Edited by
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Artificial lives

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THE HUMANOID ROBOT IN CONTEMPORARY MEDIA CULTURE

FrancoAngeli

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By Ruggero Eugeni

1. The robot as a cultural subject: an archaeological and evolutionary approach

If we consider the robot as a cultural subject, therefore subtracting it from a narrow temporal perspective, we should also reopen the question of its origins and the traditionally established limits of its history. Indeed, in this paper, I will argue that a "robotic dispositive" can be found since the origins of human culture; and that it contributed to determining its development. Of course, I am not thinking of robots as we conceive them today, but rather more basically as objects endowed with an expressive agency – that is, capable of physically and symbolically taking the place of various subjects in the management of certain forms of discourse.

More precisely, I will contend that robotic dispositives gradually emerge between about 400,000 and 30,000 years ago, as the genus *Homo* gradually defines the processes and institutions characterizing their culture; and that this emergence is directly linked to a phenomenon scarcely focused on by scholars but of enormous importance for our species: the convergence and connection between the two previously autonomous practices of *discoursing* and *mark-making*.

To justify these claims, I must ask the reader for patience to follow a complex story, which will reveal its reasons and consequences at the end (like the best stories)[1].

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[1] The origin of human expressive activities and their connections with the biological, bodily, mental, social and cultural evolution of our species have constituted in the last twenty years the object of interest and the meeting point of numerous disciplines: cognitive archaeology and cognitive paleoanthropology; paleo-sociology, paleobiology and ethnoanthropology; evolutionary psychology, narratology and aesthetics; Darwinian theories of art and literature, and so on. The problem with this broad field of study is that the different approaches have

2. Discourses, bodies, narratives

According to Michael Tomasello (1999, 2008, 2019), about 400,000 years ago, the representatives of the genus *Homo* begin to obtain their food through forms of active collaboration: hence, from the *individual* intentionality typical of the great apes, they pass to forms of *joint* attention, intentionality and agency. Hunting and gathering practices now imply performances consisting of indicating objects, illustrating a series of actions, and producing prelinguistic and proto-musical vocalizations. Think, for example, of a group of hominids who agree on how to conduct a hunt by dividing into subgroups, studying specific plans of action, foreseeing one development rather than another and preparing the relative solutions. About 150,000 years ago, the increase in population involving *Homo sapiens* creates a growing dependence of the individual on the social group and the need to move from a *joint* intention to a *collective* one. Even the expressive tools become more refined with the progressive birth of articulated language[2]. The consequences of these behaviours are numerous and contribute in a decisive way to the development of the cognitive, emotional, and expressive abilities of the genus *Homo*. First, *shared attention* is born, that is, the ability to concentrate one's attention on the same object and at the same time together with other partners for relatively prolonged periods. Second, a common *symbolic thought* arises, that is, the ability for groups of people to mentally represent the same object materially absent in space and/or time; hence, the emergence of a shared referential world, which can be present or absent. Third: a

developed relatively autonomously, with different intensities and rare interactions; in this way, the individual expressive or cognitive abilities (from gestures to language – that was by far the most investigated area –; from music to the different forms of visual communication; from tactile explorations to argumentative and narrative forms) have been analyzed in isolation without grasping (except in rare cases) an overall design. To reconstruct a possible birth of robotic dispositives, on the other hand, it is necessary to reason by intertwining and contamination, or, on the contrary, by complex blocks of skills that gradually differentiate and redefine themselves. Below, I sketch some starting hypotheses for such a project. Some mainly theoretical reconstructions are: on visual arts Davies (2012), Menninghaus (2011), Turner (2006); on narrative forms Gottschall (2012); on music Mithen (2007), Tomlinson (2015). For selected summary reconstructions of the whole field Heyer and Urquhart (2019), Loubere (2021), Lull (2020). On human evolution in general, see at least Boyd and Silk (2018), Condemi and Savatier (2021), Dunbar (2020), Newson and Richerson (2021). On the question of the specific role of culture in evolutionary processes, see the reconstructions of the debate in Laland (2017), Heinrich (2015), Lewens (2015).

[2] The recent debate, although very complex and articulated, places the introduction of articulated language between 200,000 and 50,000 years ago: see for several systematic overviews Arbib (2020), Everett (2017), Tallerman and Gibson (2012).

complex *narrative thought* is born, based on the non-random logical and temporal succession of actions and reactions[3]. Finally, the capacity of a *hypothetical and counterfactual thought* (mainly applied to narratives) arises; indeed, subjects learn "decoupling" (Tooby and Cosmides, 2001) actions from their actual experience; it derives from here both the possibility of carrying out "offline" (mental, imaginary) experiences, and that of distinguishing between different degrees of reality – and hence between different kinds of involvement within the narrative developments –. While Tomasello mainly considers gathering and hunting settings, other scholars focus on different social situations.

For example, Helen Dissanayake (2000) insists on the interactions between mother and baby in the first months of the latter's life. These interactions imply not only the development of a specific protolanguage, the "motherese" (studied among others by Falk [2009]); but also and above all, the use of a multisensory range of communicative and relational tools linked to the human body: voice, gestures, facial expressions, touch, smell, proxemics, etc. Through a series of specific operations such as repetitions, dynamic variations, and exaggerations, these instruments allow the mother to modulate the child's experiences carefully.

In turn, Robin Dunbar (1996) considers as fundamental the setting of *grooming*, a practice that strengthens friendship, loyalty, and mutual trust between individuals. Although if *Homo* representatives share it with the great apes, they develop original forms of proto-conversation and gossip within it; these practices, in turn, contribute to the development of language, but also the elaboration of storytelling abilities, to the growth of the "mind-reading" skills, and the evolution of empathy or sympathy attitudes with other subjects in relation to their narrative roles and fates. Similar conversational activities may have been carried out, according to Richard Wrangham (2009), around bonfires that characterize meaningful social opportunities in fire cultures. Recently, Robert Planer and Kim Sterelny (2021) have hypothesized that these conversational, narrative and gossip practices have contributed, starting around 150,000 years ago, to the construction (or destruction) of the *reputation* of individuals and, therefore, the strengthening of trust hierarchies within the new and larger social groups that were being formed.

Furthermore, still following an indication by Dissanayake (2000), these expressive abilities arising from everyday social settings have been gradually reused within contexts less linked to practical uses: their "making special" gives birth to a series of regulated performances involving narrations,

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[3] Dautenhahn (2001, 2003), Dutton (2009), Scalise Sugiyama (2016-2019).

dances, songs. In this way, the expressive manifestations of the subjects' bodies are moved from everyday life into play or the ritual frames: many scholars have seen the origin of artistic practices in these occasions[4].

To sum up, a decisive turning point in the development of the genus *Homo* occurred about 400,000 years ago with the introduction of a practice that consists of the use of different resources of one's body for expressive purposes, intending to capture the attention of other subjects and to lead or shape a portion of their experience in perceptive, sensitive, cognitive, narrative, emotional, practical and mnemonic terms. A similar appropriation and delegation of the personal experience, although differentiated according to the contexts of social life in which it appears and unfolds, allows, in any case, *Homo* to develop a series of cultural and cognitive "gadgets" (Heyes, 2019). This practice is characterized by using one's body as an expressive instrument, in coexistence and relation with the other bodies within practical everyday social settings; more refined communication and expressive instruments such as articulated language, music, play, performance, dance, probably derive from it. I call this practice *discoursing*.

3. Marks, surfaces, looks

In the same period of the Lower Paleolithic in which Tomasello locates the birth of discoursing, and more precisely about 350,000 years ago, other scholars identify the start of another type of *Homo* practices: the use of tracing a series of abstract signs on bones, shells or rock surfaces. These are straight, oblique or zigzag lines variously arranged and intertwined; circles and spirals; and "cupules" that are small hollows with a regular shape that require their author expertise, precision, persistence and the use of special tools. These primitive petroglyphs or pictograms refer to a more general attitude to *mark-making*[5], which is also expressed in forms of early painting with partially disappeared organic materials (such as the ocher traces of the Blombos site, in South Africa, around 100,000 years ago)[6]. The origins and

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[4] See, for example, Boyd (2009). However, we should note that while these scholars consider ritual and play settings to be primary, the scholars we have followed above prefer to think that they derive from the reuse of practices and skills matured within eminently practical social situations.

[5] Dissanayake (2016) also mentions bones engraved with a lithic instrument dating back 540,000 years ago. See also Malotki and Dissanayake (2018) and the more general survey by García Diez and Ochoa (2020).

[6] However, the use of black or red pigments, even in the form of tattoos, seems to date back to 300,000 years ago.

functions of these behaviours are neither well defined nor definable; an important interpretative distinction (which we will find again later) opposes the idea that mark-making constitutes the first form of "symbolic" notation[7], to that according to which these traces would represent the "extended" manifestation of a thinking activity conducted in material and manual forms[8].

The practices of mark-making recall in some respects those of discoursing analyzed in the previous paragraph, while in other respects they differentiate from them. Mark-making, like discoursing, intends to remove social subjects from an immediate and casual experience of the world (a "raw" or "wild" experience) to plunge them into the spatial and temporal framework in which their living experience is subjected to a predefined design that reduces its complexity and uncertainty. Yet, in the case of mark-making, this occurs no longer through interaction in co-presence but rather through a transformation of the ecological niche that hosts the subjects.

As for the differences, there are at least three. First: in the case of discoursing, the act of production and that of reception of expressive materials are contemporary and co-present – which makes it possible for the subjects to exchange their roles and interact reciprocally –; on the contrary, mark-making presupposes a temporal and, in cases, a spatial distance between the situation of the constitution and that of observation of the marked objects: hence, a situation of non-presence and communication imbalance between those who inscribe the traces and whoever observes them. Second: discoursing requires no other expressive tool than the human body and its different resources: discourse is produced by vocalizations, gestures, mimics, indications, caresses, etc. Mark-making, on the contrary, requires the use of inscription surfaces and technical tools: adequately prepared bones, stones or flat rocks; weevils, flints, pigments and so on. Thus, mark-making introduces a series of technological prostheses that extend the presence of the human body beyond the spatial and temporal of its situatedness. Third: discoursing is essentially temporal, linked to the progressive delivery of expressive materials and capable of expressing the chronological and narrative development of a series of actions; marking, on the other hand, has a primarily spatial nature as it is linked to the visual paths traced by the graphical signs, and to the visual-motor and visuotactile activities that follow them.

The two types of practices were undoubtedly considered to be distinct. However, there were also social settings in which the two spheres of

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[7] See D'Errico and Backwell (2005); Henshilwood and d'Errico (2011).
[8] See Malafouris (2021).

discoursing and mark-making found points of tangency. For example, some mark-making activities may have been intended as discursive performances. In these cases, the tracing of abstract designs on stones or human bodies may have been done in the form of a public or private gestural choreography. As a consequence, on the side of the observation of the traces, the abstract design resulting from these operations could be observed as persistent traces of that gestural choreography: in other words, marks would be able not only of recalling the producing gestures in the abstract but of actually reactivating them through an "embodied simulation" enacted by the viewer (Gallese and Guerra, 2019).

Furthermore, this particular situation of tangency between mark-making and discoursing would be found not only in proto-artistic practices but also in the production of tools and other material objects – especially if we follow some hypotheses from the Material Engagement Theory[9] –. Even the production of technological artefacts presents some typical features of discoursing: for example, appropriately sculpting a flint implies temporal and causal coordination, and therefore a narrative (the *chaîne operatoire*, according to the expression of the pioneering André Leroi-Gourhan, 1964-1965); moreover, this pattern is expressed in a material engagement with the objects from which specific expressive gestures and rhythms derive. Hence, a performative dimension of the technological action can be made explicit and enhanced on some occasions, such as teaching and learning – a social setting that must therefore be added to the list above[10]. In turn, as with proto-artistic objects, the observer of the finished object can read in it and reactivate (and possibly actually replicate) the series of gestures, operations, sounds and noises that allowed its birth. In this way, the creators of the objects continue to discursive themselves through their products.

4. Blending, recursions, remediations

Research on the origin of visual arts has generally ignored mark-making and identified the start of artistic activities with the figurative productions of European rock paintings. More generally, many scholars underlined how rock art coincided with a creative and cognitive "explosion" in the Upper

[9] See Malafouris (2013, 2022), Ihde and Malafouris (2019). See also the previous note. The relationship between the development of material and technical skills on the one hand, and cognitive skills on the other, is today the centre of many cognitive archaeology studies: see for example Overmann and Coolidge (2019).

[10] See Sterelny (2012); Mesoudi and Aoki (2015).

Paleolithic, which took place between 35,000 and 40,000 years ago in correspondence with the affirmation of the presence of *Homo sapiens* in Europe: in addition to the birth of figurative painting (the Chauvet cave, the oldest in Europe, dates back to 32,000 years ago), that period would have seen the invention of articulated language, the introduction of musical instruments, a decisive technological development, new and more complex forms of social life, etc.[11] Today, however, many scholars, without denying the importance of this phase of sudden progress, prefer to think that it should be considered as the result of a long gestation started at least 150,000 years ago – at the time of the formation of the first consistent societies in Africa, and when the genome of *Homo sapiens* was defined once and for all[12] –. Such gestation would involve a complex series of mutually intertwined technological, expressive, cognitive and social phenomena[13].

I intend to propose the following hypothesis, from this framework and within it. Among the phenomena that matured during the long gestation that led to figurative painting (and more generally to the cultural and social advances of the Upper Paleolithic), an important role has been played by the convergence of practices and experiences of discoursing with those of mark-making in a single, modern technology of experiential design. The origins of this convergence are perhaps to be found in the common insertion of the two practices in the same ritual or "making special" frameworks (Dissanayake, 2000); or, in the accentuation of those points of tangency between the two spheres that I highlighted at the end of the previous paragraph – especially considering the improvement of the articulated language that is flanked and annexed to proto-musical phonations and gestures in teaching and learning contexts –. In more theoretical terms, we can consider such a convergence from the general perspective of a "fluidification" of the boundaries between skills previously matured in an autonomous and separate form (Mithen, 1996) and unified thanks to the ability of "blending" (Turner, 2014) that characterizes the modern human mind[14]. Or, it can be interpreted more

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[11] The idea, which dates back to the 1930s, was popularized by Mithen (1996), Harari (2015) and many others.

[12] In this regard, the seminal Renfrew (2007) distinguishes between the "speciation" phase of human development, which involves an interaction between genes and culture, and a "tectonic" phase in which the rudder of evolution is handled solely by cultural factors. However, Renfrew tends to move the "modern" revolution forward, around 10,000 years ago, with the advent of permanent settlement.

[13] See, for instance, McBrearty and Brooks (2000), d'Errico and Stringer (2011).

[14] Mithen's approach is prevalent among evolutionary psychologists, yet the idea of a "modularity" of the present mind derived from it has been criticized: see Henley, Rossano and Kardas (2020).

specifically as a form of "recursive thinking" (Corballis, 2011), that is, as the embedding of discoursing within forms of mark-making – and therefore as the first and original form of *remediation* (Bolter and Grusin, 1999).

In any case, the result that arises from this convergence is the completely new possibility of articulating complex narrative discourses in figurative visual forms (including the first figures of the human body); and the connected and complementary case of re-enacting, starting from those productions, a complex multisensory discursive process (i.e., a discourse composed by phonations, noises, gestures, etc.), either through an actual performance or through the activation of an inner discourse. In other terms, the narrator who acts in discoursing has stopped talking only through his own body, voice, and gestures; and has begun to express himself through the production and the presence of images inscribed on a surface thanks to a series of technical operations. The resulting spatialization of the temporal unfolding has led to new and decisive cognitive abilities in the genus Homo, first a more specific domain over time. But the most exciting implications for the reflection I am conducting here lie on another level.

5. The robotic dispositive

And here we finally perceive (as I promised in the introduction) the implications that this story reserves for a deep cultural archaeology of robotics. The convergence and blending of discoursing and mark-making produce, in fact, a new type of object, concretely identifiable with the painted stone wall, the decorated object, the statuette. In a sense, it is a new type of tool, capable of modifying and shaping not the material world on which they are exerted but rather on the experience of those who use it. These objects obtain this effect as they are living traces of a complex discursive activity, both gestural, phonatory and linguistic: therefore, they "talk" with the gestures, sounds and words that formed them, that they hold back and that a spectator-player can reactivate[15]. They certainly convey two narratives: that of the scene portrayed and that of their material production; however, probably, the distinction between the two is not clear-cut, and one constantly interferes with the other. And it is precisely the fact that the trace of their material production never fails that subtracts them from the pure status of objects and makes them social actors endowed with presence and agency in the same

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[15] In this sense, the rocky surfaces become cinematographic "proto-screens", according to a line of reflection on which we see, for example, Casetti (2019) Carbone (2019).

way as those who use them: the relationship with them constitutes what Carlo Severi (2017) defines as "an inevitable fiction" that cannot be avoided once the specific cultural game of which they are parts, products and bearers has been accepted. I call these objects "robotic dispositives"[16].

A few steps are still missing for robotic dispositives to complete their first development cycle: in particular, technological objects, artefacts, and marked surfaces do not yet show a*utonomous* intentionality. In Alfred Gell's terms (1998), the artefacts are still characterized by a *primary* agency, that is, their social life derives from a metonymic bond between the product and its producer. The next step will be to shift to a *secondary* agency that cuts the bond of dependence between the artefact and its creator and opens it to the agency by spirits, gods, ancestors, deceased, or impersonal entities – turning the object in short into a *fetish*. But already in this first phase of the robotic dispositive, a first decisive step has been taken: within the "modern" forms of human experience, objects have begun if not to possess at least to express a soul.

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[16] It is important to emphasize that the gestures and voices that robotic dispositives express do not belong to impersonal forces of nature: they are, first of all, the gestures and sounds of the technical and narrative operator who produced them. In other words, their individuality and expressiveness are closely linked to their technological origins and the "style" with which the narrator-craftsman has carried out the chain of operations necessary for their production. It is precisely this feature that transforms them from pure objects to social actors. In terms of Gell (1998), what I call the "robotic device" stems from an "abduction of agency/subjectivity" of an expressive type. On the ontological and religious implications of objects as instruments of physical "appearance" of displaced subjects, see Descola (2013).

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The theme of the humanoid robot has been entwined with media, literary and audiovisual imagery ever since the origins of the culture industry. In its various versions, it has shaped visions and more often fears fuelled by modernity and technological progress. The humanoid robot is both a reality that today is taking on material and concrete forms and an imaginary and fantastic construct that embodies meanings and sensibilities established in decades if not centuries of fictional representations.

This volume seeks to offer different perspectives of analysis on the cultural discourses related to robots, as they emerge in contemporary representations in film, television, and videogames; to detechnologise this object of study, considering it in its dimension as a cultural construct, between fiction and reality, and rethinking the definition of the fundamental features of the idea of the human and the margins of its configurability.

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