

Faces in the Brain

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Abstract

In this paper it will be investigated the distinction – supported by experimental data – of two different degrees within the so-called *face perception*: 1) The automatic perception/detection of faces; 2) The recognition of a *specific face*, that concerns personal meanings association – a *story*, we could say – to that first automatic perceptual configuration.

In general, the first degree is a *basic* perception process, a *universal, innate* and *early* capacity belonging to all human beings. It includes three *face-selective regions* in the brain, with the OFA and the STS who process the partial data of faces, and the FFA that “produces” the overall basic form.

The second degree consists in a complex recognition process, which implies the activation of many cerebral areas with different functions such as, for example, the subcortical regions responsible for emotions modulation (*amygdala, insula*), the *intraparietal sulcus*, the *auditory cortex*. It associates a given perceptual pattern with specific semantic entities, which compose a qualitative complex of experience, knowledge and subjective understanding.

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1. Perceiving faces

Faces are the most relevant *perceptual configurations* which men come across their life (Bruni, Perconti, & Plebe, 2018). It's an essential element for the *social cognition*, because it actively conveys important information such as emotions, expressions, glances aimed at specific objects, and constitutes the concrete basis for the *other minds* intentionality reading.

Face perception can be defined as a sort of “mental trigger” for social cognition (Perconti, 2017). It is an *unconscious, selective* and *innate* brain process; so it is not, indeed, a cultural or educational product (McKone, Kanwisher, & Duchaine, 2007). This ability involves specific neural activities and it is activated for humans beings – in a perceptual context – in more or less 170 milliseconds (Bentin, Allison, Puce, Perez, & McCarthy, 1996); Hadjikhani, Kveraga, Naik, & Ahlfors, 2009) and without any intention, so it can be defined as an *automatism*.

Already in the first days of life (Morton & Johnson, 1991), newborns are able to identify a face, detecting it without difficulties among the lot of objects in the environment that make up their perceptual horizon (Bushnell, 2001; Turati, Bulf, & Simion, 2008). This primitive ability is the first step in the construction of a complex tool for the interpretation of social signals, which will be optimized from the 4th to the 6th month of age, then become “mature” and efficient when the child is five years old (Nordt & Weigelt, 2017). At this stage, memory and other cognitive capacities will efficiently process face-like perceptual patterns along with specific semantic content (Bruce & Young, 1986; Haxby, Hoffman, & Gobbini, 2000); Haxby & Gobbini, 2007) configuring a given perceptual pattern as a *personal face* (Wang et al., 2017; Anzellotti, 2017; Kamps, Morris, & Dilks, 2019). It is not so easy to investigate how face perception works in newborns, insofar their brain are not yet well structured. Before the sixth month of age, despite the use of sophisticated detection tools such as $fMRI$, it is impossible to identify the face-selective regions (Deen et al., 2017), namely the FFA (Fusiform Face Area), the OFA (Occipital Face Area) and the STS (Superior Temporal sulcus). Although the question of the cerebral localization of *face perception* is still open, in newborns the empirical evidence of such *innate* ability is non questionable.

2. More faces than there are

Promptly perceiving and interpreting faces is so important for us that we often overestimate their presence in the surrounding environment (Perconti, 2017). This tendency – that, when taking a pathological turn, is called *pareidolia* – has an evolutionary matrix: because face is the primary vehicle of other people intentions, to know how to interpret quickly a face might have been, especially for our ancestors, a primary tool for survival. Imagine one our ancient ancestor engaged, alone, in fruits harvesting in a wooded area dense of trees and wild plants — a fictional environment of evolutionary adaptedness. He discovered sweet and ripe apples in some trees, in a very distant area from the place where he lives. He is very hungry and, while he collects the fruits for himself and for the other living partners who await him hungry in the far village, he voraciously eats some fruits. He looks around, searching for possible biological movements performed by other living organisms or for strange faces that he doesn't know yet. In this hypothetical context, quickly perceiving the presence of a face (and *immediately* reading the intentions conveyed by it) may mean, concretely, *die* or *live*. Overestimating the number of faces detected in a given environment has, as we mentioned earlier, some *adaptive reason*. *Pareidolia* suggests a disquieting pathology, because it consists in perceiving *more faces than there are*. And since a face is always the configuration of a possible interlocutor or any subject to whom to

attribute intentions and thoughts, concretely those who suffer this condition ends up being immersed in a mistaken world of “other minds”. A sink with its knobs, a stain or a socket embedded in the wall or even a cloud that seems to observe us from a faraway place in the sky: classic examples of *face-like objects*. To understand how is widespread this illusion – introduced into psychopathology by Karl Jaspers – just think that in Japan have even set up a Museum of stones that look like faces, the renowned *Chinsekikan*, located in the city of Chichibu.

Basically, investigating the phenomenon of *pareidolia* consists, in a neuroscientific spirit, in detecting the difference between the perception of a face and the perception of an object with a similar configuration (“face-like object”, precisely). Some studies by Nouchine Hadjikhani proceed in this sense, and deliberately cross other purposes, such as face detecting in autistic subjects, extremely difficult process to sift through, because – as Hadjikhani herself claims, resuming a 2002 study (Bailey, Braeutigam, Jousmäki, & Swithenby, 2005) – «face-perception studies in autistic individuals are often difficult because autistic persons do not like to look at faces» (Hadjikhani et al., 2009). Hadjikhani and her colleagues, using the MEG (Magneto-Encephalo-Graphy), found that there is an early activation (165ms) of the FFA during the perception of *face-like objects* (in the case of real faces the activation is equal to 130ms), therefore the *pareidolia* is not a product of a *reinterpretation*, something that takes place subsequently, following the subject face identification. It is, tangibly, a *premature* and *innate* phenomenon.

There’s a 1984 painting, created by the Californian artist Bev Doolittle, that tests our *congenital* ability for faces. For any human being it is simple to detect the presence of faces – they should be thirteen – in the represented landscape. It’s obvious that these are not “real faces”, but configurations of parts of the scenario that deliberately recall the *basic face configuration*.

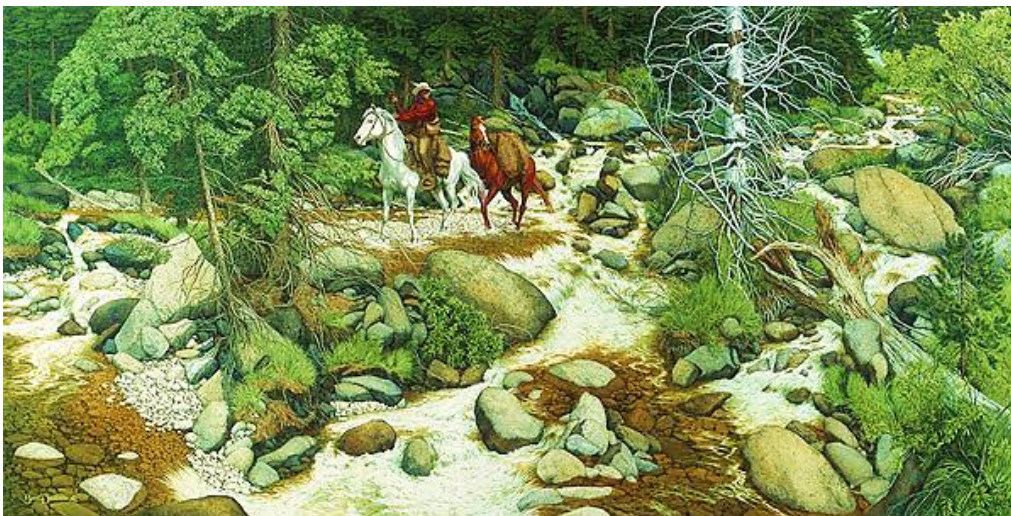


Fig. 1 – “The forest has eyes” (1984), by Bev Doolittle. In the painting there are thirteen “hidden” faces, although someone locates more, thirteen among the trees and six in the rocks. Source:

www.artifactsgallery.com/art.asp?!=W&ID=12810.

A well-known LG commercial launched in 2010 informed us that the Seoul giant had produced electronic devices – integrated into their smartphones – that could detect the presence of faces in a given scenario. This kind of performance was further achieved by deep neural networks in a way which surpass human abilities.



Fig. 2 – LG’s advertising poster (2010) that illustrates the new smartphones skill to easily detect faces in a scenario. Bottom left we can read: «Detects up to 16 faces».

Sometimes, *pareidolia* may concern a *religious images detection* (Voss & Paller, 2012). This happens when the primary and innate ability of *face perception* binds to beliefs or – in general – superstitions, producing picturesque *narratives* of reality.

In these cases, something different happens than the rapid and innate process of *face perception*: the identified face is reinterpreted and shaped by other cognitive functions, building a sense and probably *deforming* it.

Exemplary is the “nun bun phenomenon”, generated by having attributed to a baked product shape a vague resemblance to Mother Teresa of Calcutta. The case, born in 1996 in a club in Nashville, Tennessee, produced for a time a significant *merchandising*, commercially exploiting the Mother Teresa image.

3. Two degrees of *face perception*

There is a difference between *perceiving* a face and *recognizing* it. Here it is argued for a degree difference in *face perception*, which corresponds to the configuration of two distinct “phases”, or rather “types” of processes:

1. type 1: automatic face perception/detection;
2. type 2: *specific face* recognition.

In the Italian language there is an effective and handy distinction between the terms “*faccia*” and “*volto*” that in English are summarized by the single lexical voice “face”.

The Italian term “*faccia*” can be easily tied to the first “phase” of the *face perception*, while the term “*volto*” corresponds substantially to the second one (Perconti, 2017).

To easier understanding what will be presented here, we propose a simplified table with the exact linguistic correlation, and the configuration of two *conceptual models* – and their related cognitive and neuronal processes – of which we will try to prove their usefulness.

n.	English word	Italian words	Acronyms	Related Processes
1	Face	Faccia	BFM (Basic Face Model)	Perception/Individuation
2		Volto	QFM (Qualitative Face Model)	Recognition

Fig. 3 – Table of face perception.

The table [Fig. 3] has something similar to that proposed by the American neuroscientist James Van Loan Haxby (Haxby et al., 2000) who identifies two systems – “Core” and “Extended” – responsible for faces perception. The distinction between “core” and “extended” face system is neuroscientific in kind, since it tries to explain how different brain areas are involved in face encoding.

However, the distinction was produced in relation to a “speculative” study by British psychologists Vicki Bruce and Andy Young, *Understanding face recognition* (Bruce & Young, 1986), admirable work containing a seminal model of the whole face recognition system. The psychologists proposed a *functional* scheme, implicitly advancing an idea – or more exactly a *hypothesis*, since the lack, at that time, of neuroscientific studies on this matter – that face identification/perception involves a reduced and circumscribed process compared to the *face recognition*.

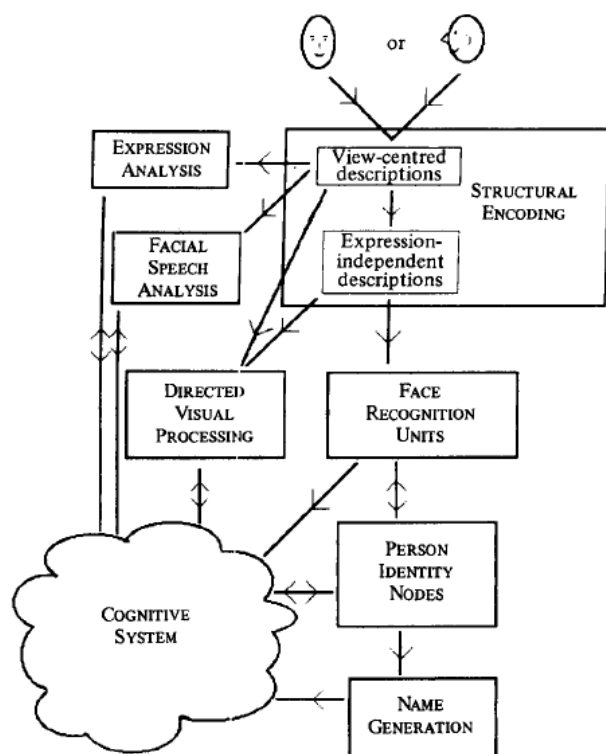


Fig. 4 – Functional model of Face recognition (Bruce & Young, 1986).

The “map” on the left is taken from their scientific article and reproduces the *face recognition* “functional” architecture. The authors focus much of their theoretical efforts on conceptualizing the recognizing face identity function. In the seven types of information conveyed by faces, according to their model, few information is reserved for more specific semantic elements, linked to emotions, subjective memories and above all *narratives*, which concretely constitute the distinctive elements of the *face qualitative* characterization.

James V. Haxby, as we have seen, takes up the aforementioned theoretical and cognitive Bruce and Young’ track,

modifying it and “integrating” the part in which it appeared “incomplete”: that *semantic* and *emotional*. Those content that have been called “qualitative” in this document can be traced back to what Haxby and his colleagues identify with the previously mentioned expression “Extended System”: «We suggest that additional neural systems should be considered extensions of the face perception system. The spatial attention system, which includes brain regions in the intraparietal sulcus and, most likely, the frontal eye fields, uses facial cues (primarily gaze direction and head position) to direct attention. Systems for processing emotion, with regions identified thus far in the amygdala and insula, process the emotional content of expression. Systems for auditory verbal comprehension in the superior temporal gyrus participate in processing the phonemic content of speech-related lip movements. Systems for representing biographical semantic knowledge in the anterior temporal lobe participate in retrieving the name and other information associated with a face» (Haxby et al., 2000).

With *The distributed human neural system for face perception*, Haxby and his colleagues Hoffman and Gobbini (2000) support the bipartite nature of *face perception* in humans: 1) perception/ detection; 2) recognition.

4. Basic Face Model

As Kamps, Morris and Dilks ask for in their recent paper (Kamps et al., 2019), after all, «What is a face?». The word “face” is the basic configuration of an *iconic* two-dimensional image that concretely corresponds to two points (separated horizontally by a space) and a central and parallel line below them. Recalling a well-known stylized image, we could say that it resembles the popular image “smiley”, or “happy face”.

Here we defined the basic model of a face with an acronym: BFM (*Basic Face Model*).

Neuroscientific literature does not have a specific term that “*summarizes*” this basic configuration. Jia Liu (Liu, Harris, & Kanwisher, 2010) uses the term “T-shape”. It’s a happy choice: besides facilitating the understanding of the different activities carried out by the FFA, the OFA and the fSTS (basically the perceptions of single parts of face such as eyes, ears and mouth and the “holistic” perception of the whole figure), evokes the structure of T-shaped molecular geometry (such as the “eyes above nose above mouth” face setting) of some

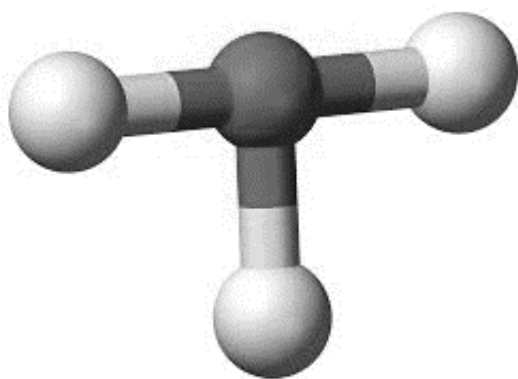


Fig. 5 – “T-shaped molecular geometry”.
Public domain image.

molecules in which the central atom has three ligands.

The *default* orientation of *face perception* is *upright* (the eyes are up, under the nose, then the mouth), so it’s hard for humans to *read* an *upside-down face*: it can be identified, but the *reading process* of emotions and expressions that it conveys does not work properly. This processing/reading “bug” in upside-down faces perception was studied by Peter Thompson in the late ‘70s, and nominate it “Thatcher Effect” (Thompson, 1980).

5. Qualitative Face Model

The *face perception* automatism is indicative of the fundamental importance of this ability in *social cognition*. We could say that it also corresponds to an unconscious *need* to detect an interlocutor in our *habitat*, in order to configure a social context in which interacting, and essentially *live*.

Something exemplary happens in Robert Zemeckis’s movie *Cast away* (2000): the lonely shipwrecked Chuck Noland (Tom Hanks), surrendered to a context of extreme solitude,

reproduces (with his own blood) the basic configuration of a *face* [Fig. 6] on a volley ball, calling it “Wilson” (a well-known *brand* sports equipment manufacturer). Chuck begins to consider Wilson as an interlocutor, establishing a strong emotional bond.



Fig. 6 – A screenshot from “Cast Away” (Robert Zemeckis, 2000).

Wilson is no longer a “T-shape”, a basic model, an *indeterminate face*. It becomes a “*volto*”, a *specific face*, because Chuck Noland attributes intentionality to it, and above all he ties to that image desires, hopes and concrete emotions. Even for the movie’s viewers Wilson becomes “someone”, more than just a reddish spot on a ball: we feel a certain anguish to see Wilson vanishing into the waves, as if it were a real person, as if it felt emotions, or as if it *could feel* emotions.

What makes a face significant?

We could answer this way: its “specificity”. A “specific face” – in Italian a “*volto*” – corresponds, as we said, to a *qualitative* level of *face perception*, and we proposed to indicate this by the acronym QFM (*Qualitative Face Model*). It contains many qualitative “semantic elements”, i.e. information with a *subjective sense*, which, for example, make us understand whether a face is familiar or not, what emotional message it can convey (or *actually* conveys, or which message *we believe* that it conveys), what specific memories or sensations it produces.

Undoubtedly, the identification of “familiarity” (Haxby & Gobbini, 2007) – which can generally be compassed in the term “recognition” – is the *qualitatively* strongest: it is *purely subjective*, since a face unknown to one person may be totally familiar to another one. The topic of “familiarity” is associated with *cognitive deficit* called *prosopagnosia*. «Our ability to recognize faces – claims Eric R. Kandel (Kandel, 2018) in his latest book – resides in the right fusiform gyrus of the inferior medial temporal lobe of the brain. People with damage to the front of that region are face-blind». The quote contains some observations that Kandel develops around the artist Chuck Close who – surprisingly, despite his prosopagnosic condition – is a skilled portraitist.

In patients who have this pathology, especially “associative” prosopagnosia, the *deficit* consists in a lack (or *apparent lack*) of semantic – and *qualitative* – information, useful for the *face recognition*. Those who suffer from such a cognitive gap do not ignore the *basic face configuration* (Duchaine, Dingle, Butterworth, & Nakayama, 2004), BFM or *T-shape*, but a “specific face”, which in ancient Greek language was called *pròsōpon*.

It's therefore an issue that hinders the QFM configuration. Generally, patients with prosopagnosia do not consider their faces familiar. At this point, a question arises: what is *self-recognition* through *face perception*?

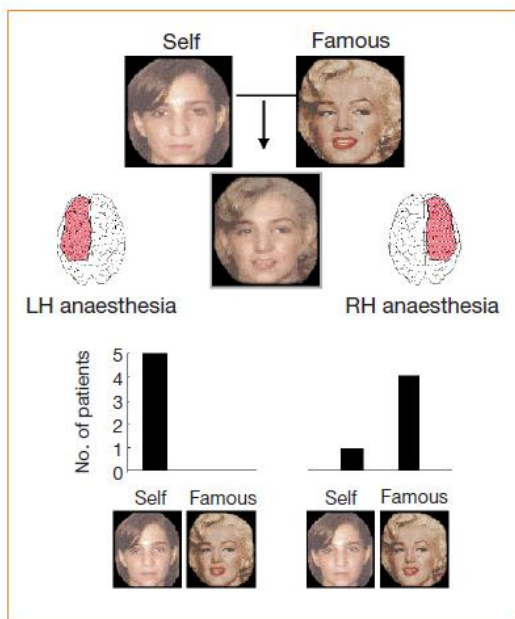


Fig. 7 – Face recognition after alternating selective anesthesia of two brain hemispheres. Source: (Keenan et al., 2001).

Self-recognition is related to peculiar brain activities, even traceable to the right hemisphere, as Julian Paul Keenan claims in his paper *Self-recognition and the right hemisphere* (Keenan, Nelson, O'Connor, & Pascual-Leone, 2001). Using WADA technique, which selectively anesthetizes one brain hemisphere at a time by injecting amobarbital – a barbiturate derivative – in carotids, and presenting morphed photographs (the *morphing* of the anesthetized patients's face – called *Self* – and the Marilyn Monroe face, called *Famous*), it was possible to detect whether *self-recognition* cognitive is “processed” in the right hemisphere. «Patients were instructed to remember the picture presented. Different pictures were presented during selective anaesthesia of the right and the left

hemispheres. After recovery from anaesthesia, patients were given a forced-choice task in which they had to choose the picture of the face that they had been shown. The two choices were the pictures from which the morphed image had been generated (self and famous), although neither choice had actually been presented during anaesthesia. Following anaesthesia of the left hemisphere, all five patients selected the ‘self’ face as the one they thought had been presented». Anesthetizing left hemisphere doesn't interfere with recognizing their own face in the morphed image. Instead, after recovery from right hemisphere anesthesia, participants (4 out of 5) took over Marilyn Monroe in the proposed image.

6. Brain “areas” involved in *face perception* and *recognition*

6.1 BFM

Face perception, as we said, is a fast and automatic procedure. The configuration of the BFM is “produced” by the synergistic and synchronized work of the FFA, the OFA and the STS, which together constitute the so-called “face-selective regions”.

The FFA owes its name to neuroscientist Nancy Kanwisher, who in 1997 described it as a specific domain for facial recognition within the visual system (Kanwisher, McDermott, & Chun, 1997). Before Kanwisher's studies, the Lebanese scientist Justine Saade-Sergent had started pioneering research in this field, revolutionizing the related neuroscientific horizon. Justine Sergeant committed suicide with her husband in 1994 (she was only forty-four) due to the stress caused by the accusation of violating "research ethics" (the next investigation was not able to provide any evidence against the scientist). With the purpose of concretely understanding what caused the *prosopagnosia* condition manifested in some patients with brain damage in the temporal and occipital lobes, Justine Sergeant used the PET (Positron Emission Tomography) scan with radionuclide isotope ^{15}O on patients engaged in the identification of specific objects and shapes (grids, faces, and objects).

The result, evident and very clear, is deduced by reading the article: «The first empirical evidence from normal subjects regarding the crucial role of the ventro-medial region of the right hemisphere in face recognition» (Sergent, Otha, & MacDonald, 1992).

Today we know that the FFA plays a crucial role, but its specific contribution is dependent on other skilled "areas" such as OFA and fSTS, which are sensitive to the partial components of the BFM, namely eyes, nose and mouth, while the FFA would contribute to the "holistic" face configuration, conferring units and assembling partial shapes into an essential and precise overall structure (Arcurio, Gold, & W., 2012; Pitcher, Dilks, Saxe, Triantafyllou, & Kanwisher, 2011). The most recent studies seem to confirm the first hypotheses, dating back to the 1990s, on the decisive role of the three regions of the *human ventral visual cortex* that respond selectively to the perception of faces (Pitcher, Walsh, Yovel, & Duchaine, 2007; Liu et al., 2010; Kamps et al., 2019).

Functional magnetic resonance imaging (fMRI), which detects on great precision the blood "flow" in the most remote parts of the nervous system – and the resulting related neuronal metabolism – has been undoubtedly decisive to detect the specific operation of certain skills.

6.2 QFM

The identification of what we have defined QFM is related to several brain areas. Once again, we refer to Haxby (Haxby et al., 2000) to know which neural regions are involved in the extended neural *system* in addition to those that we already know are crucial for the perception of the *basic face configuration*.

The extension to other regions of the nervous system, with their specific functions, is generated by concrete needs. Something similar happens on other occasions as well. We look at a tool, a hammer for example, and we cannot stop at the simple detection of it, but we focus our

attention on a *semantic information baggage* stored in memory, *embodied*, or related to its – we would say – *affordances*, such as: weight, use, *operation*, that time I have crushed a finger, etc. *Reading a specific face* is obviously more complex, because we are *naturally* oriented to attribute intentionality to it.

Imagine there is one face in front of us, right now. It's dark and we don't see it clearly. It appears scared, it looks away and seems to whisper something. We can't hear it, but its lips are moving. Perceived as a BFM, our *extended system* now works to interpret it as a QFM. Thus, noting his diverted gaze, we *unintentionally* activate the *anterior intraparietal sulcus*, which is involved in the visual attention and action mental representation (Hamilton & Grafton, 2006). Its fear “wakes up” our *amygdala* (Lanteaume et al., 2007), an extremely sophisticated gland that is part of the “limbic system” (it is located above the brain stem, in front of the hippocampus) and is involved in a lot of activities, including recognizing and recalling (even unconsciously) the emotions experienced. It can be said, generalizing, that it represents, in both its hemispherical localizations (right and left), a kind of “emotional intelligence”, fundamental to the individual *social dimension* (Buchanan et al., 2009).

Whispered words and lip reading affect the *upper temporal circumvolution*, a region of extraordinary importance – even this – for social *cognition*. It is in it that the so-called *Cocktail party effect* “materializes”: a singular phenomenon of filtering and focusing attention on a certain auditory stimulus in the context of an intricate sound “carpet” consisting of countless stimuli (Getzmann et al., 2016). It's a remarkable selective attention skill, possessed by each of us already a few days from birth (Plude et al., 1994). In simple terms, the *Cocktail party effect* alludes to the astonishing human ability to entertain a conversation in a noisy and chaotic environment such as a nightclub, a *pub* or in an urban means of transport during rush hour.

Within the *upper temporal circumvolution* “reside” the *primary auditory cortex* and the so-called *Wernicke* area, whose dysfunction is linked to *aphasia* and probably, according to recent studies, to the understanding of non-verbal sounds (Saygin et al., 2003). Let's go back to the picture of the *frightened face* we were investigating. Now we feel a sense of disgust. Let's assume we understand what the face wants to mean, and we don't like it. Our sense of revulsion is activated by the *anterior insula*, as demonstrated by a study attended by Vittorio Gallese and Giacomo Rizzolatti (Wicker et al., 2003). At this point we don't understand the meaning of the fear we had identified on that face, and we are puzzled about what his true state of mind is: here is activated our *right somatosensory cortex* (Adolphs, 1999).

We hear footsteps seeing a human silhouette moving towards us. It seems a familiar *biological movement*, and in fact as soon as we see better, we realize that it belongs to a well-known person.

Haxby argues that familiarity is linked to *anterior temporal lobe* (Haxby et al., 2000): «Recognition of the faces of people whom one knows, either because they are famous or personal acquaintances, appears to be associated with activity in anterior temporal regions». In these functional areas, a damage leads to “semantic” dementia, meaning a lack (total or partial) of *qualitative information*.

On this issue it can be useful a recent scientific paper (Anzellotti, 2017) by Stefano Anzellotti, created in response to Yin Wang, who carries on the idea that ATL (*Anterior Temporal Lobes*) is the *semantic hub* of our brain system (Wang et al., 2017). Anzellotti believes that there is no single “seat of semantics” in the human brain, a real *central point*. ATL certainly plays a crucial role in the “semantic system”, but it’s not a *hub*, as Wang argues.

In describing how human brain is able to shape the meaning of a face from a world populated only by perceptual patterns, it is matter of detecting two specific conditions: the first was mentioned by Anzellotti, that is the impossibility of finding a “center”, i.e., a hub of the “semantic intentions”, and the second being the condition that the *semantic elements* are always *meaningful* (and, so to say, *qualitative*) for us (and *only for us*).

7. Concluding remarks. *Portrait of a man* and *The Smile of the Unknown Mariner*



Fig. 8 – “Portrait of Man” by Antonello da Messina.

Oil on board, 31 × 24 cm.

Date: c. 1465 - c. 1476.

Location: Museo Mandralisca, Cefalù (PA).

Antonello da Messina’s *Portrait of a Man* is an oil painting on a small walnut board (slightly larger than the A4 format) dating from period 1465-1476.

Today it is best-known as “Portrait of the unknown sailor” or “Smile of the unknown mariner”. These denominations – especially the second one – have spread since the ‘80s also as effects of the success of Vincenzo Consolo Italian historical novel *The Smile of the Unknown Mariner* (orig. title: *Il sorriso dell’ignoto marinaio*, 1976).

What does this portrait represent? Of course, there is a *face* in it, precisely a *smiling human face*. None of us recognizes the identity of that specific face, yet for it works the same *mental trigger* that makes us perceive distinctly – and quickly – a face presence. Consolo’s literary fiction “adds” *something more* to that

common, rapid and innate perception: precisely, it adds a “story”.

The historical novel that “grafts” in itself the Antonello painting can be defined, in line with what we are supporting here, a “qualitative” contribution to the basic configuration, to the canonical *T-shape* we would say, evoked by the Sicilian artist portrait.

Is not relevant how true or false are the *semantic informations* conveyed by Consolo. The man in the painting could be “a mariner”, but it may not be (Roberto Longhi, a skilled art critic, argued that it were impossible the portrait represents a sailor): that is not what really matters.

In this superb assortment of painting/book we can truly read what we explained right here at the beginning of our work: a face, *any face*, can be or can become a “volto”, a “specific face”, not only vehicle of sudden and obvious perceptions (such as the unknown man crystallized smile), but of hidden and personal suggestions, specific memories, emotions and above all *experiences*.

Concretely, Consolo’s book is a “story” associated with that *unknown face* that each of us can peek into the Mandralisca Museum. It is the *quality* “added” to a simple *face perception*. What happens in Consolo novel is similar to what is realized every time we associate a “story” with a face, whenever we recognize a face and tie it to experiences, configuring a *qualitative dimension* which represents and determines its *uniqueness*.

In this perspective, it is useful remembering a passage from *Remarks on the Philosophy of Psychology* (1946-49) of Ludwig Wittgenstein, in which the author seems to argue that recognizing a face means exactly *inserting it into a story*:

381. ‘This coffee has *no taste at all*.’ ‘This face has *no expression at all*’ – the opposite of this is ‘It has a quite particular expression’ (though I could not say what). A *strong* expression I could easily connect with a story for example. Or with looking for a story. When we speak of the enigmatic smile of the Mona Lisa, that may well mean that we ask ourselves: In what situation, in what story, might one smile like that? And so it would be conceivable for someone to find a solution; he tells a story and we say to ourselves ‘Yes, *that* is the expression which *this* character would assumed here’.

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