

Third hand prosthesis (comment for Bruner & Lozano)

Lambros Malafouris

Keble College, The Institute of Archaeology, University of Oxford, Oxford, U.K.

e-mail: lambros.malafouris@keble.ox.ac.uk

I begin with the commonplace: the importance of the “freeing” of hands in the process of humanization, well recognised since André Leroi-Gourhan’s exteriorization thesis (1993). The cognitive ecology of human becoming is inseparably linked with the developmental contingencies – still vaguely understood - that enable us to walk on two legs and make use of our hands as we do. Of course, the actual ways in which humans have come to move, extend, transform and shape their bodies are extremely variable. This variability applies to basic human actions like holding, handling and walking as it applies to more elaborate mediated skills like painting, writing or typing. No bodily activity - not even our precious capacity for bipedal locomotion - is immune to the situated dynamics of real life ontogenetic development. As Marcel Mauss points out in his famous essay on bodily techniques, there is no ‘natural’ way to move our bodies (1973). I may add there is no ‘cultural’ way either. Instead, we should think of the acting body as a relational developmental achievement of situated material engagement. What I call the *priority of material engagement* follows natural from that general premise (Malafouris, 2013). This ontological priority should be kept in mind whenever we try to think about embodiment and extended cognition or try to understand the meaning of “prosthetic gestures” in human evolution (Malafouris, 2012). Bernard Stiegler’s notion of “originary technicity” also springs to mind here: “the prosthesis is not a mere extension of the human body; it is the constitution of this body qua ‘human’” (1998, p. 152). These are important, and rather complex, theoretical points that need further illustration. In order to

do that, in what follows, I will be comparing and juxtaposing two kinds of bodily performances that incorporate what can be described as a ‘third hand’.

The bodily action that occupies the focus of Bruner & Lozano’s paper, i.e., the *H. heidelbergensis*’ habit of using teeth as ‘a third hand’, provide my point of initiation. Drawing on extended mind theory, Bruner and Lozano, try to understand the possible meaning of this marked use of the mouth as a tool for cutting, pulling, holding, or dragging different materials in the context of human evolution. Why did *H. heidelbergensis* and Neandertals need to use the mouth as an additional interface when for most of the other species the hands suffice? This question seems to guide their analysis. I think they are quite right to speak of the mouth as a bodily interface and that their hypothesis for a possible mismatch between material complexity and neural substrate in the Neandertal lineage, rooted as it is, in the recognition that different bodies and bodily techniques embody different developmental trajectories and instantiate different cognitive systems, sheds new light on those processes. The main shortcoming is that on the basis of archaeological evidence we can say very little about the actual developmental processes or the exact nature of the extended cognitive systems involved. A further problem can be found in the residual anthropocentrism that Bruner and Lozano’s interpretation can be seen to entail. We simply lack an understanding of the nature and range of bodily skills of *H. heidelbergensis*, and, so we have no way to tell whether the use of teeth should be seen as the sign of discontinuity rather than as evidence for continuity between

neural and behavioural plasticity. So far as action and material engagement is concerned, what might seem as a “sign of an inefficient visuo-spatial integration system” could also indicate a different way of experimenting with the body, exploring its limits and probing its potentials. In other words, if we accept that humans can do things with their hands that Neandertals cannot, we have to accept also that Neandertals can do things with their teeth that humans cannot. More importantly, the argument for an incomplete brain-environment body interface in the Neandertal lineage seems to imply a ‘complete’ brain-environment body interface in the case of ‘modern’ humans. I have repeatedly emphasised in my work that this vision of humanity as ‘complete’ and ‘fixed’, and the concomitant neo-Darwinian ideals of cognitive and behavioural ‘modernity’, are certainly wrong. I would insist that humans are ‘incomplete’ by nature, which also explains their remarkable plastic qualities and prosthetic abilities (Malafouris, 2010, 2013).

With this last point in mind we can now turn to the second bodily performance I mentioned above. I shall be looking at the so-called ‘Third Hand’ by the artist Stelarc (1991). When we speak of the use of teeth as a third hand we employ a metaphor. I think it is important to clarify the meaning of this metaphor and I propose that Stelarc’s thought-provoking work, such as the Tokyo performance of *The Third Hand* in 1981, can help us to that end (see: <http://stelarc.org/?catID=20247>). In *The Third Hand* performance an artificial five-finger robotic hand capable of independent motion (including pinch-release, grasp-release, and wrist rotation) is attached to the artist’s body. This form of bodily prosthesis not only is capable of complex movement but it incorporates a tactile feedback system for a rudimentary sense of touch. The artist explored the possibility of writing simultaneously with his right hand and his third hand (which was attached to his right arm). At first sight the image of a Neanderthal holding meat or skin with the teeth and cutting them with a stone tool and the image of a contemporary artist moving a prosthetic artificial hand using

EMG signals of the abdominal and leg muscles seem to share very little. So what is the purpose of this unorthodox conceptual juxtaposition? To answer that question we need to look beyond any superficial similarities or differences and seek for the underlying conceptual synergies enacted by those striking bodily performances. It will help first to spell out a distinctive feature of Stelarc’s approach to art. In his essay “Prosthetics, Robotics and Remote Existence” Stelarc describes his work as an exploration of, and experimentation with, the limits of the body. His “postevolutionary strategy”, as he calls it, is rooted in the awareness that: “THE BODY IS OBSOLETE” (1991, p. 591). From his early skin-hooked body suspensions of the 1960s to his most recent prosthetic work, Stelarc’s performances can be seen as a thoroughgoing questioning and technological reorganization of the body’s form and function. “What is significant”, he writes in the same essay, “is no longer male-female intercourse but human-machine interface”. Reproduction and genetic transmission gives way to fabrication and redesigning. This brings us back to the idea of prosthesis.

I suggest that the two bodily performances taken together provide an opportunity for re-conceptualising, deconstructing, and reconfiguring the meaning and role of prosthesis in human becoming. What is especially interesting in this case is, the interface in-between body parts. Should we see in the use of teeth as a third hand a limit or a threshold? And why should there be a limit in the number, or the kind, of interfaces an organism could employ? I am inclined to see the use of mouth as a different way of exploring the body’s affordances for action and of discovering what a body can do. There is nothing about the notion of interface or indeed of extended mind that sets a priori limits on how the body engages the world. As Stelarc comments in a recent interview “with my *Third Hand* if I am writing one word with three hands this seems to point to an additional capability. On the other hand of course it is also a constraint. You know there is an extra weight on my right arm; my two eyes don’t always follow what my three hands are

trying to do. So when I construct an interface I don't see it in either a utopian or dystopian way" (Abrahamsson & Abrahamsson, 2007, p. 299). The limits of the body are redrawn and modified constantly according to the nature of action and specific forms, flows and contexts of material engagement. No human body is ever complete; all human bodies are prosthetic sites.

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