



ESPP 2021 LEIPZIG-ONLINE  
28th Conference of the European Society for Philosophy and  
Psychology



**Memory slices by Anna Strasser**  
**DISCLAIMER: JUST MEMORIES – AIMING FOR CORRESPONDENCE  
WITH REALITY BUT CANNOT GUARANTEE IT.**

# Snapshots of 3 great days

SYMPOSIUM: The role of social-cognition in pragmatics and (early) language

Speakers: Cornelia Schulze, Kirsten Abbot-Smith, Manuel Bohn, Marieke Woensdregt

SYMPOSIUM: Reasons, actions, desires: young children's understanding of intentional actions

Speakers: Johannes Roessler, Josef Perner & Anna Krämer

KEYNOTE TALK: Victoria McGeer

Making responsible: the shaping of moral capacities

SYMPOSIUM: Scaffolds of responsible agency

Speakers: Jules Holroyd, Maura Tumulty, Tillmann Vierkant

SYMPOSIUM: The human encounter: Primary intersubjectivity and dyadic interaction

Speakers: Daniel Vanello, Henrike Moll, Naomi Eilan

PARALLEL SESSION: Theory of Mind and Epistemic Development

Speakers: Charlotte Grosse Wiesmann, Jedediah Allen, Julia Prein

SYMPOSIUM: The unusual suspects. What is the range of cognitive predicates?

Speakers: Matthew Sims, Carrie Figdor

PARALLEL SESSION: Reasoning and Concepts 1

Speaker: Krzysztof Dolega

KEYNOTE TALK: Victoria Southgate

Are infants altercentric? The other and the self in early social cognition

SYMPOSIUM: Knowledge and belief in theory of mind

Speaker: Jonathan Phillips

SYMPOSIUM: Stay Tuned: An interdisciplinary symposium on individual and social commitment

Speakers: Luke McEllin, Matt Chennells, Anna Strasser, Chiara Brozzo & John Michael

Keynote Talk: Dorit Bar-On  
Pragmatic Protolanguage

# INFANTS' KNOWLEDGE ABOUT SOCIAL ASPECTS OF COMMUNICATION



## active

- prefer eye-contact when communicating about objects (Senju & Csibra 2008)
- only see pointing as informative when it is accompanied by gaze-alteration (Behne et al. 2005)

## passive (observing)

- infants expect turn-taking between interlocutors (Augusti et al. 2010)
- mixed findings about whether infants assume that a recipient must have observed a communication attempt for her to react (Augusti et al. 2010; Thorgrímsson et al. 2015)

## STUDY :

How infants assume communication affects others' behaviour?  
looking-time / 18-month-old infants (N = 84)

1. infants saw B putting a ball into a box
2. when B had left, A moved the ball into a cup
3. when B returned, an intervention phase varied regarding the social aspects of communication



CONDITIONS	HYPOTHESIS	RESULTS
<b>No-Communication (NC)</b> A & B were present but did not interact	attribute a false belief to B	✓ infants expected the agent to search the toy at the original location
<b>Full-Communication (FC)</b> A: "The ball is in the cup" while sharing attention with B	attribute a true belief to B	✓ infants' expectations that the recipient's mental states were altered → infants expected her to search the toy at the actual location
<b>Incomplete-Communication (IC)</b> A: "The ball is in the cup" without B being present	treat B as holding a false belief	did not yield clear expectations.

Infants have at least some understanding that communication (in contrast to a mere linguistic statement) requires a recipient of the message.

If the recipient is absent during the information "transfer", infants do not expect an update of the recipient's beliefs.

Infants differentiated between a fully-fledged communicative exchange with a social transfer of information between interlocutors and an incomplete attempt on communication.

# On-topic conversational responding in autistic and neuro-typical children



maintaining a reciprocal conversation

- children need to be able provide contingent responses (on the topic of and elaborate on the preceding conversational 'turn')

COGNITIVE & SOCIO-COGNITIVE ABILITIES ASSOCIATED WITH GOOD CONVERSATION RECIPROCITY:

1. threshold in core language for conversation
2. conversation skills depend on ToM
3. key role played by executive functions (working memory / cognitive flexibility)

diagnostic criteria for autism

- difficulties with conversational contingency

## STUDY 1

Are there group-level differences regarding contingent responses between verbally-fluent autistic children & a neuro-typical control group?

30 autistic 5 to 7-year / 30 neuro-typical peers / matched for age, gender, non-verbal IQ (NVIQ), core language

- autistic group:  
non-contingent & semantically-empty minimal responses (e.g. 'oh') were more frequent / less likely to nod, smile when not responding verbally
- logistic regression analysis:  
NVIQ, core language, age, autistic traits predicted non-contingent responding
- measure of cognitive flexibility (*Dimensional Card Sort Task*) did not

## STUDY 2

What accounts for variance in conversational contingency: ToM OR working memory?

- 40 verbally-fluent autistic children 5 to 9 years / controlling for NVIQ & core language
- conversational contingency is predicted by working memory capacity which itself is correlated with NVIQ, vocabulary, ToM, age but not autistic traits

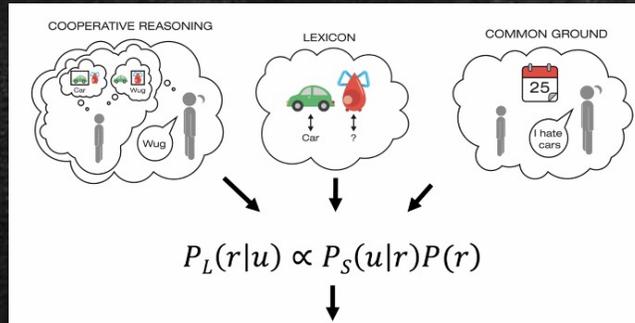
- Inconsistent findings for CORE LANGUAGE and NON-VERBAL reasoning (but S1 = responses to individual statements, whereas S2 = conversation)
- Working memory of marginal significance (but significant if Theory of Mind measure not included in model)
- Working memory is related to vocabulary and Theory of Mind – difficult to unpick

ROLE OF VERBAL WORKING MEMORY IN THE ABILITY OF AUTISTIC CONVERSATION TO FULLY ENGAGE IN CONVERSATION

# How young children integrate information during word learning



## 3 INFORMATION SOURCES:



## formal theory of the integration process

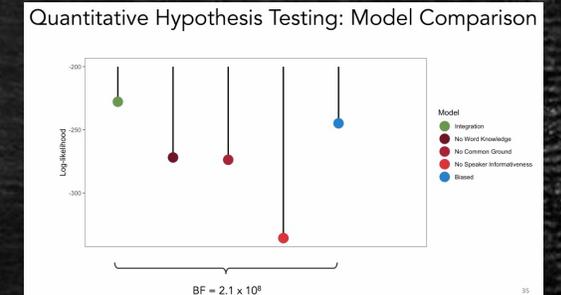
- Bayesian model of Gricean pragmatics from rational Speech Act (RSA)
- relate information sources to parameters in the model architecture
- generate a priori model predictions for how they should be integrated in a word learning scenario

## ASSUMPTION:

While children's sensitivity to the individual information sources increases with age, the way integration proceeds remains constant.

formalized a series of competitor models to test alternative hypotheses about information integration

- range of lesioned models according to which children follow the heuristic "ignore X" (with X being one of the information sources) when multiple information sources are presented together



## RESULTS

- model predictions were closely aligned with childrens' learning
- model explained 79% of the variance in the data
- rational integration model provide a much better explanation of the data and the underlying developmental process compared to the two biased models
- young children flexibly integrate multiple information sources during language learning, from early in development

# Cultural co-evolution of language and mindreading: A computational model

emergence of sophisticated MINDREADING ABILITIES in hominins has played a crucial role in enabling the evolution of language (Scott-Phillips, 2015; Sperber, 2000; Tomasello, 2008)

emergence & evolution of LANGUAGE in hominins may have unlocked levels of (explicit) mindreading ability that could not have been attained without it (Heyes, 2018; Heyes & Frith, 2014)



## HYPOTHESIS

LANGUAGE & MINDREADING NOT ONLY CO-DEVELOP IN CHILDREN, BUT HAVE ALSO CO-EVOLVED IN HOMININS OVER CULTURAL EVOLUTIONARY TIME.

## computational modelling

- explore a potential evolutionary scenario
- allows to formalise assumptions underlying contradictory hypotheses
- combining referential signalling with perspective-taking
- treating communicative behaviour as an outcome of an interplay between the context in which communication occurs, the agent's individual perspective on the world, and the agent's lexicon

## RESULTS

1. populations can become more successful at inferring each other's perspectives over generations as a result of the cultural evolution of a useful language
2. cultural evolution of a useful language doesn't get off the ground when there is no external pressure on the side of the agents to be good at either communicating or inferring each other's perspectives

PRESSURE FOR  
COMMUNICATION:  
Informativeness over generations

PRESSURE FOR  
INFERRING PERSPECTIVES:  
Informativeness over generations

## INTERPRETATION

- selection pressure by itself is sufficient to cause a useful language to evolve, and thus for agents' success at communicating and inferring perspectives to increase over generations.
- a more gradualist scenario of language and mindreading culturally co-evolving in lock-step is plausible

[Submitted Symposium: The role of social-cognition in pragmatics and \(early\) language](#)

# What does it mean to understand belief / desire as 'subjective'?



## NECESSARY PRESUMPTIONS OF A BELIEF-DESIRE ASYMMETRY VIEW

- (a) Distinctness.  
Desires are not beliefs. They are “conative”, not “cognitive” attitudes. (Rakoczy et al 2007)
- (b) Univocity.  
“Subjective” can (univocally) be said of beliefs and desires.

### models of understanding a desire as a 'subjective attitude'

- 1. diversity
- 2. conflict
- 3. evaluative disagreement



### BUT models of subjectivity violate presumptions

- 1. diversity – violates univocity
- 2. conflict – violates univocity (because understanding belief is rather based on disagreements than on conflicts)
- 3. evaluative disagreement – violates distinctness

**Upshot: “do children understand the subjectivity of desire before that of belief?” has not yet been shown to be a good question.**

# Ascribing reasons to agents

## 12-36 months



### INTENTIONAL ACTION

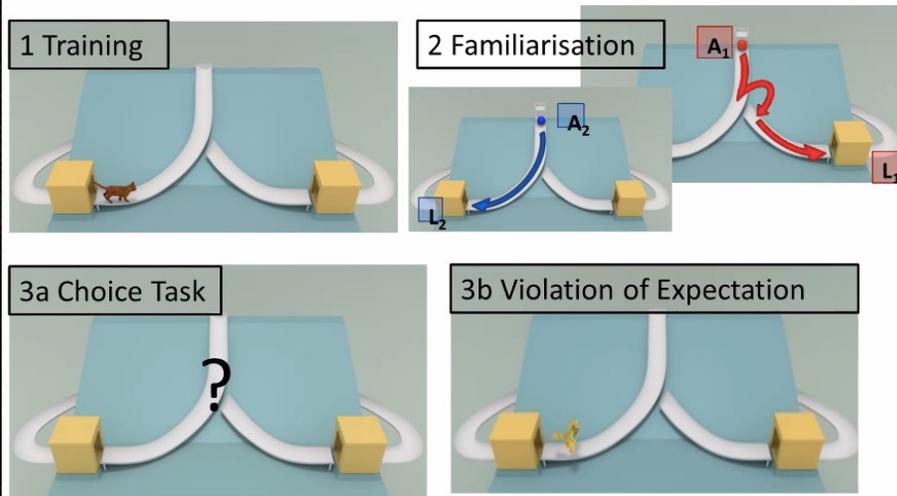
- action: change world from one state to another
- reasons to act (*value or instrumental facts*)

### TELEOLOGY:

- we act for reasons not for mental states

*When do infants appreciate that intentional action have reasons?*

### Experiment



If an agent A goes somewhere intentionally then there ought to be some improvement that need not be there if the agent is put into that place.

- A<sub>1</sub> decides to go to location L<sub>1</sub> → Why?
- A<sub>2</sub> rolled to location L<sub>2</sub>
- Something interesting emerged from one of the locations, it was probably from L<sub>1</sub>, because it would justify A<sub>1</sub>'s visit to L<sub>1</sub>

### Results – Choice Task

N = 34 (18 female), M<sub>Age</sub> = 19.35 (12.68 - 25.86), Mdn = 19.7

- younger children (12.7 – 19.7 m)
- older children (19.7 – 25.9 m)



- older children appreciate desirability of goal in the choice task if there was a relation to parents' desire attributions
- younger children succeed in VoE

- VoE before choice
  - Potential sign of an implicit preceding explicit understanding.

# MAKING RESPONSIBLE: THE SHAPING OF MORAL CAPACITIES



WHAT DOES IT TAKE TO BE – AND BECOME – A MORALLY RESPONSIBLE AGENT?  
AN AGENT WHO IS FIT TO BE HELD MORALLY RESPONSIBLE FOR THEIR VARIOUS ‘DOINGS’

## “CAPACITARIAN” account of responsible agency)

- capacity for responding to the relevant moral reasons attractive on 3 main counts:
  - (1) normatively satisfying account
  - (2) substantiate a conceptually critical distinction
  - (3) naturalistically acceptable

## PROBLEMS OF THE STANDARD APPROACH

- explicitly a-developmental
- hopelessly vague theoretical blueprint of operationalizing normative competence
- ‘the hard problem of responsibility’ (McGeer/Pettit)

## AN ALTERNATIVE SKILL-BASED ACCOUNT OF OUR CAPACITY FOR RESPONDING TO MORAL REASONS

- ❖ differences between object-centered ‘dispositions’ & ‘intelligent capacities’/ ‘skills’
  - skills, unlike dispositions, are essentially developmental in nature
  - requires agential work to develop & sustain → failures without practice
  - requires feedback = external ‘scaffolding’
- characterize ‘normative competence’ NOT in terms of having a distinctively robust C-F profile BUT in terms of being sensitive to feedback from the environment



**MRR-CAPACITY =  
DYNAMIC/ LABILE SKILL THAT TAKES CONTINUAL  
WORK TO DEVELOP & SUSTAIN**



**→ ‘REACTIVE RESPONSIVENESS’ =  
A BASIC SENSITIVITY TO THE SCAFFOLDING POWER OF  
REACTIVE ATTITUDES**

## Proleptic praise

SUPPLEMENT MCGEER'S ACCOUNT BY ATTENDING TO HOW PRAISE MIGHT SCAFFOLD AGENCY



picture of scaffolded agency should include praise

- rather different contours from other forms of moral address (e.g. blame) that have received greater scrutiny
- need for greater attention to an ethics of praise
- distinguish better or worse ways of capacitating each other as moral agents sensitive to reasons

### PRAISE

- can go right
  - capacitating & increasing sensitivity to reasons
- can go badly wrong:
  - can incapacitate: limit or distort sensitivity to reasons

# Constraints on outsourcing self control



2 senses of control:

voluntary actions vs. beliefs

→ control over what is in your

- jurisdiction: 'managerial control'
- judgment-sensitive attitudes & emotions: 'evaluative control'

Getting better at self-management is part of moral maturation and a deeply social affair.

managerial control:

- alter environment (hide the cookies)
- begin a distraction (step outside to call your mom)
- alter current payoffs for failure/success (plan a reward)

Most methods of managerial control that are in fact self-directed could be third-personal: outsourced.

- relying on other people for assistance with our self-management
- McGeer's account of scaffolded agency

BUT some are not outsourcable!

**SOME TECHNIQUES OF MANAGERIAL CONTROL ARE DISTINCTIVELY FIRST-PERSONAL**

- counter-stereotypical imagining
- implementation intentions re: inner speech
- recalling memories

**Bringing distinctively first-personal techniques into the social scaffolding framework helps us ask more nuanced questions about the possible social supports available for, and likely social effects of, the ethical work we have to do alone.**

# How deep is the difference between extracranial scaffolds and intracranial constituents of reason responsive agency ?

## EVALUATIVE OR MANAGERIAL AGENCY?



- Scaffolding of fragile reason responsive capacity (RR) as the solution to the hard problem.
- Scaffolding evaluative or managerial?
- The manipulation worry about managerial scaffolding.
- Atomism or circumstantialism
- Can a circumstantialist build an account exclusively around evaluative scaffolding?
- Going back to managerial scaffolding
- Is first personal managerial scaffolding the solution?



solution to the hard problem of responsibility

- McGeer: evaluative scaffolds
- Tumulty: essentially first personal management
  - not immune to the manipulation worry

- Need for proleptic account because of hard problem of responsibility.
- Circumstantialism makes purely evaluative scaffolds seem too limited.
- First personal management is special but does not solve our problem.
- Biting the bullet is recommended.

# Emotion understanding, attachment theory, and dyadic interaction

ENCOUNTER AT PLAY IN DYADIC INTERACTION AS INVOLVING 'SHAREDNESS', 'RECIPROCITY', 'MUTUAL RECOGNITION', 'CONNECTION', 'MEETING', 'OPENNESS'



*many questions*

- conceptual: How are we to think of this phenomenon?
- psychological: What kind of psychological processes are at play and how do they interact?
- developmental: What is the developmental framework within which this phenomenon obtaining between two people becomes possible? What developmental processes are required for such "moments of sharedness" to obtain?

**AIM:** Contribute to answering the conceptual question by looking at both psychological and developmental question.

1. maternal sensitivity construct
2. emotional understanding in maternal sensitivity
3. being known = consequence of maternal sensitivity

CLAIM 1:

Mother's ability to understand infant's affective states depends on her ability to understand her own emotions.

CLAIM 2:

A constitutive aspect of a genuine "moment of sharedness" in the dyadic encounter between mother & infant is the infant's sense of "being known".

CLAIM 3:

Infant's sense of "being known" is dependent on the mother's sensitivity, which involves her ability for other-directed emotional understanding. In turn, this is dependent on self-directed emotional understanding.

CLAIM 4:

A genuine "moment of sharedness" involves a new cognitive achievement not reducible to individual cognitive achievements.

# From primary intersubjectivity to shared intentionality



## primary Intersubjectivity thesis (PIT)

- other-awareness & first manifestation of intersubjectivity
- point of origin of continuously growing social understanding (Reddy 2010, 2011)

PIT overburdens it with complexity

## shared intentionality thesis (SIT)

- protoconversations = not intersubjective
- intersubjectivity develops at 9-12 month, when infants participate in joint attention & collaborative action (Tomasello 2019, Tomasello et al. 2005, Tomasello & Moll 2010)

SIT neglects primary intersubjectivity

1

Issue	PIT	SIT
Onset of sharing experiences	by 6 to 8 weeks (primary intersubjectivity)	9-12 months (shared intentionality)

- self and other not “undifferentiated” – infant perceives self as separate (Stern, 1985)  
→ exchange is intersubjective
- confirmed by preference for *high* but *imperfect* social contingency
- Infant perceives other as other and expects mutual responsiveness

- To be intersubjective, infant must recognize others as intentional agents
- They do this at around 9 months (Tomasello, 1999, 2019)
- Sharing of experiences starts at 9-12 months (Carpenter et al., 1998):

2

Issue	PIT	SIT
Is primary intersubjectivity triadic?	Yes (Reddy)	No

- object of attention within the dyadic encounter: I, the infant!
- Infants perceives self as object of other’s attentional focus  
→ coy smiles, looking down/away, etc.: proto-embarrassment
- PI is evidence not just of other-awareness, but also of self-awareness
- Dyadic encounter has triadic structure: You – I – Me

- Protoconversations not an early form of joint attention
- Lack triangular shape of joint attention
- Joint attention a response to selective pressures for collaborative action  
“mental coordination“ (Tomasello, 2019)

3

Issue	PIT	SIT
Continuous or Discontinuous development	Continuous	Discontinuous

**RECONCILIATION**

- primary intersubjectivity is not joint attention
- BUT joint attention emerges continuously

# Intersubjective Exchanges and Collective Intentionality



## Collective Intentionality thesis (CI)

- stress immersion in cultures, practices, communities, history ... & treat distinctively human capacities as essentially bound up with such immersion

## Joint Intentionality or Intersubjective Exchange thesis (IE)

- emphasize capacity to engage in particular kinds of dyadic ftf interaction or exchanges & see such capacities as essential to distinctively human minds

Does the capacity for intersubjective exchanges play a constitutive role in the capacity for collective intentionality?

- Is there a sense of essential sociality that applies to such acts of mind that is distinct, qua acts of *mind*?
- What does it mean to say that the capacity to perform such acts are *essential* to human minds?
- What does it mean to say such acts are essential to CI?

### MUTUAL ADDRESS CLAIM

- A & B stand in a communicative relation with each other when they adopt attitudes of mutual address towards one another (Buber)

### MUTUAL INTERDEPENDENCE CLAIM

- such attitudes → awareness of each other as 'you' / thinking in this way is *essentially reciprocal* (Buber)

### I-YOU CLAIM

- 'No thou, no I; No I, no thou' (Fichte SW 1:189)

### MENTAL CONCEPT CLAIM

- capacity to engage in second personal communicative activities is essential for understanding mental concepts



- intersubjective exchanges: essentially social & essential to human cognition
- When people are in an I-you relation they have an automatic 'we' available, one that simply falls out of thinking of you and me doing something.

### FUTURE RESEARCH

- we as a community (group we)
- right way to go here is posit an essential interdependence

# Representing thinking agents in the developing mind

HOW DO YOUNG CHILDREN REPRESENT THE WORLD?



PREDOMINANT VIEW  
developmental order of representational abilities

1. objects
2. agents
3. mental states (ToM)

BUT  
infant ToM task are found early on

- maturation?
- two systems?

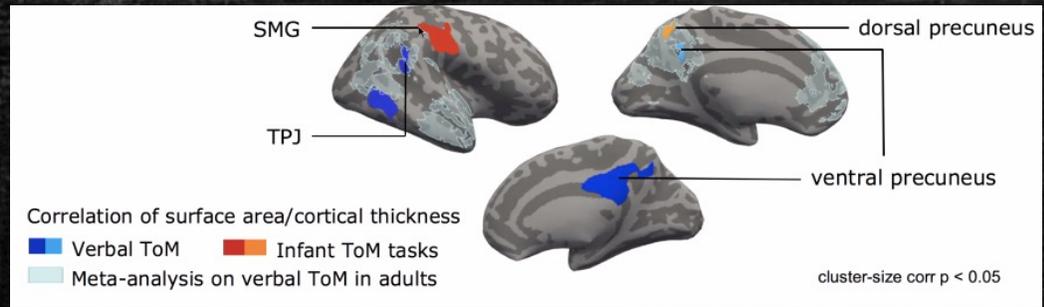
MENTAL REPRESENTATIONS ARE NOT ALWAYS SHARP

- influenced by context of encoding, unstable over time, changeable at retrieval

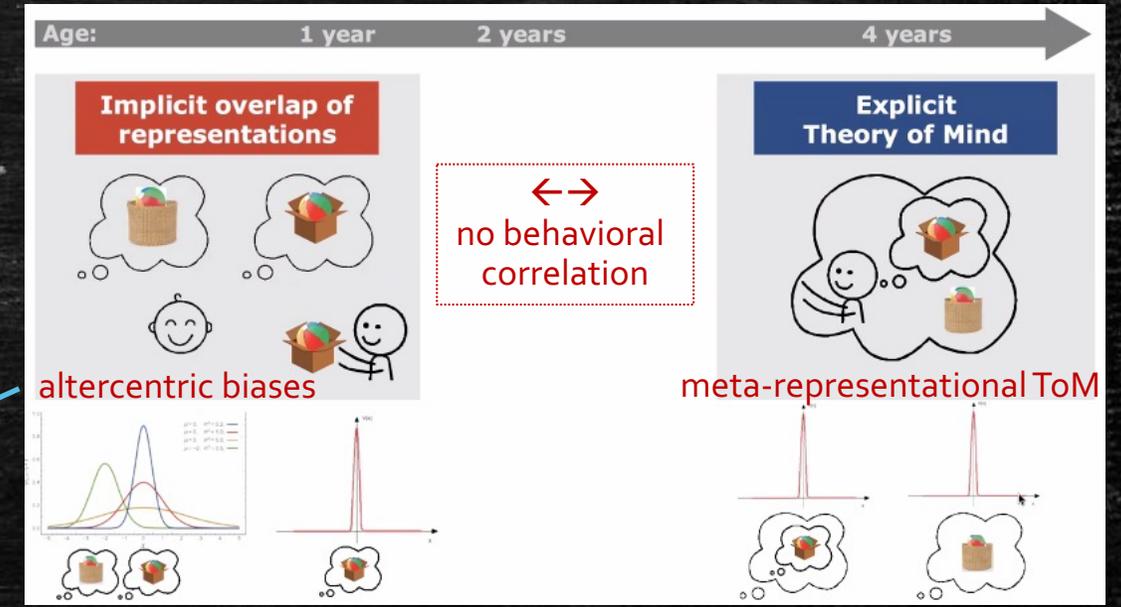
→ hold different overlapping representations

- based on various factors (time, knowledge, context)

dissociation of brain regions  
(Grosse Wiesmann 2020)



two routes to understand other agents



Infants' expectations of finding the object behind the occluder is modified by where the agent believes the object to be.

*Kovacs et al., 2010, Science*

# Stage Fright: Interactivist Reflection as a Domain-General Enabling Constraint on Explicit Knowing



HOW DOES IMPLICIT KNOWLEDGE BECOME EXPLICIT?

claim 1

Before age 4 children do not explicitly represent objects qua objects (i.e., their properties and relations)

- Interactivism makes sense of this claim through implicit vs. explicit knowing

Children younger than 4 are restricted to the thought-in-action constraint

- No explicit object representation
  - Explicitly represented: Interactive possibilities
  - Implicitly represented: Presupposed object properties
    - The invariants/permanence is not explicitly represented
    - Implicit in the functional organization of the indicated possibilities

claim 3

Alternative domain-general interpretations related to EF

- Inhibition, working-memory, cognitive flexibility

claim 2

Implicit vs. explicit knowing is at the core of the new ToM debate

- Interactivism can help further the new ToM debate

STUDY 1: LEANING BLOCKS (LB)

- Leaning Blocks (LB) task – Differentiate between:
  1. Implicit representation of objects (presuppose objects properties, relations)
  2. Explicit representation of objects (represent those presuppositions)

DOMAIN GENERAL ARGUMENTS: SHOW THE NON-SPECIFICITY OF THE FB TRANSITION

1. Perner (meta-representational development):
  - False signs tasks, Alternative naming task, Dual-identity tasks
2. Zelazo (embedded rule development)
  - DCCS task (cognitive flexibility), Physical reasoning tasks



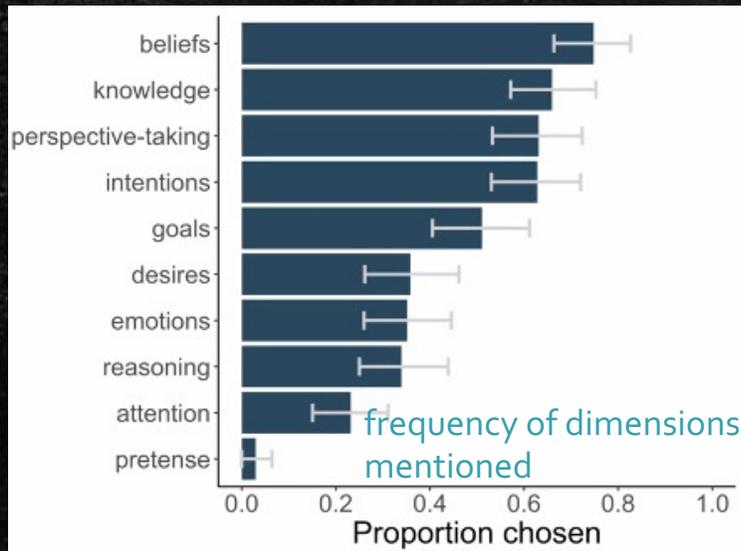
# Social-cognitive development from an individual differences perspective



## Expert Online Survey

shortlisted definitions of social cognition

- 33%** "...is the process by which actors, at individual or collective levels, decode and encode their social world, using mental models, knowledge structures and cultural understandings to process information, extract meaning and determine appropriate action."  
Glynn & Watkiss (2016)
  - 21%** "...encompasses all the information-processing mechanisms that underlie how people capture, process, store, and apply information about others to navigate social situations."  
Decety (2020)
  - 10%** "...is concerned with the study of the thought processes, both implicit and explicit, through which humans attain understanding of self, others, and their environment."  
Moskowitz (2013)
- N = 100, 10 definitions (+ possibility for own definition)



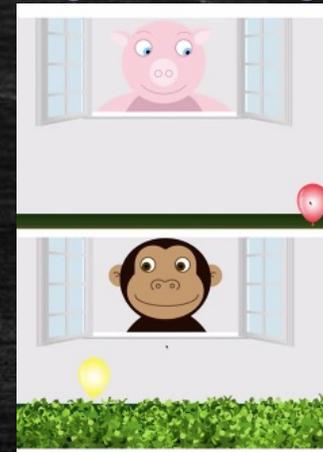
information-processing viewpoint

- focusing on belief, knowledge, perspective-taking, intention

## Methods development

- to capture individual differences
- to test relations between tasks
- greater sample size
  - online version usable with laptops, iPads & big phones
  - open source

## A new gaze following task



more complex a socio-cognitive ability → more variations can be assumed

- can indicate individual differences in young children & adults in a reliable way

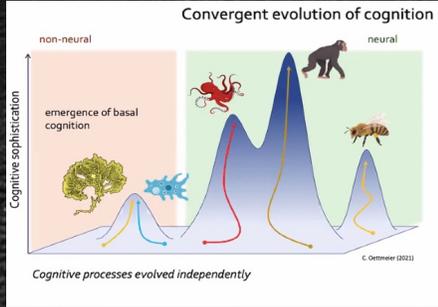
## Future research

- Test-retest reliability in a child sample
- Compare supervised to unsupervised data collection
- Relate to other, potentially related measures (e.g., language skills)

# Cognition in Bloom – the method of dynamic holism and the world of plants

PLANT COGNITION HAS INCREASINGLY GAINED MOMENTUM IN BOTH PHILOSOPHY & BIOLOGY

- approaching cognition from a biological perspective
- gradual notion of cognition



**COGNITION:**  
processes by which sensory input is transformed, reduced, elaborated, stored, recovered, used (Neisser 1967)

**ENVIRONMENTAL COMPLEXITY THESIS:**  
biological function of cognition:= allow organism to generate behaviour for dealing with complexity in ist environment (Godfrey-Smith 1996)



**PLANT COGNITION:**  
engage in flexible behavior that allows them to cope with the environmental complexity which matters to their continued survival e.g., memory, learning, anticipation

## “DYNAMIC HOLISM”

- avoiding cognitive chauvinism
- *holistic*
  - process are elicited by cognitive processed AND environmental circumstances
  - ecological approach
- *dynamic*
  - relationship between cognition & environmental circumstances is dynamical
  - develops in reaction if environments complexify

**Examples of the Method of Dynamic Holism**

- **Ecological Psychology** (Gibson, 1966, 1986) - affordances, the totality of which is the organism's niche.
- **Cognitive niche construction theory** (Tooby & DeVore, 1987; Odling-Smee et al., 2003; 1987; Pinker, 2003; Sinha, 2015) – organism made artifacts that reduce over all complexity of the organism's survival relevant environment
- **(M,R)-systems theory** (Rosen, 1986/2012) – internal models of survival relevant event trajectories
- **Good regulator theorem** (Conant & Ashby, 1970) – regulated global system
- **Active Inference** (Friston, 2012; Pezzulo et al., 2016) – the generative process that exerts regular causal influence upon the organism
- **Morphospace theory** (Goodwin, 1994; Levin, 2019) – environmental stressors and selective pressures.
- **Environmental complexity thesis** (Godfrey-Smith, 1996) – forms of heterogeneity in the environment.

- **Habituation:** a recurrent stimulus changes the response intensity negatively (lowering the response) (Gagliano et al. 2014; Knight et al., 1992) (e.g., experiment: dropping *Mimosa Pudica* - habituation – not closing any more - saves valuable energy)
- **Sensitization:** a recurrent stimulus changes the response intensity or positively (reinforcing the response) (Jaffe and Shotwell, 2006; Conrath et al. 2006; Bruce et al., 2007; Frost et al., 2008). (e.g., if tendrils are touched in darkness and then exposed to blue light briefly, tendril curling becomes sensitized).
- **Associative learning** (Gagliano et al., 2016).



leaf Mimicry of Vine  
*B trifoliolata*

# Individuating Cognitive Ability Types Across Species: An Evolutionary-Theoretic Proposal



Carrie Figdor

EXPLAIN CONTINUITY & DICONINUITY IN EVOLUTION VIA TWO-DIMENSIONAL VIEW

## AGREEMENTS

- rejecting essences
  - species are not individuated by essences
  - reason (nous) is no longer part of the human essence
- human mind evolved
- evolutionary mechanism

## metaphysics of evolution principle

### #1: CSS = character-species separation

- non-species-specific
- identical across species

character concept  
e.g. canine tooth

### #2CPS = character-phenotype separation

- phenotypes exhibit characters in species-specific ways
- more or less similar across species → analogy-based class

### phenotype in various species



## 1. In evolution:

- characters & species are metaphysically separable units of evolution (CSS)
- characters & phenotypes are distinct types of traits (CPS)

## 2. Individuating cognitive abilities by CSS & CPS

- Entails revising evidential import of phenotypic similarity and difference
- Explains sameness of reference of cognitive terms across species, adds new reference and polyseme

# Believing Conspiracy Theories

ARE BELIEVES IN CONSPIRACY THEORIES IRRATIONAL?

## MONOLOGICAL THOUGHT VIEW

- beliefs in conspiracy theories directly support one another to form a self-sustaining network (Goertzel 1994)

## HIGHER-ORDER VIEW

- conspiracy beliefs are only related in so far as they are independently supported by a broader higher-order belief that makes them consistent (Douglas et al. 2019)



-  $h$  and auxiliary hypotheses  $A = \{a^1, a^2, \dots, a^n\}$  form a network in which credence and the impact of the evidence are distributed. The auxiliaries mutually constrain each other as they cannot be all true in light of the evidence.

## BAYESIAN ANALYSIS (Strevens 2001 / Gershman 2019)

relationship between **degree of belief in the conjunct  $ha$**  upon **receiving evidence  $e$**  with Bayes' theorem

$$Pr(ha|e) = \frac{Pr(e|ha)Pr(ha)}{Pr(e|ha)Pr(ha) + Pr(e|\neg(ha))Pr(\neg(ha))}$$

\*posterior probability of  $ha$  given  $e$  depends on:

- LIKELIHOOD of observing the evidence given  $ha$
- PRIOR PROBABILITY of  $ha$  regardless of  $e$
- MARGINAL LIKELIHOOD (sum of likelihoods & priors associated with  $ha$  and those associated with its negation)

- the stipulation of  $h$  directly raises the probability of certain auxiliary hypotheses and decreases the probability of others. New auxiliaries are considered insofar as they are compatible with the central hypothesis, that is, if  $Pr(a|h)/P(h)$  is sufficiently high.

## ANALYSIS RECONCILES & CLARIFIES DISTINCT VIEWS

- $a$  &  $h$  directly support one another
  - degree of belief in  $a$ , as opposed to  $h$ , decreases to the extent that  $Pr(a) < Pr(h)$ , making  $a$  directly support  $h$
- $h$  constrains & informs the selection of which auxiliary hypotheses are a priori plausible

**Self-insulation** - the protective belt of auxiliary hypotheses can absorb disconfirmatory evidence and insulate the central hypothesis from revisions.

glorious or desperate ways to rescue a central hypothesis

- e.g. if conjunction on auxiliary & central beliefs is falsified by evidence THEN the central belief can be rescued by replacing the auxiliary conjunct with an alternative that is not inconsistent with  $e$

The source of irrationality of beliefs about conspiracy theories does not lie in the failure to update beliefs in light of disconfirming evidence, but rather in how they are revised.

# Knowledge before belief



BEING MORE BASIC

(1) involving simpler or more primitive processes

(2) not depending on other processes

*Knowledge before belief*

- Knowledge is basic in the first sense
  - Knowledge is factive/limited
- Knowledge may or may not be basic in the second sense
  - Belief representations may or may not be derived from knowledge representations

KNOWLEDGE

- factive
- not just true belief
- others can know things you don't
- not modality specific

QUESTION DECIDING ABOUT BASICNESS:

- When does the capacity arise
  - in phylogeny?
  - in ontogeny?
- Does the process require effort and control, or does it operate automatically?
- How easily is the process disrupted?

belief / knowledge in great-apes

belief / knowledge in infants

Beliefs:

- Some say yes:
  - Buttelmann, Buttelmann, Carpenter, Call & Tomasello, 2017;
  - Krupenya, et al., 2016, etc.

Knowledge:

- Most everyone says yes:
  - Drayton & Santos, 2016
  - Flombaum & Santos, 2003
  - Santos, Nissen, & Ferrugia, 2008
  - Machinsson et al., 2011

Many say no:

- Call & Tomasello, 1999,
- Kaminski, Call, & Tomasello, 2008;
- Keschun, Carpenter, Call, & Tomasello, 2008;
- O'Connell & Dunbar, 2003

Beliefs:

- Some say yes by the second year:
  - Buttelmann, Carpenter, & Tomasello, 2009;
  - Kovács et al., 2010;
  - Onishi & Baillargeon, 2003;
  - Southgate, Chevallier, & Callon, 2010
- Replication crises says: maybe not actually:
  - Dürrenberg, Rakoczy, & Liszkowski, 2018;
  - Wassmann, Friederici, Dishi, Steinheis, & Singer, 2018;
  - Kammermeier & Paulus, 2018;
  - Powell, Hobbs, Bardis, Carey, & Saxe, 2018

Knowledge:

- Everyone says yes, maybe before the first year:
  - Luo & Johnson, 2009
  - Vouloumanos, Martin, & Onishi, 2014
  - Hamlin, Ullman, Tenenbaum, Goodman, & Rakor, 2013;
  - Luo, 2011;
  - Luo & Baillargeon, 2007

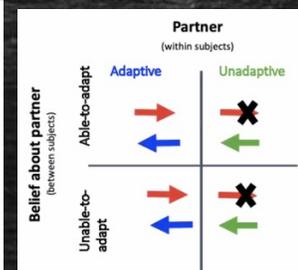
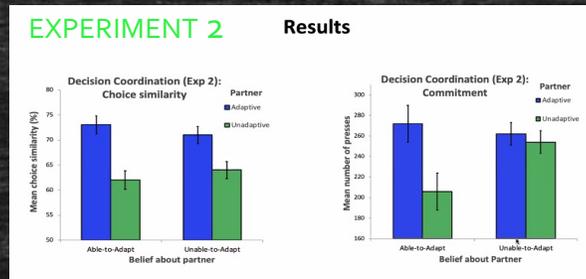
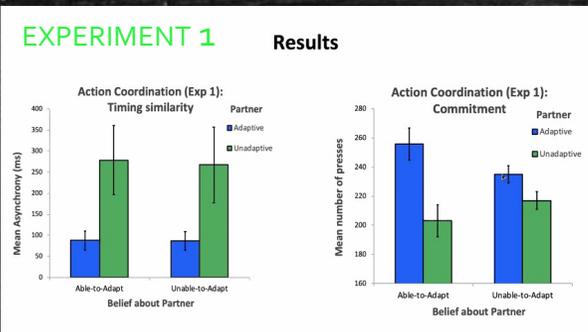
read the paper in BBS:  
<https://www.cambridge.org/core/journals/behavioral-and-brain-sciences/article/abs/knowledge-before-belief/B434EF04A3EA77018384EABEB4973994>

# Effortful adaptation fosters cooperation and commitment

ACTORS OFTEN HELP EACH OTHER, INCURRING SIGNIFICANT EFFORT COSTS

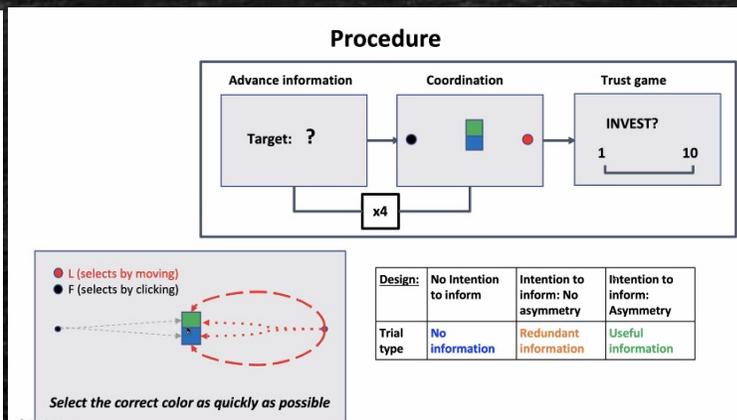
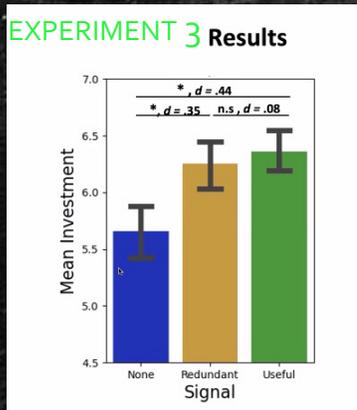


Can the investment of effort also yield indirect benefits to that actor?



Decision based adaptations foster commitment! because

- increase of coordination success
- make the task less cognitively demanding



Communicative adaptations foster commitment!

because

- co-actor provides useful information
- invested effort to do this

EFFORTFULLY ADAPTING MOVEMENTS IN ORDER TO SHARE USEFUL INFORMATION

- participants are more generous towards and trusting of actors
- participants show more commitment
- holds joint action together by ensuring effective coordination
- **holds people together by fostering commitment & cooperation**

ACTOR'S INVESTMENT OF EFFORT TO HELP A CO-ACTOR WITH THEIR TASK DOES INDEED YIELD INDIRECT BENEFITS, BY MAKING THAT CO-ACTOR ACT MORE PROSOCIAALLY TOWARDS THE ACTOR.

# A Sense of Commitment to Activity on Facebook?

REPETITION OF A JOINT ACTION CAN CREATE A SENSE OF COMMITMENT TO CONTINUE OR REPEAT THE JOINT ACTION

Do repeated activities on FB also creates a sense of commitment?



Chiara Brozzo



John Michael

## PATTERN OF BEHAVIOR TO THE OTHER AGENT

## MORE GENERALLY PATTERN OF BEHAVIOR

Exp 1

significant difference between high and low commitment

N=126

- High Commitment: You and Sam are Facebook friends. Over the past six weeks, she has posted each week about a challenging situation at work. You reacted to her post every time. Today she posts something and you do not react to it.
- Low Commitment: You and Sam are Facebook friends. Over the past six weeks, she has posted each week about a challenging situation at work. You reacted to her post once or twice. Today she posts something and you do not react to it.

Exp 2

significant difference between high and low commitment

N=122

High Commitment: You and Kris and Sam are all Facebook friends and are in a Facebook group together. Last week Kris posted something in the group and you commented on it. Today, Sam posts something in the same group and you do not comment on it.

Low Commitment: You and Kris and Sam are all Facebook friends and are in a Facebook group together. Last week Kris posted something in the group and you did not comment on it. Today, Sam posts something in the same group and you do not comment on it.

Exp 3

NO significant difference between high and low commitment

N=122

High Commitment: You and Sam are Facebook friends. Over the past six weeks, you have posted each week about a challenging situation at work. Sam reacted to your post every time. Today you post something and she does not react to it.

Low Commitment: You and Sam are Facebook friends. Over the past six weeks, you have posted each week about a challenging situation at work. Sam reacted to your post once or twice. Today you post something and she does not react to it.

Exp 4

significant difference between high and low commitment

N=115

High Commitment: You and Sam are Facebook friends. You have noticed that, over the last month, Sam has posted nearly every day on her Facebook wall or reacted to someone else's post. Yesterday, you wrote a post on your Facebook wall about a challenging situation at work. Sam has not reacted to it.

Low Commitment: You and Sam are Facebook friends. You have noticed that, over the last month, Sam has almost never posted on her Facebook wall or reacted to anyone else's post. Yesterday, you wrote a post on your Facebook wall about a challenging situation at work. Sam has not reacted to it.

a sense of commitment:

B has a sense of being committed to performing X to the extent that B is motivated by her belief that A **expects** her to contribute X and may be **relying** on that expectation.

Previous studies have investigated interactions between two people: A's behaviour towards B generates in B a sense that A is committed towards B. Experiments 2 & 4 extend this: A's behaviour towards C, D, etc... generates a sense of commitment to B.

Repetition generates a s.o.c. in an online context; more indirect interactions than previously tested

- *Feeling Question:* Do you feel at all badly about not commenting today?
- *Disappointment Question:* Do you think Sam will be at all disappointed that you did not comment today?

SELF-PERSPECTIVE (ME-TO-YOU)

OTHER-PERSPECTIVE (YOU-TO-ME)

# Pragmatic Protolanguage

DEBATES ABOUT ANIMAL COMMUNICATION & EVOLUTION OF LANGUAGE ADVOCATE ADOPTING A 'PRAGMATICS-FIRST' APPROACH



Carnapian	Gricean
Applies to a wide range of phenomena (including direct signaling and even animals' use of natural signals)	Applies to a narrow range of communicative phenomena (notably, human communication)
Independence on Gricean recursive mindreading	Requires a 'serious degree of recursive mindreading'
Implies the direct relevance of all animal context-dependent interpretation to the evolution of language	Implies that even e.g. primates' flexible use of gestures or calls has no more specific relevance to the evolution of language than code-like animal signaling more generally
Sets the bar on evolutionary explanation too low	Sets the bar on evolutionary explanation too high

TOO BROAD

TOO NARROW

## INTERMEDIARY PRAGMATICS-FIRST APPROACH

characterize a stage in-between

- merely coded communication  
(=characteristic of non-human animals' use of communicative signals)
- being capable of fully Gricean communication

- USERS OF PROTOLANGUAGE WOULD HAVE LEARNED TO
  - bring a basic capacity to display to each other – and recognize each other's – states of mind directly to bear on their use of communicative signals
  - engage in psychologically mediated, proto-Gricean communication

	ACS	→	pragmatic protolanguage	Human Language
<b>GRICEAN</b>	Code-like communication using signals with fixed encoded informational content nonintentionally	Emergence of recursive mindreading	holophrastic repertoire <ul style="list-style-type: none"> <li>• with utterances issued with ostensive-inferential speaker meaning</li> </ul>	<ul style="list-style-type: none"> <li>• combinatorial symbolic system with hierarchical semantics</li> </ul>
<b>BAR-ONIAN</b>	(non-Gricean) communication using innate repertoires of signals (including expressive signals)	Increase in non-Gricean capacities <i>(e.g. flexible vocal/gestural control over production and interpretation of expressive signals; capacity for mimicking signals)</i>  Emergence of psychologically mediated use of signals – 'harnessing	stabilized repertoire of unstructured signals ( <i>gestures/vocalization</i> ) <ul style="list-style-type: none"> <li>• use is 'recognizably pragmatic' (<i>with/out displaced symbolic meaning</i>)</li> <li>• regularly used in psychologically mediated ('proto')-Gricean communication</li> </ul>	<ul style="list-style-type: none"> <li>• recursive syntax &amp; compositional semantics                             <ul style="list-style-type: none"> <li>• flexibly &amp; intentionally used for diverse communicative processes</li> </ul> </li> </ul>