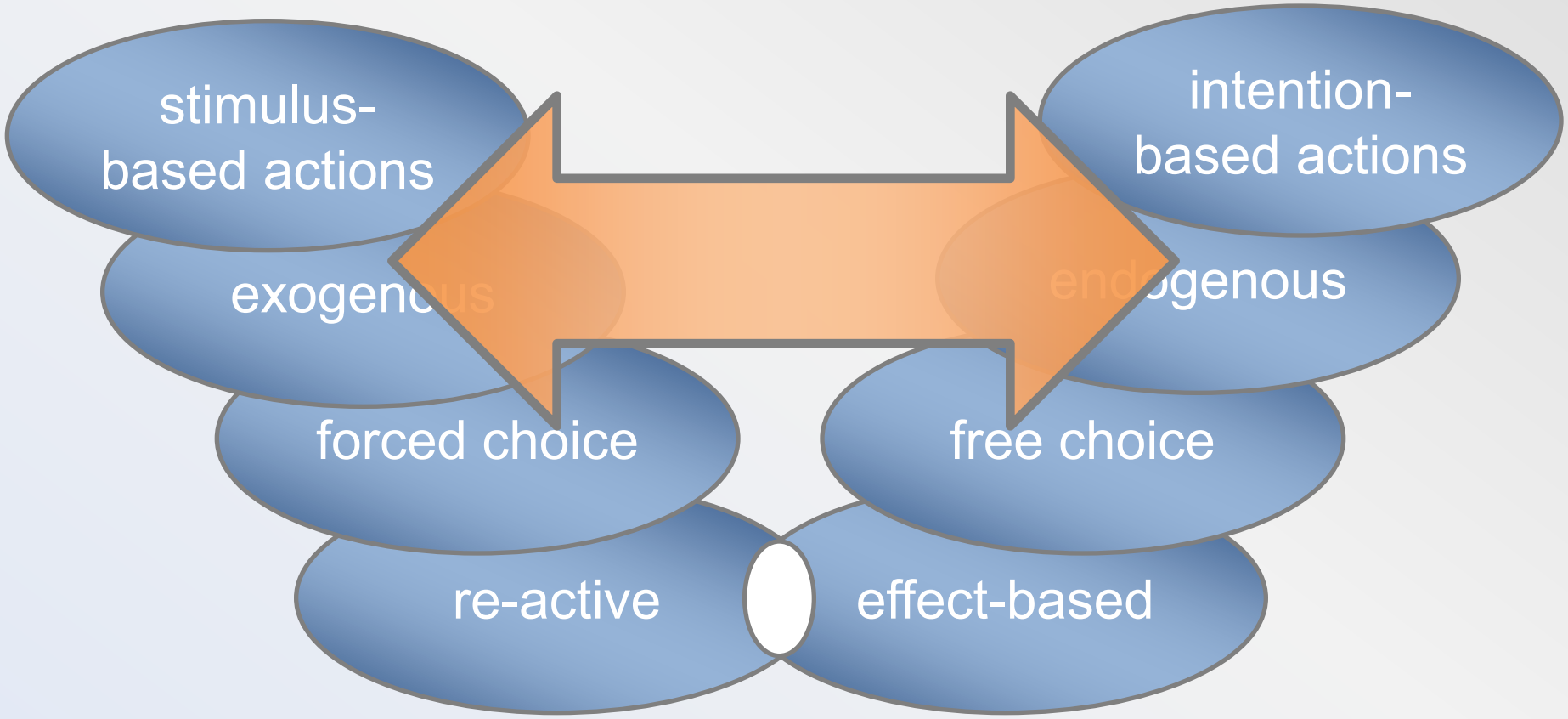
To choose or not to choose:

Stimulus- and intention-based process in action control



To choose or not to choose:

Stimulus- and intention-based process in action control

14:00	Roland Pfister: It takes two to imitate: Imitation and anticipation in social interaction
14:20	Uta Wolfensteller: Rapid acquisition and retrieval of action-effect associations during instruction-based S-R learning
14:40	Hannes Ruge: The rapid stimulus-based acquisition of response-effect associations: Dissecting the learning curve by use of fMRI
15:00	Robert Gaschler: Transfer across stimulus- and response properties in implicit sequence learning
15:20	Dieter Nattkemper: Cooperation and competition of stimulus- and effect-related processes in action planning
15:40	Coffee @ Poster Session

To choose or not to choose:

Stimulus- and intention-based process in action control

14:00	Roland Pfister: It takes two to imitate: Imitation and anticipation in social interaction	**Action planning**
14:20	Uta Wolfensteller: Rapid acquisition and retrieval of action-effect associations during instruction-based S-R learning	
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15:00	Robert Gaschler: Transfer across stimulus- and response properties in implicit sequence learning	**Learning**
15:20	Dieter Nattkemper: Cooperation and competition of stimulus- and effect-related processes in action planning	**Action planning**
15:40	Coffee @ Poster Session	

Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

It takes two to imitate: Imitation and anticipation in social interaction

TeaP 2012

Roland Pfister, Markus Janczyk, David Dignath,
Bernhard Hommel, & Wilfried Kunde

Automatic Imitation

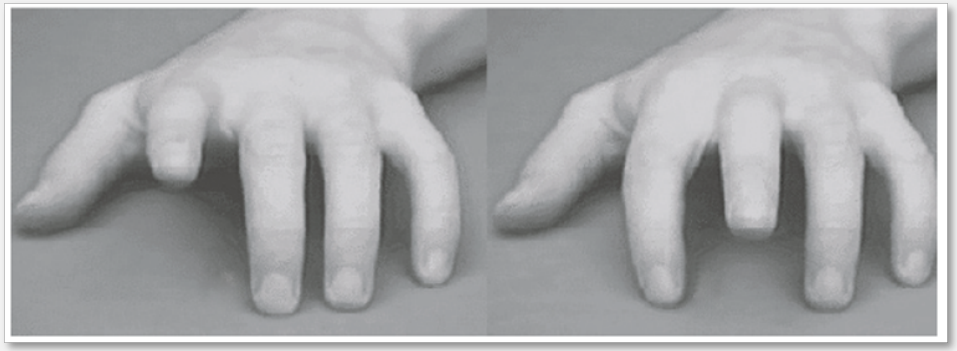
Imitation is…

- … a tendency to copy observed actions…
- … even when these actions are not relevant to the task at hand.
- Truly stimulus-based behavior.

Heyes, 2011; Meltzoff & Moore, 1977

Measuring automatic imitation: Motor Priming

compatible incompatible



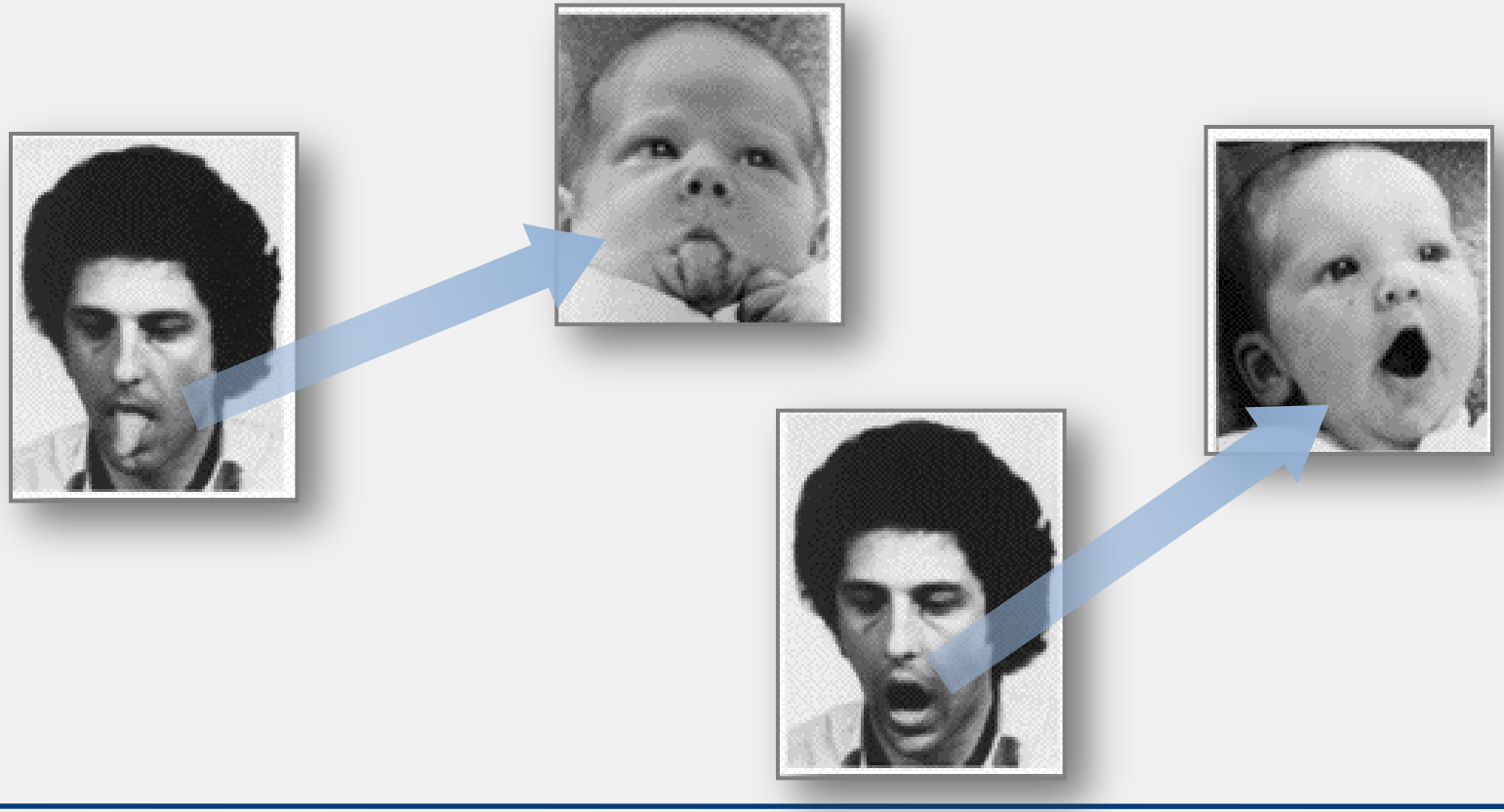
Target 1 Target 2

Lift index finger!

Brass et al., 2000

Automatic Imitation

Imitative tendencies play a powerful role for human action control.

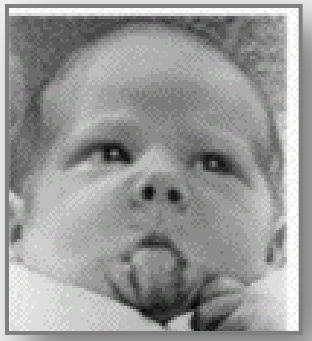


Automatic Imitation

Model

?

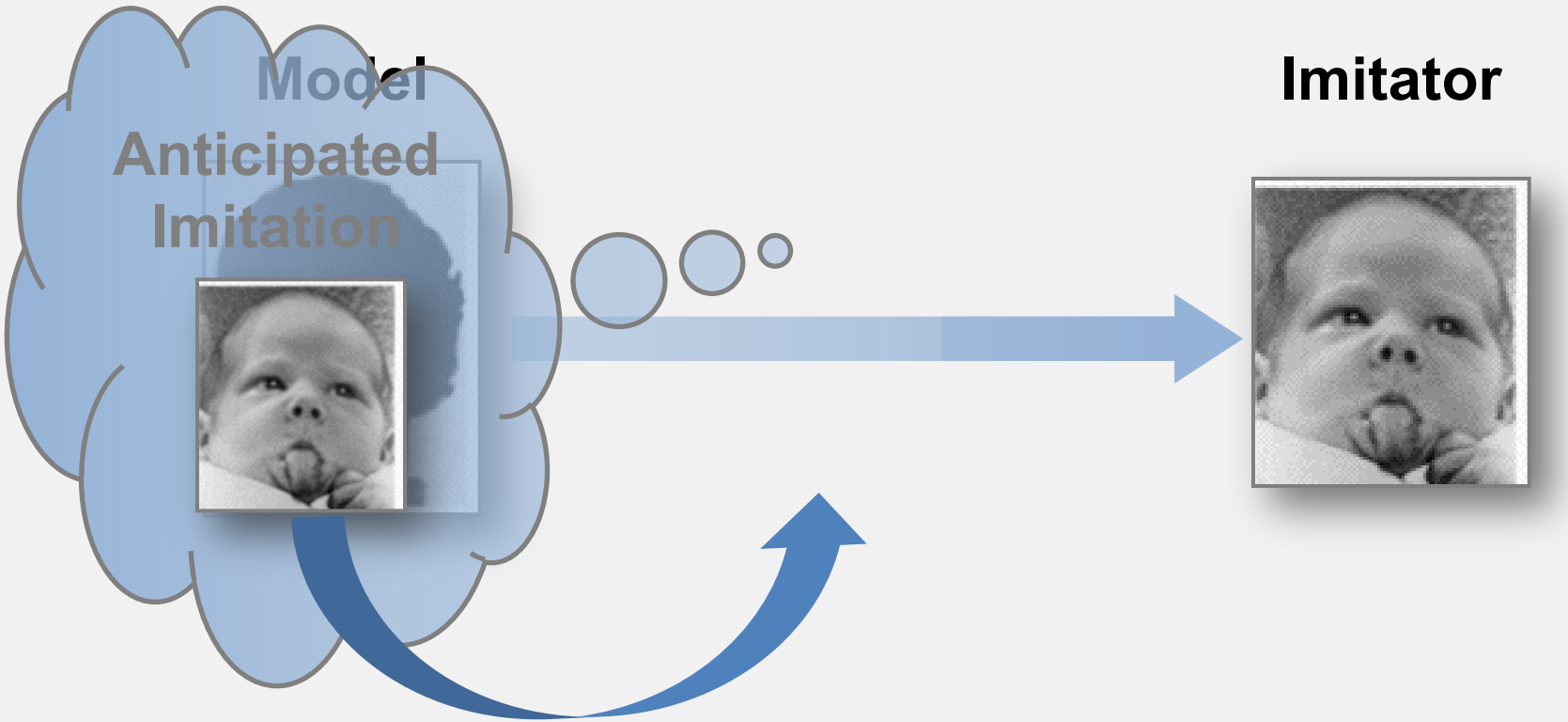
Imitator



Automatic imitation:

Stimulus-based motor priming

Automatic Imitation



Hommel et al., 2001; Kunde, 2001;
Kunde et al., 2011; Pfister et al., 2010

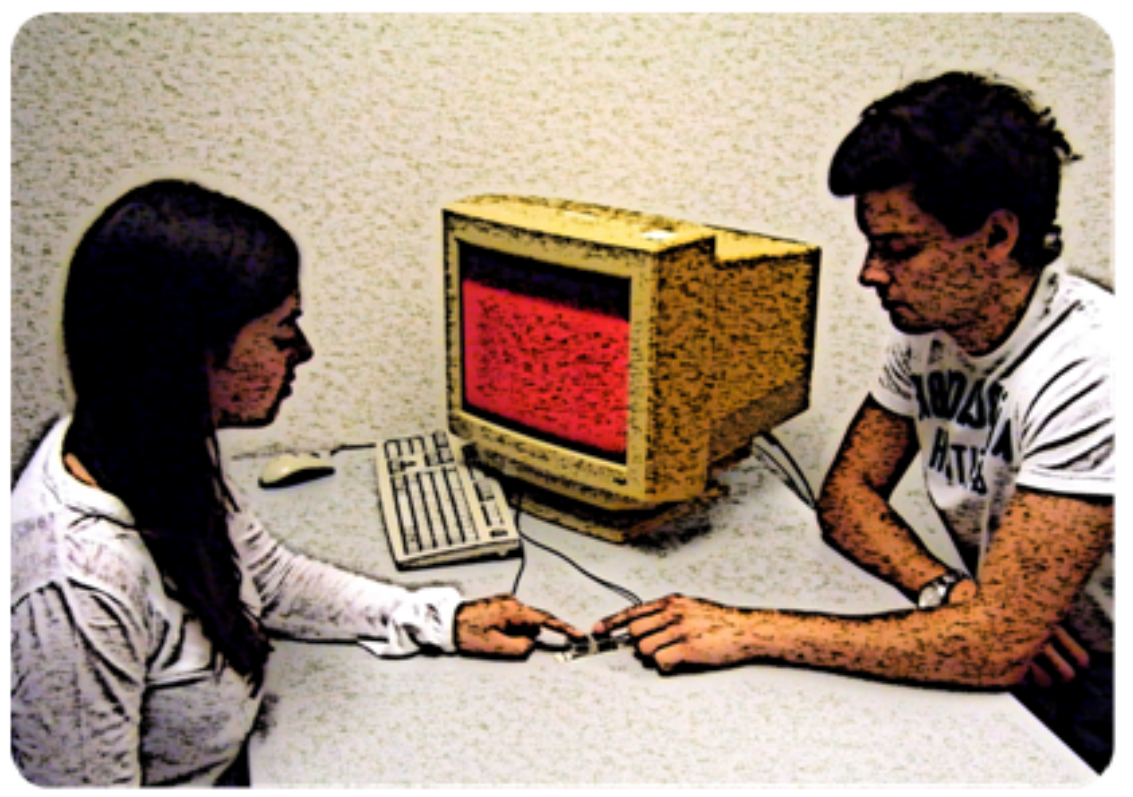
Question

Is anticipated imitation functionally relevant for initiating an interaction?

Nagy & Molnar, 2006

Experiment 1: Design

Model

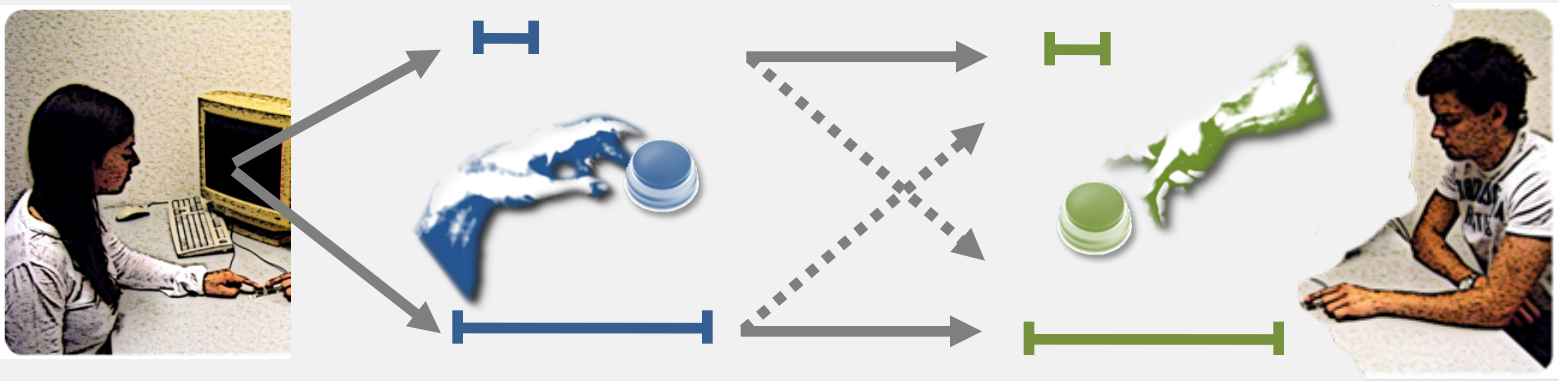


Imitator

Experiment 1: Design

Model

Imitator



Go-Signal

(Model)

Model-Response

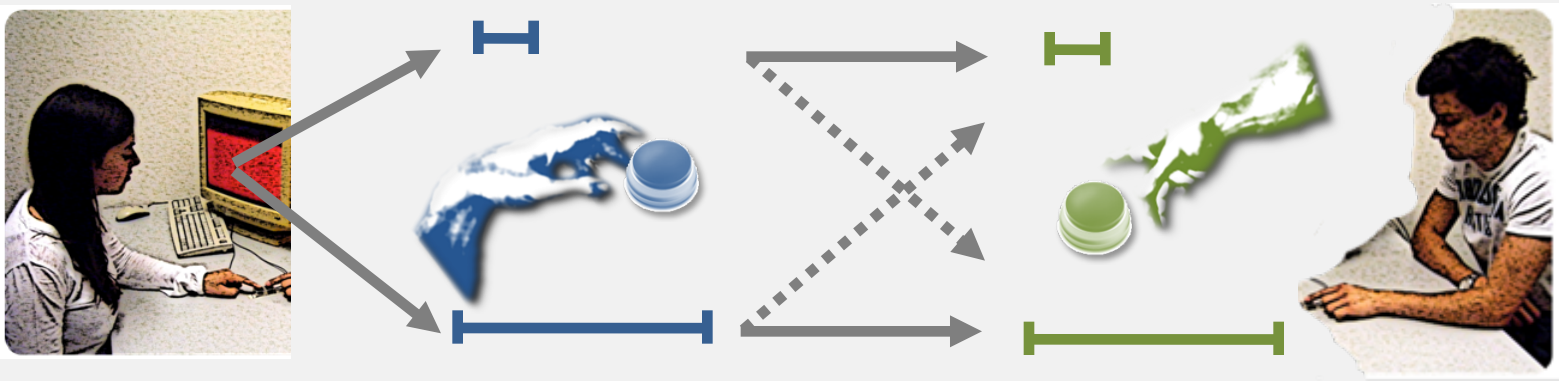
(short vs. long keypress)

Imitator-Response

(imitation vs. counter-imitation)

Experiment 1: Hypotheses

Model **Imitator**



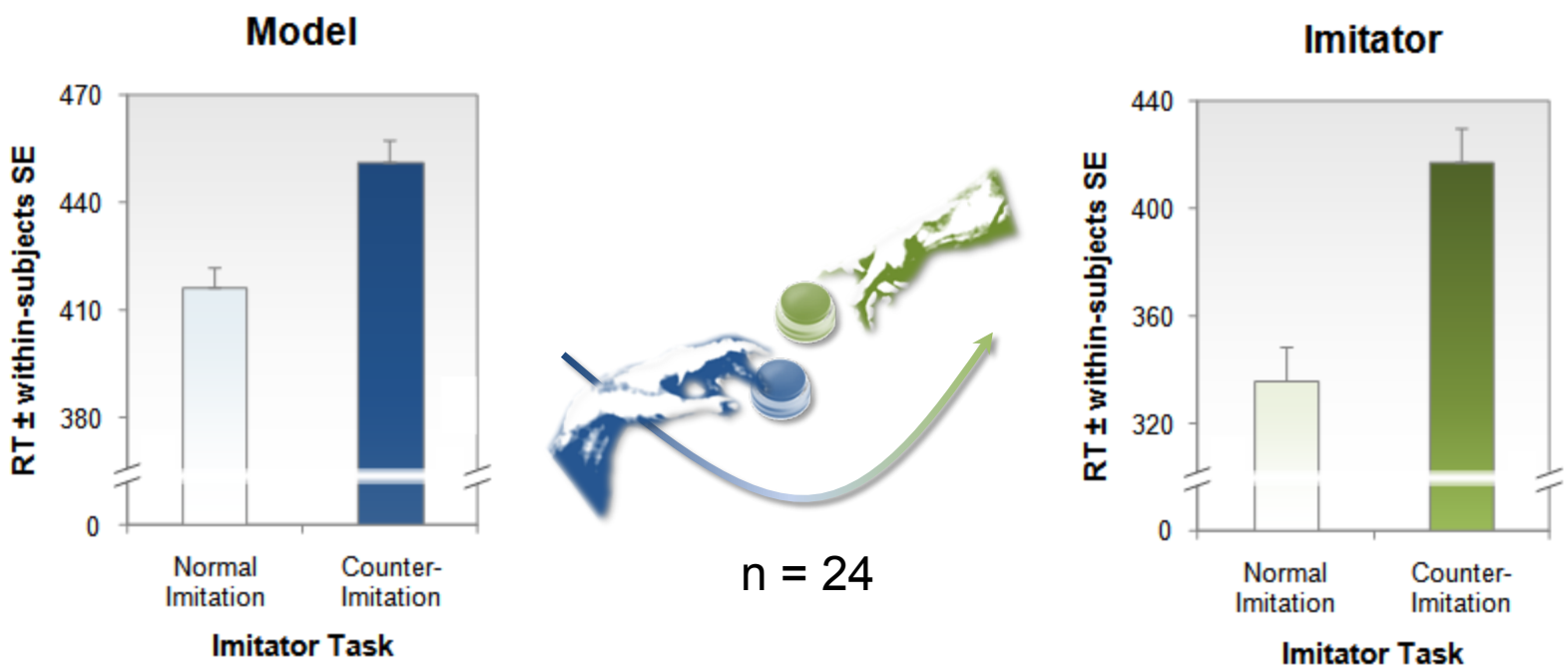
+ **Imitation** **+**

vs.

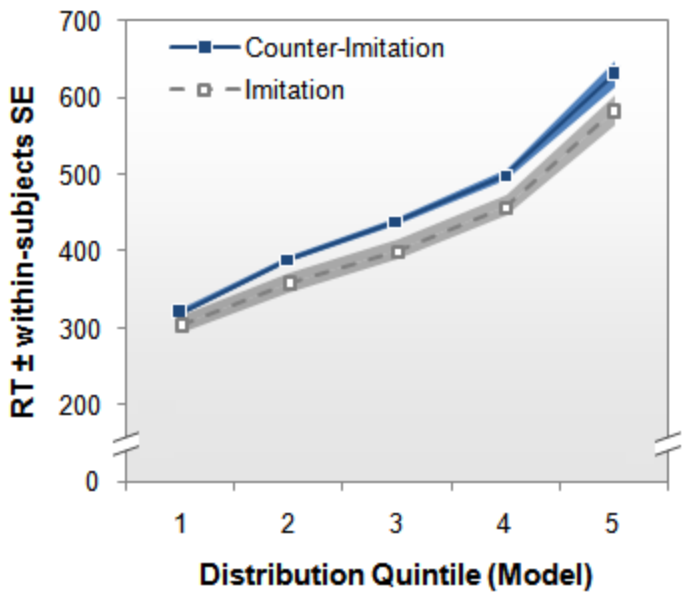
− **Counter-Imitation** **−**

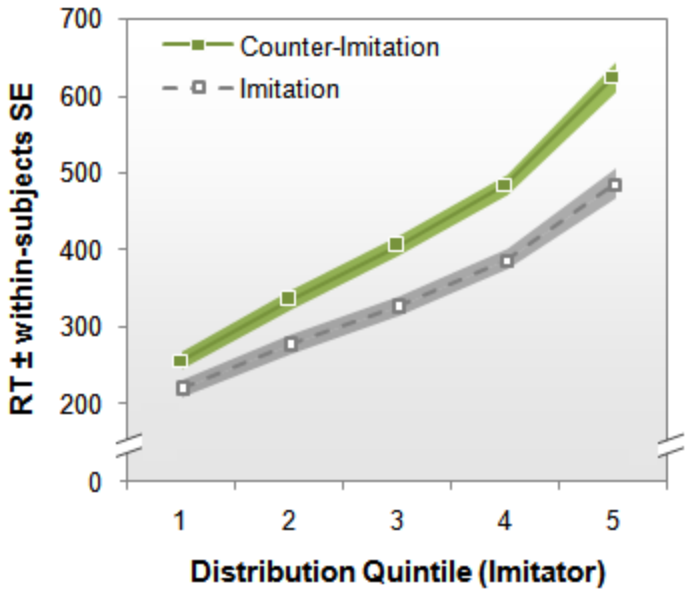
[Factor blocked]

Experiment 1: Results



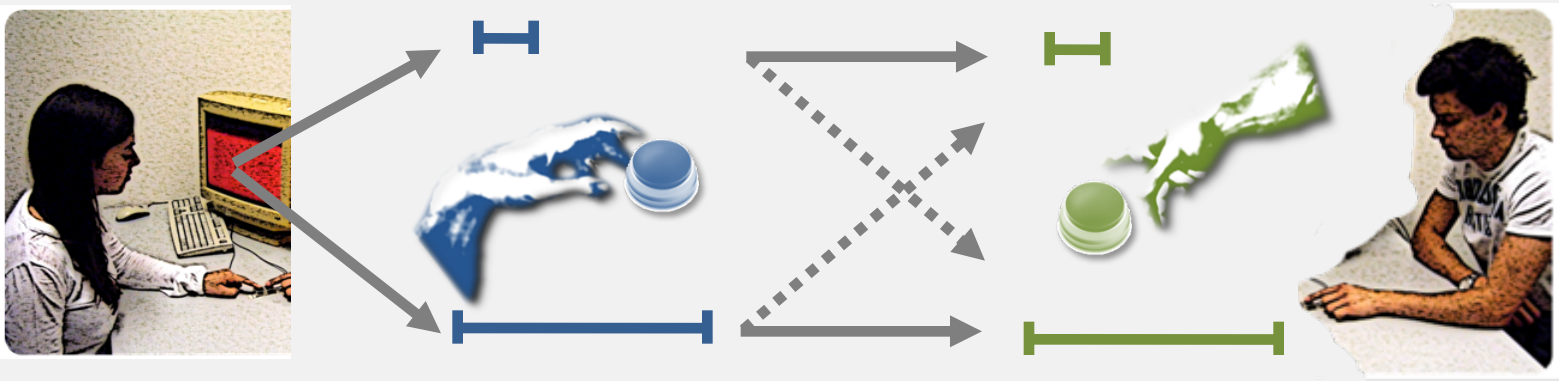
Experiment 1: Results





Experiment 1: Discussion

Model **Imitator**



+ **Imitation** +

vs.

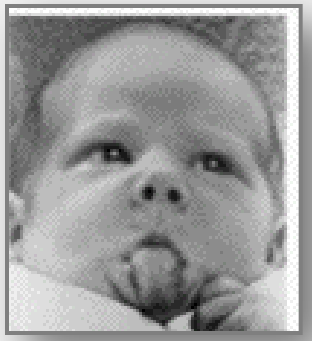
− **Counter-Imitation** −

Experiment 1: Discussion

Model

Motor priming by anticipated imitation

Imitator

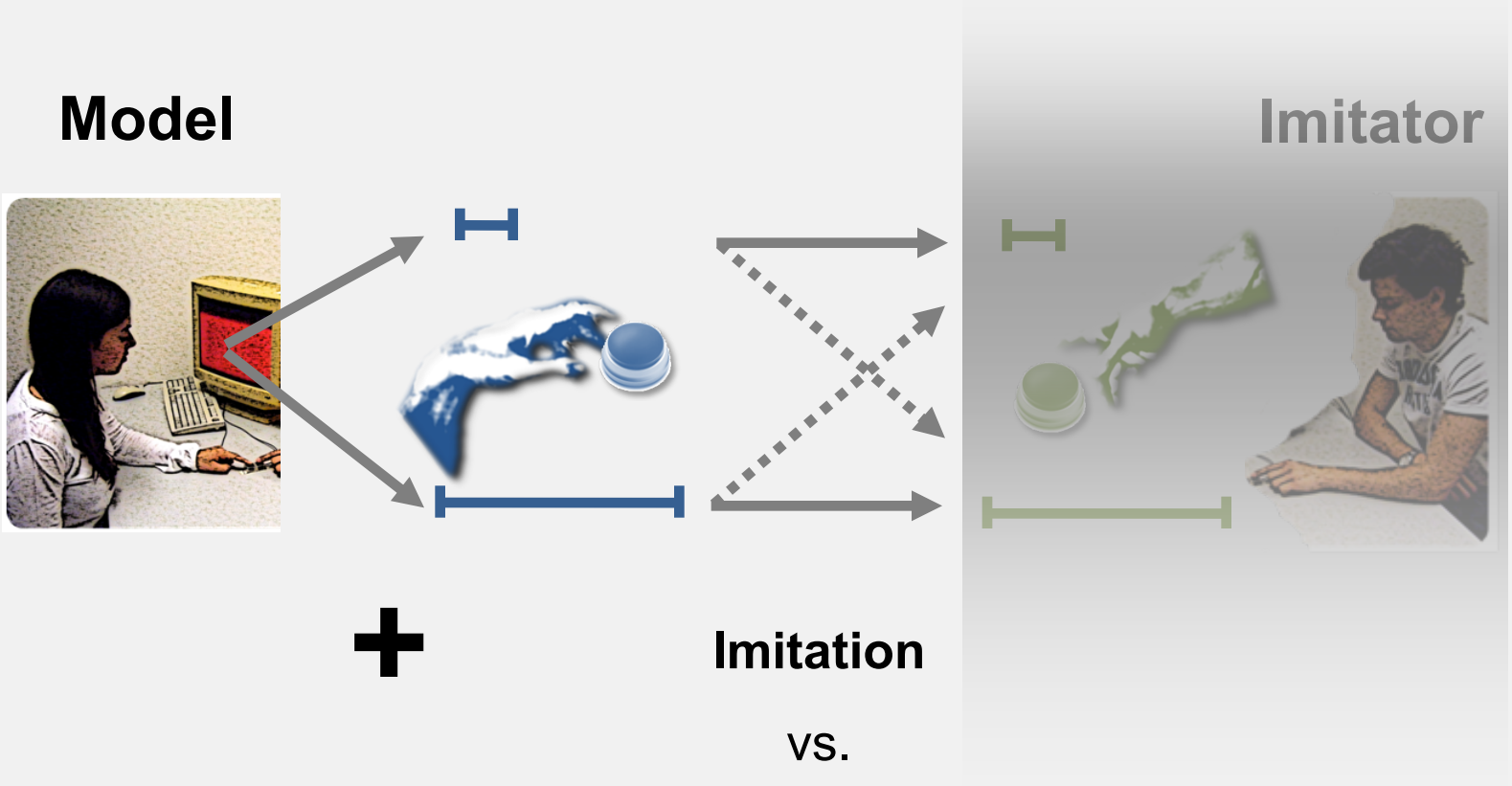


Automatic imitation:

Stimulus-based motor priming

Mechanism:
Benefits of being imitated vs. interference by counter-imitation?

Experiment 2: Design

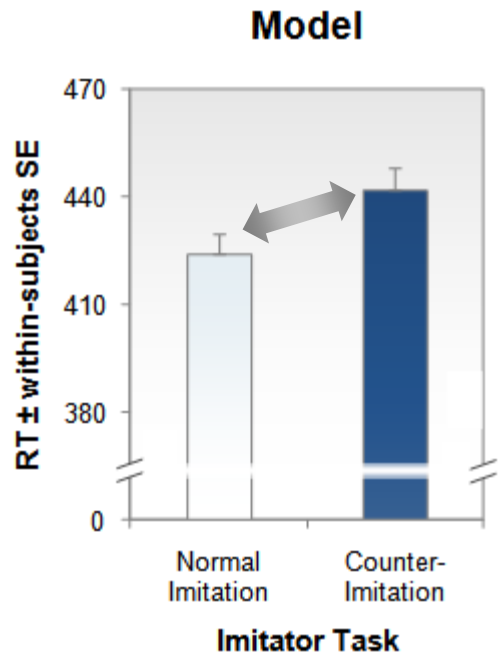


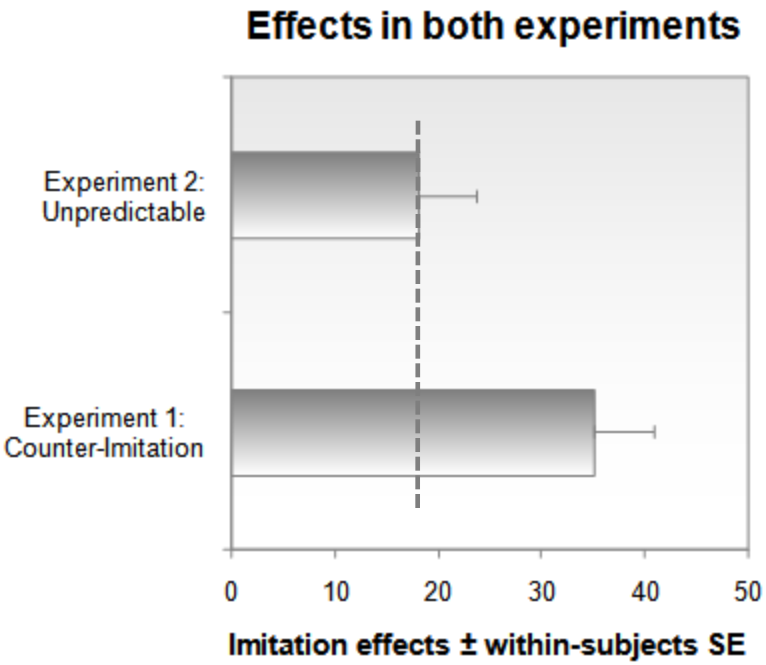
+ **Imitation**

vs.

– **Random (Unpredictable)**

Experiment 2: Results

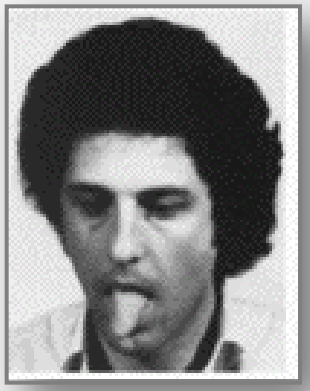




n = 16

Experiment 2: Discussion

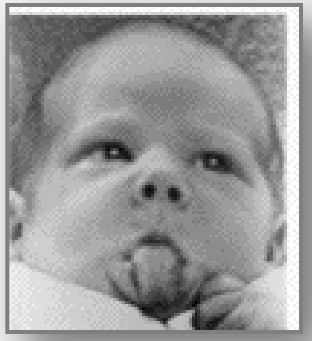
Model



Motor priming by anticipated imitation

and inteference by incompatible social responses

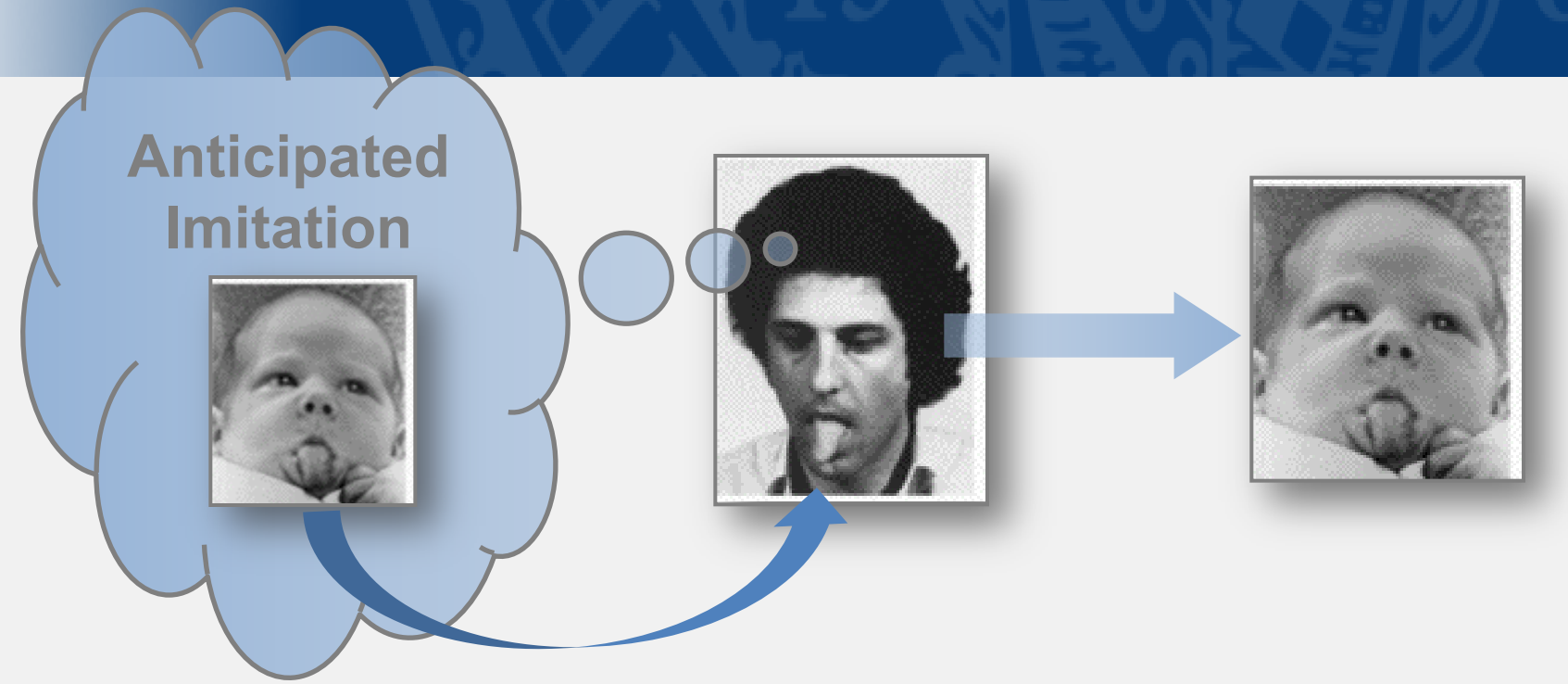
Imitator



Automatic imitation:

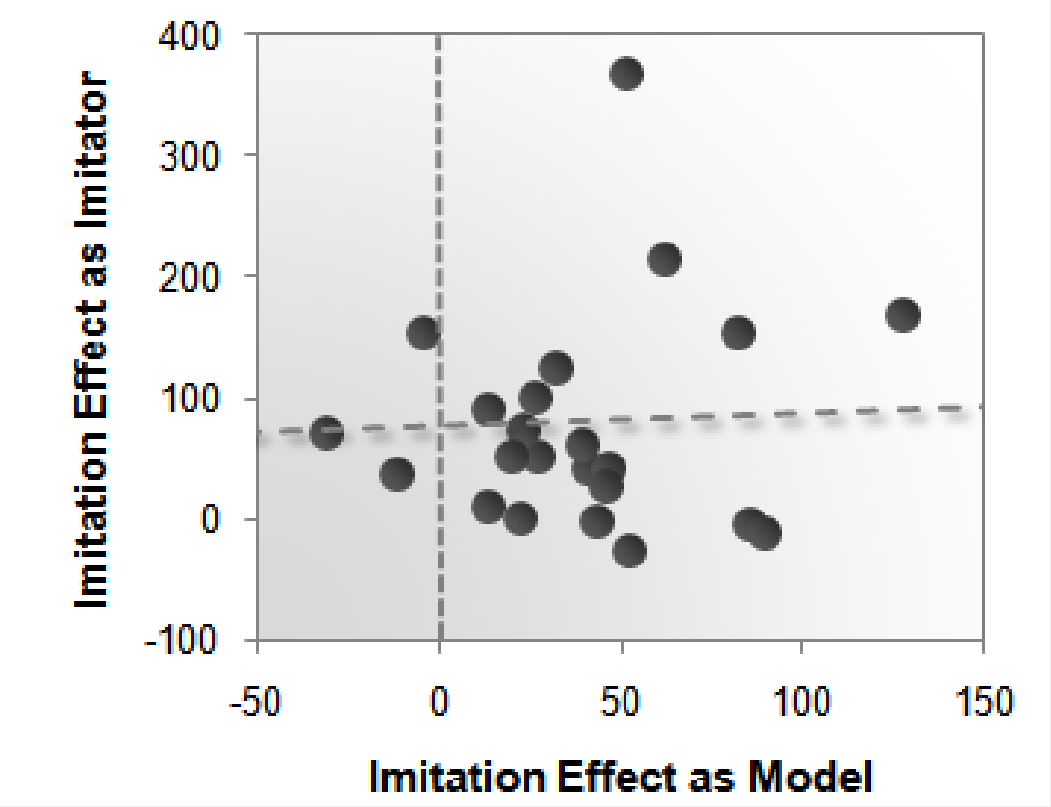
Stimulus-based motor priming

Conclusions

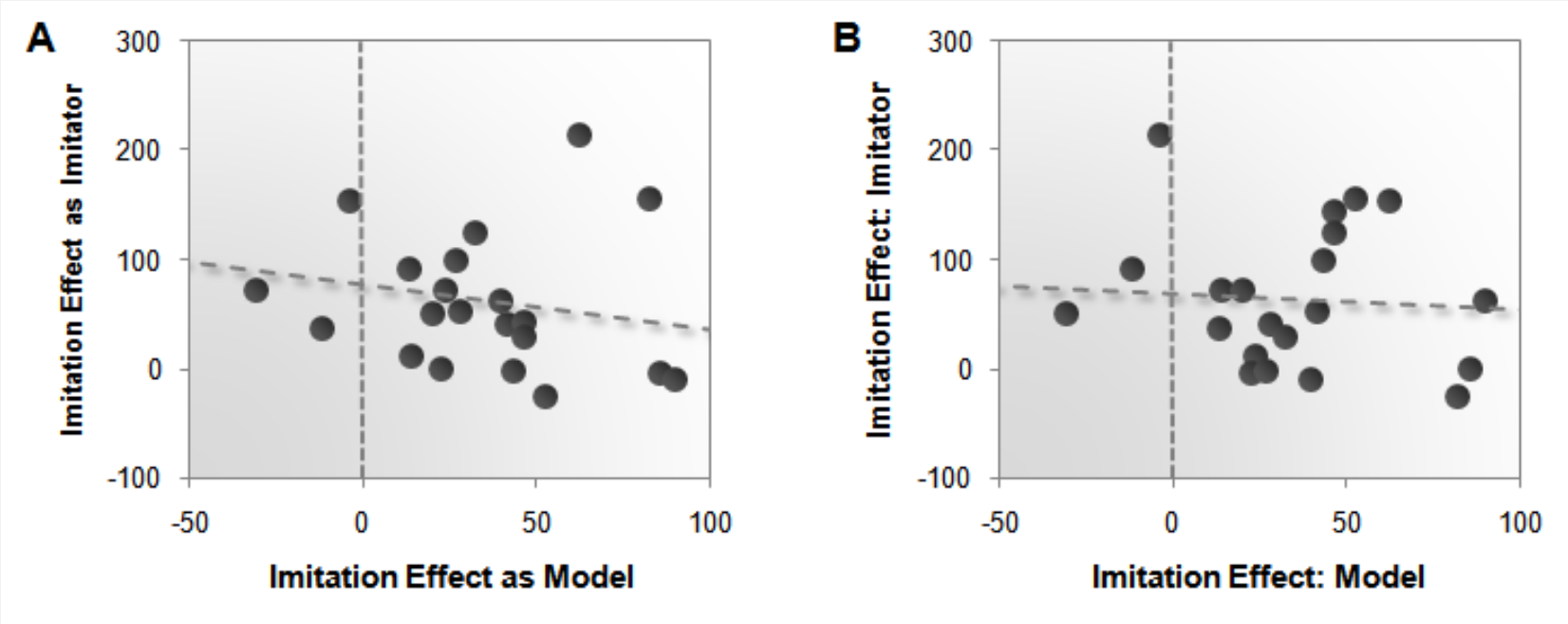


- The distinction of stimulus- and intention-based actions also applies to social behaviour.
- Anticipating to be imitated facilitates the production of own motor actions; it takes two to imitate!

Experiment 1: Results



Experiment 1: Results



Experiment 1: Results