
ANDREA ZHOK

Università degli Studi di Milano

andrea.zhok@unimi.it

HABIT AND MIND. ON THE TELEOLOGY OF MENTAL HABITS

abstract

In the following pages we shall discuss the notion of habit in sight of its role in the constitution of meaning. We make use of Wittgenstein's analysis of rule following to show the crucial role played by habits in the establishment of verbal meanings. Then, we show how habits can be established according to the Peircian model of abduction. The generalizing power of abduction (and habit) is explained in terms of teleological motivation, whose roots we expose by means of Husserl's analyses on passive synthesis. Finally, we draw the conclusion that the notion of habit may lead to a "non-naturalistic naturalization" of mind, that is, a "naturalization" opposed to both objectivistic and reductionist accounts of mind.

keywords

Teleology of habit, meaning, motivation, Husserl, Peirce, Wittgenstein

The notion of “habit” is a philosophically crucial and often misunderstood notion. Usually “habits” are mentioned in two theoretical contexts: by mentioning (and often stigmatizing) the power of mere reiteration of experiences in the constitution of beliefs, and by questioning the transmission of social practices.

The first case is emblematically represented by Hume’s treatment of habits, which considers them a powerful force in the mind, while simultaneously depicting them as mere mechanisms, enforced by the contingent regularity of nature. This way of understanding habits grants them a central position, but at the same time makes of habits something essentially meaningless: an unanalyzable contingent fact of nature.

The second interpretation regards the notion of habit as akin to “custom” and makes use of it as an explanatory key for traditions and social practices. This acceptance is legitimate and interesting, however it disregards the essential discontinuity between habits and social practices. Habits are *personal*: they may or may not have been inherited from social transmission, and they may or may not be intersubjectively shareable. Therefore habits are only a *necessary* precondition for social practices, but in order to become social practices a mechanism of transmission must be implemented, and this raises further questions that go beyond the nature of habit.

In the following pages we want to discuss the notion of habit in the light of its crucial role in the constitution of *meaning*. As we are going to show “habit” is the essential key to grasp and interpret the whole sphere of “learned contents” as such.

1. **Wittgenstein on Rule-Following and Meaning** Wittgenstein’s argument on the conditions for following a rule is among the most discussed pieces of philosophical literature, however its scope is not always clearly perceived. By focussing on rules Wittgenstein actually examines the conditions for learning and standardizing *any* mental content that we may use with constancy over time. This means that what counts for *rules* does count for any *learned meaning*, inclusive of the most strict and formal ones, like the ones handled by mathematical thought. Wittgenstein noticed that, although ordinary language follows rules, we usually do not know either which rules we are using, or how to explain them. Furthermore, any explanation of the meaning of a sentence is finite and can never be exhaustive: if I do not understand “snow is white”,

somebody can try to explain each word occurring in the sentence, and at some point, if the explanation is still unsuccessful, the verbal dimension will be trespassed by coming to a level where I will be just prompted to *have in the first person* some experiences.

By resuming Wittgenstein's point, let us suppose that we are trying to teach a child to count by one (positive natural numbers). All that we ordinarily do (and *can* do) is: to provide the child with *examples*, to require her to *produce samples* of enumeration in her turn, and to *correct* her possible mistakes.

At a certain point, the child seems to be consistently successful in her production, and the teacher concludes that the pupil has learned to count. However, after some days, we could imagine that the child is required for the first time to count beyond 200; surprisingly, she goes on uttering "202", "204", etc. Should we object that we did not teach her to do so, she might flawlessly reply that we never explicitly showed her *that* passage, and that she simply understood that *this* was the right way to proceed. In principle, this misunderstanding could be repeated endlessly, since we could never provide the pupil with an exhaustive exemplification of *all* possible applications of the rule. Indeed, each rule (each meaning) can have infinite instantiations, while examples and corrections can only be finite.

However, *de facto* we are often successful in teaching rules; therefore, there must be some reason why the possible derailment of the rule does not usually take place. In outline Wittgenstein's answer is that when you learn a rule, you do not produce an *interpretation* of what the teacher provides you with (examples and corrections) (Wittgenstein 1958, § 201), but you simply reproduce the same act that you have been initially prompted to perform. This means that we follow the rule "blindly", that is, we do not warrant the identity of the rule by a preliminary rational act: to follow the rule is not to choose among alternatives (Wittgenstein 1958, § 219), nor to produce interpretive hypotheses, but primarily to persist in performing the same act.

But when we talk of the "same act", we are already mentioning a kind of identity, though not a rationally ascertained one. Where does this "sameness" come from, then? The sameness of the act, says Wittgenstein, depends primarily on its *habitual* nature: rules are not something that we could follow only once in our life - says Wittgenstein - they are *habits* (customs, institutions) (Wittgenstein 1958, § 199). Rule learning is possible insofar as rules are rooted in unreflective habits.

It is important to see that the identity of any rule is never ultimate and definitive: the paradoxical deviation in the ordinary rule of enumeration is in fact a simplified version of re-interpretations that actually do take place

over time. For instance, in the history of mathematics there was no pre-settled determination about how to deal with the rule of subtraction when the minuend is greater than the subtrahend. When the question was posed, the rule of subtraction had to introduce an interpretative supplement, which turned out to be the introduction of negative numbers. In any case, each interpretive act must intervene on an *operational core*, learned by examples and corrections, which is what we call habit. Therefore habits (of some kind) are at the roots of all meanings (concepts, notions). Habits are anything that can be learned in experience and replicated. Habits must not be conceived of as overt physical movements: the interiorized verbal sequence of a nursery rhyme or the sensorimotor sequence of saccades in scanning a picture can be both habits. Habits lie at the heart of meanings, where they enable the reiterated application of the same content to infinite experiences. This means that habits appear at the crucial crossroad where the empirical and the general (universal) meet.

2.
The
Establishment
of Habits:
Peirce on
Abduction

Habit, we are claiming, is what can turn the *particularity of experience* into the *generality of meaning*. This, to be clear, does not mean that meaning can be reduced to habit: the only point that is at stake here is the passage from particular experiences to the *generality* that is essential part of meaning. Even with this limitation, this is a fairly bold claim, since the question of the passage from particular experiences, especially sensuous experiences, to the sphere of universals is among the most debated and controversial issues of the history of philosophy. In any case, we shall not try to provide a full-fledged answer to the question of the birth of meaning, but shall concentrate on the emergence of its replicable “content”, leaving aside the crucial point of the role played by *language* in shaping and conveying meaning.

The first thing to remark is that habits need *no* iteration of experience in order to be primarily established. Although the traditional psychological interpretation of habit considers them to be *borne* by repetition, this is, strictly speaking, impossible. Clearly *repetition* can take place as such only if the *first* experience already has a *re-identifiable content*, otherwise the very possibility of novel instantiations of the *same* could not be conceivable. This has nothing to do with the possible *awareness* of the relevant identity: even if we are completely unaware of the identity of an emerging content through experience, the enforcing role of repetition can take place only when an identity is already available. This means that *each single experience must be already able to institute a habit*, although repetition does affect the readiness and smoothness in performing the acts that characterize the relevant habit.

This point was acknowledged also by Charles Sanders Peirce. Peirce, like Wittgenstein, recognized that habits must lie at the core of meanings; this is what his famous pragmatic maxim conveys:

“Consider what effects that might conceivably have practical bearings you conceive the object of your conception to have. Then your conception of those effects is the whole of your conception of the object.” (Peirce, CP 5.422)

The pragmatic maxim gives expression to the observation that what we grasp in any propositional content is a knot of the implications that we would be disposed to draw from a belief in that content. Such implications are “practical” in the undemanding sense that they are “things to do” at some level (including the mere deployment of further signs). The relevant implications can be revived by us because they are habits. The propositional content “snow is white” entails in principle all the verbal explanations and the bodily acts that we are able to produce by grasping parts and whole of the judgment (inclusive of perceptual acts). De facto, according to the context of use only a subset of those implications will be drawn.

But, how can we understand the essential passage from experience to general content? Peirce shows a way to deal with this question through his notion of *abduction*. Abduction is the first step in the establishment of the meanings (rules) to be used in reasoning and deductions. According to Peirce all meanings (i.e., “conceptions”), which are endowed with universal content, are established through experience. But *inductive* experience is not the first step in the constitution of meanings. Events can be inductively confirmed, and frequencies of those events can be attributed, only insofar as a *first* experience generates something like a *hypothesis* (Peirce, CP 6.144-6.145). This movement that generates hypotheses from primal experience is what he calls *abduction*: “[a]bduction is the process of forming explanatory hypotheses. It is the only logical operation which introduces any new idea” (CP 5.172). Abduction comprises “all the operations by which theories and conceptions are engendered” (CP 5.590).

In fact, how exactly abduction is to be understood is not thoroughly clarified in Peirce’s texts, its crucial role notwithstanding. Abduction is not primarily the conscious formulation of a hypothesis, but is the origin of the contents with which conscious hypotheses can be built. When an experience is apprehended, it turns itself immediately into an expectation referring to a class of possible events: by making the acquaintance of an individual (say, “Kant”), I can immediately grasp a class of items kin of it (anything

“Kantian”). Any experience (sensuous experience to begin with) immediately brings to light an instance which is capable of being re-instantiated; this instance already is a habit since it is a relatively stable disposition concerning what we *can do*. And, as we said, the relevant habit need not have any overt muscular-bodily manifestation: if a word steadily elicits a series of other words in my mind (as in a poem known by heart), this practical effect may not have any manifest behavioral expression, but it still is a habit.

3.
The
Establishment
of Habits:
Husserl on
Protentions

We can try to improve our understanding of the first establishment of habit by looking at Husserl’s analyses of the *temporalization* of experiences and of its connection with the idea of *motivated possibilities*. In Husserlian language the passage from sensuous impressions to established meanings (*noemata*) may be articulated as follows.

Primal impressions (*Ur-Impressionen*), which are the most elementary level of sensuous experience, affect consciousness and produces a *modification* (*Modifikation*) of consciousness. This process of modification primarily appears as *temporalization*. Temporalization takes place in the form of an internal (essential) relation between so-called *retentions* and *protentions*. *Retentions* are the passive moment of sensuous consciousness, which apprehends our experiences as a train of events ordered by succession (*Hua X*: 118): if we hear a melody, the tenth tone receives its musical meaning from the previous nine tones, inclusive of the specific duration of (possible) silent intervals; the antecedent tones (and intervals) bestow meaning to the present impression *without being present* and *without being voluntarily presentified* (recollected). Thus retentions originally posit an order of succession. In fact, retentions must not be reduced to any psychophysiological model of memory, where succession would be supposedly generated out of a merely present state of affairs (mnestic trace, memory storage). Indeed, you cannot describe any process where a succession would be “generated” without already implying that succession is entertained by a mind (consciousness). If one thinks that a present entity, for instance a magnetic track, can somehow “stand for” a succession, one should realize that this track has an order of succession only if it is “read” by somebody, who “keeps track” of the gradually receding elements of the track, in their specific order and “timing”. Otherwise you just have a piece of present matter without any reference to any temporal ordering. This means that you cannot “generate” succession without resorting to the kind of primal ordering activity that we recognize in living consciousness.¹

¹ For a more detailed discussion of temporalization in phenomenology, we take the liberty to refer the reader to Zhok 2012: 216-225 and Zhok 2011: 247-251.

Retentions are not, and cannot be, “facts”; they are modifications of consciousness that can be retrospectively discovered from their present offshoots.

Retentions constitutively issue into *protentions*, whose *motivated* character is qualified by the retentional content (Hua XI: 337). Protentions are *tacit plural expectations*, based on retentional content. Protentions are not *specific conscious expectations* for two reasons: 1) because they do not imply any *pre-figuration* and 2) because they are not bound to a *single* content. For instance, when I walk I may have no pre-figuration whatsoever, but if the ground collapses under my feet, my surprise and disappointment show that my walking body did have a tacit expectation concerning the solidity of the ground. And secondly, this expectation is only one in an indefinite plurality of similar tacit expectations. For instance, if during my unfortunate walk oxygen suddenly disappeared, I would learn the hard way that among my tacit expectations there was also the smoothness of breathing; and so on.

The essential point to grasp in this scheme is that retentions, being modifications of consciousness, are *not* sensuous particulars anymore: primal impressions can be said to be particulars, but retentions, which are prompted by primal impressions, already have a general content *insofar as their “content” motivates protentions*. Motivation (“teleological impulse”) is the *crucial generalizing power in consciousness*.

This passage could be also described as follows: sensuous experiences are particulars that primarily elicit “passive reactions” (retentional content), which are part of our general bodily sensorimotor reactivity; such reactions institute habits, since they can be re-activated in different moments as bearers of the same sense (function, *télos*). Each time a sensuous impression is apprehended as percept, it implicitly dictates a range of motivated expectations (protentions) concerning its possible developments (Husserl’s *adumbrations*, *Abschattungen*). This horizon of embodied expectations is precisely the initial phase of what we are calling “habit”.

Indeed, Husserl himself describes habit (*Habitualität*) in internal connection with the notion of *Vermöglichkeit*, which is a *learned disposition* that opens up a room of *possibilities* (Hua XXXIII: 24-5; HuaMat VIII: 378-381). What Peirce conceives as abduction (primordial hypothesis) is described by Husserl through the passage from sensuous affections to embodied dispositions (habits as *Vermöglichkeiten*). Such embodied dispositions initially appear as protentions, which primarily are perceptual expectations, rooted in sensorimotor (kinesthetic) activity. They are indeed something like “perceptual hypotheses”, that can be confirmed, corrected and replicated over time. Since perception is the first source of all learned meanings, this

scheme accounts for the basic establishment of those habits that provide the core content of meanings.

4. The Teleological Logic of Habits

Yet, the classical idea of habit, as it appears in Humean accounts, seems rather at odds with our ordinary notion of meaning. Meanings are flexible, intelligible and, of course, “significant”, whereas habits are often conceived as dumb mechanisms. It is therefore important to carefully re-consider the nature of habits. In order to do so, the first thing that we have to do is to re-consider the nature of perceptual habits, that is, of the habits that are on display in our customary sensuous behavior.

Let us take a trivial example of learned sensuous behavior: I am in the street and jump on my motorcycle; while beginning to move from the right sidewalk I see just in front of my tire a broken bottle; immediately I look to the left, to see if anybody is coming, before turning in order to avoid the bottle. Now, this is a trivial case of behavior, guided by perception, where *no reflective act* has taken place. What is interesting to note is that this behavior has a clear *logical* structure, which can be easily translated into a structured reasoning. It is precisely as if I had said to myself: “I want to go, but *if* I go in this direction, I may damage my tire, *then* I shall change my trajectory, yet *if* I suddenly turn left, somebody could run into my vehicle, *therefore* I check that nobody is there.” This is a sample of what constantly happens in our usual sensuous behavior: in the wake of what we have practically learned, we perform tacit hypothetical reasonings and conditional inferences, using as occasional material for the inferences the current perceptual and behavioral contents. Our practical competence (in riding the motorcycle, moving around in the street, detecting obstacles, etc.) has been acquired through experience and is available in the form of habits. But, contrary to what is often thought, the fact that habits can work “mindlessly”, does not imply at all that habits are “dumb mechanisms”.

First of all, habits are *not* mechanisms: they are sensitive to the environment and they keep their sense even when they have to take into account obstacles and delays. Any habitual behavior is sensitive to current environmental changes and is altogether different from a kind of ballistic device, which, after being launched, would proceed unchanged till completion. Take some dull habit like walking or cleaning the floor with a broom. Even if we have never truly envisaged the “ends” or “functions” involved in the current implementation of such habits, they unfold by appropriately reacting to different and changing contexts: we can meet irregularity in the ground or obstacles on the floor and we can (unreflectively) update our habitual behavior. In comparison with reflective

behavior, habitual behavior may appear “blind” because it is *not concerned with foresight*, and it may appear “mechanical” because it does *not need reflective awareness*. Indeed, habits may be judged to be “short-sighted”, but in the short radius of the anticipations of perception (protentions) they are quite sensitive and far from blind.

Secondly, habits are not “dumb”: they have a *teleological structure* which can be made more and more complex and subtle. Habits can be borne from the simplest sensorimotor reactions, but their “heuristic” and “explorative” character, which we saw as abduction, remains operative and generates continuous “ramifications”. Think of a learned skill like playing tennis. You begin by learning simple motor schemes in standardized situations, but through practice (which is no mere “repetition”), you acquire the ability to quickly adjust the performance to new situations and for different postures. When somebody *knows how* to play tennis, she has learned a complex habit that is unified by its teleological character (the aims of the game) and which involves a plurality of “knots”, from which contextually appropriate behavior flows. Habits, thus, far from being mechanisms, are living practices, where at each stage (“knot”) a plurality of alternative options are available. Each “choice” at each “knot” has a logical form, without any *Logos* (language) being involved. When playing we are continuously in situations which could be described by sequences of hypothetical and conditional inferences: “If the opponent does so, I should go *there* and prepare *this* stroke, but, look, she does so *and so*, then..., etc.” All this inferential process need no reflective act to be intelligently developed (and, in fact, if reflection intervenes, the behavioral outcome often turns out to be suboptimal). Habits are functional, teleological and plastic. The plasticity of habit is permitted, among other things, precisely by its teleological orientation, which makes possible that a plurality of courses be legitimate insofar as they converge in the same issue (or perform the same function).

5. Habits and the “Naturalization of Mind”

The central position that we have here attributed to the notion of habit seems to move in the direction of a *naturalization* of meaning and mind. Yet, this excludes the mainstream sense of “naturalization”. In the present account, consistent with Wittgensteinian and Peircian analyzes, habits appear as the embodied basis of meaning. Habits perform a sort of mediatory role between the particularity of sensuous experience and the generality of expectations, hypotheses and concepts. Yet, we should be wary not to conceive of habits as “physiological dispositions”. The present account of the function of habit cannot be translated into any usual naturalistic description, because naturalism assumes an ontological priority of the

objects described by natural sciences, to which all other descriptions should be reduced. But the conceptual scope of the objectivistic categories of natural sciences is too limited to account for either “meaning” or “habit”. More specifically, in the light of what we said above, the notion of “habit” turns out to be unintelligible without reference to “temporalization” and “teleology”, but neither notion can be translated into naturalistic terms. That is, neither “temporalization”, nor “teleology” can be expressed through objectivistic notions, *i.e.*, through notions that regard as ontologically real only what is describable as *spatiotemporal object*. The essence of the customary idea of a naturalization of mind is the descriptive or causal reduction of first person phenomena to third person accounts in terms of spatiotemporal objects (events). This is no sensible option for the notion of habit because neither finality nor temporality (nor living corporeity, for that matter) can be reduced to accounts in terms of mere objects (events) in space and time.

Habits primarily emerge from *perceptual meaningful* activity, not from causal chains of physical events, even if we can partially describe perceptual activity in terms of physical causes. The reiterability of habits, which is what makes them eligible for becoming part of shared meanings, depends on their teleological sense, which can be regarded as a “natural phenomenon” but most certainly is no “naturalistic fact”.

The generality of habits must be recognized at two levels. At the personal level, I can reactivate *over time* the *same* habit elicited by different sensuous particulars. At the interpersonal level, we can learn the *same* habit by *different routes*. For instance, me and you can both learn to ride a bike, and thus we can both access the knot of implications (meanings) included in “riding a bike” (traveling, training, sweating, but also the hardness of saddle, the danger of wet tracks, the muscular cramps, the wind in the eyes, the flat tires, etc.). All such blocks of practices inherent in the iterable notion “riding a bike” can be learned even if the specific biographical circumstances where we have learned to ride the bike are remarkably different. I may have fallen while learning and you may not, I may have learned by myself, and you under somebody’s guidance, etc. Nevertheless, the identity of the practice can be preserved over time, and often shared. What precisely can or cannot be shared is discovered only after establishing a stable communication on such items, but the essential point here is that a stable operational core there is, and this is what allows the communication of meanings.

Yet, the fact that habits are to some extent independent from sensuous particulars does not mean that they are extraneous either to *bodily*

constitution or to the *exposure to specific kinds of experiences*.

As to bodily constitution, habits are learned continuously and spontaneously whenever appropriately demanding conditions occur. Even if there are in principle endless ways to perform an action developing from A to B, there is always for each bodily constitution an ideal “line of less resistance”, which is not represented by a physically unique course, but by a family of closely connected acts. When we walk, each step of ours has certainly some idiosyncratic particularity, but its typical unreflective *identity* is guaranteed by the fact that, under the same external conditions, there is a spontaneous way to unfold muscular contractions and balancing acts, so as to make the step most smooth and functional (“natural”). This line of less resistance is what leads to the establishment of a specific habit instead of another. If we want to alter the spontaneous development of an unfolding habit of ours, we must expose our behavior to special constraints, that lead to *spontaneously* learning a different habit. This is what happens in special trainings (sports), but is not different in principle from what happens, for instance, when we adjust our gate to a pain in the leg, by limping: in the presence of pain, the new limping gate is a new line of less resistance in our walking habit; and, after being learned, the limp can be freely simulated. The felt line of less resistance is generally sufficient to establish habits as monotonous and roughly self-identical.

Thus, our ability to establish some habits and not others is inescapably rooted in our bodily constitution; from this perspective, we can make sense of the famous Wittgensteinian remark according to which “[i]f a lion could talk, we could not understand it” (Wittgenstein 1958: 225). If, by hypothesis, the bodily constitution of a lion and its habits are taken to be radically different from ours, no shareable core of experiences available for verbal signification could be found.

But also the specific exposure to some classes of experiences is decisive in learning determinate habits. As Michael Polanyi said, in order to become a good medical diagnostician (or a connoisseur of wines as well), a subject must be exposed to a plurality of appropriate experiential samples, under the guidance of experts that already possess the relevant discriminating abilities and that signal the aspects to which attention must be especially devoted (Polanyi 1969: 54). Polanyi recalls the learning process that gradually enabled him to read pulmonary radiographs: at the beginning, he says, the image looked to him like a blurred jumble, where he could hardly discern heart and ribs, while the radiologist’s comments sounded to him like a kind of bluff, a stageplay pretending to take those muddled blots as a precious informative source. Only after a repeated commented

vision of those images, weeks later, he began to make out a rich landscape of meaningful signs, signaling physiological variations, pathological changes, scars, infections, etc. (Polanyi 1969: 100-101). The increased perceptual ability was, of course, no matter of improved visual acuity, but of learning a habitual articulation of units and differences, emerging as a system of signs. Incidentally Polanyi notices that although he dropped the medical career and the relevant studies, this ability to read radiographs never went lost. If we take both sides of the relation that can generate habits, we can see in which sense we can, and in which we cannot, talk of a “naturalization” of habit (and mind). Habits are neither physical facts nor reducible to physical facts. Yet habits are inescapably bound to bodily constitution and to appropriate experiential exposure. In this sense, instead of talking of “naturalization” we may prefer to talk of an “*ecological correlation*” where bodily constitution and the available environment concur in articulating a world of “practical units”. We can apprehend, remember, re-instantiate and mean what we usually do, insofar as we have the bodily constitution we have and as we are exposed to a specific environment.

This does not imply, notice, that different body constitutions or different environments would *necessarily* dictate radically different habits (and meanings). This may or may not be the case. I may suppose that things look mysteriously different to the proverbial Nagelian bat, or that they look just more limited than how they look to us, or even that they do not “look” at all to the bat. What we can know, and what we can guess, anyway *makes just use of the set of habits that we can recognize in the first person* and of their variations.

There are chromatic phenomena to me, because I have eyes. Does it mean that a gradual change of my eyes, becoming something radically different, would involve a gradual change in the sensuous phenomena at my disposal? Altogether different colours? Altogether different sensations? This development is quite unwarranted and our usual experience bears witness to a different development: when reaching certain phenomenal thresholds experiences simply lose their unity and intelligibility.

In other terms, the contents of my world may well be tightly dependent on my body and its habits, yet this does not exclude the subsistence of *essential* boundaries within which experiential units can only emerge. The kind of “ecological naturalization” that this perspective allows invites to reflect on the living correlation of our body and its environment (which may be historical and cultural). It is our living and operative position in the natural and historical environment that determines the space of habits and therefore the palette with which the world of meanings can be painted.

REFERENCES

- Husserl, E., (1966), *Vorlesungen zur Phänomenologie des inneren Zeitbewusstseins (1893-1917)*, Husserliana X, R. Böhm (ed.), Martinus Nijhoff, Den Haag (quoted as *Hua X*).
- Husserl, E., (1966), *Analysen zur passiven Synthesis. Aus Vorlesungs- und Forschungsmanuskripten 1918-1926*, Husserliana XI, M. Fleischer (ed.), Martinus Nijhoff, Den Haag (quoted as *Hua XI*).
- Husserl E., (2001), *Die Bernauer Manuskripte über das Zeitbewußtsein (1917-1918)*, Husserliana XXXIII, R. Bernet - D. Lohmar (eds.), Kluwer, Dordrecht (quoted as *Hua XXXIII*).
- Husserl, E. (2006). *Späte Texte über Zeitkonstitution (1929-1934). Die C-Manuskripte*. Husserliana Materialien VIII, D. Lohmar (ed.), Dordrecht: Springer (quoted as *HuaMat VIII*)
- Peirce, Ch. S., (1958-1965) *Collected Papers*, The Belknap Press of Harvard University Press, Cambridge – Mass., (quoted as *CP*, followed by number of volume and paragraph)
- Polanyi, M., (1969) *Personal Knowledge. Towards a Post-Critical Philosophy*, Routledge & Kegan Paul, London
- Wittgenstein, L., (1958) *Philosophical Investigations*, Oxford, Basil Blackwell
- Zhok, A., (2011), “A Phenomenological Reading of Anomalous Monism”, in *Husserl Studies*, vol. 27, n. 3, pp. 227-256
- Zhok, A., (2012), *La realtà e i suoi sensi. La costituzione fenomenologica della percezione e l'orizzonte del naturalismo*, Pisa, ETS.