Who's your audience?

Audience Design

1. **Audience design**
   Classic models of language use, towards a model of language users

2. **Egocentric vs. sociocentric basis**
   Speeded decisions, prefrontal brain activations

3. **Imitated vs. self-generated behavior**
   Development, prefrontal patients

Anecdotal evidence

Classic models of language use

Pragmatics and the aims of language evolution

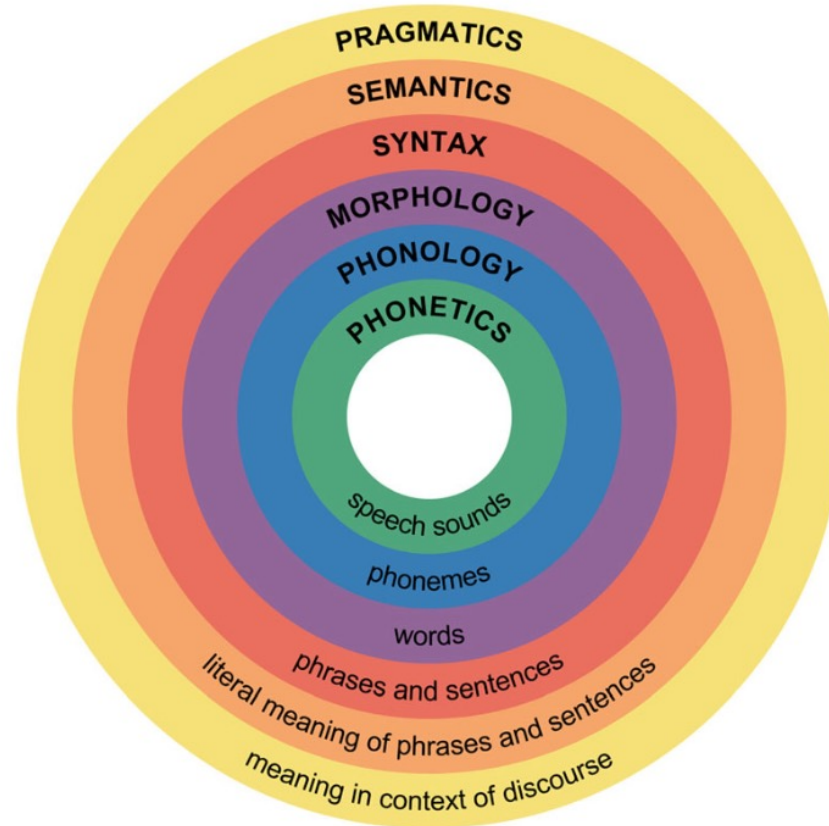Thomas C. Scott-Phillips[1,2]

Fig. 1 Major levels of linguistic structure, as classically understood.

Pragmatics as peripheral rather than the foundation of language use

Tailoring utterances

In ordinary conversations, we tailor what we say to the particular people we are talking to. We have a good idea of the knowledge and beliefs they share with us at the moment and what they are thinking of, and we design our utterances accordingly. Evidence of this tailoring is everywhere. When we think our addressees share with us the knowledge that a man is named Aloysius, we may refer to him as Aloysius confident that they will understand who we are referring to. When someone in a conversation says I'm getting tired, we may reply with the highly elliptical So am I, confident that the others in the conversation will understand us. When we think our addressees share knowledge that a particular woman had just been sitting in a chair, we may point at the empty chair and say That woman is named Veronica and be confident that they will understand who we are referring to. We realize that anyone who didn't share our knowledge of Aloysius's name, or of the previous utterance, or of the person who was just sitting in the chair wouldn't necessarily understand us. We don't expect our utterances to be understandable by just anyone. They are intended for particular listeners with particular momentary thoughts and beliefs. Let us call this feature of utterances audience design (see Clark and Carlson, 1982a).

AUDIENCE DESIGN IN MEANING AND REFERENCE

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Stanford, California
U.S.A.

Tailoring utterances

Although audience design is an obvious feature of language in use, it has rarely played a role in psychological models of language use. For years, the dominant model of understanding has focused on how we analyze sentences--that is, how we identify phonemes, words, syntactic constructions, and word meanings (see, for example, Carroll & Bever, 1976; Forster, 1979; Garrett, 1978; Marslen-Wilson & Tyler, 1980; Swinney, 1979). But when we listen to people in conversations, our aim isn't simply to identify the phonemes, words, and sentences they used. We try to understand what they meant in saying what they did on that occasion. For that, we must consider not only the acoustic signal and our knowledge of the language, but also the particular beliefs and thoughts we think the speaker shares with us at that moment. The dominant model, in effect, excludes the thoughts and beliefs of individual speakers and listeners. It is a model of understanding that excludes the understanders.

Evidence of tailoring

- Definite reference
  - Descriptions more specific than linguistic models predict
    ("look at the dog" vs. "look at the living thing")
  - References in conversation are dynamic
    ("woman who sold me Chanel No. 5", "perfume lady")
- Anaphora
  - Require listeners to make bridging inferences
    ("picnic supplies out of the car", "the beer was warm")
- Word meaning
  - Novel coinages and contextual expressions
    ("Houdini her way into the office")

Towards a model of language *users*

But the models of understanding most prominent today make little or no use of audience design. They work primarily from perceptual data--the speech sounds--applying various strategies to identify phonetic sequences, words, syntactic constructions, and sentence meanings. When context is brought in, it is brought in to arbitrate among the possible interpretations created by the strategies working from the perceptual data.

This will not do. People have to reason from the design assumption even to get syntax and word meanings right.

Why has audience design played so little part in psychological models of understanding? It is probably because there has been so much research on understanding of isolated sentences and so little research on conversations and other genuine communication. In research on isolated sentences, the beliefs and background of particular listeners are almost impossible to study. For psychological models to become truly psychological, they must bring in the thoughts of individual speakers and listeners. They must be more than models of language use. They must be models of language users.

1. Audience design
   Classic models of language use, towards a model of language users

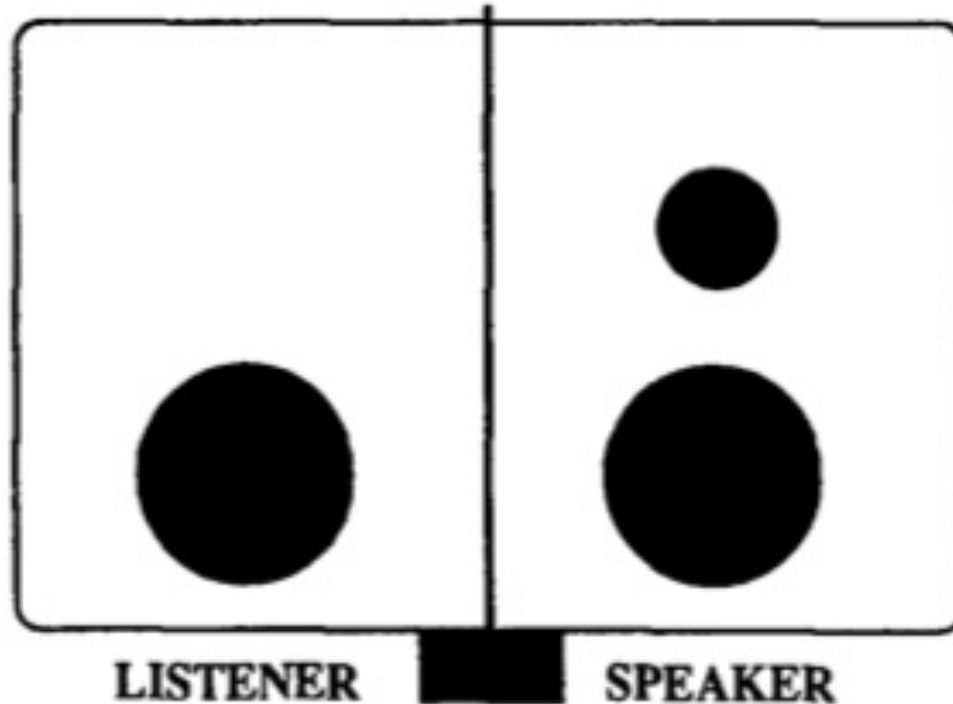2. Egocentric vs. sociocentric basis
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Privileged context
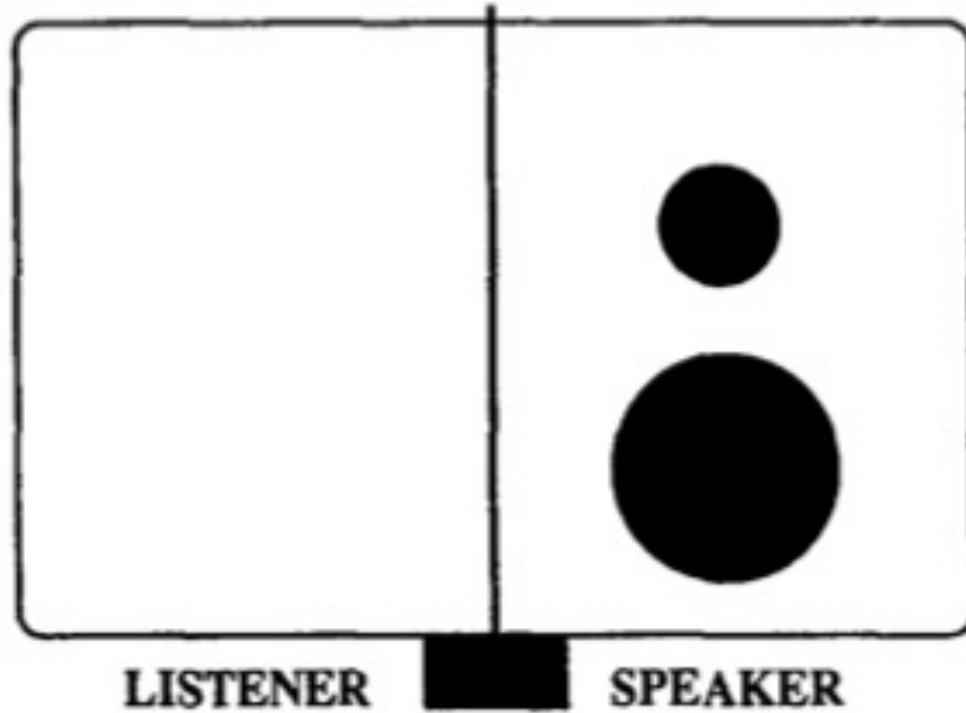
"A small circle moved right to left"

LISTENER   SPEAKER

Evidence for egocentrism

Effect of time pressure
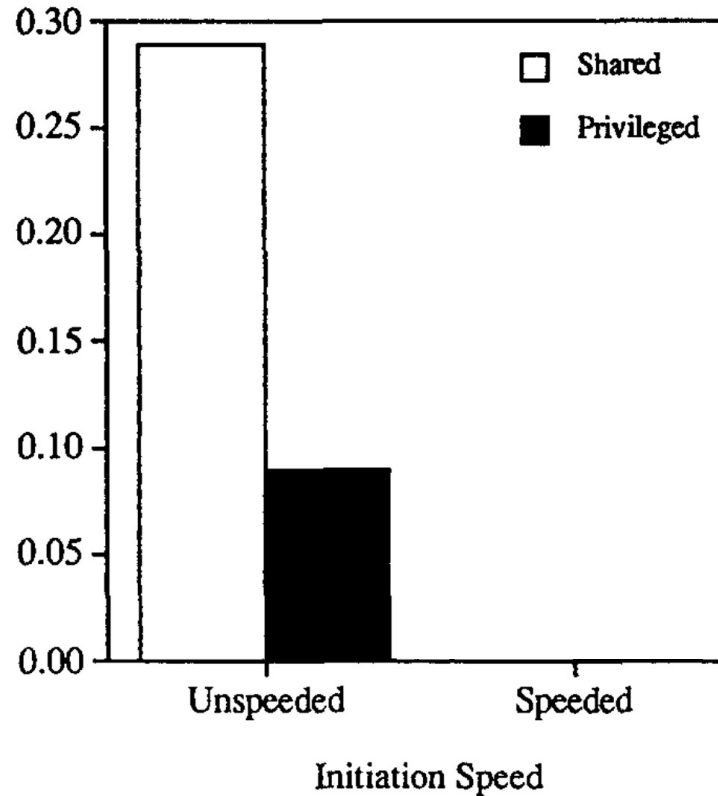

Fig. 5. Mean ratio of context-related adjectives to the total number of adjectives plus nouns per description as a function of context information and initiation speed, for the second presentation.

Evidence for egocentrism

Intentional stance
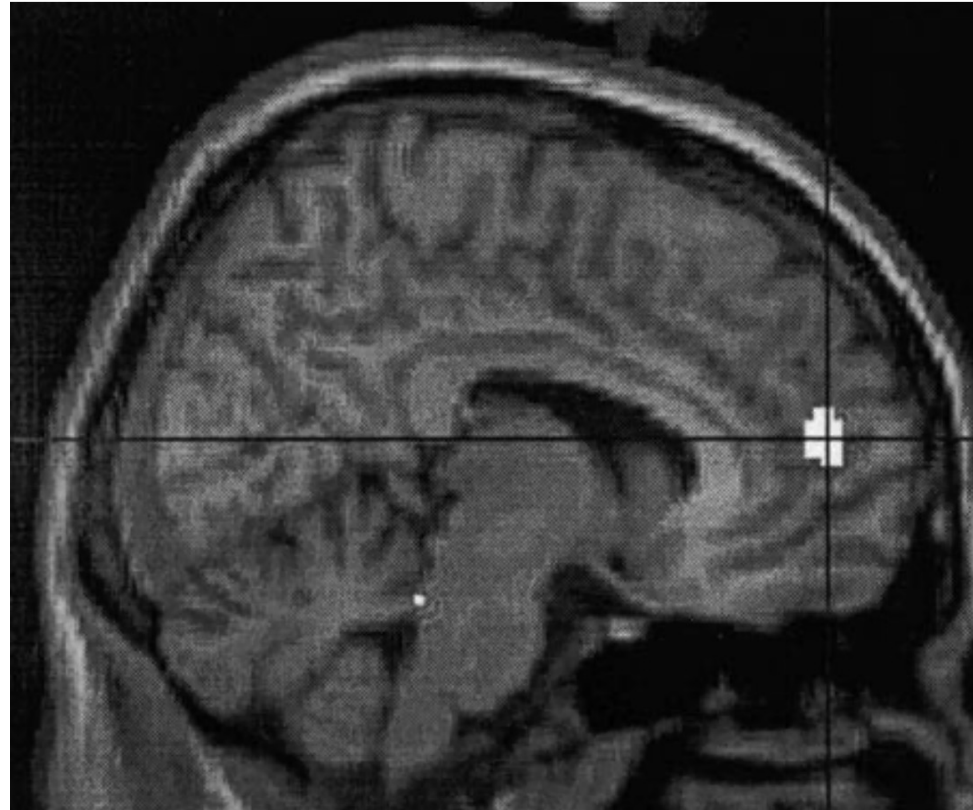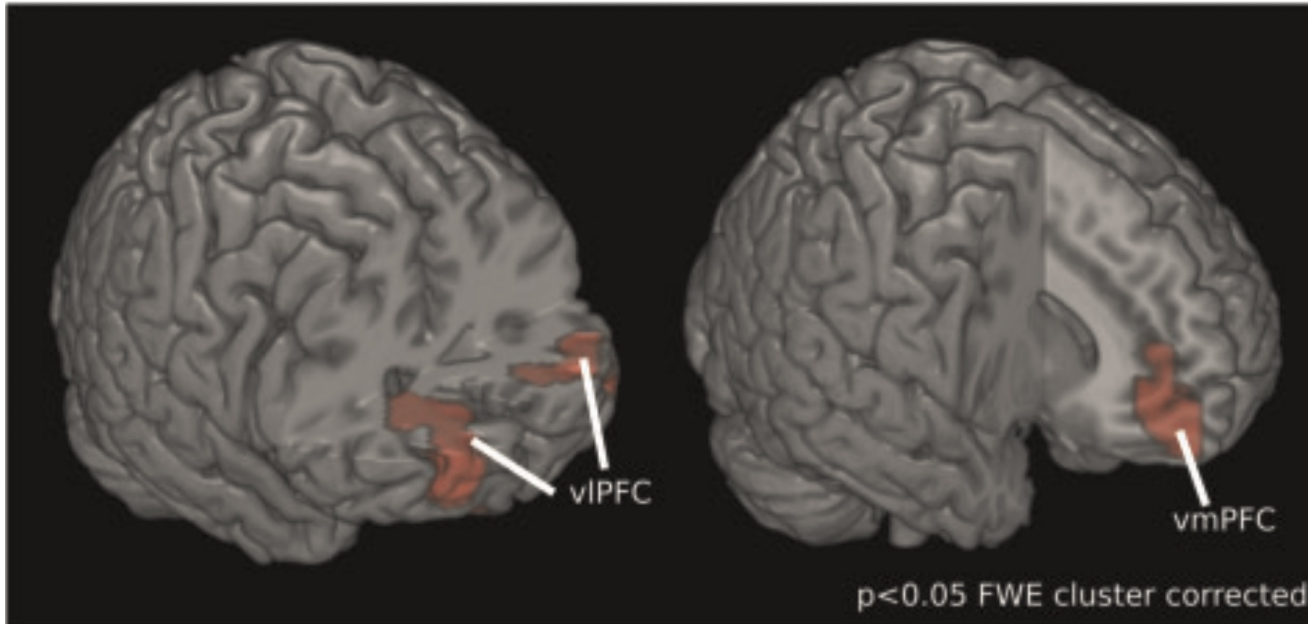
Imaging the Intentional Stance in a Competitive Game

Helen L. Gallagher,* Anthony I. Jack,† Andreas Roepstorff,*,‡ and Christopher D. Frith*

Evidence for sociocentrism

Egocentric vs. sociocentric basis

Intentional stance

vlPFC

vmPFC

p<0.05 FWE cluster corrected

Brains in dialogue: decoding neural preparation of speaking to a conversational partner

Anna K. Kuhlen,[1,2] Carsten Bogler,[1] Susan E. Brennan,[3] and John-Dylan Haynes[1,2]

Evidence for sociocentrism

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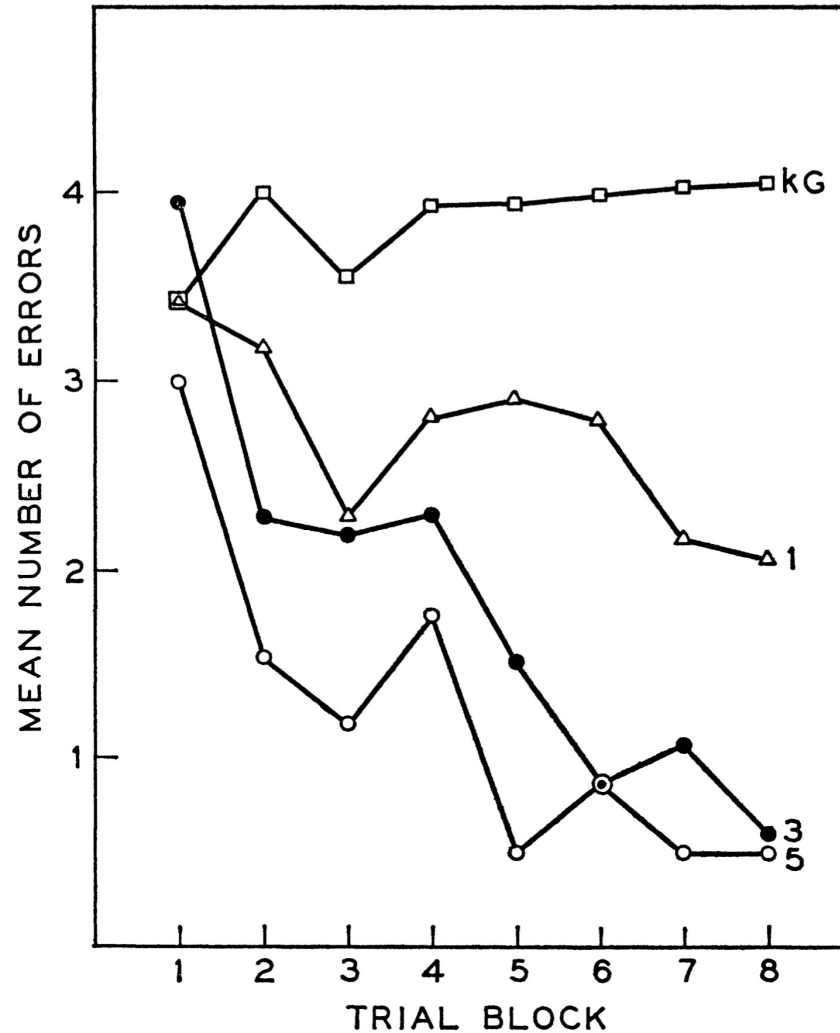
   Development, prefrontal patients

Stack the blocks

SPEAKER

LISTENER

DISPENSER

OPAQUE SCREEN

STACKING PEG
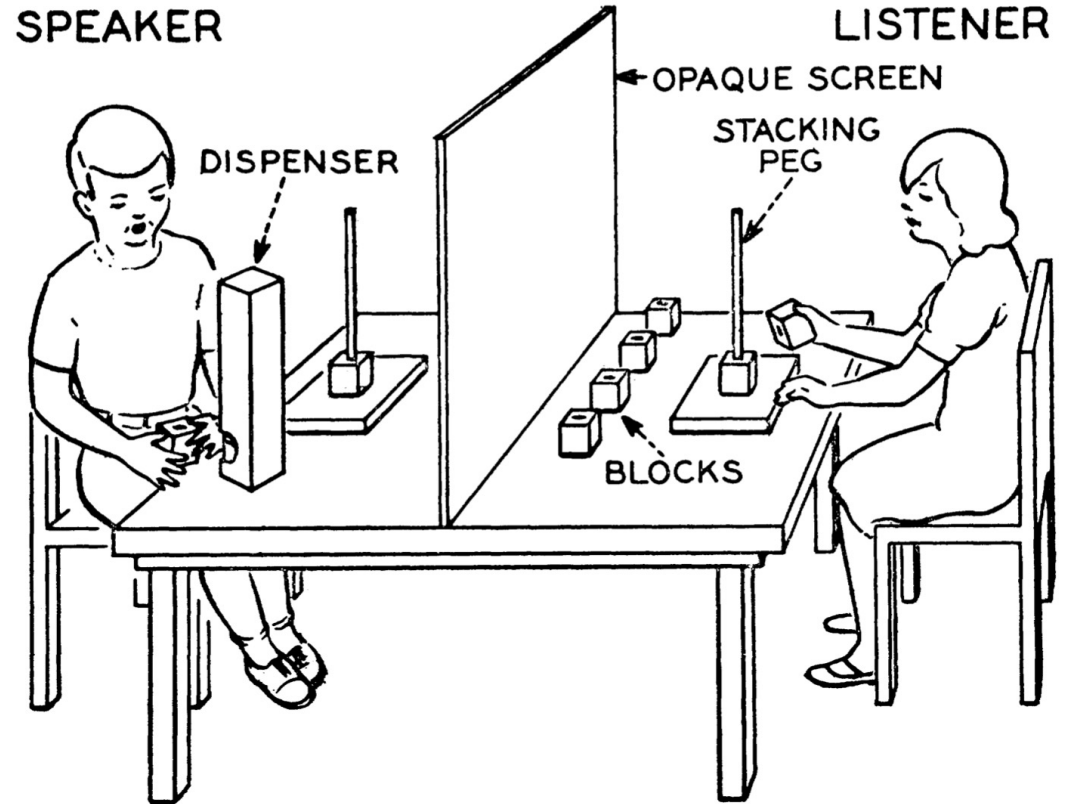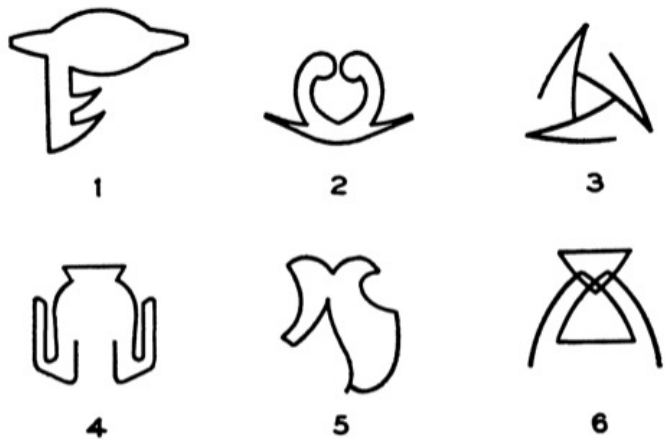
BLOCKS

THE DEVELOPMENT OF COMMUNICATION:
COMPETENCE AS A FUNCTION OF AGE

ROBERT M. KRAUSS
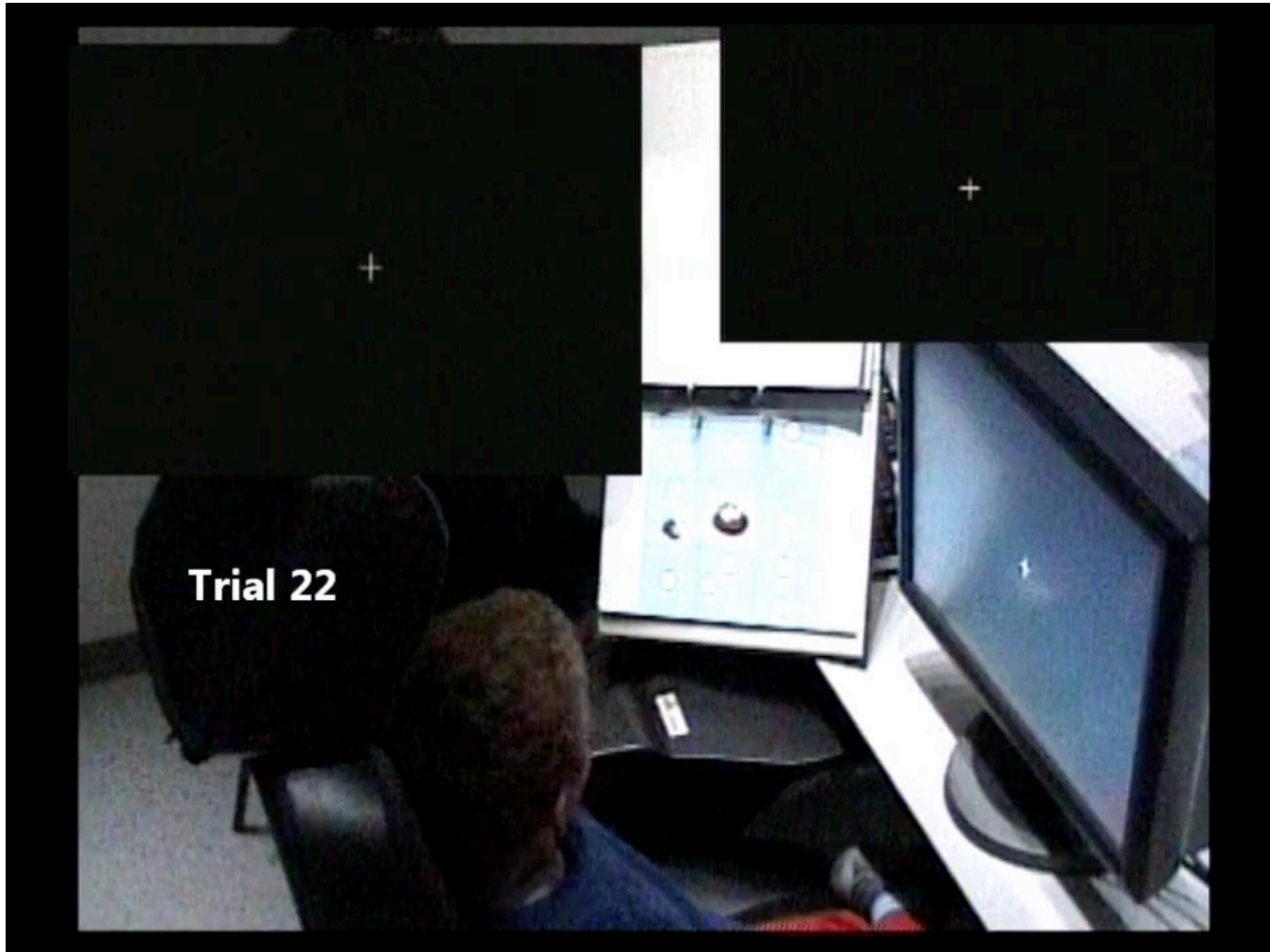Harvard University

SAM GLUCKSBERG
Princeton University

Development of audience design

Imitated vs. self-generated behavior

Stack the blocks

Age 5

Age 6

Age 8
Age 10

Development of audience design

Imitated vs. self-generated behavior

Find the acorn

Computer-mediated communicative interactions

Find the acorn

Experimenter

Target information

Communicator
(5-year-old participant)

Addressee
(confederate)

1. Communicator plans

3. Communicator observes Addressee actions

4. Feedback

1. Addressee waits

2. Addressee observes Communicator actions

4. Feedback

Presumed child addressee (age 5)

Presumed toddler addressee (age 2)
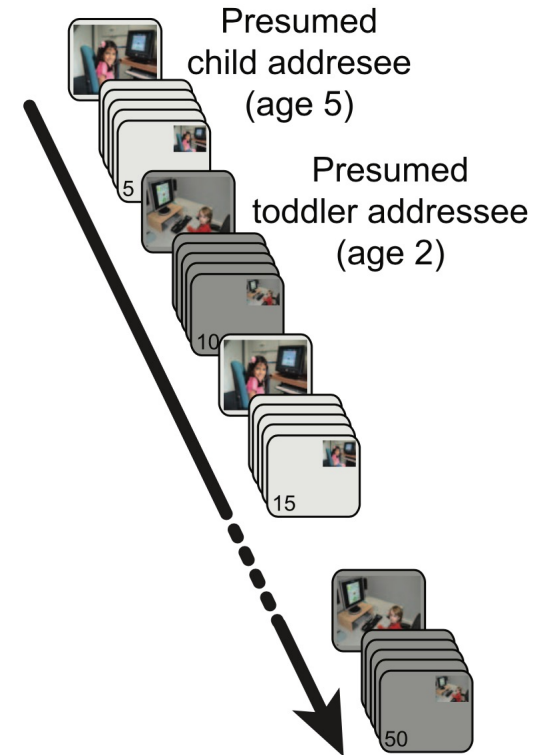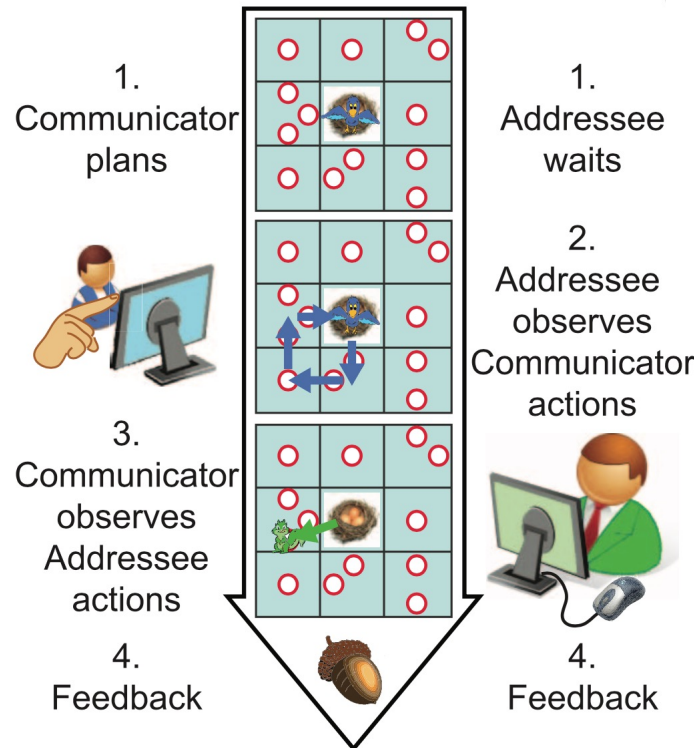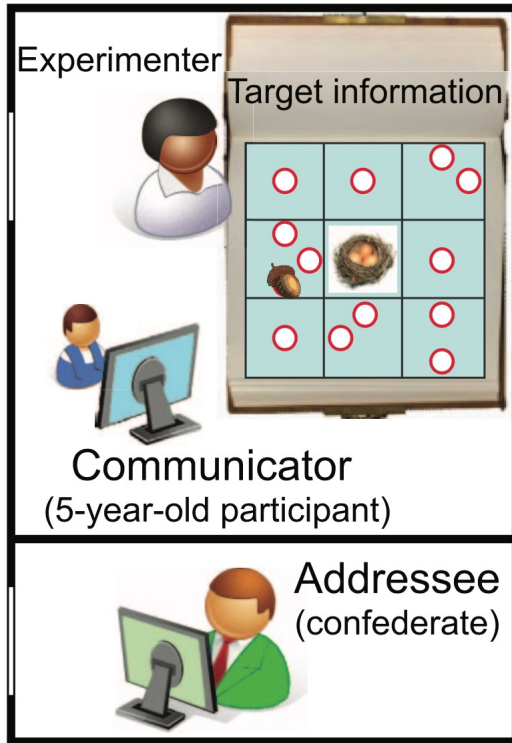
Early Social Experience Predicts Referential Communicative Adjustments in Five-Year-Old Children

Arjen Stolk*, Sabine Hunnius, Harold Bekkering, Ivan Toni

Five-year-olds spontaneously tailor their communication to an addressee
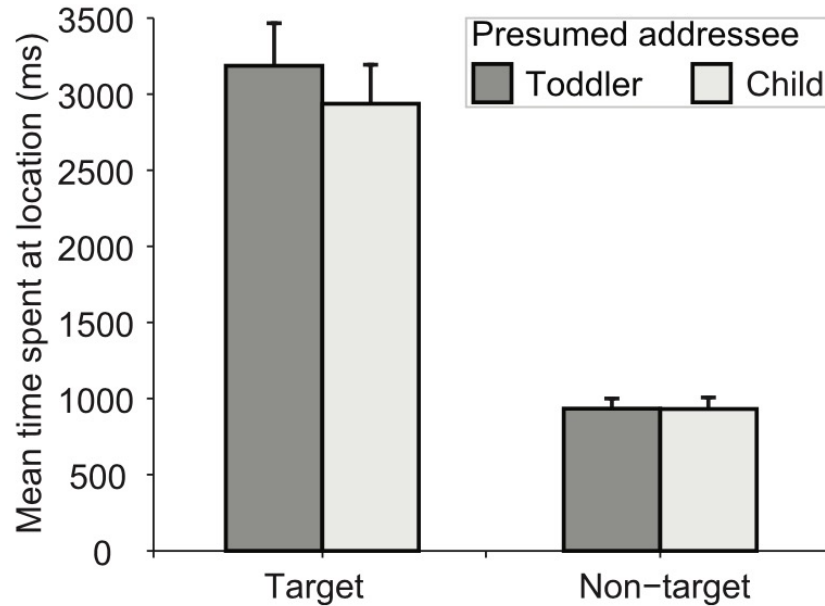
Find the acorn

Figure 2. Communicative adjustments. Time spent on Target and Non-target locations (during event 2 in Figure 1B; mean ± SEM; average time per trial) by the participants as a function of presumed Addressee (Toddler, Child).

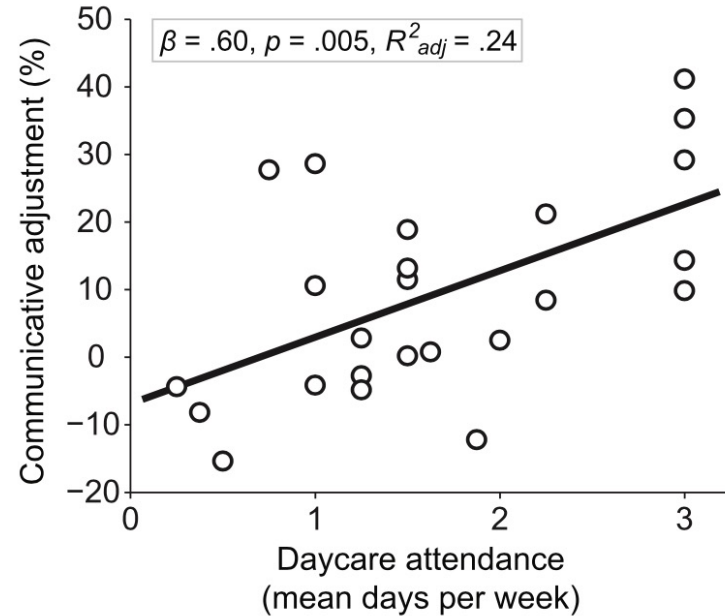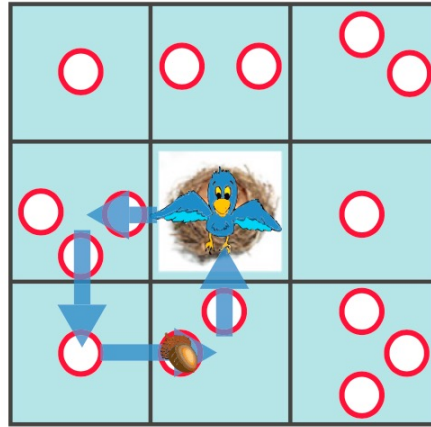$\beta = .60$, $p = .005$, $R^2_{adj} = .24$

Figure 3. Effect of daycare attendance on communicative adjustments. Individual communicative adjustments of 5-year-old participants plotted against days spent at daycare before starting school (mean of ages 0 to 4). Communicative adjustment was indexed by the relative difference of time spent on Target locations (see Figure 2) between presumed toddler and child Addressees.

Effect of daycare attendance on communicative adjustment

Imitated vs. self-generated behavior

Prefrontal patients

Communicator (participant) moves the bird, visible to the Addressee

Addressee ('role-blind' confederate) collects the acorn based on bird movements

Presumed adult addresee

Presumed child addressee
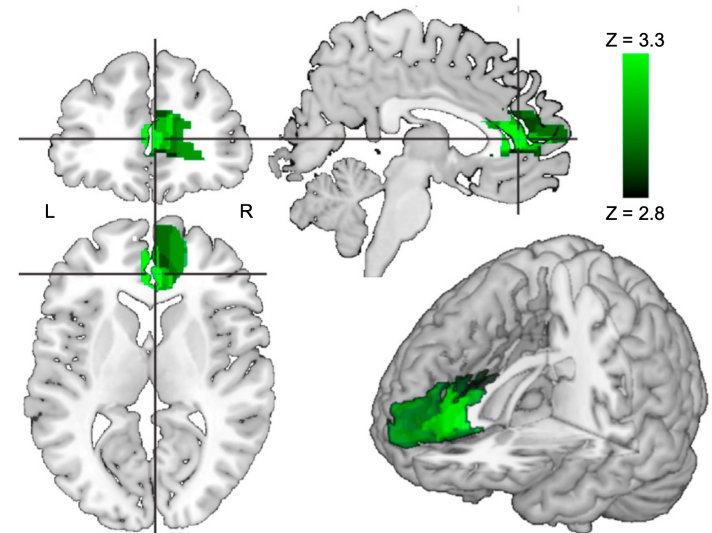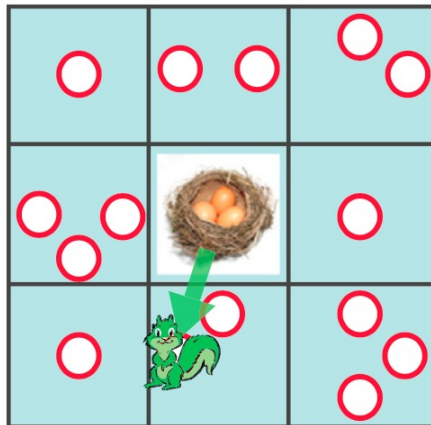
Altered Communicative Decisions following Ventromedial Prefrontal Lesions

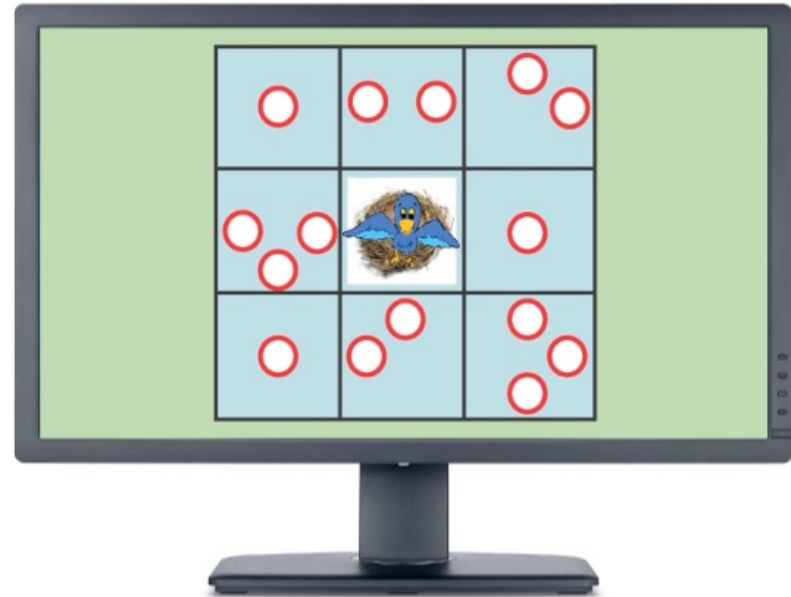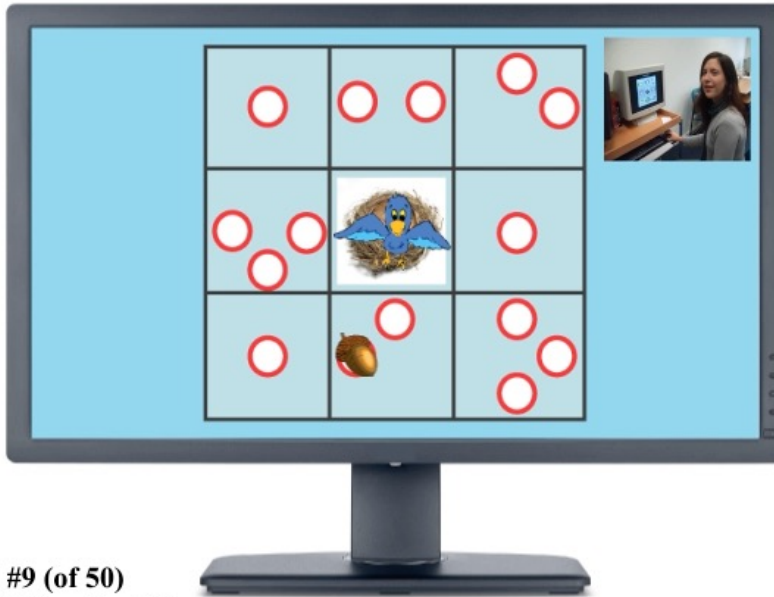Arjen Stolk, Daniela D'Imperio, Giuseppe di Pellegrino, Ivan Toni

Z = 3.3

Z = 2.8

L   R

Prefrontal patients are able to select communicatively effective behaviors

Imitated vs. self-generated behavior
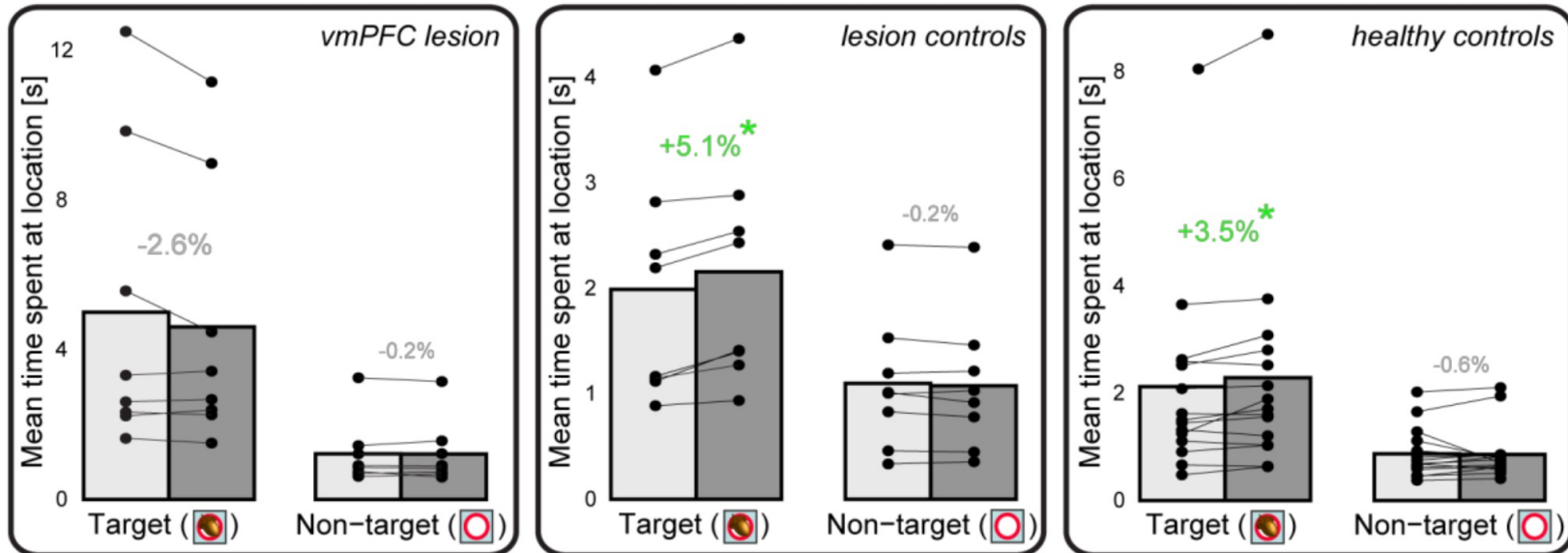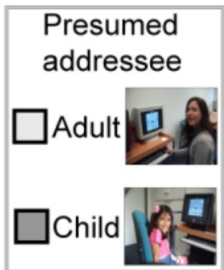
Communicative decisions

PLANNING

WAIT

trial #9 (of 50)
vmPFC patient #3

DARTMOUTH

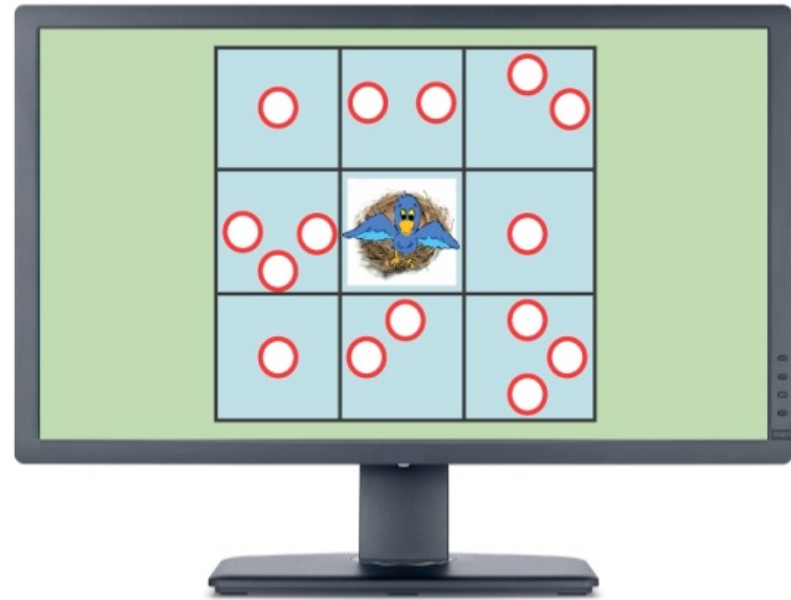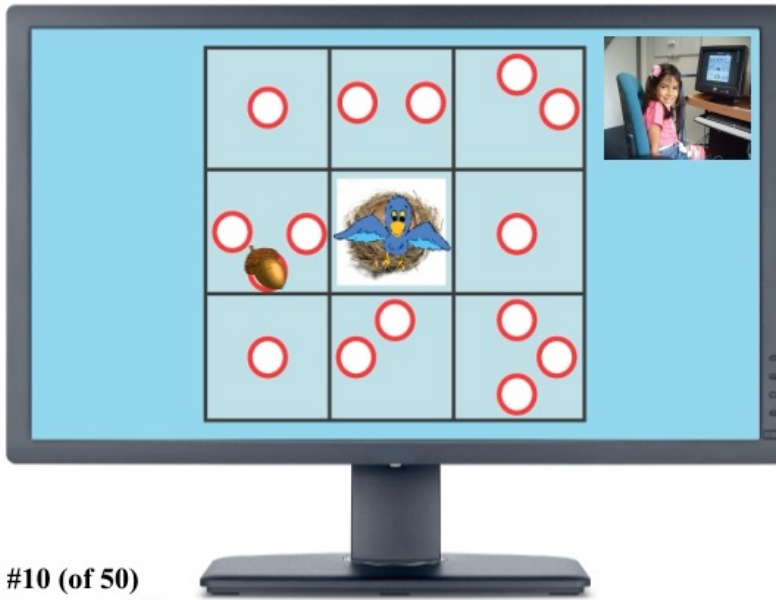**Prefrontal patients are able to select communicatively effective behaviors**

Audience design

DARTMOUTH

However, their decisions are not tuned to knowledge of a social partner

Imitated vs. self-generated behavior

Audience design

PLANNING   WAIT

trial #10 (of 50)
healthy control #2

However, their decisions are not tuned to knowledge of a social partner

- Audience design is a critical yet overlooked feature of ordinary language use

- People spontaneously adjust their utterances to a mental model of their addressee

- Not imitated, but self-generated behavior

- A competence shaped by social experience, and critically supported by prefrontal cortex

- Conceptual Pacts