

Naturally Evolving Minds:

Controversies, Developments, Interventions

20-23 February 2018



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

REPRESENTATIONS MADE SIMPLE

Ruth
Millikan
University of
Connecticut



ORIGINAL ACCOUNT OF COGNITION – OF HOW WE GET TO GRIPS WITH THE WORLD IN THOUGHT

→ Kant's 'How is knowledge possible?' answered from a contemporary naturalist standpoint

- using cognition to deal with the natural world (which is roughly as natural science has tried to describe)
 1. ontology (unlike Kant): understanding of what the world is like **prior** to cognition
 2. developing theories about the nature of cognition within that world and how it manages to reflect the rest of nature
- from ontology to cognition
 - questions about the transmission of information through natural signs & through purposeful signs including language

UNICEPTS:= storing of beliefs & of affording knowledge & in its occurrent use

UNITRACKERS:= translation of information contained in sensory data into belief or into knowledge of affordances

“intentional icons” & “**representations**” captures a central and singularly simple explanatory principle involved in perception, cognition and language
Much is needlessly complex....
→ highlight its simplicity and its obviousness and its completely innocuous nature

carried in natural or “unsent” signs, into inner representations (p.46)

WHAT DISTINCTIONS CAN NATURAL SELECTION DRAW?



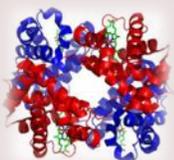
TELEOSEMANTICS → FUNCTIONAL NORMS FOR COGNITIVE SYSTEMS –
NO RESOURCES TO ASSIGN REPRESENTATIONAL CONTENT OF THOSE SYSTEMS?

→ BUT Sober natural selection can make distinctions:
'selection for' some properties of organisms
but merely 'selection of' other co-extensive properties

- see Sober (1984, 2010) ... toy selects for size and thereby for color

SELECTION FOR - SELECTION OF

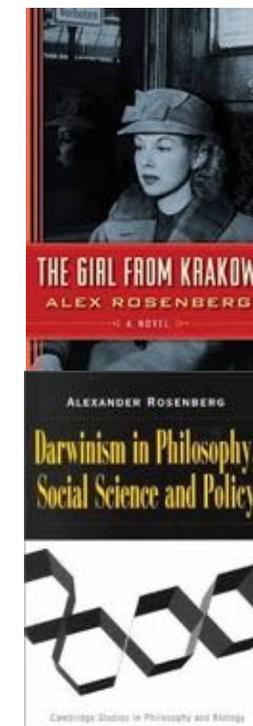
(Goode & Griffiths 1995, Wilkins & Griffiths 2013, Griffiths & Wilkins 2015)



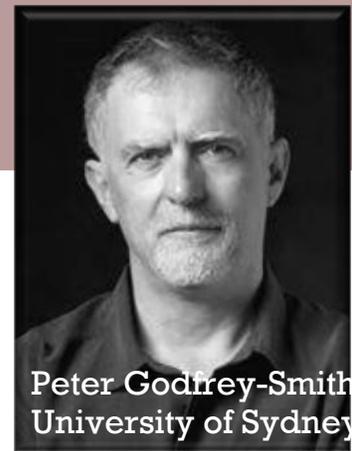
- leg waving frogs: What caused leg waving?
- hemoglobin – means-end hierarchy



- truth-tracking & fitness tracking are not alternative causal competitors
- distinction can only distinguish between properties that are causal competitors
 - respect this constraint on the selection for/selection of distinction
 - avoid implausible scepticism about type-causation



MENTAL REPRESENTATION: WHERE ARE WE NOW?



Peter Godfrey-Smith
University of Sydney

FOUNDATIONAL QUESTIONS ABOUT THE NATURE AND ROLE OF INTERNAL REPRESENTATIONAL STATE

element	1	Subpersonal interpretation
element	2	Internal produce-consume, send-receive or write-read process
element	3	Mapping, isophormism, shared forms

Element 1: Subpersonal interpretation.
An empirically constrained but interpretively flexible attribution of content-like involvement to inner states and processes.
 Dennett's "Three Kinds of Intentional Psychology," 1981.
 Not classical "instrumentalism," as it is answerable to internal structure.
 A mild nonfactualism can be accepted.
 Dennett's error (in that 80s work): this is all there is.
 Harro and Myra will not see this as representationalist - OK.

Semantics and selection

- Disjunction problem- 'Darwin cares how many flies you eat, but not what description you eat them under' (Fodor 1990)
- <small, dark moving>, <fly>, <food>, <fitness-enhancer>
- Target of selection argument (s)
 - <fly> Sterelny 1990
 - <food> Shapiro 1992
 - <small, dark moving> Neander 1995
 - see also Millikan 1991, Agar 1993

Element 2: Internal produce-consume or write-read processes.
 Representations are things that are read.
 They are stand-ins of a certain kind.
 A fuller account: they lie between co-adapted producer and consumer mechanisms.
 Millikan, Gallistel, Lewis-Skyrms model.
 Van Gelder on the critical side.

Reid-Staddon model: very poor match with write – read memory as communication between stages (with or without mapping)

→ READ: REID-STADDON PAPER WHO READS THE COGNITIVE MAP

THE PRIORITY OF PREFERENCES IN THE EVOLUTION OF MINDS



David Spurrett
KwaZulu-Natal

1. Introduction

More philosophical effort is spent articulating evolutionary rationales for the development of belief-like capacities than for (precursors of) desires or preferences.

- Exhibit [A]: "The bulk of this work has been focused on explaining the content of belief-like states in particular, as opposed to desire-like states." (Godfrey-Smith 1996, p175)
- Exhibit [B]: Sterelny (2003) devotes three chapters to the development of 'belief-like' states, and one to desire/preference.
- Exhibit [C]: Millikan (2017) contains far more on 'factive' than 'affording' unistructors and uniocepts.

preference:= psychological state **or** capacity

(1) have a quite **general evolutionary rationale**

- efficient actions selection

(2) can plausibly function and naturally evolve **without beliefs**

→ EFFICIENCY RATIONALE FOR PREFERENCES (ERP)

- world-discriminating state in contrast to a world-representing states

TELEOSEMANTICS AND MORAL REALISM: A CLEARER PICTURE EMERGES

GROUP-BENEFICIAL COOPERATION

- ACT TOGETHER TO PRODUCE PUBLIC GOODS -
 - without genetic kinship or reciprocal exchanges
1. capacity for normative guidance
 2. prosocial emotions (anger / spite, guilt, shame)
 3. prosocial emotions (sympathy / empathy)

2 selection processes:

- a) punitive social selection (punishing)
- b) cultural group selection (group-beneficial cooperation outcompete other group)



Andrés Luco,
Nanyang Technological University

THESIS

- I shall argue for the conditional thesis that if moral cognition—the human capacity to form moral judgments—is a biological adaptation, then moral judgments represent objective facts about conditions for group-beneficial social cooperation.
- I will draw on Ruth Millikan's recent (2017) account of *unicepts* to enrich the moral teleosemantic program.
- I will also counter one criticism of moral teleosemantics pressed by Joyce.

NORMS: COOPERATION, SCALE AND COMPLEXITY

WHEN & WHY DID NORMS EVOLVE?

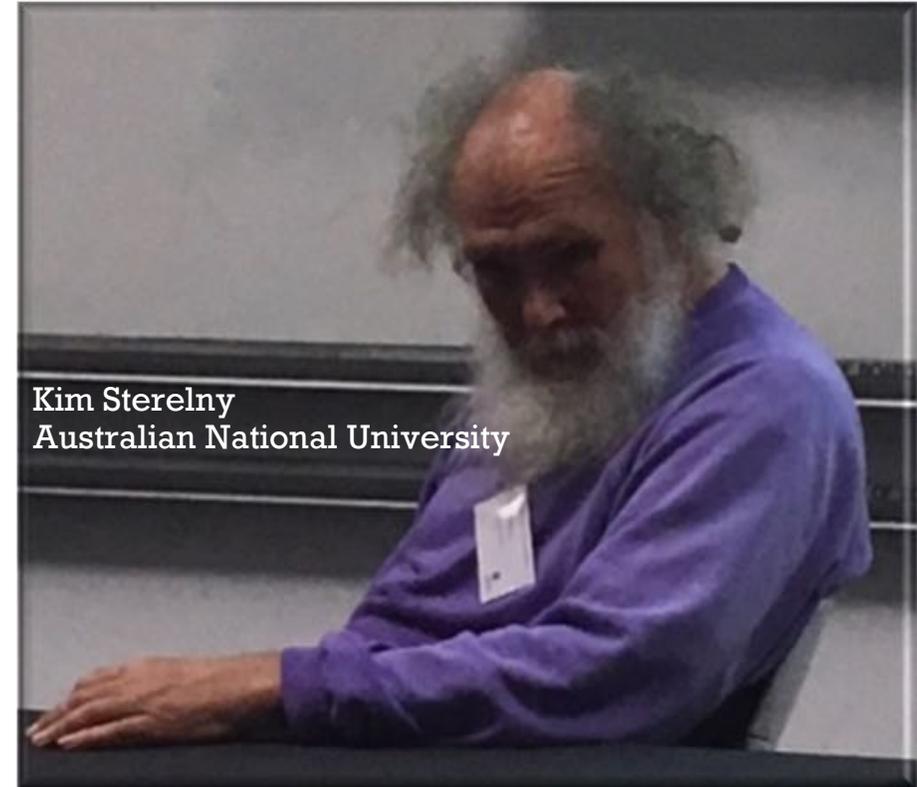
- evolution of moral norms - cognitive capacities to recognise & respond to norms
- evolution of norms to the scale of human cooperative life:
 1. **EARLY** Michael Tomasello (*Natural History of Human Morality*)
- to underwrite high stakes cooperation between dyads
 2. **EARLY** Philip Kitcher's *The Ethical Project*
- to make prosociality at a distance possible
 3. **EARLY** Robert Boyd (*A Different Kind of Animal*) / Joseph Henrich (*The Secret of Our Success*) / Richerson
- making meso-scale cooperation possible
 4. **LATER: Sterelny - in response to cooperation stresses**

emergence of norms is linked to both cooperation & complexity

key driver is economic complexity changing nature of the returns on cooperation, rather than social scale.

scale challenges in its most intense form came later ...

→ norms & normative cognition emerged later - around the Pleistocene/Holocene transition (roughly 100,000 thousand years ago)



Kim Sterelny
Australian National University

COOPERATION & SOCIAL EMOTIONS



social emotions of aversion & approval mediate third party response

- selectively stabilized by the importance of reputation & social capital in forager social worlds
- investment in reputation profitable (both in one' own acts and in response of others)

crucial points:

- you **do not need to recognize** an arsehole
- and you do not need norms to dislike one and to act on that dislike

ACTION IS NORM-GUIDED IFFI:

- agents notice if their own behavior is **inconsistent** with community practice
- once noticed they have some **motivation to restore conformity**
- likewise noticing inconsistencies in other agents & have a tendency to react negatively even if not themselves affected



NORMS AND COOPERATION

from mutualism to reciprocation 1- 4 (longer time horizons, less well-aligned interest, resource and role commensurability ...)

BEYOND CONTENT: CLARIFICATION, MOTIVATION AND COMPARISON

CIC **CONTENT INVOLVING COGNITION:** *no cognition without content*

CEC **CONSERVATIVE ENACTIVE (EMBODIED) ACCOUNT OF COGNITION:** *perceiving is acting*

REC **RADICALLY ENACTIVE COGNITION:** *best modelled on the activities of living systems*

- cognition is not uniform: does not always and everywhere involve representational content
 - root form: extensively interactive, dynamic & relational, but not content-involving
 - does not involve picking up & processing informational contents that are used, stored and reused to get cognitive work done
- (1) How REC understands the thesis that **basic cognition lacks content**
 - (2) Reasons that motivate adopting that thesis
 - (3) Theoretical consequences of such adoption, including some of the questions and new lines of research it inspires
- common descriptions of representations:
 - anything that is a vehicle for intentionality.... used to represent a target as being a certain way
 - Fodor: the mark of the mental is its **intensionality with an s** → mental states have content

(Fodor London review of books 12 .2.2009)



TWO TYPES OF REPRESENTATION



Price 2013, 37

These two notions of representation should properly be kept apart, not clumsily pushed together. It takes some effort to see that the two notions of representation might float free of one another, but I think it is an effort worth making. ... Once the distinction between these two notions of representation is on the table, it is open to us to regard the two notions as having different applications, for various theoretical purposes.

R 1 KEEPING TRACK OF THINGS USING COVARIANT INFORMATION

R 2 CONTENTFULLY DESCRIBING THE WORLD IN WAYS THAT CAN BE CORRECT OR INCORRECT

THE HARD PROBLEM OF THE CONTENT

- **better avoid intensionality with an s!!!**
- bee dances → representations ?
 - correspond to the world and work BUT do they have truth conditions
 - in what sense are correspondences enough
 - compare Shannon Spaulding with respect to flexibility
- capacity to exploit systematic structure-preserving correspondences which hold between their dances and targeted ... proper function → guiding bees to targets



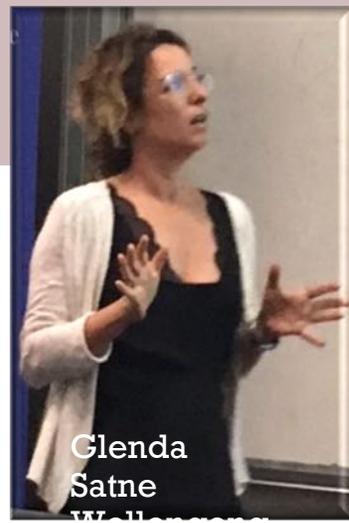
- Disjunction problem- 'Darwin cares how many flies you eat, but not what description you eat them under' (Fodor 1990)
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We are warned that “*evolution won't give you more intentionality than you pack into it*” (Putnam 1992, 33); there is a crucial distinction between “*functioning properly (under the proper conditions) as an information carrier and getting things right (objective correctness or truth)*” (Haugeland 1998, 309); “*natural selection does not care about truth; it cares about reproductive success*” (Stich 1990, 62).

NATURALLY EVOLVING MINDS: TRANSFORMATION AND CONTINUITY

1. **UNIQUENESS: ARE REPRESENTATIONAL CAPACITIES HUMAN-SPECIFIC?**
2. **EVOLUTIONARY & DEVELOPMENTAL CONTINUITY / TRANSFORMATION**

REC is committed to providing a story about progression from basic forms of cognition to content-involving ones + account of the relationship between



Glenda Satne
Wellington

“continuity problem” (Menary 2015, Clowes & Mendonça 2015)	“transformation challenge” (Kern & Moll 2017)
<p>??? REC = “saltationist view” describing progression from non-human forms of cognition to human specific ones - incompatible with evolutionary continuity</p>	<p>??? content-involving forms of cognition are transformative and thus transform the nature of basic forms of cognition penetrating them with content, leaving no room for basic non-contentful forms of cognition for transformed minds</p>

What?	Uniqueness	Continuity	What?
Anti or liberal Naturalism	Yes	No	McDowell, Davidson, Kern/Moll
Strict Naturalism/ Non-reductive Naturalism	No	Yes	CIC, Autopoietic Enactivism
Relaxed Naturalism	Yes	Yes	NOC
Anti-naturalism/ Metaphysical Dualism/ Sui generis Naturalism	No	No	Creationism, Panpsychism

CLAIM: continuity & transformation are not an all-or-nothing phenomena
 → room for transformation, evolution, interaction between basic & non-basic forms of cognition
 → but it also comes at a cost, i.e. denying the credo that cognition is by necessity a uniform phenomenon

SITUATED IMAGINATION

NON-REPRESENTATIONAL TREATMENT OF IMAGINATION

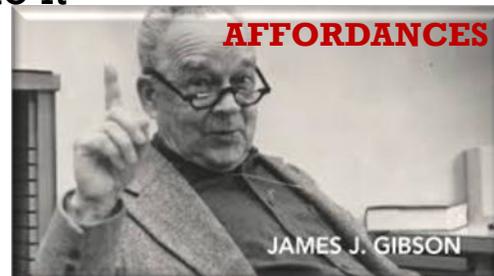
→ concrete details of imagining in context



Skilled Intentionality Framework (SIF)



- observing architects
 - consider imagination as part of attuning to multiple “affordances” (unfolding possibilities for action)
 - engagement with affordances → continuing history of practices unfolding into a current situational activity
 - coordinate multiple affordances unfolding across different timescales
- IF affordances are jointly enacted THEN **imagination** finds its place!
 - aspect of simultaneously coordinating across multiple timescales
 - allows the resulting coordinative process to widen and open up, letting new possibilities for action enter into it



RADICAL ENACTIVISM AND (POST)CAUSAL THEORIES OF MEMORY



THE QUESTION IS NOT WHAT FORMAT (DISTRIBUTED OR LOCAL) BUT WHETHER IT IS IT STORED AT ALL.

- non-content view: traces of memory are not contentful
 - dispositional property of regions to reactivate when triggered by the right clue
- NC-procedural versus NC-episodic – to remember the past = just imagine it
save the content for declarative memory not episodic or semantic...

- (1) role of environmental resources in remembering
- (2) active character of remembering
- (3) contentless nature of memory traces

Hutto & Peeters (2018)	De Brigard (2014)	Martin & Deutscher's (1966)	Sutton	Michaelian's (2016)	Perrin's (2018)
radically enactive account of episodic memory (distributed & contentless)	between encoding & retrieval: no content	classical version of the causal theory retrieval of stored information or content (local & contentful)	distributed (not local)	simulation theory	procedural causal theory
		incompatible		compatible	compatible

CAUSALITY AND CONSTITUTION

DYNAMICAL CONCEPTION OF CONSTITUTION + ENACTIVIST APPROACH TO COGNITION

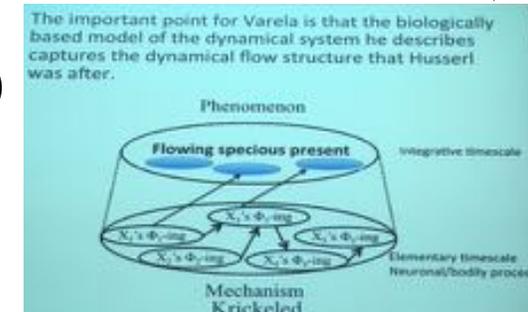
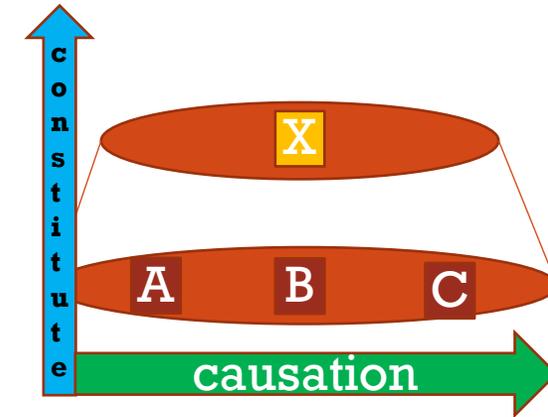
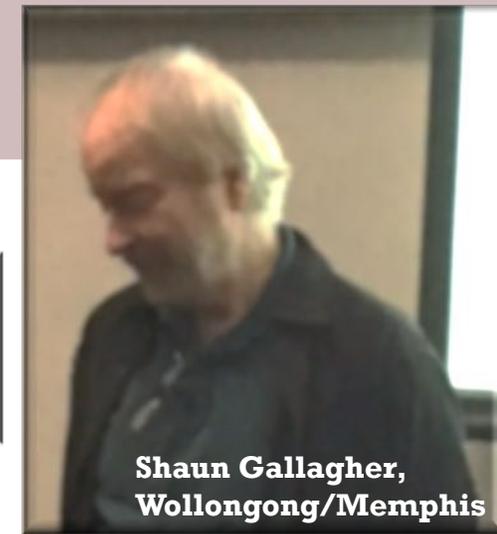
IF MM IS UNDERSTOOD IN INTERVENTIONIST TERMS, ONE CANNOT MAINTAIN THE STRICT CAUSALITY-CONSTITUTION DISTINCTION THAT MOTIVATES THE CRITICAL OBJECTION AGAINST ENACTIVISM & EXTENDED MIND CONCERNING THE CAUSAL COUPLING-CONSTITUTION FALLACY.

- **Coupling-Constitution (CC) fallacy** (Aizawa 2018, 2014)
 - causal (enabling) versus constitutive (*Otto causally coupled (enables cognition) but does not constitute it*)
- mechanist claims: **constitution is non-causal**
 - cognitive processes are composed of processual parts (Craver, Bechtel) / of 'working parts' (Gillett 2013) - **lower level constitutes macro components (part-whole relation) but is non-causal**

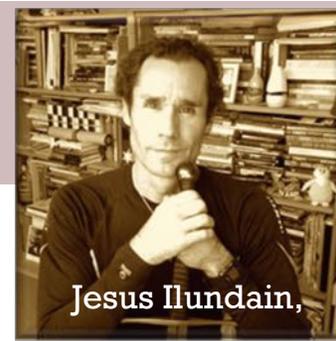
BUT Mutual Manipulability (MM) leads to reciprocal causal relations

→ idea that cognition involves several different **timescales** (Beate Krickel)

- constitution should include causal relations
 - → Francisco Varela's neurophenomenology: elementary, integrative, narrative time scales



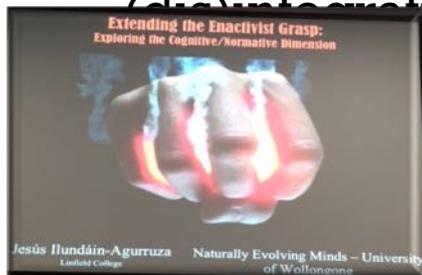
EXTENDING THE ENACTIVIST GRASP: EXPLORING THE COGNITIVE/NORMATIVE DIMENSION



Jesus Ilundain,

“RETHINK THE MIND” BY HOLISTIC UNDERPINNINGS OF ENACTIVISM OF GALLAGHER’S (2017)

- intersection between cognition & normativity
→ cognitive and value theory are integrative & integrated
- thick holism (Ilundáin-Agurruza 2016):
 - different-in-kind phenomena become continuities that co-arise in degrees in performance and action - integration is a matter of achievement
 - experts embody fully integrated skillful and virtuous
 - novices, less capable agents, or those with various pathologies, show various degrees of (dis)integration



cross-sectional & East-West comparative analysis of sports, martial and performing arts: shows how cultural permeation affects this in ways that correlate with higher or lesser cognitive and normative integration



THE SELF AND DANCE MOVEMENT THERAPY - A NARRATIVE REPAIR THEORY

WHY DOES DANCE MOVEMENT THERAPY (DMT) POSITIVELY IMPACT PARTICIPANTS WITH SCHIZOPHRENIA?

- **clinical literature on DMT**
 - DMT is effective in reducing both negative & positive symptoms in schizophrenic patients
 - **no consensus on why DMT seems to work**
- **phenomenological embodied literature on schizophrenia**
 - loss of the sense of self, of the sense that they are “here now”, of the ability to synchronize in speech and motion, of their sense of agency
 - disrupted or competing self-narratives

enactivism + phenomenology + narrative identity → DMT as narrative repair

Why DMT is effective for patients with schizophrenia

- a multitude of smaller cognitive and bodily benefits effects opens the possibility for patients to reevaluate their self-narrative
- form of narrative repair that allows patients to recast their self-understanding in a new narrative
- good posture – positive thoughts 😊

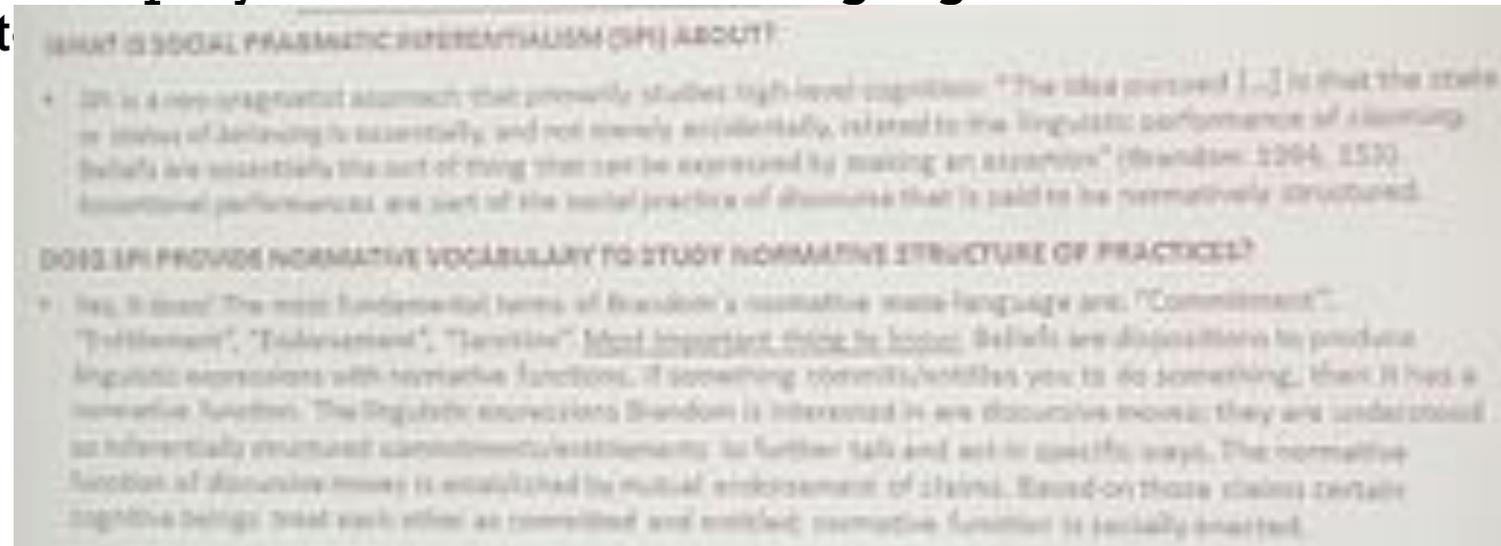


PUTTING NEO-PRAGMATIST FLESH TO THE BONES OF ENACTIVISM. HOW ENACTIVISTS CAN ANSWER THE SCALING UP PROBLEM



ENACTIVISTS & THE SO-CALLED “SCALING UP PROBLEM”

- explaining in a non-representational way what “high-level” cognition is and how it comes about
 - Hutto & Myin (2017): nonrepresentational explanation is possible
 - → neopragmatist resources (Brandom 1998)
 - “What are beliefs?” and “How come that some cognitive organisms can feature high-level cognitive states like beliefs and some do not?”.
- liberal naturalism, to employ a **normative meta-language** + to refer to insights of social epist



PHILOSOPHY AND THE RECOVERY OF NON-SCIENTIFIC NATURE



GALLAGHER (2017): ENACTIVISM IS NOT A SCIENTIFIC RESEARCH PROGRAM BUT A **PHILOSOPHY OF NATURE** → **RETHINKING OF NATURE**

- non-scientific status of subjectivity of a subject

→ autonomy of philosophy as a non-scientific discipline even if it studies the sciences & feeds back into them

Don't make the Quinean mistake of holding that philosophy is continuous with science which implies that there is no distinctive philosophical stance independent of the scientific stance!

- BUT Gallagher seems reluctant to draw the anti-Quinean implications of his naturalism
 - new conception of nature requires a new conception of (cognitive) science

enactivism presents itself as non-reductive

- no reduction of subjects & cognitive capacities to the physical objects
- pursuing a scientific theory of mind → enactivism limits its conception of nature to the collective scientific image (including various natural & social sciences)
- ?? enriched nature when compared to physicalism but it is still a restrictive conception for all that ??

blindspot: to overlook the realm of **non-scientific** nature, all of those things that are too subjective to count as suitable objects of scientific inquiry e.g. persons, art, artifacts, actions

memory-slices Anna Strasser

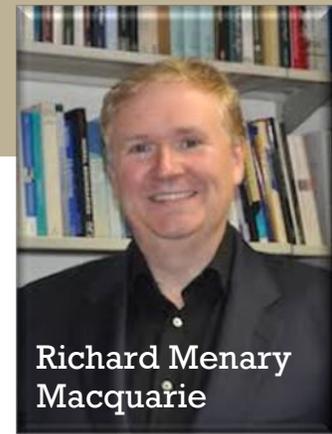
NO DEFINITION OF COGNITION:
reference of cognition gets quite broad – everything is somehow cognitive



David Macarthur
Sydney



ENCULTURATING THE SELF: NARRATIVE NICHEs AND PRAGMATIC SELVES



Richard Menary
Macquarie

NARRATIVE & SELF → PERSONAL IDENTITY (OR CONTINUITY)

- narrative constitution of the self and what else?
- ❖ evolutionary basis for the sense of self
 - see enculturation of social cognition (→ Tomasello) – **social learning is crucial!**
 - sense of self ← social interaction + role of narratives & narrative perspective taking in development
- ❖ pragmatist tradition
 - exploration, openness to experience and plasticity, we reach a more naturalistic conception of the self

SENSE OF OWNERSHIP – depersonalization

- low level signals are needed for higher order procedures

SENSE AGENCY

- connectivity between various regions of the cortex

- Vygotsky : tool use + speech

personality

stereotypes

belief

disposition

role and status

desire

s

appearance

social group / norms

moods

behavior

environment &
situation

emotion

PLURALISM, SELF AND NARRATIVES

THERE IS NOT ONLY ONE STANDARD PROCEDURE, A DEFAULT PROCESS

- **BUT** a variety of social cognitive and domain-general processes
 - dependent on socio-situational context, personal or social relationships between the agents, shared history, present mood ...
 - intergrationist theories are not possible because each claims different default assumptions!
- **Why and when which particular process?**
 - (1) **agent identification** (bodily feature, behavioural features)
 - (2) **determination criteria:** efficiency: least cognitive effort!
- 1. multifacetedness of social cognitive (dys)functions in autism spectrum disorder
- 2. interrelation between various ways to understand oneself and others
- 3. implications for narratives and narrative therapy



Anika Fiebich,
Milan

EPISTEMIC POWER AND OTHER MINDS: A SOCIAL REHEARSAL ACCOUNT OF COGNITIVE EVOLUTION

classical dual-process accounts:

characterize human cognition by rapid 'automatic' decision-making + by more deliberative, self-reflective processes

- exhibit specific biases - described as specialized evolutionary adaptations
- modularist views are not well supported by recent evolutionary theory

INTEGRATIVE ACCOUNT OF THE HEURISTICS → MEDIATE HUMAN COGNITION (+ CUES ACTIVATING THEM)

- **STUDY USING PLACEBO-EFFECT TO CURE CHRONIC PAIN IN CHILDREN BY USING A FAKE-STORY OF THE FUNCTIONING OF A FMRI**
 - shared 'beliefs' = cultural affordances, i.e., as possibilities for action activated by contextual cues, and which depend on shared expectations about other agents

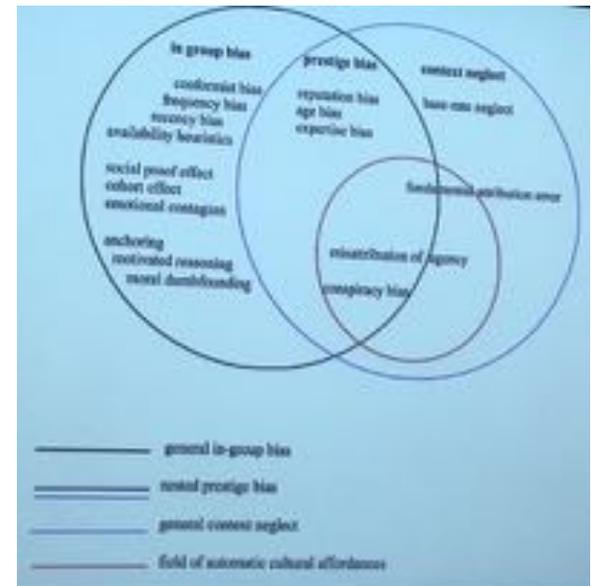
→ free energy, cultural learning, extended evolutionary synthesis frameworks

→ **predictive coding!!!**

- 'natural' affordances in Homo Sapiens' niche(s)
 - constant interaction with other minds → expectations about other agents' expectations about what the symbolically-marked world affords



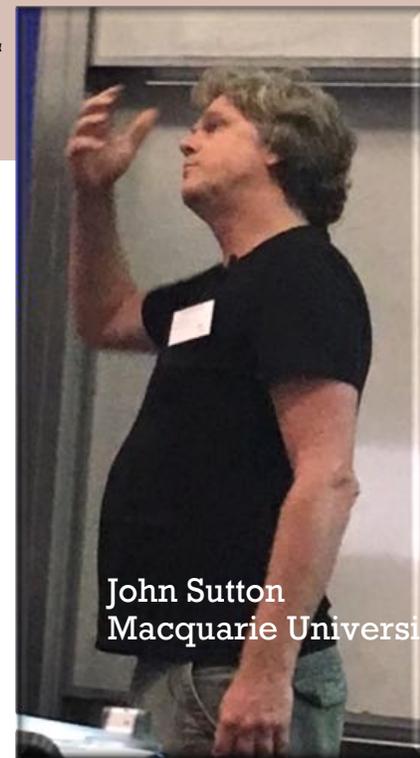
Samuel Veissière, Maxwell Ramstead



COLLABORATIVE SKILLS IN AUTOBIOGRAPHICAL REMEMBERING

Human children

- learn gradually to remember past events and experiences in rich and culturally inflected narrative forms, deploying a diverse array of cognitive resources
- development of skills in autobiographical remembering occurs is culturally and socially scaffolded
- active & collaborative aspects of remembering
- integrate archaeological, developmental & cognitive evidence in a new account of the distributed ecologies of human memory



Don't forget about forgetting 😊 !