure could have many descriptions (does the way we assess knowledge tap the right description?)
• Internalization does not involve bringing anything inside from outside. Rather it is learning patterns of experience that emerge in interactions of inside with outside.