

Putting Conceptual Abilities in an Evolutionary Perspective: Reflections on Merlin Donald's Work on Cognitive Evolution



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Motivations

- **Language distorts how we look at concepts.**
- **Concepts and language pull apart.**
- **Evolutionary perspective rarely taken.**

”No truth appears to me more evident, than that beasts are endow'd with thought and reason as well as men.” - Hume

”Humans are undoubtedly unique in their spontaneous invention of language and symbols; but, as I have argued elsewhere. . . our special advantage is more on the production side than on the conceptual side of the ledger. Animals know much more than they can express.” - Merlin Donald

Concepts

Units of structured thought that conform to Evans' Generality Constraint.

- **Systematic.**
- **Productive.**
- **(Compositional.)**

They require:

- **An agent to possess them.**
- **Something to be about.**



Concepts in Practice

- **Allow certain agents to establish patterns in their perception, patterns in the patterns, and so on, at increasing levels of abstraction.**
- **Allow the agent to step back from strict experience-in-the-moment to take a wider view.**
- **Exist within a context of their development in an individual and their evolution in the species.**
- **Not an all-or-nothing affair but exist along a continuum.**

Enaction

- **Understands cognition as a skillful activity, as well as a lived, dynamic process.**
- **Stresses an underlying continuity between agent and environment.**
- **Generally sees continuities underlying that which is conceptually individuable and discrete.**
- **Takes an agent/environment internal/external distinction to be conceptually necessary but meaningful *only with respect to an observer.***

Enactive Concepts

- **Neither internal nor external to the agent.**
- **Arise out of agent's interaction with its environment.**
- **Representations when we reflect upon them, (non-representational) abilities when we just get on with using them.**
- **Cannot be taken out of a context of application.**

Ontogeny

- **Arise out of small set of proto-concepts and some minimal conceptual abilities.**
- **Self-other distinction critical and early.**

Children:

- **Possess concepts before they can express them.**
- **Express concepts through gesture before they can through language.**
- **Express them through language before they can properly reflect upon them.**

Conceptual Baseline

When to attribute (minimal) concepts:

- Evidence of an ability to derive novel general classes from specific instances.
- Demonstration of a flexible pattern of behaviour based on this ability, especially when confronted with novel situations.
- Demonstration of surprise upon making a mistake.

Presented with the same circumstances on different occasions, that agent makes different choices based on some (to greater or lesser degree) intentional reflection.

Conceptual Transformations

Donald's four stages of cultural-cognitive evolution:

- **The conservation of previous gains. Each stage builds upon rather than replaces the last.**
- **The greater stability of older over newer cognitive systems.**
- **The important position of mimesis as the oldest of the uniquely human adaptations.**

Episodic

”Episodic memory is, as the name implies, memory for specific episodes in life, that is, events with a specific time-space locus. Thus, we can remember the specifics of an experience: the place, the weather, the colors and smells, the voices of the past. . . . Such memories are rich in specific perceptual content. By definition, episodes are bound in time and space to specific dates and places.” - Donald

Episodic Memory

- Ties objects and events together.
- Dual nature:
 - Highly specific to a particular occasion.
 - General ability to relate objects and events into an episode.
- First (implicit) meta-cognitive abilities.
- First signs of animal culture.

Mimetic

”Cognition is traditionally identified at the level of single individuals – this might be termed the assumption of the 'isolated mind' -- and in other species, this assumption seems largely justified, since non-human species do not have a capacity for intentional representation, and are thus unable to transmit acquired knowledge across generations.” - Donald

Mimetic

- **Beginning of social transformation of concepts.**
- **First strictly human stage (probably).**
- **Distinguishable from imitation or mimicry by its intentionality and its representational nature.**
- **Directed reflective thought is key: explicit meta-cognition.**
- **Representations at this stage iconic, not symbolic.**
- **Allows development of ritual, structured games, complex acculturation of young.**

Mythic

”The mind has expanded its reach beyond the episodic perception of events, beyond the mimetic reconstruction of episodes, to a comprehensive modeling of the entire human universe. Causal explanation, prediction, control – myth constitutes an attempt at all three, and every aspect of life is permeated by myth.” - Donald

Mythic

- **Appearance of oral language.**
- **Appearance of symbolic representations.**
- **Linear narratives.**
- **Integrative: creates a unified conceptual world for individual and society.**
- **Massively improved social mediation of concepts.**
- **Public aspect of concepts becomes distinct from private aspect.**

Theoretic

”This, again, would seem to be a breaking point on the way to human beings: the possibility of memory as an external record, which perdures independently of the human organism.” - Göran Sonesson

”Writing is really a way of transferring the storage of an idea from the brain (its natural resting place) to a non-biological medium. Ideas started in the brain, where they traditionally resided through most of human history.” - Donald

Theoretic

- **First stage not genetically but strictly culturally mediated.**
- **Claim to "true" objectivity.**
- **Focus not on big picture but on the details.**
- **Externalization of memory / knowledge traces.**
- **Symbolic representations reach their apex.**
- **Appearance of formal arguments, systematic taxonomies, induction, deduction, verification...**
- **"Free marketplace of concepts".**

Summary

STAGE	DEVELOPMENT
Episodic cognition	Implicit meta-cognition
	Concepts take on integrative role
Mimetic	Explicit meta-cognition
	Iconic representations
	Private/public distinctions for concepts
Mythic	Symbolic representations
	Oral language as mediating concept sharing
	Integrative role for concepts reaches its apex
Theoretic	Concepts become externalized and "free floating"
	Written language as mediating concept sharing
	Public aspect of concepts dominates

Difficulties of Looking Backward

- **Once we have written language, difficult to imagine being illiterate.**
- **Once we have language of any kind, difficult to imagine thoughts without words.**
- **Impossible to take a non-representational view on pre-representational thought.**
- **Impossible to imagine structured thought outside confines of episodic memory.**
- **Series of trade-offs.**

CONCLUSIONS

- **With concepts as with other things, humans are animals, too.**
- **Easy to attribute other animals no concepts because can't easily ask them.**
- **Each stage of cognitive-cultural evolution has fundamentally transformed our concepts and allowed us to think new thoughts.**
- **In particular, concepts have become most visibly social objects even while they remain at the same time private things.**