

# HUMAN GESTURES

Languages, interaction and evolution

**Javier Torras Casas**

javitorras@gmail.com

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**Abstract**

My main concern as a visual artist is to explore the relation between images and objects, considering our bodies as the transitional tool that senses things, moulds them in our minds and reacts before them. This essay will be specifically dedicated to how human bodies translate or process a mental image into a physical gesture. I have focused my research on hands in an anthropological framework to explain gesture as a *cultural praxis* that embodies interaction in a material world.

**Issues regarding human gestures**

The high communicative skills developed by us, human beings, have placed us in a very special position in the competitive path of evolution to other creatures. The ability to communicate with other members of the humankind has gathered us together in groups, societies and nations. Interaction has led us to unexpected situations such as dominating nature in many cases, as well as defined and shaped our personalities in relation to the place of belonging. The appearance of the opposite thumb and the ability to manipulate objects took an important part in such process. The high degree of neural attention that converges into our hands highlights their remarkable contribution to our understanding of the world and to our own evolution as human beings.

In a broad sense, the subject we are studying has been defined as the 'new theory of embodiment' (Sheets-Johnstone, 2012). Being rooted on Heidegger's and Merleau-Ponty's phenomenology, a new interest on 'the body's active, mindlessly mindful coping with the world' has awakened attention from different academic and artistic fields (Streeck, 2015, p. 32). This current subject entails a human understanding of the world, not as observers but as integral parts of it. In Streeck's words, we, human beings "become enmeshed with it in our contingent, physical, collaborative attempts to 'make do.' Gestures, as we will see, reflect this enmeshment vividly" (2015, p. 33).

This research is divided into five different parts that will set different questions regarding our area of study so we can broaden our understanding on human gesture: first, the concept of gesture itself; second, gesture entwined with other modalities such as speech and by definition to languages; third, the meaning-making process or conceptualization in gesture when dealing with the material world; fourth, the necessary multimodal interaction of gesture with other elements for its own development and its contribution to human evolution; fifth, gesture as a demonstration of a visible human feature defined by oneself and by one's cultural circumstances. All this is aimed to prove the ontological relation between our bodies and

the material reality of the world. In other words, the relationship between mental image and objects; which encounters each other when performing a gesture.

### **Hands and gestures**

In order to delve deeper into the process of cognition and performance of the material world carried out when making a gesture, we should first of all understand which kind of organ we are dealing with, the human hand. Streeck highlights four aspects of the human hand which are relevant to our research: first, it has evolved as a grasping organ; second, it is a complex, flexible, active cognitive and multi-sensory organ; third, it is very autonomous; fourth, hands have shaped a big part of the world we inhabit since humans invented gesture. Therefore when studying gestures we cannot detach them from other manual activities, since hands and the activities that they perform have also contributed to shape the gestures themselves. As Streeck puts it 'gesture should not only reflect the hands' ability to act, but also to feel and to make' (2015, p.30).

Human gesture is dual, hybrid in nature, it swifts from mind to a visible action. According to the Oxford English Dictionary a gesture is 'a movement of a part of the body, especially a hand or the head, to express an idea or meaning'. Therefore our hands have the potential to express something as abstract as human experience, human thought and complex ideas. They can represent or symbolize what they sense. Under this view, gestures embody human experience, they are actions defined as '*cultural sense-making praxis*' (Streeck 2009, 2013).

### **Speech and Gesture**

Human expression through gestures implies obviously an intrinsic relation to what a language stands for. It seems appropriate to ask: how close are gestures to languages? Are they related in any way? And if they are, what comes first, speech or gesture?

Both concepts can be categorized under the umbrella of sign. Examining such idea makes it necessary to understand the shifting process and mechanisms from what is signified to the operating functions of a signifier. To sum it up, we are talking about the transitory process from what is experienced or sensed to what is represented. According to Saussure, signs have an arbitrary nature, and therefore we cannot apply

any rational structure when studying them. Gesture is a sign in nature and therefore it necessarily shares the first principle of language which is arbitrariness (Saussure 1983, p.67-78).

By looking at some studies done on this subject, Kendon says that 'speech and gesture are produced together, and that they must therefore be regarded as two aspects of a single process' (1997, p.111). What is reassuring about the relationship between verbal and corporeal languages is the fact that when we study the case of deaf children, we see that sign language is acquired as naturally as a spoken language, following the same linguistic trajectories. According to Susan Goldin-Meadow the main difference between, deaf children and the average learning children is that we are talking about different learners. The only problem would be, that deaf children were not exposed to the same conditions as hearing children, in the case their parents did not communicate each other by sign languages (2010, p.304).

But how far can body languages go, are they limited by their corporeality, can they be as rich as verbal languages? Senghas has proven in his studies about Nicaraguan Sign Language that the level of complexity that sign languages can reach is quite high, up to the point to be able to conjugate verbs in very complex forms such as is the subjunctive mood in verbal languages (2004).



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Following the questions I set at the beginning of this chapter, signs like gestures seem to come before any verbal communicational sign in children (McNeill, 1992). Therefore our conclusion should follow Arbib's answer to this issue, 'any theory of language origins must address the fact that gestures form a crucial part of the human language performance system' (Arbib, 2008, p. 1053).

The movement sequences that Dora Maurer arranged in grid formation in *Reversible and Changeable Phases of Movements* (1972), explores the intertwining idea of gestures and languages on a grid of pictures with hands performing different gestures. They are a good example of how arbitrary signs are, since the readers are free to read the images as they want, creating a 'self-made system' as they read them. In presenting 'easily comprehensible signs,' she broadens their significance and explores their possibilities by having the chance to read them by combining them in many different ways (White Cube, 2016).

### **Development of languages**

The 'self-made system' introduced by Maurer shows how languages must have begun, before they evolved and their common use was spread within a community. This means that every community will have different systems dependent on where they live and the circumstances they are in. Things change and so does language, but how important is it to have a direct and early experience to those things for human understanding to the creation or formation of a 'self-made system'? Could we, at any stage of our lives, go beyond the linguistic input that we receive to create new systems?

Susan Goldin-Meadow and Carolyn Mylander studied the child's role in the acquisition of language, and they stressed the child's innate capability to develop languages while learning them. According to their studies, children can go beyond since they 'gain productive control of their language' when the input is degraded, enabling them to 'elaborate upon that input.' This is the same as saying that, children can organize linguistic systems independently from their parents. Therefore they can create languages for their own use. Moreover, they are also capable to alter inputs that are difficult to understand, 'constructing a rule-governed system of their own' (1990, p.323-4). The creative capabilities of children when building these systems come to be the same in sign languages, which is something reflected on Senghas' research about emerging Sign Language in Nicaragua (1).

### **Gestures and objects**

But looking at how these linguistic systems evolve prompts us to see how we embed things with meanings. There is an obvious relation of languages and how the senses deal with reality. By piling up experience and memories, we produce an outcome to the external input that is translated into a gesture, word or any kind of physical sign.

In comparing verbal languages and non-verbal languages, specifically gestures, could we say that the latter are as close to objects as an onomatopoeia is to a sounds? According to Mary Ritchie Key, non-verbal communication is the place where body and language meet and therefore where something physical is blended with something psychological (1980). This physicality is really important in relation to the development of languages since our bodies sense reality; they are the filter through which all external inputs are received and where all outputs are generated.

LeBaron and Streeck carried out studies in which they demonstrated how a gestural symbolic display evolves progressively from instrumental actions, in which material objects are manipulated or designed by the hands. Streeck's investigation on interstitial meaning-making practices, shed light on the relation between gestures and material objects, both intertwined phenomena that kept the world in a dynamic mood. Reshaping 'not only the physical and semiotic environment, but also the ways in which participants classify for each other what is happening in their interaction' (2015, p.14). Therefore, we could conclude that gestures actually start from an instrumental action, which is the same as recognizing their necessary engagement with the material world, according to McNeill 'material objects and environments in the process of meaning making and action formation, is primary'(2000, p12).

William Cobbing's work *Remake, Remodel* (2010) shows how hands shape their reality. By sensing the materiality of clay; to which they are part of; they make it and model it at their measure, so to speak. Hands that shape their bodies, hands that move the world along with them towards evolution.



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### **Interaction and evolution**

What do we know about the use of gestures in relation to their very nature to communicate? Interaction comes as a vital characteristic for the use and existence of gestures. But how important are gestures for social interaction? According to McNeill 'they play a part in the interaction and help to shape it' as they are being shaped by such interaction (2000, p.11).

Enfield makes clear the need to a counterpart to have social interaction: 'To communicate is not literally to send a message but to make public the means... for another person to build an adequate understanding in response' (Streeck, 2011, p. 14). Interaction takes place for the first time when our bodies are in contact with people and objects around us, which is the same as saying that they are the first and most basic channel through which we communicate with other people (Duranti, 1997, p.322). We said that gestures shape interaction, they are corporeal languages, a tool to establish relationships from one place to another. They are a metaphor or translation, and as a consequence they respond to the human need of survival, conforming to what Hewes says (1973).

But what does Hewes mean by that? Why have gestures; as a manifestation of a need to communicate; been important to human evolution? First of all we should clarify why communication is important to evolution and then we will understand why gestures as a communicative means were so important in such evolutionary process. A few months ago I had the opportunity to have an interview with Charles Breeze, a scientist from the UCL department of medical genomic, who whilst talking about this matter, mentioned the episode of Polyphemus and Odysseus in Homer's *Odyssey*. (2)

By reading this legendary story, we realize that communication is the key for Odysseus survival, his mastery over language and his witty reaction makes him survive an eventual casualty when confronting the enemy. Breeze's theory about such ancient story, point out at the possibility to have in there an account of the conflict that existed between the Homo Sapiens and the Neanderthals. We know from different forensic and archaeological studies that Neanderthals were much superior to us in terms of physical strength and visual capacities; they were physically much more powerful than humans. What happened then? Homo Sapiens won the battle of evolution by using their mastery over language, good communication made them superior. Neanderthals for instance were useless in being able to form communities or to interact with themselves, whereas Homo Sapiens could interact, they could work next to each other, they could socialize (Breeze, 2016) (2).

Communication, therefore, is at the core of human evolution and that means that if we have been able to master languages is because of the complexity of our cognitive and social life, which means interaction with other human beings and with the world. Either metaphorically or in any other symbolic system, human interaction takes individuals to different situations that are result of something that has happened previously, and that will bring them somewhere else in the future. Societies, groups, communities, etc. are fruit of a continuous interaction with different organisms, with other human beings or with the environment, as Jacob von Uexküll illustrates in his analogy 'no organism is a mere spectator. It is a reactor and an actor in a dramatic and dynamic world' (1957). Having said that, we cannot ignore the intrinsic value of communication to human evolution.

### **A map of human brain: 'Homunculus'**

Following the leitmotiv of hands and gestures, I want to see if human evolution can be considered a process due to, not just communication in a broad sense, but specifically to hands in relation to gestures.

A surgeon in the 1930', Wilder Penfield, mapped the brain in relation to the body's surface. From his operations and analysis, he shaped his idea of 'homunculus'. This was the first-ever map of somatosensory cortex. When studying and mapping the motox cortexes of his patients he saw that they were all very similar. According to Penfield, the lips are the most important extremity in relation to the body's movement map. And curiously enough, in the body map based on touch and related sensations, face is next to the hand in terms of importance and natural development. When inducing scores of sensations, hands reacted as vigorously as the lips and other parts of the mouth, which was not the case for other parts of the face. If we see this close relationship between mouth and hands, it would not be surprising to find some kind of correlation in terms of speech and the evolution of languages, which is something we have already talked about.

For some researchers there is a common ground to study language origins from some verbal and non-verbal communication studies. According to papers published by Hokett and Asher we see that basic conditions to the development of language such as productivity, displacement, the designation of semantic qualities, and the like, can be found in a gestural system. Little things made a big difference for man's ancestors, it was just necessary to allow the development system of communication and the capacities of carrying and shaping tools that will balance things for men. Tiny and little changes in their way of living would make a big difference in their existence. The way humans communicate and the

abilities to manipulate materials with their hands are pointed as the main defining feature of humankind and its evolution. Hands linked to cultural expression and genetic evolution are all very much related, which is significant given that there is a big brain portion related to hands (Cicourel, 1975, p.196).

### **Body and identity**

As we have seen, tool-making, speech and communication led us, humans, to evolve, but how aware were our human ancestors about their physical possibilities to take a different path from the rest of protohominoids by using their hands? How much hand, and therefore our bodies, contributed to the development of human consciousness? Higher-order consciousness can only appear when there are symbolic exchanges in a community, in a way we could say that humans think in signs, and these respond to a human need to communicate and interact (Edelman, 2000, p.194). As we have seen, gestures have a symbolic nature, but how did this ability come to actual facts when building a social group?

We should first consider the body's contribution to the construction of these symbols to understand better the importance of hands in relation to this subject. In the film, *The Lord of the Flies* by Harry Hook (1990), we see how powerful signs and gestures are to build a society, apart from being an illustrative example of the body involvement in meaning-making activities. In this case, the fight against an imaginary monster becomes a powerful sign over the kids' behaviour, which completely dominates their minds. That can be seen several times during the movie, but there is a part where the common gesture of dancing around a bonfire as a way of symbolizing their hunting instinct gets mixed with their human paranoia about their believe in an imaginary monster. The mob's movement controls the individuals, and as they dance and see an approaching light, a sign, they all go to hunt it because they embedded it with the meaning of 'monster'. This will have as a result the terrible death of one of their companions.

What we are considering here is one's own identity being manifested or performed by the body in a social level. It might be useful to cite Penone's words: 'One's personal identity is a space, the space contained by one's body which only later becomes the space of one's ideas, the space in which the person projects himself. The first identity is that of the body, a cellular identity, a flesh identity' (Driessen, 1997, p.50). Penone's work *Cocci* (1980) explores this idea of the body as a projection in the negative spaces left by his hands on plaster lumps; they are spaces that can potentially be filled by one's ideas.



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### **Gestures in space**

But I have not elaborated on how related human gestures are to the defining process of one's own identity. According to Penone's words identity is a space, and therefore space is what shapes and defines gesture (Streeck, 2011, p. 27). According to Kendon, 'As such, gesturing, like speech, is influenced by cultural values and historical tradition, and its usage is adjusted according to the setting, social circumstance, and micro-organization of any given occasion of interaction' (1997, p.117).

Could we say that the space, the landscape surrounding us, defines our gestures then? According to Charles Breeze, we cannot have objective data in terms of finding scientific evidence of how much the landscape shapes the way humans use their hands to convey a message. Interaction and socialization are the answer to this matter (Breeze, 2016).

Italy comes to mind immediately when dealing with such subject, and in fact it is a good example to see and study carefully since the level of exchanges and interactions that have taken place in that part of Europe is historically much higher than the northern part of the continent. Breeze says that in the case of Italy, it should not be a surprise to see a major degree in the development of gestural languages since it

has been a place where all kind of cultures have come across and have exchanged all kind of things. Its cosmopolitan spirit from ancient times makes of it a place where the mixture of cultures was a reality, and therefore sign-languages were more likely to be developed there than more isolated places to any foreign influence (Breeze, 2016).

### **Same gesture, different purposes**

Culture in relation to gestures is a subject worth studying with more attention. It is also the perfect opportunity to delve into something I mentioned at the beginning of this essay, which has been long developed to define and understand the relation between image and object through human gestures. We have seen that, hands engage with the material world, they shape it, and interact with it through gestures. In Streeck's words 'Gestures are meaningful by binding and incorporating values of the unfolding situation; this is what we can call their 'transcendence' (2015, p.33).

To illustrate what we mean by the attachment of values to something as changeable as a gesture, we can use Kendon's study of different gestures in Campania (Kendon, 1995). 'He showed that speakers draw as freely upon these forms as they do upon more spontaneous gesturing, simply as it suits their purposes' (Kendon, 1997, p. 119). Therefore, using Roland Barthes words, people are 'fathers and proprietors' (1982, p.6) of gestures, languages and all that which has been named culture.

I would like to mention how in some of my works, this attachment of meaning to specific gestures is defined by the different purposes set upon the engagement of hands with materials and objects of different kind. I think that human gestures cannot have just metaphorical connotations like in languages, they can go beyond since they are objects of reality, they are things that move in space, and their presence can be sensed. They are image and object. They interact physically with the material world as well as perform and signify it.



In *String Interaction* (2016), the string functions as an active object in the meaning-making process of the gesture. The hand defines its message depending on the way the fingers are going to engage with the object they hold. At the same time there is an obvious interaction with another hand, placed on the opposite wall, which refers to human action and reaction according to specific purposes created by the relationship hand-objects. It is important to see how much an object, in this case, builds all the interactive discourse displayed by the hands. For instance, the glass wax hand in a ring handshape that holds the string could have a different meaning when being performed in a different context. Webb examined the gesture of a ring handshape, and he saw that its meaning depended on the location of the body the hand was placed next to. Thus, in the case it was near the side of the head, it could refer to mental processes whereas if it was close to the speaker's chest it was probably related to the idea of 'self' (1996).

We could say that gestures are culturally related to our human nature. It is interesting the exercise to undo the reality that has shaped us and learn other possibilities, other syntaxes and formulations, to create new

meanings and therefore to see how we appropriate new languages, and how these at the same time reshape our imagination. What is clear is will never leave us indifferent, either in thought or in action.

### **Conclusion**

To finish with, it is convenient to see the main points that we can extract from our research on human gestures in relation to the main ideas that we aimed to develop at the beginning of this essay. We have seen how connected hands are to mouths in our 'brain map'; both of them are very close in terms of sensing interactive tools. The way they react, confront and engage with the world, through speech and gesture showed their cognitive and communicative abilities. They developed human communication and shaped languages. These languages not just defined, people's identities and personalities but also made them conscious about their capabilities to progress and evolve further. Our hands could not just interact with the material world, change it and to build our own reality but also brought us, humans to increase our interactive skills which will be the key to move forward, towards what we call human evolution.

**Notes**

1 According to Senghas' study, the second generation on which the language was passed onto experimented many changes. These changes were mainly introduced by the youngest members of the community of deaf children.

2 There, the Greek hero is asked for his name by the single-eyed-giant. The hero responds 'nobody'. Once he is blinded by Odysseus, the other giants ask him what has happened, and he says that 'nobody' has hurt him, causing a disgraceful end for the latter; his companions think that he is being punished by the gods.

**Bibliography**

- Arbib, A., Liebal K., Pika S. (2008) 'Primate Vocalization, Gesture, and the evolution of Human Language' *Current Anthropology*, Vol. 49, No. 6 (December 2008), pp. 1053-1076.
- Barthes, R. (1982) *Empire of Signs*. New York: Hill and Wang.
- Cicourel, A. V. (1975) 'Gestural-Sign Language and the Study of Non-Verbal Communication', in Benthall, J. and Polhemus, T. (ed.) *The Body as a Medium of Expression*. London: Allen Lane, pp. 195-232.
- Driessen, H., et al. (1997) *Giuseppe Penone*. Torino: Hopefulmonster.
- Duranti, A. (1997) *Linguistic Anthropology*. Cambridge: Cambridge University Press.
- Edelman, G. M., Tononi, G. (2000) *Consciousness: How Matter Becomes Imagination*. London: Penguin Books.
- Goldin-Meadow, S., Mylander, C. (1990) 'Beyond the Input Given: The Child's Role in the Acquisition of Language' *Language*, Vol. 66, No. 2 (June 1990), pp. 323-355.
- Goldin-Meadow, S. (2010) *Widening the Lens on Language Learning: Language Creation in Deaf Children and Adults in Nicaragua Commentary on Senghas*. Chicago: University of Chicago.
- Hewes, Gordon W. (1973) 'An explicit formulation of the relationship between tool-using, tool-making, and the emergence of language', *Visible Language*, Vol. 7, pp. 101-127.
- Kendon, A. (1995) 'Andrea de Jorio – The first ethnographer of gesture?' *Visual Anthropology*, Vol. 7, pp. 371–390.
- Kendon, A. (1997) 'Gesture' *Annual Review of Anthropology*, Vol. 26, pp.109-128.
- McNeill, D. (1992) *Hand and Mind. What Gestures Reveal about Thought*. Chicago: University of Chicago Press.
- McNeil, D. (2000) *Language and Gesture*. Cambridge University Press.
- Ritchie Key, M. (1980) *The relationship of verbal and nonverbal communication*. The Hague: Mouton Publishers.
- Saussure, Ferdinand de (1916 [1983]) *Course in General Linguistics*, trans. Harris, R., London: Duckworth.

Senghas, A., Kita, S., Özyürek, A. (2004) 'Children creating core properties of language: Evidence from an emerging Sign Language in Nicaragua.' *Science*, Vol. 305, pp. 1779-1782.

Sheets-Johnstone, M. (2012) *The Primacy of Movement*. Amsterdam: Benjamins.

Streeck, J. (2009) *Gesturecraft. The Manufacture of Meaning*. Amsterdam: Benjamins.

Streeck, J., Goodwin, C., LeBaron, C. (2011) *Embodied Interaction: Language and body in the material world*. Cambridge University Press.

Streeck, J. (2013) *Praxeology of gesture*. In Müller, C., Cienki, A., Fricke, E., Ladewig, S., McNeill, D., Tessendorf, S. (eds.), *Handbook Body Language Communication. An International Handbook on Multimodality in Human Interaction*, Vol. 1 (pp. 674–685). Berlin: de Gruyter.

Streeck, J. (2015) *Gesture*. From: *The Routledge Handbook of Linguistic Anthropology* Routledge. Accessed on: 28 Jul 2016. Available at: <https://www.routledgehandbooks.com/doi/10.4324/9780203492741.ch3>

Uexküll, Jacob von (1934 [1957]), 'A stroll through the worlds of animals and men', in Shiller, C. H. (ed.) *Instinctive Behaviour*. New York: International University Press, pp. 5-80.

Webb, R. (1996). 'Linguistic features of metaphoric gestures,' PhD thesis. Univ. Rochester, Rochester, New York.

White Cube (2016) *Dóra Maurer. 6 out of 5: Organized by Katharine Kostyál*. Available at: [http://whitecube.com/exhibitions/dora\\_maurer\\_masons\\_yard\\_2016/](http://whitecube.com/exhibitions/dora_maurer_masons_yard_2016/)

## Interviews

Breeze, C. (2016) 'Culture and science of corporeal languages'. Interview with Charles Breeze. Interviewed by Javier Torras Casas for the *Performing the hands* project.