

# 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**



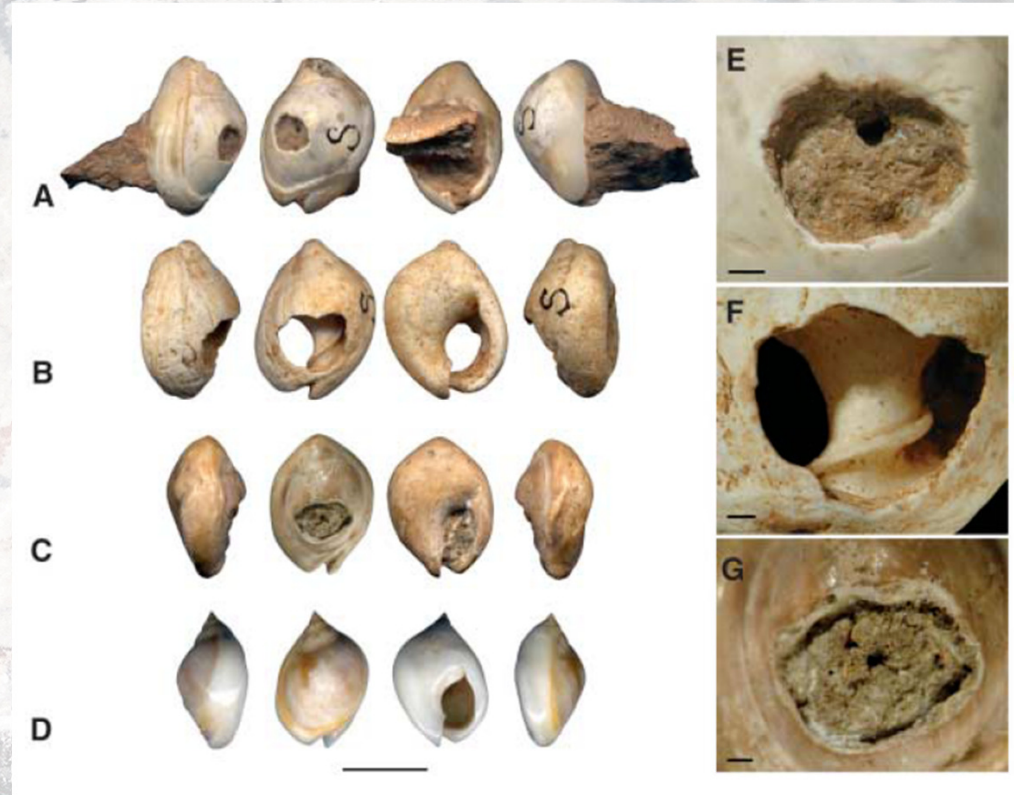
# Markers of social identity (ID)

- 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...)
  - ✓ ...



# Early material cues of markers of social ID

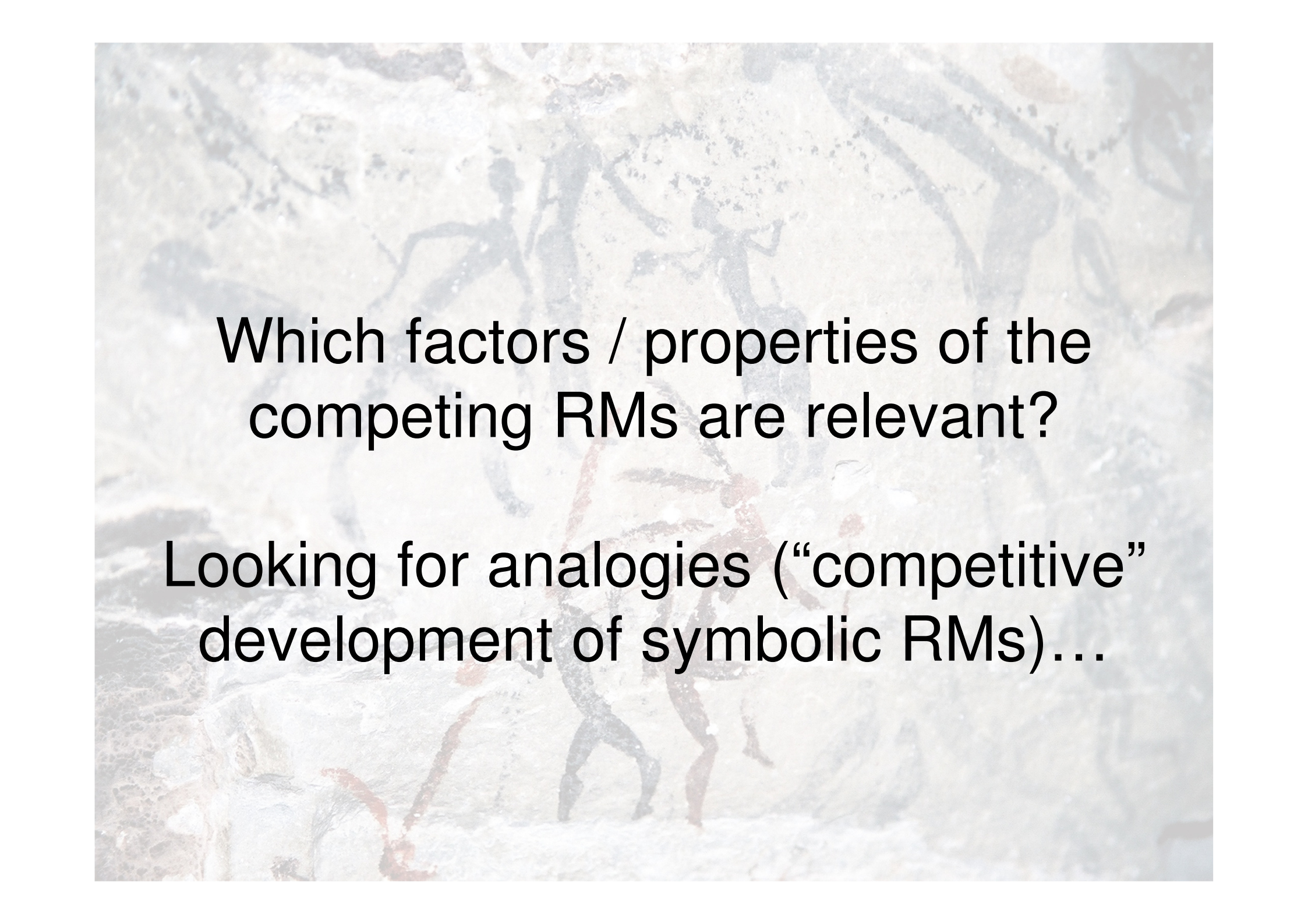
- Perforated marine gastropod shells used as beads – Skuhl (Is.) & Oued Djebbana (Alg.) – 100,000 to 135,000 ky BP (Vanhaeren et al., 2006)
- marine shell beads bearing human-made perforations and traces of use – Blombos Cave (S. Afr.) - ~75 ky BP (Henshilwood et al., 2005)
- Few other evidence for beads before ~40 ky BP (Enkapune Ya Muto, Border Cave, Seggédim etc.)



**Fig. 1.** *N. gibbosulus* shell beads from Es-Skhlul (A and B), Oued Djebbana (C), and a present-day shore (D). (E to G) Macrophotos of the perforations on the archaeological specimens.

**How did language and other RMs compete to express social identities?**





Which factors / properties of the  
competing RMs are relevant?

Looking for analogies (“competitive”  
development of symbolic RMs)...



# A very brief introduction to the development of photography

- Development of photography since the 2<sup>nd</sup> half of the 19<sup>th</sup> 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)

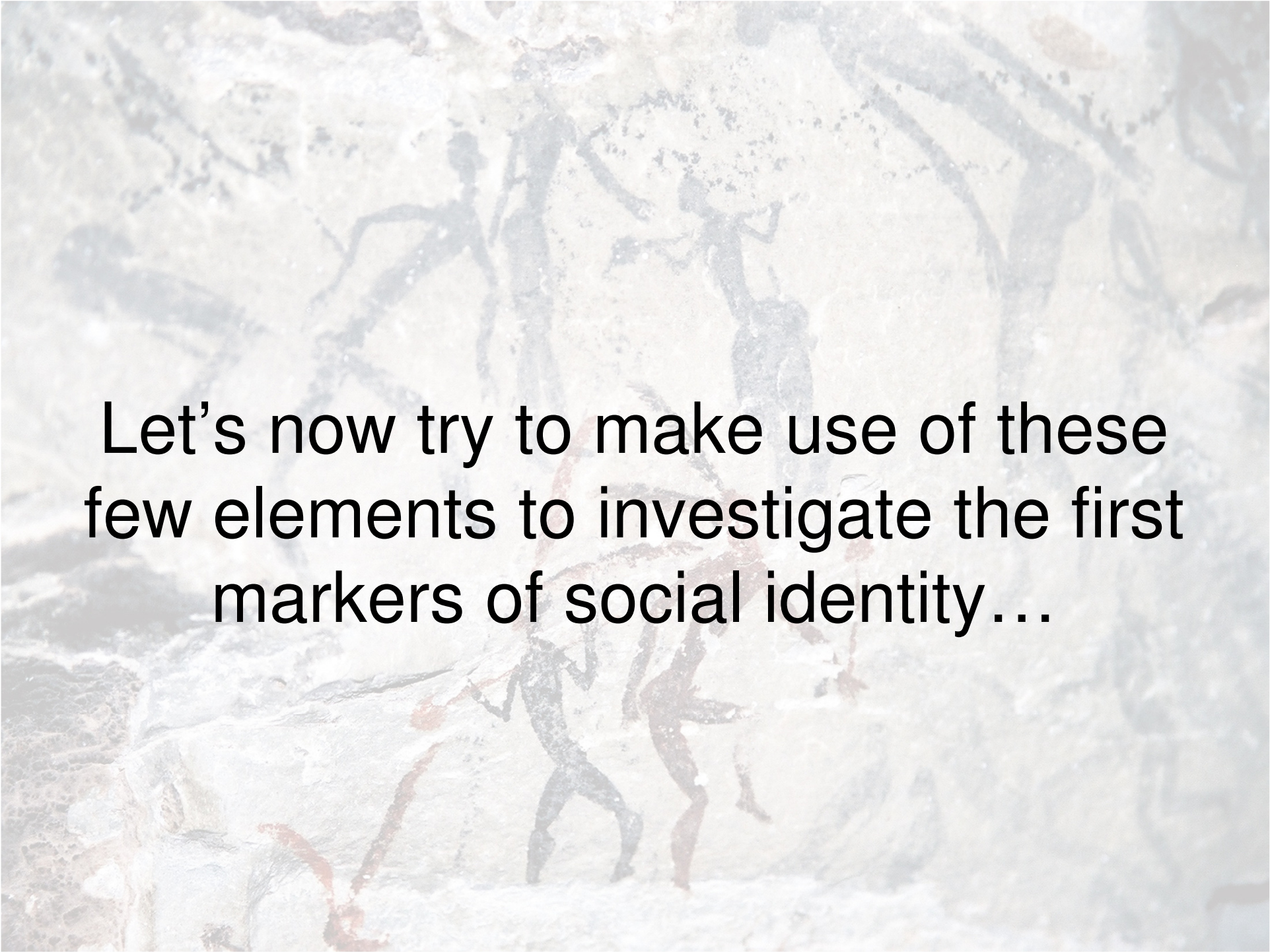




# A factor of specific interest regarding photography

- 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



The background of the slide is a faded, high-resolution image of a prehistoric cave wall. It features several dark, stylized human figures, possibly painted with ochre or iron oxide. Some figures are standing, while others appear to be in dynamic poses, perhaps dancing or performing rituals. The rock surface is uneven and textured, with various shades of beige, tan, and light brown. The text is overlaid on this background, centered horizontally and vertically.

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?

Colorants	Ornaments
Unconstrained	Standardized
Fugitive	Durable
No easily-assessed quantity	Countable
	Show differential levels of investment
Not easily transferred	Transferable with maintenance of physical and visual integrity

➤ 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

Body alterations	Body painting	Beads, ornaments	Language
Non-transferable	Non-transferable	Transferable	Highly transferable
Costly to lie	Cheap to lie	Not so cheap to lie	Very cheap to lie
Overt	Overt	Overt/Covert	Overt/Covert
Highly ritualized	Ritualized	Ritualized	Poorly ritualized (?)



# 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



# Summary

- 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



Comments and suggestions very  
welcome for this on-going work

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