DISTRIBUTED COGNITION & THE EMERGENCE OF LANGUAGE: LANGUAGE AS A REPRESENTATIONAL MEDIUM

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The context and questions at hand

- Disagreements on the emergence of language... but a general consensus: emergence of our communication system along with other symbolic activities

  - **Body ornaments**, ritual burials, rock painting or carving, sea-crossings etc.
    - i) as made possible by a sophisticated communication system
    - ii) sharing with it essential symbolic properties.

- **When?**
  - 150,000 years ago in Africa? (d’Errico et al., 2001; McBrearty & Brooks, 2000)
  - A “Symbolic Revolution” 50,000 years ago? (Klein, 1999)
  - Renfrew (1996)’s “sapient behavior paradox” to be explained

- A « weak correlation » between language and other symbolic activities
  → may we push forward the analysis?
The main argument

Language (*human communication with its modern features*), as a developing representational medium *competing with others media* to convey meaning, *gradually modified* the general pattern of exchange of information in human societies

*What does it mean?*

*In which way?*
Which frame to understand patterns of exchange of information?

- **Distributed cognition**
  - A paradigm in cog. science, pioneered by E. Hutchins in the 90’s

- Main idea: cognition both *inside* and *outside* people’s head
  - = cognitive systems not restricted to individuals’ minds; may encompass external devices as well, or gather several interacting individuals and/or devices (Hutchins, 1995)

- Appealing
  - ✓ if one wants to highlight the relevance of interactions and the mediation played by artefacts, other individuals, elements of the environment etc.
  - ✓ when it comes to prehistory
Representational medium (RM)

- Internal RM: an individual’s cognitive system

- External RM: mediates external representations - « conveys meaning » - between the components of the system

- Characterized by various properties
  - e.g. (sensory) modality, temporal properties etc.
  - “concrete” vs. more “elaborated/conceptual” properties

- Better adequacy to representations “congruent” with these properties

- WHAT HAPPENS IF A NEW RM ENTERS AN ALREADY ESTABLISHED “EXTENDED” COGNITIVE SYSTEM?
Language as a new RM?

- Emergence & *development* of language:
  - Languages did not emerge immediately as fully modern, even with a modern capacity of language.
  - After the emergence of a generic *symbolic capacity*, symbolic aptitudes were gradually “projected” into human lives, cultures and communication systems.
  - Language & other RMs interacting and developing to convey messages of various natures.

- A specific behaviour to investigate:
  - Markers of social identity.
Markers of social identity (ID)

- Sociolinguistics: language as a tool to express / negotiate social identity
  - pre-linguistic features of speech & linguistic features
  - conscious (e.g. taboo words (Comrie, 1981)) or unconscious (Labov, 1972)
  - Dunbar (1996)’s grooming & gossip theory

- Other markers of social identity:
  - ornaments (clothes, beads, necklaces…)
  - body painting (makeup…)
  - body alterations (scarifications, tattoos…)
  - symbolic engravings of tools
  - spatial structures (organization of the living place…)
  - …
Perforated marine gastropod shells used as beads – Skuhl (Is.) & Oued Djebbana (Alg.) – 100,000 to 135,000 ky BP (Vanhaeren et al., 2006)

Marine shell beads bearing human-made perforations and traces of use – Blombos Cave (S. Afr.) - ~75 ky BP (Henshilwood et al., 2005)

Few other evidence for beads before ~40 ky BP (Enkapune Ya Muto, Border Cave, Seggédim etc.)

How did language and other RMs compete to express social identities?
Which factors / properties of the competing RMIs are relevant?

Looking for analogies (“competitive” development of symbolic RMIs)...
A very brief introduction to the development of photography

- Development of photography since the 2\textsuperscript{nd} half of the 19\textsuperscript{th} c.

- Some relevant questions raised in the history of photography:
  - Does photography belong to Fine Arts?
  - How did the conceptions surrounding it evolve with time, technical development or social contexts?
  - How did it influence other fine arts such as painting?

- To answer these questions: investigate the properties of photography as a RM + how they have been perceived
Properties of the RM and their consequences

- “Properties of photography”: a dual nature (Frizot, 1987)
  - A technical nature: roughly, autonomy of a mechanical image, preventing the involvement of the operator
  - A pictorial nature: captures the world in an exact and therefore “objective” way (a rather extreme position…)

- Real or predicted “consequences”:
  - The ambiguous relation of photography to Truth (/Nature/Reality) and Beauty (/Aesthetics)
  - Photography will “push” other Fine Arts towards more quality by confronting them to truth (« Tous les arts ont à gagner à la connaissance de la vérité ») (Wey, 1851)
  - Messages that will be better carried by photography: “revealing the world to large audiences” (social photography, the notion of document and photographic reporting)
Evolution of the RM and its associated representations

- Various trends in the history of photography
  - In reaction to initial conceptions about the autonomy of photography → pictorialism (~1890-1910)
    - techniques to involve the author
    - dissolve a trivial reality, create tensions – between reality and the photographer or in the picture – to enter the domain of Art
  - Later: reporting (functional) vs. more aesthetic approaches
    - reducing photography to its conceptual dimension: highlight the objective neutrality of the photographic process;
    - photography is a mean, art is elsewhere (e.g. land art)

→ The evolution of the representations carried by a RM is in no way a simple story
Alfred Stieglitz’s Flatiron Building (NYC, 1903)

Internal tensions between the building and the tree:
formal contrasts (heavy/light, gray/black, plane/line) & symbolic relation (triangular shape)
A factor of specific interest regarding photography

- Initial technical improvements in photography:
  - produce a precise picture, a conform representation of reality
  - + grant the durability of the process (e.g. heliographic engraving)
  - → make possible the access to pictures for large audiences

- Technical reproducibility of pictures (Benjamin, 1936)
  - is the picture of a masterpiece a masterpiece? → truth vs. authenticity
  - reproduction deviates from the value granted by the unicity of the masterpiece, its “here and now” / aura / authenticity
  - this value of unicity is related to an integration to tradition and a ritual function which gives its cultural value to a masterpiece
Let’s now try to make use of these few elements to investigate the first markers of social identity…
On beads & pigments

- Stiner & Kuhn (2001, 2005)

- Why choosing ornaments as a symbolic medium of communication?

<table>
<thead>
<tr>
<th>Colorants</th>
<th>Ornaments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconstrained</td>
<td>Standardized</td>
</tr>
<tr>
<td>Fugitive</td>
<td>Durable</td>
</tr>
<tr>
<td>No easily-assessed</td>
<td>Countable</td>
</tr>
<tr>
<td>quantity</td>
<td>Show differential levels of investment</td>
</tr>
<tr>
<td>Not easily transferred</td>
<td>Transferable with maintenance of physical and visual integrity</td>
</tr>
</tbody>
</table>

- Pigments: information conveyed
  - a) of short-term value only, b) no consequence beyond the original face-to-face interaction
  - limited in content: mainly display (increase the visual impact of the individuals involved)

- Ornaments
  - convey information among individuals/groups far removed in time and space from one another
  - culturally defined value (collectable and transferable)
  - reflects a demographic and social transition during the UP/LSA
Language and markers of social ID

- Competition between several RMs to express / convey social ID: language, beads, body paintings & body alterations (+ others I won’t discuss here)

- Various aspects of social identity:
  - various dimensions (state of mind, gender, age, situation in the group or between groups)
  - various time scales (fast or slow changing dimensions of identity, (ir)reversibility)
  - various degrees of relevance (anecdotal vs. central aspects of identity, overt/covert aspects)

- Specific properties of each medium:
  - “Concrete” properties
    - Physical properties: time & space → conditions of production (cost, reversibility) / conditions of perception (easiness, alterability, overt/covert)
  - “Conceptual/elaborated” properties
    - Relation to the world and authenticity
    - Ritual function

<table>
<thead>
<tr>
<th>Body alterations</th>
<th>Body painting</th>
<th>Beads, ornaments</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-transferable</td>
<td>Non-transferable</td>
<td>Transferable</td>
<td>Highly transferable</td>
</tr>
<tr>
<td>Costly to lie</td>
<td>Cheap to lie</td>
<td>Not so cheap to lie</td>
<td>Very cheap to lie</td>
</tr>
<tr>
<td>Overt</td>
<td>Overt</td>
<td>Overt/Covert</td>
<td>Overt/Covert</td>
</tr>
<tr>
<td>Highly ritualized</td>
<td>Ritualized</td>
<td>Ritualized</td>
<td>Poorly ritualized (?)</td>
</tr>
</tbody>
</table>
A general perspective

- **A semiotic balance**: various aspects of identity balanced on various RMs (redundancy is possible)

- **A dynamical semiotic balance**: evolutions of representations and RMs through time

  ✓ Pressure from language on other RMs toward more trust & ritualization
Incremental building of language = new “linguistic devices” to convey information

→ evolving in parallel to other RMs (language is not good at everything!)
→ evolution of the semiotic balance (representations carried by all RMs)
→ may trigger new cultural manifestations and/or inhibit others

How does it get “filtered” in the material culture & the archaeological record?
→ Timing issue: “Now you see it, now you don’t”

No “correlation” between symbolic activities, but interactions
Thank you for your attention

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Comments and suggestions very welcome for this on-going work

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