

**THE MENTAL ARCHITECTURE OF MEANING.  
A VIEW FROM COGNITIVE SEMIOTICS***Per Aage Brandt**Cognitive Science, Center for Cognition and Culture, CWRU*

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## Abstract:

Mental content, also called meaning, is ostensibly organized in a layered architecture based on integration of material from lower to higher levels. Thus, qualia are integrated in objects, and these in situations, etc. However, I argue and show that there are significant transversal bindings connecting material of non-adjacent levels, and that these bindings constitute the structural entities we call signs, or semiotic functions. The finding of these bindings therefore grounds semiotics in cognition, and it allows cognitive studies to progress into the realm of cultural phenomena, communication, and the semiosis of language and thought. What I present in this article is a special version of the very base of the approach we now call cognitive semiotics.

Key words: Iconicity, symbolicity, semantic integration, mental architecture, cognitive semiotics.

*Science is imagination in the service of the verifiable truth*

Edelman/Patel

This article is based on phenomenological observation and a minimum of theoretical construction. We will consider the cognitive and semiotic results of phenomenological observation in our first section and develop semiotic perspectives in the following sections.

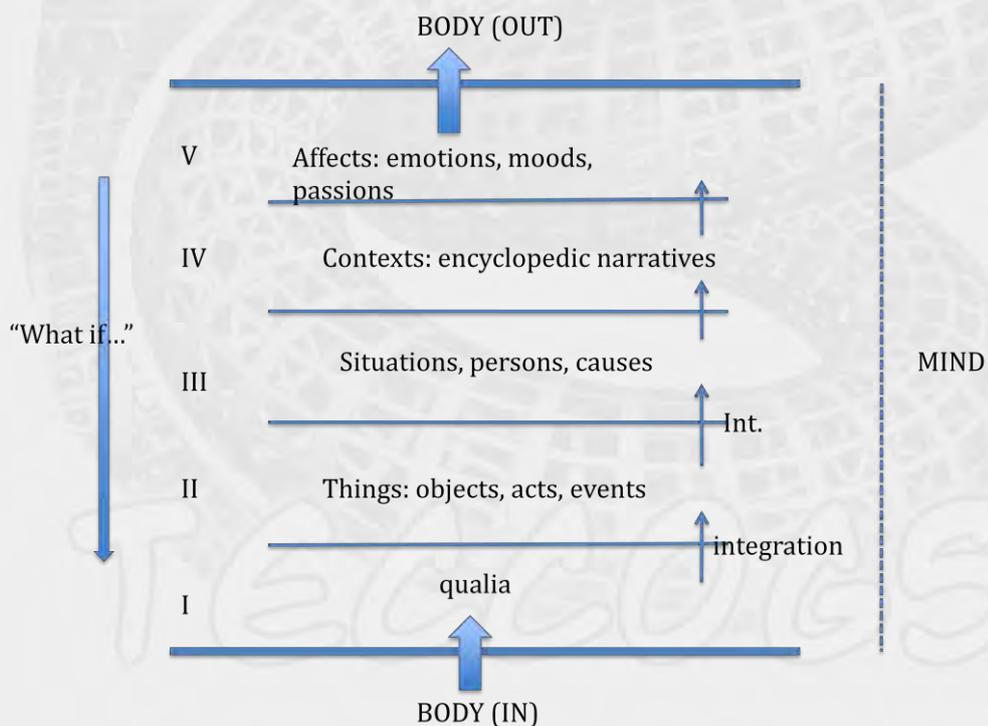
### 1. The basic architecture

The contents of our consciousness, or awareness, that is, „the things we can be aware of“, are accessible in a variety of levels of complexity. Whether in sensory perception, or in mental recall, we access items by directing our attention to specific versions of their appearance. The mono-modal forms such as colors, visual shapes, sound shapes, odors are either foregrounded as they are, as esthetic qualia, or absorbed in higher-order entities, normally multimodal, such as objects, acts or events of which they are aspects. It is worth noticing, for example, that our attention freely can go from the occurring tonal sound of a musical instrument to the act of it“s being played, and then back again the “pure” tonal event. Furthermore, object, acts, and events can be, and normally are, experienced as situated in space and time as situated scenarios caused by certain forces, incl. personal intentions. Again, we are free to focus on the “pure” gesture of an act or the “pure” process of an event, or on the entire situation in which it occurs. This freedom is essential in situation of learning, where a skill is to be acquired and then “lifted out” of the situation where it was studied. We are able to “understand” situations as conditioned by a contextual history and as likely to bear consequences in their contexts – even if we are not able to perceive such conditions or consequences directly, but only able to imagine them as based on our encyclopedic knowledge. “Understanding”, in this sense, contextualizes situations on a more comprehensive and, in so far, a more complex level of consciousness; here is where language will distinguish perceiving and conceiving, or “seeing” and “thinking”. Finally the result of the experience of understanding, typically a narrative integration, gives rise to a comparative evaluation of the “case” in a framework of so-called values: degrees of justice, truth, elegance, utility, wisdom, or “evil”, “ugliness”, “horror”, and so on. This ultimate level of mental activity leads to, or is directly linked to, affective reactions, such as personal emotions (pride, shame...), general moods (elation, gloom, boredom), passionate feelings (love, hate).

What we have followed through this series of steps is a structure of integrations, from qualia into things, from things into situations, from situations into states of affairs (cases), and from states of affairs into affective motives. The processes underlying the appearing of qualia

are evidently the physical and physiological processes of perception and memory. What further happens to our affective states of mind is related to their affecting our body and triggering motor reactions, incl. mental associations that change our mental work from its cascades of integration to a descent through the same levels into plans of possible action and details of such plans, allowing every sort of imaginary productions, from multimodal downwards to monomodal qualia representations. Whereas the ascending integrations are in principle passively reflective, the descending imaginary constructions, productions, representational “fantasies” are oriented toward action. A hypothetical action plan will be mentally examined by ascending integration before the emotional evaluation “stamps” it as good for execution.

The mental architecture summarized by the above corresponds to the following graph (fig. 1):



The “mind” is a small opening in the neural tissue surrounded by “body” functions of perception (IN) and motor reactions (OUT), and internally served by memory at all or at least several levels. Our claim is that there are exactly these five layers or levels, as shown, and that they are ordered by integrative processes („upwards“) that allow imaginative retroprocessing (“downwards”: “what if...”), especially to prepare response acts.

## 2. Language and culture in mental architecture

If the mental architecture is in itself trans-culturally and trans-historically stable, which is our actual claim, the question of cultural and historical specification of meaning must be addressed. In order to do so, we need to relate an architecture of meaning to the semantics of human language. In fact, the language of our species, across idioms of all kinds, does make it possible to grossly label and refer to certain qualia (level I) and to certain affective experiences (level V), but mostly to the price of massive use of metaphors; it appears to be a preference of human language to literally operate on the intermediate levels (II – IV). Category-naming lexemes and phrases operate on level II, sentence meanings on level III, and discourse-creative concatenations, incl. dialogue, on level IV. These three levels – II, III, IV – are also, interestingly, the mental locations of all cultural creations, whether they be artifacts (II), institutions (III) or stories (IV). It has not been found that qualia or affects as such are culturally (or ethnically) variable – at least to any important extent, despite the evident variations in terminology. By contrast, phenomena of levels I and V are differently integrated and thus found in widely different cultural settings; comparable cultural “things” of course have variable sensory and emotional properties and aspects.

The central core of human consciousness – levels II, III, and IV – are thus culturally variable as to their actual content. They are not variable as to the sorts of integration that articulates them but certainly regarding the actual objects, situations, and knowledge forms that they contain. Trans-cultural communication, incl. interlingual translation, is possible because the elementary format of entities stays stable under all variations: acts are still acts, events are events, objects are objects, situations are situations (not objects, for instance), and narratives are narratives. This might seem evident but is less so in the perspective, for instance, of inter-species communication.

The peripheral instances, the all-important afferent first and efferent last levels, are the most physiologically dependent and therefore the least culturally malleable; they assure the very “embodiment” of the mind, its functional continuity with our neuro-muscular body, a relation that has to be less constraining on the internal levels, where consequently our creativity unfolds.

### 3. Signs and communication

This view of mental architecture makes it straightforward to describe the semiotic function – the phenomenon called sign – as distinct from contents and entities in general. All semiotic theories, from Antiquity to Modernity, distinguish the two aspects of any “significantly” signifying phenomenon: it can be perceived and it can call our attention to some idea; it has a “sensibilis” side and an “intelligibilis” side; it has a “signifier” and a “signified”, a form and a meaning, a “representamen” and an “object”, etc. It is of course the case that any phenomenon we can experience can be perceived or conceived as having such aspects. A chair has a characteristic configuration as a multi-modal object, and it has situational and social uses and functions.<sup>1</sup> However it is obvious that in signs, the two aspects, one being of lower level in the architecture and the other of a higher level, are separated by lacking intermediate integrations. There is a semantic gap between the signifier and the signified, so to speak. A sign calls for splitting our attention towards the two separated aspects.<sup>2</sup>

Traffic signs are objects whose qualia are readable as instructions for specific narrative behaviors that have generic descriptions addressing pedestrians, car drivers, etc. Such signs are typical symbolic signs. Their signifiers are entities of level II, **sa(II)**, and their meanings are entities of level IV, **sé(IV)**; they do not integrate on the intermediate level III (the street can do without the parking sign post). Following the instruction is, for the driver, to perceive the **sa(II)**, to understand the **sé(IV)** and then to perform the content of the instruction in his situation **act(III)**.<sup>3</sup>

To read a musical score, and then to “play it”, would accordingly imply a similar process: **sa(II)** → **sé(IV)** → **act(III)**. This formula summarizes the meaning involved in symbolic communication. Symbols are therefore essential to all cultural formations and creations. Whether the behavior “intended” by the instructional meaning be physical (traffic) or mental (calculus), or both, as in music, the dynamic process is one and the same: filling the gap that makes something a sign is “interpreting” it.<sup>4</sup> The immense advantage of written

<sup>1</sup> Cf. Umberto Eco’s discussion of chairs in La struttura assente, 1968. Eco argues that the co-presence of these aspects in fact makes chairs be signs. Then all functional things would be signs, artifacts or not. Their meaning would be their function. Eco misses the point I am making here. (I forgive him.)

<sup>2</sup> So, again, a piece of furniture, in a museum or in a picture, can be a icon of a historical style or epoch; a urinal can be a work of art, as we know, if we create the semantic gap I am considering here.

<sup>3</sup> This account could explain in general what it means to „follow a rule“.

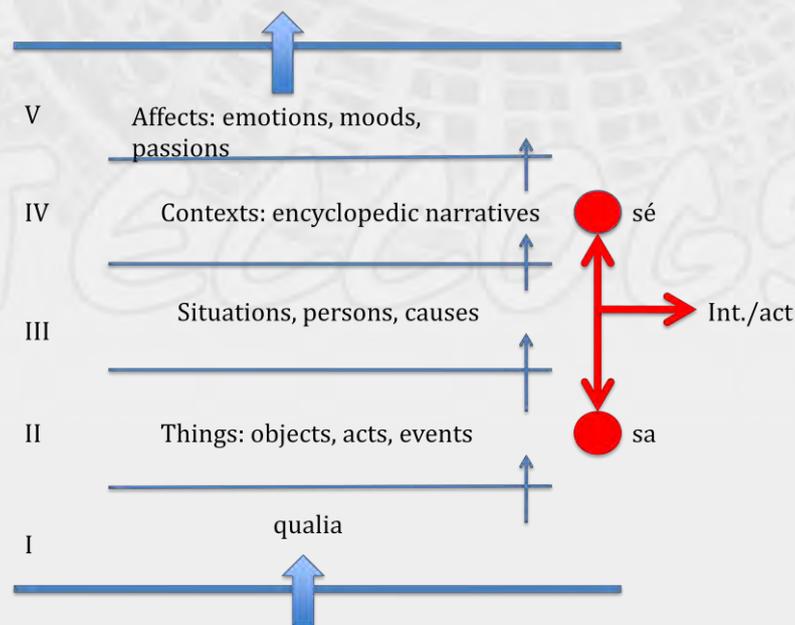
<sup>4</sup> The term “interpretation” therefore seems polysemic: the musician “interprets” the written music by playing it. The actor “interprets” a role. The critic commenting a poem “interprets” it. The online translator “interprets” from language to language.

language over spoken is precisely this gap constituted by the absence of situation, when the “author” replaces the “speaker”. Texts, written, have interpretations; spoken utterances are, by contrast, integrated immediately in the pragmatics of their situations of use.

In Fig. 2, below, we propose a simple representation of this view of the symbolic form of semiosis. In general, symbolic signs are, as mentioned, instructions, to be performed in the present. The semantic content would correspondingly refer to present states of affairs. However, monuments and similar memorial setups are symbolic signs referring to past states of affairs, while inducing present behaviors of respect, remembrance, awe, etc.; and it may be said that writing – whether linguistic, musical, or mathematical – refers to states of affairs that will be real at the time of their being conceived, interpreted, read, performed or “executed”, thus in the future of its formulation. The latter circumstance is then particularly productive in cultural contexts, where such “realizations” of the writ are often collective endeavors.

Symbolic signs are said to be conventional, or arbitrary, or coded. They are of course historically intended, conceived, and worked out by human beings in certain situations, just as proper names are ceremoniously given by someone to someone through so-called speech acts; we could call the instituting acts of symbolization symbolic acts (such acts would include speech acts).<sup>5</sup> (Fig. 2):

THE SYMBOLIC SIGN (IN RED), *sa(II)*→*sé(IV)*→*act(III)*:



<sup>5</sup> Symbolic acts thus consist in producing some object intended to mean some instruction, and to carry this meaning for some reason – the simplest version being the pure decision: A means B “because I say so”. The decision itself is a historical reason motivating the symbol – “arbitrarily”. Many symbolic acts have more detailed historical motivations, as we know from proper names.

A necessary remark: digital, graphic “signs” – letters, numbers, notes, etc. – must be integrated into sequences manifested on surfaces that are objects of some sort; in themselves they are qualia, short curved lines and line combinations that do not signify symbolically. The spaces of their composition define their meaning potential – so, due to the character of its space of manifestation, a telephone “number” is not really a number.

#### 4. Iconicity

Many digital symbols share graphic properties with drawn figures that we would call images. The A of the alphabet (and alpha) seems to be a descendent of an archaic ploughshare. So what is an image, in this perspective?

If we ask a visual artist, we will learn that it consists of intentionally reproduced qualia observed in objects, events, and acts in space-time. These qualia are typically maintained in the artist’s attention during moments of observation and then imitated in some material different from their original place of appearance (the color of an apple will be painted, not on an apple but on a canvas).<sup>6</sup> They then naturally induce the idea of the original place of appearance, an object etc. – it is an image. Such an image can furthermore become a symbol, since it is an object, and even more easily than other objects, because its materiality has no default functional place and context. It denotes what it looks like, while it connotes ideas to which the denoted content may be related; such connotation will assume symbolic force.<sup>7</sup> The entire image, framed and possibly signed by an artist, or cut out of a magazine, additionally connotes social information about the person in control of the space of exposition; this sort of meaning is again symbolic (since it invites an attitude on behalf of the viewer) and also, ultimately, simply causal: it is a symptom of its “owner”, and in this capacity, a so-called index, or an indexical sign.

Images are signs by iconicity. Iconic signs include portraits, typically oriented toward the past (here is what someone looked like at a certain time); maps, only useful if they offer information valid in the present of the viewer; and diagrams, typically used for planning of future or hypothetical constructions of some kind. Icons are natural signs in the sense that the

<sup>6</sup> As a matter of fact, I know of no artist having painted an apple on an apple. My point seems overly obvious; but in concept art, an artist – in casu William Anastasi – can take an accurate picture of a wall and then cover that same wall with that picture (Untitled, Dwan Gallery, New York 1966).

<sup>7</sup> This is why Roland Barthes, in his Mythologies, critically studied connotations as ideological mechanisms.

way in which their qualia integrate in the object they present in perception, naturally guides the way they integrate in the representation they form on the non-objectal support. The painting of an apple presents colors and contours of the model apple in a similar disposition, seen from some angle, on the new support that makes the result a representation. The distributed qualia of an apple are presented in a similar disposition in the image of an apple. The way an apple offers its qualia is not in any important way dependent on culture: it is natural (even if its perception will edit the way it is culturally experienced, especially if it is symbolically significant). The sensory material is naturally integrated as qualia of their material source in the pheno-physical world. This is why icons allow communication across cultures, while symbols do not.

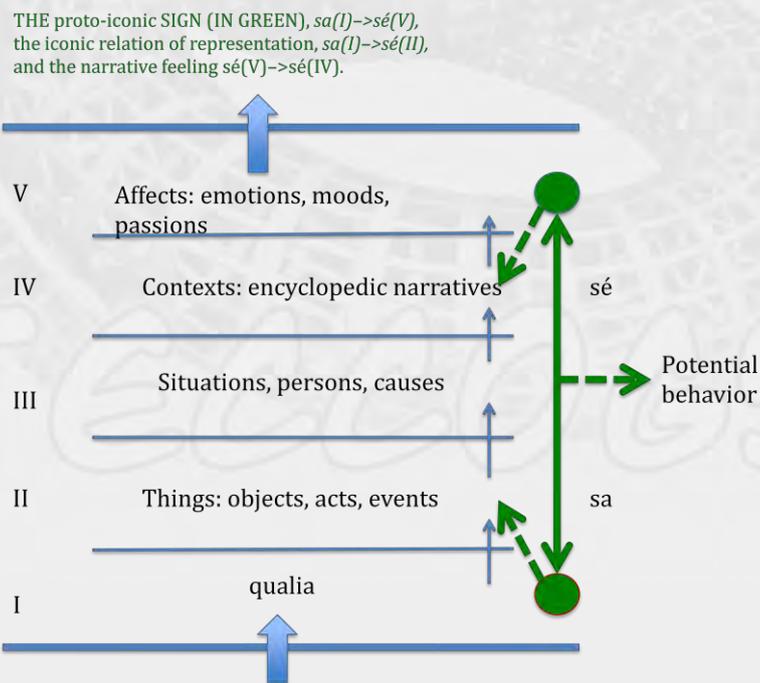
Art demonstrates another remarkable property of icons, one that is all-important in so-called design: qualia can be stopped in perception and withheld from integrating on the next level of meaning, that is, they can be experienced on their own level (I) as colors, lines, sounds, and so on – as “form” and “forms”. Forms can have names, like musical beats, tones, and scales, and like certain colors and shapes; this testifies to the fact that there are important circumstances where they are perceived as only integrated in the framework of a secondary support, without necessarily being selected from an original object (event, act) that they will now represent. These circumstances constitute what we call aesthetics. Humans possess a faculty of aesthetic perception, whose basic characteristic is to allow the experience of “free qualia”, forms disintegrated from former integrations or manifested without any other integration than the present manifestation; we call this phenomenon composition. Basically, composition requires mono-modal perception: music is perceived mainly in the auditive realm, painting mainly in the visual realm.<sup>8</sup>

Compositions of “free qualia” are still iconic signs, I claim, even when their components or constellations do not represent anything on the next level of meaning. For it turns out that aesthetic perception universally entails feelings, states of mind appearing on the emotional level (V). Such aesthetic feelings are variably described, but there is little doubt that they occur by cognitive necessity. All “pure” qualia presentations evoke affective reactions of the mind; different “styles” of qualia are then developed as expressions of “styles” of affect. Style in general can be seen as the result of this differentiable connection; styles in language, architecture, music, pictorial art, dance, arts-and-crafts, and even industrial design, are always

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<sup>8</sup> The mono-modality of elementary aesthetic perception may account for the frequent synesthesias found in art (and the myriads of “synesthetic” metaphors describing experiences of art).

somewhat emotionally effective. The factor that drives human interest in form, “pure” or “free” qualia, probably is precisely this immediate and direct mental connection it establishes to affect. Form–affect constitutes a proto-iconic sign relation: **sa(I) → sé(V)** that opens an immense semantic gap: **II–III–IV**, to fill in the contexts of communication where this proto-icon appears. When a representational disposition of form – **sa(I)→sé(II)** – fulfills the iconic sign, the aesthetic form-affect connection remains effective, unless it is neutralized by some functional pragmatics of the image (for instance, in the case of robot portraits in criminal investigation), and the gap essentially consists of imaginative concepts (of level IV) that can be triggered as a “narrative affect” by the semantic schemas inherent in affect s – **sé(V)→sé(IV)** – inspiring possible behaviors (III). Icons represent only possible states of affairs,<sup>9</sup> not actual instructions, or injunctions, as symbols do; this important distinction is simply due to the fact that the iconic signifier is a **sa(I)**, not a **sa(II)**.<sup>10</sup> The signifier is a constellation or arrangement of qualia, a form, not the actual object carrying this constellation (the iconic sign is the text, so to speak, not the book! – an essential distinction, as we know from religion).<sup>11</sup> The following graph shows the mental structure of iconicity, as this analysis proposes to describe it (fig. 3).



<sup>9</sup> C. S. Peirce saw that icons were signs of „possibility“; however, he did never try to explain this modal phenomenon.

<sup>10</sup> The author happens to have a non-parking sign in his garage; it is now only an image of a non-parking sign, since it has lost its space of relevance; and the idea of prohibiting “parking” in the space reserved for parked cars is now just what we call a “joke”. Symbols degenerate into icons; thus, in clothing fashion, military uniform caps etc. are used as ironic and coquettish icons of what they „have been“.

<sup>11</sup> People swear on books, not on texts. They therefore characteristically lay their hands on the book-object while doing so; forms cannot be touched in this ritual way.

Proto-iconic and iconic communication is cross-cultural; communicating (proto-) iconically is in fact, for humans, the main or only way to transcend cultural constraints on meaning in communication and thought. As individual persons, we are of course capable of naturally understanding images as such, and we are capable of experiencing form as expressions of human affect, with its narrative implicatures (sorrow implying loss; anger implying offense, etc.). Cross-cultural communication is primarily affective, as art demonstrates, to the extent that it is displayed internationally and travels across cultural boundaries. Art is crucial to human freedom and to critical thinking, because it is based on this semiotic property of the mind that allows us to not adhere entirely to any culturally specific community.<sup>12</sup>

In terms of modality, we could say that the core part of mental meaning architecture, II-III-IV, is dominated by displays of cultural instructions, that is, of a social ontology of things we must have (and not have), must do (and not do), and must know (and ignore). This central mass of meaning, which could be termed the deontic core of human consciousness, is negotiated through symbols, symbolic communication. The peripheral part of the architecture of meaning, I&V, embeds the former and consists of our most embodied contents: sensations and feelings, and their extensions: images (II) and intuitions (IV) that inform and guide our experience of the life world – a reality made of possibilities, of things that may exist, that we may do, that may be the case, a reality semiotically offered by the mechanisms of iconicity. The world of the (socially or physically) necessary is given as a part of the world of the possible.

## 5. Conclusion

In human evolution, the semiotic chapter begins when iconicity disintegrates from a former state of compact meaning integration that only consists of functional behaviors. Theatrical behavior, as we know it from technical teaching-by-showing, may be an important transitional form.<sup>13</sup> Then some theatrical gestural routines expressing extreme states – ecstasy,

<sup>12</sup> On the other hand, the pressure from culture is massive in perception, especially in the auditive domain: tonal pitch and timbre in music, phonemic fine-tuning in first-language, are unavoidable, as Aniruddh Patel (2008) stresses. But this is precisely why foreign music and languages are often experienced as more aesthetically pleasing or interesting than the sounds of one's „own“ culture. In order to experience the homely sounds as aesthetically significant, we have to modify them intentionally, and thus to be „creative“ – something which we can only or mainly be in our „own“ music and language, the idiomatic forms we grow up with!

<sup>13</sup> The mimetic phase in Merlin Donald's (2001) account of cultural evolution

panic, sexual arousal, passionate love and subsequent grief – lead to the invention of new collective forms, which become entrenched as inducing affect, not only expressing it.<sup>14</sup> Once affect can be induced intentionally, it can drive symbolization – which needs to be grounded in shared affect. Shared feelings develop shared stories, that subjects will feel they are part of. Participation drives identification and grounds the entire deontic core of culturalization.

*A contrario*, affective disturbances – from individual psychosis to collective “hysteria” – can cause deregulation of the symbolic routines of individuals and groups. Neologistic and altered speech in schizophrenia manifests a certain dissolution of the binding between first-language phonetics and affect, namely the emotional charge of its sounds. The semiotics of psychosis manifests correspondingly an extension of the deontic core to the entire domain of consciousness, potentially erasing the “free qualia” altogether.

The view of the mental architecture of meaning we have sketched out here may shed some light on mental pathologies and thereby contribute to the general cognitive psychology of our “symbolic” species. Immediately, I would like to just underline one single point: the aesthetic and the functional modes of perception are distinct processes within the same mental architecture; their difference gives rise to iconicity, which drives symbolization but stays distinct from it. We might as well call humans the iconic species.<sup>15</sup>

However, the underlying point of all such semiotic points is the cognitive point that the mind indeed has an architecture of integrations by stable levels of complexity – not of increasing complexity but rather of different complexity – which makes the semiotic evolution of our species possible, and allows subjects of our species to think and to communicate but – *mirabile dictu* – to communicate thoughts.

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<sup>14</sup> Drug-induced ecstasy is found in many religious practices; extreme states of mind (and body) are regularly related to artistic activity and aesthetic sensibility; such states have been (and are) creative in so far as they involve the unfolding of proto-iconic connections.

<sup>15</sup> In Terrence Deacon’s (1997) The Symbolic Species it is rather evident that the blind spot is iconicity.

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