

ACTION-THOUGHTS AND THE GENESIS OF TIME IN LINGUISTIC SEMIOSIS

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Submitted on January 3, 2021

doi: 10.5922/2225-5346-2021-2-1

The genesis of time is explained in the spirit of constructivism combined with the activity approach to cognition. The cardinal temporal categories of present, past, and future are discussed in terms of action-thoughts understood as elementary units of activity whose structure is determined by linguistic semiosis. Husserl's tripartite model of the phenomenology of time (prime perception, retention, protention) is applied to the analysis of the subject's experience of his actions. It is demonstrated that, while our lived present is composed of the actually performed actions, our past and future are constructed by reflexive action-thoughts in the cognitive domain of language. It is emphasized that the construction of a temporal sequence that unites what is and what already or still is not, is possible only in linguistic semiosis. The analogy with Husserl's tripartite structure of the time-consciousness flow helps elucidate the triad 'present-past-future' as an instance of the epistemological trap of language: 'past' and 'future' are mental constructs that belong to the present just as any other act of thinking.

Keywords: epistemology, constructivism, phenomenology, language, action, temporality

Introduction

Despite the intuitive clarity of the concept of time and the abundance of literature on it, the metaphysics of time remains enigmatic. This was pointed out as early as in the writings of St Augustine: 'What then is time? If no one asks me, I know what it is. If I wish to explain it to him who asks, I do not know.' (2008, p. 230). The difficulty here is that time is so deeply embedded in the cognitive process that its analysis is possible only when the epistemological model and methodology that determines the logic of the analysis, including the concept of knowledge itself (Kuhn, 1977), have been defined. This article draws on the biological approach



to cognition and language (Maturana, 1970; 1978; 1988; Maturana, Varela 1984; Stewart, Gapenne, Di Paolo, 2011; Ward, Silverman, Villalobos, 2017) characteristic of the third generation of cognitive science (Kravchenko, 2009) and of the (radical) constructivist philosophy (Steffe, 2007).

Whilst the first generation of cognitive science viewed cognition through the lens of a computer model, i. e. as a set of computational operations performed on symbolic representations, using innate algorithms (Chomsky, 1975), the second generation of cognitivism traces mental constructs back to bodily experience: consciousness is corporeal (Damasio, 1999; Lakoff, Johnson, 1999). The third generation of cognitive science goes beyond the body and sees cognition as synonymous with the life process: '[l]iving systems are cognitive systems and living as a process is a process of cognition' (Maturana, Varela, 1980, 13). Therefore, '[a]ll doing is knowing, and all knowing is doing' (Maturana, Varela, 1998, 27), and the actions of a cognising organism construct its reality as a cognitive niche, resulting in an 'organism-environment' system (Järvillehto 1998). An offspring of theoretical biology, constructivism weds naturalism with an analysis of subjective experience within phenomenological approaches.

The role and place of the phenomenological method within this approach have been the subject of much debate. Although Husserl's approach was criticised at first for its abstract nature ignoring both the corporeal and actional components of cognition (Varela, Thompson, Rosch, 1991), phenomenology was finally embraced as a tool of the science of consciousness (Gallagher, Varela, 2003; Thompson, 2007). The phenomenological method has become a tool for analysing subjectivity understood from a new perspective as the lived experience of an active agent in a relational (semiotic) domain of interactions – a dynamic system of an agent's relations with the environment (and, more broadly, the world). But the science of consciousness itself is seen from an interdisciplinary perspective where philosophy is no longer detached from sciences and turns into a theoretical branch of cognitive science (Urban, 2016). Understood this way, constructivism does not disagree with the activity approach thoroughly developed in Russian psychology (Rubinstein, 1940; Leontiev, 1975) and can be regarded as its development in the vein of 'constructive realism' (Lektorsky, 2018). This interpretation of constructivism underpins our approach to the concept of time.

The human 'organism-environment' system is unique in having a special cognitive domain of linguistic interactions where humans evolve as observers capable of constructing the world in language. Understanding this world requires grasping the functional role of linguistic semiosis in conceptualising and categorising the experience of the lived world (Kravchenko, 2020; Druzhinin, 2020), including the experience of what we call time. Thus, a phenomenological study of pre-reflective experience of time-consciousness (Zahavi, 2003) should be combined with analysing the semantics of basic temporal categories. Agents of



cognition 'exist as self-conscious entities in language' (Maturana, 1990, p. 115) and conceptualise temporal experience through linguistic representations: the so-called objective reality is presented to a naive observer as constructed in language. Caught in the 'epistemological trap of language' (Kravchenko, 2016), one sees the present, past and future as three semantically equivalent temporal domains, whilst, in fact, the past and the future are mental acts belonging to the realm of the timeless, the infinite *now* (Heidegger, 1927), which is the only scientifically valid understanding. Overall, there is a strong link connecting the phenomenology of temporality and its reflection in linguistic semiosis.

In line with previous research (Gallagher and Varela, 2003), we begin our analysis of the perception of time by applying Husserl's tripartite model (primal impression, retention, protention) to an agent's experience of her or his actions, the pace of which is identified with the flow of time. We introduce *action-thought* as a basic structural element of both activity and time. It is understood as a synergy between an external (observable) action and associated acts of thought, or as an internal (unobservable) action having relational dynamics characteristic of linguistic semiosis and performed on the neurophysiological level.² Action-thoughts are building blocks of all three temporal domains (the past, present and future), whose semantic structure is formed in the cognitive sphere of linguistic semiosis. At the same time, the lived present of an agent unfolds as a time series of actions performed by her or him, and the past and future consist of reflective acts of thought made from the stuff of representational³ experience and mental acts. The tripartite structure of the basic concept of time is found in many (albeit not all) languages. It determines how we 'construct' time when the past and the future are perceived as temporal domains separate from the present.

Contemporary conceptualisation of time is far more complex than the basic tripartite model and is distinctly quantitative. Time, as a measurable resource, is the environment we, moderns, live in and the structural basis whereupon our social activities are organised. This 'objective' time, as if coming from the outside, subjugates everyone to a timetable one cannot change. Yet, alongside this socio-technical time, there is a more archaic and, in a sense, more natural way of conceptualising temporality - a way linked to the direct perception of the pace of living and the succession of actions and events. When in the countryside,

² Georgy Shchedrovitsky (1995, p. 114–134) interpreted action-thought as a process of materialising the results of thought-activity viewed as a special type of collective thinking. This article defines action-thought as a single act of individual activity understood holistically as a unity of internal and external processes (Simsky, 2018a; 2018b; 2021).

³ Re-presentation is a mental act of representing elements of perceptual experience beyond the domain of immediate sensory perception (Glaserfeld, 1995, p. 94).



we are happy to ‘forget about time’. Whether immersed in work or absorbed in other activities, we perceive their rhythm as the flow of time. In this work we focus on experiential time since it is in it that the ancient roots of the categories of the present, past and future are found. We will begin with a detailed comparison of the ‘objective’ and ‘experiential’⁴ approaches to the conceptualisation of time. Then, after a brief discussion of the concept of ‘action-thought’, we analyse the three major temporal categories.

Absolute and experiential time

The contemporary folk-view bases the concept of time on the Newtonian ideas of absolute space and absolute time understood as initially empty containers for things, events and phenomena. Space embraces all simultaneous states, and time is conceived as an axis along which successive events are arranged.

However, the model of absolute time seems naive and incomplete from the perspective of modern physics. The theory of relativity and quantum mechanics have shown that time measurements depend not only on the actions of an agent but also on the process of measurement itself. Yet, this scientific evidence has little impact on how time is understood in everyday life. Easy availability of exact timing only reinforces the illusion that time is an objective external reality, an absolute reference frame composed of seconds, minutes and hours, which transcends the daily routine and sets the rhythm for all processes and actions. But time-keeping systems are far from absolute: they consist of a set of atomic clocks located at a considerable distance from each other; their readings are constantly compared through complex procedures. The atomic clocks are checked periodically against astronomical measurements to absolutize them – this is how a certain inconsistency between the two time scales is discovered. The difference is compensated for every few years by omitting the so-called leap seconds on the dates decided by an international committee. The practice of time metrology thus confirms the validity of the relational approach, which derives the concept of time from a comparison of the paces of different processes (Wittgenstein, 1922, p. 86). There is no absolute time common to all: time is a mental construct grasped when coordinating movements and their pace (Piaget 1970, p. 60) and linked to the perception of the tempo of actions.

⁴ It would not be entirely correct to call this understanding ‘subjective’ since instances of it are conspicuous in non-European cultures. In the culture of the Pirahã, for example, the organising function of time is weakly expressed because their lifestyle is repetitive and monotonous. This circumstance is also reflected in the time vocabulary of their language (Everett, 2008; Koshelev, 2018).



The absolute time model has yet another disadvantage. The Newtonian time axis is made up of homogenous moments, which are neither conceptually nor empirically distinct. In this model, the present is a moment in a series of moments. However, experiential present is not an arbitrary point on the chronological line but the entire object-space continuum in the totality of its states and its dynamics, including ourselves (cf. the Latin *praesens* 'that which is before the senses'). The notion of present as a moment in time is inconsistent because this moment, on the one hand, is static in its quality of being always present, and, on the other hand, moves continuously along the temporal axis (Kravchenko, 1990; Deutsch, 1997). The past is our memories of events that have led to the present as our current experience, whose predictable ability to change we call the future. The past and future as linguistic categories reflect the phenomenology of time, not its physical model: time does not exist outside humans (Kravchenko, 1996, ch. 3).

Logico-semantic analysis of Russian time-related words (Arutyunova, 1999) shows that the way one experiences time depends on the perspective and the intention of an agent, who can be imagined as a traveller walking along the path of life. Etymologically, the Russian word *время* is related to the Old Indian *vārtma*: track, route, road (Vasmer, 1986, p. 361). Its etymology reflects the paradigm of the 'traditional path' requiring one to look backwards (Guénon, 1945): we follow a beaten track *behind* our ancestors or predecessors, who came *before* us, and our progeny come *after* us. In the traditional model, time is cyclical, and everybody walks the same path from birth to death, thus completing a full cycle. Another part of our lexicon, by contrast, expresses a forward-looking attitude, the vision of people building a better future for themselves and their progeny. The 'front' lies in the future and the 'back' in the past. We *foresee* the events of the *coming* week and try to be more careful *from this moment on*; if we look back, we see things that are left *behind*.

Categories of temporality are expressed in contradictory metaphors because direct perception of the so-called 'objective' time is impossible. Time is neither an object, a process, nor a quality: it is a concept that reflects our understanding of the dynamic aspect of lived experience. Our inner semantic 'dial' does have the domains of the past and the future, separated from one another by the present – a flow of perceptual lived experience in which we find ourselves at all times. However, no part of this 'dial' corresponds directly to the past or the future as ontological domains of the so-called 'objective' reality. Both are acts of thought, operations on abstractions constitutive of linguistic semiosis as a mechanism for orientating in human interactions with the environment (Kravchenko, 2021). The purpose of these acts of thought is to help us find our way in the present.



The fundamental concepts of space and time are meaningful insofar as they have bearing on actual or possible human actions (i. e., they are operational by nature) (Bridgman, 1958). Psychological evidence on the perception of time intervals shows that the pace of subjectively perceived time depends on the intensity of one's actions. The law of the action-filled time interval is in effect here (Rubinstein, 2002, p. 302): the more activity-filled, and therefore split up in smaller units, a time interval is, the longer it appears. Danger makes perception more acute, and time nearly stops (Leonov, Lebedev, 1971). Thinking that we perceive time, we, in fact, perceive ourselves and our cognitive dynamics. The pace of action determines the 'flow of time'. However, while humans construct their present from actions given directly in perception, the past and the future are reconstructed from actions conceived as part of the accumulated experience mediated by linguistic semiosis and stored in memory. The concept of action-thought, which thematizes the systemic unity of both performed and envisaged actions, helps us to conceptualise the three fundamental temporal domains as three semiotic components of a single experiential continuum.

Actions, thoughts and action-thoughts

The idea of synergy between thought and action is not new: the unity of activity and thinking was articulated as early as the classics of Russian psychology (Rubinstein, 2002). However, if action is seen as the external realisation of thought and thought as internal action, it is impossible to overcome the Cartesian dualism inherent in rationalist philosophy (Damasio, 1994). Viewing cognition as a life process in the 'organism – environment' system makes it possible to consider thought and action as a single whole characterising the actual dynamics of a living system in its adaptive interactions with the environment (Kravchenko, 2017). To understand the biological and neurophysiological processes underpinning what we call 'thinking', the latter must be viewed as dynamic states of a higher-order living system (one with a central nervous system), the recursive interactions with which become components of behaviour in the consensual domain. These components are relational since they pertain to a relational mode of existence, i. e. language as ' coordinations of coordinations of behaviour' (Maturana, 1978). Thus, thinking cannot be viewed as localised in the brain nor as a result of the unique workings of the human brain. On the contrary, it emerges as the brain participates in generating behavioural relational dynamics, i. e. language as a cognitive domain of interactions. In other words, the human brain thinks in language (Maturana, Mpodozis, Letelier, 1995, p. 24), and thinking is a special kind of activity in the relational domain of language as a mode of living of *Homo loquens*.



In neurophysiological terms, mechanisms of action control respond to actions taken by others; this is the mechanism underlying the way we perceive actions (Rizzolatti, Sinigaglia, 2010). It is necessary to distinguish actions from natural physiological processes (for instance, digestion) as well as from movements. Actions are purposeful, conscious, socially conditioned, and usually mediated by the use of cultural tools and instruments (Vygotsky, 1934). In biomechanics, actions are understood as an organised set of movements aimed at achieving a goal (Bernstein, 1990). Attention is crucial for distinguishing actions from motor skills. Actions are intentional; they are always in the zone of attention, while their constituent movements are automatic. If necessary, movements can enter the zone of attention and acquire the status of actions. And conversely, a well-practised action can be performed automatically,⁵ leading to a shift of attention to actions of a higher level, including mental actions, whose existence justifies the use of the term 'action-thought'. The acts of remembering, which shape our past, are also a form of action-thoughts.

Actions are 'stored' in a special kind of memory different from the familiar episodic (biographical) memory, which forms the temporal structure of the past. Actional memory, which psychologists also call implicit or procedural, stores action programs, i.e. what we refer to as skills or abilities. The fabric of our activity is woven of such programs: we do only what we know how to do. Since our bodies as living systems are evolutionarily adapted, first and foremost, to doing things, this type of memory is most organic to us and does not require ostensible acts of memorising nor recalling: both occur when performing an action or replaying it in one's mind. A skill is practised by repetition, and individual acts become abstract in its course to a point where they constitute an ability to do something as a form of knowledge. Actional skills are remembered firmly, permanently and without obvious effort. Once a person learns to play ping-pong, she or he will still be able to do this a few years later. Such acquired skills, motor or mental, are at the core of what we call 'action-thoughts'. Unlike biographical memory, an actional skill does not have a time stamp. It is always part of the current ability, and, in this sense, action-thoughts are timeless.

These two kinds of memory – pure memory (of the spirit) and habit-memory (of the body) – were first described and contrasted by Henri Bergson (2004). The two work together to (re)create the temporal domain of the past. Episodic memory provides us with minor details of the past, which we bedeck with vivid images with the help of sensorimotor skills, i.e. action-thoughts. The same holds for the future brought to life by the action-thoughts of today's repertoire since no others are available.

⁵ In activity theory (Leontiev, 1975; Bedny, Karwowski, 2007), actions perfected to become automatic are called 'operations' and viewed as structural units of activity.



Action-thoughts are the building blocks for reconstructing the past and creating the future. Yet, the semantic structure of these temporal domains is determined by reflective acts of thought that mark both recollections and acts of imagination by relating them to other events or chronological landmarks. The very processes of generating and experiencing memories or planning the future require skill and thus fall into the category of action-thoughts as well. Although action-thoughts can refer and belong to the planes of past or future, they always happen in present time constituted by actual actions as its building blocks. Let us take a closer look at the phenomenology of the present.

The intensive present: the time of action

The concept of 'present (time)' is based on direct human perception of all that constitutes the cognitive domain of humans (the domain of their interactions with the environment) as living systems; as such, it is an adequate subject for phenomenological analysis. The present is not a point in time but a dynamic cognitive continuum combining the passing past and the oncoming future into a single experiential flow. The 'now' is not just a brief time interval but the 'moreness' of the present (Gendlin, 1997). Moreover, the 'now' can be extended and is open to the past and the future. Re-presenting the past and constructing the future, reflective action-thoughts further contribute to the 'moreness' of the present. They will be examined in this section below, which focuses on the 'actual' present.

The phenomenology of the present elaborated by Husserl (1991) is corroborated by neurophysiological research (Gallagher, 2005). Short-term memory stores detailed sensorimotor information for a few seconds and helps evaluate the dynamics of the event. This memory is what Husserl calls retention – the direct and gradually loosening grasp of primal impression. Strictly speaking, everything we perceive is retention because the processing of primary visual information takes about 150 msec (Schmidt, Lee, 1999). Therefore, current decision-making includes extrapolating the recent past into the near future (protention in Husserl's terminology). Retention and protention are unconscious short-term processes that should be distinguished from the conscious mental acts of remembering and anticipating, through which the past is recreated and the future predicted. Both are intentional acts; memory and anticipation can be experienced separately, whereas retention and protention only make sense as analytically discernible components within the experiential flow underpinning the awareness of time as a domain of current, past and anticipated experiences of our interaction with the world, conceptualised in linguistic semiosis.

The tripartite model of primal impression, retention and protention correctly captures the complex synthetic structure of the present. It



makes one think of the present as of a complex – and therefore constructed – phenomenon. But, within Husserl's phenomenology, it is difficult to grasp the true nature of such a construction: phenomenology describes pure perception detached from the context of life. It implicitly presupposes a passive agent and reduces engagement with the outside world to attentive observation. This is not surprising since phenomenology is an offspring of classical subjectivism: Hume and Berkeley wrote in the name of a reflecting and contemplating subject, an 'armchair philosopher'.

The link between philosophy, on the one hand, and elitism and leisure, on the other, can be traced back to Plato's dialogues. Hanna Arendt (1998) explains the Ancient Greek hierarchy of activities where labour (of peasants or slaves) and work (of artisans) are of the lowest rank, while political and philosophical occupations voluntarily taken up by the elite, are of the highest. Her assumption is that work is involuntary, hence a completely free person is also free from the need to carry it out. Not surprisingly, commitment to contemplation and reflection on passive perception dominated philosophical thought until recently.⁶

Constructivist philosophy sees human action as the foundation of being, as well as of the perception of the world. By the end of the last century, in developed societies professional thinking acquired the status of work, while work itself had become a matter of ethical choice. Even 'liberal' professions such as politics, art and business, not to mention science, are now classified as work. Moreover, we live in an industrialised world built from products of human activity, and it is not surprising that the modern understanding of reality is increasingly influenced by constructivist approaches prioritising activity in its formative, creative aspect. At the same time, perception is demoted to a subordinate, almost instrumental role (Noë, 2006). A 'passive' phenomenology seems insufficient, and it should be complemented by an activity-focused approach (Thompson, 2007). The 'intensive present' should be viewed as not only a flow of perception but an action-driven process: any complete phenomenology of time should include a phenomenology of action, with a basic tripartite structure (primal impression, retention, and protention) preserved but modulated to fit a more complex and multidimensional model of the present that includes agent's own actions. Two modulations of this kind will be considered here: firstly, the background perception of the environment as the spatial context of the activity and, secondly, the subject's perception of the progress of her or his actions.

When focusing on her or his actions, a person also monitors the environment and promptly reacts to unexpected signals – for example,

⁶ Ernst Mach's famous drawing depicts the field of vision of a man lying, fully dressed, on a couch, contemplating his legs, eyebrow, parts of his nose and moustache and the room around him (Mach, 1959).



if someone calls her or him by name. This important kind of mental activity can be called semi-conscious: we know what we are doing, but it is outside our zone of attention.⁷ The main events unfold against the backdrop of this stream of perception. The awareness of time thus takes place at least on two planes – the plane of the events unfolding in the background and the plane of purposeful activity, such that each plane has its own tripartite structure. Since we are primarily interested in the temporal aspects of conscious activity, we will focus on how one's perception of own actions (traditionally divided into physical and mental) depends on proprioception and thus differs from the perception of 'external' phenomena.

In the analysis of own activity, the basic tripartite structure of the present remains unchanged. When saying something, we remember what has already been said (retention) and we know what has not yet been said (protention) (Gallagher, 2005). Our attention centres on what is yet to be said and whether the meaning of the whole utterance would correspond to our intention. An action implies a focus on the immediate future rather than the recent past. Although Husserl paid considerable attention to retention, it does not play a central role in the phenomenology of own actions. Indeed, the result of past actions is visible in the present and can no longer be changed. Indeed, the program of action is known in advance; all that matters is its implementation. The reliability of protention is determined by the deliberate nature of the action. We extrapolate our actions into the future with much greater certainty than we anticipate observations of what is beyond our control. We know what we want, what we strive for, and what we do to achieve it. The mechanism of protention determines the sense of agency essential to the normal experience of its temporal structure. Distorted perception of action's agency in schizophrenic patients is known to correlate with disturbances in their perception of time, with many patients seeing time as frozen or cyclical and their own actions as aimless (Gallagher, 2005).

Time perception with respect to own actions is cognate with both the sense of agency and with the fact that an action is a quantum of conscious activity, its elementary, indivisible unit (Rubinstein, 2002; Bedny, Karwowski, 2007). The indivisibility of an action stems from its purposiveness. Since an action is carried out according to a known plan and is aimed at a particular goal, it is perceived as an internally cohesive act rather than a shifting temporal flow. In a sense, there is no time within an action – all of it takes place in the present. In her or his mind's eye, an agent sees the action as a single timeless entity with its own

⁷ This category of phenomena includes motion. We know that we move our legs when we walk, but we never register this; instead, we focus on reaching our destination. Numerous kinds of mental work fall into this category: a composer knows that she or he is composing music but is unlikely to explain how she or he is doing this.



internal logic and sequence of operations. The focus is on the desired outcome of the action and how to achieve it. An action is constructed such as to achieve a result and is expressed in linguistic semiosis as a single concept that has a term referring to it. As Dennett notes (1996, 159), concepts exist in our world as objects because we have language. For example, fastening shoelaces is a single action with a verbal label. The movements comprising this action, although important in themselves, do not have separate verbal descriptions; they are not concepts of language and are learned using the 'do as I do' method. In linguistic semiosis, the act of tying shoelaces is an indivisible semantic unit. So, the conscious structure of time (past-present-future) is not formed within actions but rather outside of them, when these actions are linked in chains and structures in the relational domain of language. This way, the quantum of activity becomes an atom of time.

The sequence of actions, to which other events are attached, forms a meaningful time series organised using the basic temporal relationships of 'before' and 'after' connecting what is (the present) with what is not (the past) or not yet is (the future). The construction of such a series is only possible in linguistic semiosis, and it relies on one of the basic functions of language, i.e. our ability to talk about what is not there and form thoughts about what is perceptually absent (Morris, 1938). Individual sensorimotor images cannot become memories unless included in a rationally and consciously constructed historical-biographical time sequence. Time reflects, in linguistic semiosis, a certain kind of human-specific cognitive activity aimed at "bringing order into the flux of experience as meaningful interactions with the world" (Kravchenko, 2021, p. 6). First and foremost, this flux of experience encompasses current ('here and now') interactions and relations with the world, as well as past interactions and relations that have gone by (left the observer's perceptual field of 'here and now'), but are retained in memory. The initial groundedness of experience in the 'current' or 'past' perception explains why, in many languages (including Russian and English), the grammatical category of time is represented by the binary opposition 'past-present', while references to the future are expressed by historically more recent analytical constructions.

Experience stored in memory is a foundation for what we call experiential knowledge, and the job of memory is to monitor the adequacy of further interactions between the organism and the environment in situations akin to those already experienced. In other words, memory helps orientate oneself in the current situation and make efficient behavioural decisions. First-time experiences that have not yet been stored in memory cannot serve as reliable reference points in choosing behavioural strategy, and this is also reflected in language: actions can be discussed as observed 'here and now' or known by virtue of the



speaker's accumulated experience retained in memory. Therefore, two types of knowledge are categorised in language: phenomenological and structural (Goldsmith, Woisetschlaeger, 1982). There are reasons to believe that this distinction is a linguistic universal (Kravchenko, 2019) found in different languages (Kravchenko, 2018).

Action-thoughts in the past and future

The structure of the present includes not only physical events and actions but also purely mental components such as knowledge of the past and plans for the future, which are used in decision making or simply experienced as memories, dreams or fantasies. All of them are comprised of action-thoughts at different stages of their activation: from actual performance (the actual present) to their mental enaction (e.g. dreaming of a coming holiday). Such virtual actions intensify our already intensive present by augmenting its 'moreness' with new dimensions. How are the past and the future woven into the fabric of the present?

Reflective action-thoughts have a principal role in constructing temporal dynamics as they rupture time isotropy (Auletta, 2011) in our perception of our own actions. Through these ruptures, our cognitive sphere extends beyond the boundaries of what is given immediately through our senses. In linguistic semiosis, we disrupt the continuity of the experiential flow, isolating a fragment of it by making a distinction (naming) and thinking of this fragment as of a separate entity that can be re-presented through action-thoughts we mentally perform. Both memories and images of the future come to the focus, with the present reality receding into the background – a kind of theatrical scenery.

Here is a simple example. A man stands in a newly bought empty flat and thinks about what needs to be done. He remembers how his parents' house was renovated, and how he helped as a child. The empty space of the new flat is brought to life by episodes of the past and thoughts of renovation (wallpapering, painting the ceiling, etc.). These memories, once recreated and enriched by imagination, transform organically into images of a future interior. The same action-thoughts are both the building blocks of memories and the foundations for future plans. Consider the tripartite structure here: the future of the flat is taking shape in the present by virtue of the past experiences of the new owner. An analogy with Husserl's phenomenology of the present is appropriate here: retention and protention are the past and the future on a microscale. However, the similarity is only partial. Retention and protention are as unconscious as primal impression and are closely linked with the latter to form a single whole. The past and the future, on the other hand, are deliberate and intentionally holistic constructs that can be conceived separately.



The past provides the key to the meaning of the present and shapes the future. Imagine that you have met a classmate you already forgot: there is a stranger in front of you. But when she or he tells you her or his name and mentions the names of your teachers, a sudden transformation takes place: she or he is no longer a stranger, and the old friendship resumes. In this example, the past not only provides a background but also helps to make sense of the present and gives a new perspective on the future. This requires shifting attention from immediate perception to the re-presentation of past experience. The present is understood only when the light of the past falls on it.

The past in the present

Re-presenting the details of the temporal landscape of memory available to our consciousness gives us the past in its purest form as the once-present relived in line with the current needs and demands. The past is both a process and a product of re-presenting experience. The past as a process of action-thought corresponds to the grammatical past (it passed...) and the result of this process can take the form of a noun and become an independent object of reflection (the past...). This quasi-objective past can be transformed, for example, by counterfactuality (*If I hadn't met you, I would be all alone*). We are familiar with the mentally alterable past through literary genres, such as alternative history and time travel.

But only the continually changing reality of the present exists in the full sense of the word. The difficulty with understanding abstract categories such as 'time', 'present' or 'being' is that we try to think of them as mere objects or concepts (their grammatical form of nouns implies this) while, in fact, they are rather conceptual distinctions and relationships between aspects of the present and its constituent objects and phenomena. This gives the illusion that the future, past and present are different but equivalent moments or intervals on a timeline. However, the present is our current reality in the entirety of all its temporal meanings and with all its dynamics. The present embraces all that exists. Our efforts to reconstruct the past are but a way of making sense of the present and uncovering the mystery of its birth.

The past is as much a part of the present as all our thoughts and emotions. A time machine is impossible, not physically but logically, because it operates on the premise that the past is detached from the present, and that one can arrive there somehow. In fact, our memory is an ultimate time machine: it allows us to experience the past without departing from the present. Memories configure our interactions with our present environment. The perceptible past does not constitute an



objective and uninterrupted chronological axis. And this is not required in any way. We look for and find in the past causal links historically interpreting the present and extrapolate them into the future.

The past and the present are formed concomitantly during personal development. If the reflective reconstruction of the past is disturbed, the whole course of cognitive development becomes distorted as well. An agent not aware of her or his biography no longer sees her or his actions as meaningful. As is well known, the loss of biographical memory is generally associated with personality disorders (Mesulam, 1982).

The link between the present and the past works in both directions: if our present changes, so does our past (Maturana, 2012). People in Russia, especially the older generation, clearly remember several occasions when the image of the past would undergo dramatic changes under the influence of political realities. George Orwell described this perfectly in his dystopia '1984'. We are all familiar with idealising the dead, one's childhood and nostalgia for the past. The reverse is also true: disappointment in old illusions can create a negatively biased image of one's own past. In such cases, the affective tenor of reflection is set by ever-changing emotions. This 'ecology of time' reveals the essence of the human being as a temporal being that not only lives in a temporal reality given from outside but also shapes it.

The future as an action-thought

The meaning and function of the future may remind of Husserl's protention, but the resemblance is only superficial. Unlike protention, the future is essentially independent of actual sensorimotor coordinations. Its images are constructed in the imagination from re-presented past and possible action-thoughts, with the very possibility of such action-thoughts conditioned by a sufficient measure of experience suggesting that if something has happened many times, it will most likely happen again. The versatility of this experience, categorised in the relational domain of language through signs and meta-signs of various structural complexity (Kravchenko, 2015), makes it possible to construct a multitude of scenarios for events deemed possible and/or probable, i. e., as those that may happen in the future. Events conceived of as possible, desirable or undesirable, together with action-thoughts conducive or constraining with respect to those events, form the domain of intentionality. And it is no coincidence that, in many languages, future forms include modal verbs or verbs of motion. Desires that are difficult to achieve give rise to dreams and fantasies (it is possible to think about your future bungee jumping in Spain from the comfort of your sofa in



Vladivostok with little idea of what this activity is). The visions of the future kept in our minds belong to the present and, in a sense (as previous acts of thought), to the past.

We think about the future to solve the problems of the present. The past gives meaning to the present on the genetic and cognitive planes and the future, on the intentional. While the past helps us understand and know the present, the future explains its purpose. We seek answers to the question 'why?' in the past, whereas the future answers the question 'what for?'. We are always on the move: "Wanderer, the road is your footsteps, nothing else; wanderer, there is no path, you lay down a path in walking"⁸. If the past is, metaphorically speaking, the point of departure, the future is one of the possible destinations chosen by the wanderer. Both are necessary if we want to see the path as a whole. The future helps us to act with intention.

It is possible to describe the construction of the future through an agent's action-thoughts as the product of re-enacting and transforming a re-interpreted experience of the past. If the past is a reflection on the dynamics of lived experience, the result of this reflection becomes the object of a new action-thought whose product Piaget calls 'reflective abstraction' (Piaget, 1977; Glaserfeld, 1995). The future is the birth of an intentional creative reflection on past experience.

Conclusion

The proposed approach offers a new perspective on the conceptual structure of time. The temporal categories of present, past and future constitute a way humans interact with the cognitive dynamics of the world. Language as a semiotic mechanism of operations on abstractions allows one to think about things that are not perceptually present. The past and the future are a person's thoughts about what is no longer there or about what is not there yet. Time is a construct humans need to harness the experiential flow and organise the use of memory and imagination to solve current problems. In their ontogenesis as living systems with a unique capacity for linguistic semiosis, humans transform the 'quanta' of experience categorised in language into guiding values, gaining effective and meaningful control over their own actions. Temporal thinking forms cognitive links between segments of the experiential flow that transcend the actual perceptual field. The present is given to us in a multitude of diverse external and internal aspects fused by action-thoughts in a single living process where the past re-presents what was once our present and the future is made up of our plans and intentions. Such an understanding of time allows one to approach the philosophical questions of its ontology and epistemology from a constructivist position, opening up horizons for further research.

⁸ Antonio Machado, translated by Francisco Varela (Varela, 1987, p. 63).



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To cite this article:

Simsky, A., Kravchenko, A.V., Druzhinin, A.S. 2021, Action-thoughts and the genesis of time in linguistic semiosis, *Slovo.ru: baltic accent*, vol. 12, no. 2, p. 7–28. doi: 10.5922/2225-5346-2021-2-1.

МЫСЛЕДЕЙСТВИЯ И ГЕНЕЗИС ВРЕМЕНИ В ЯЗЫКОВОМ СЕМИОЗИСЕ

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Поступила в редакцию 03.01.2021 г.

doi: 10.5922/2225-5346-2021-2-1

Генезис времени трактуется авторами в духе конструктивизма в сочетании с деятельностным подходом к познанию. Базовые временные категории настоящего, прошлого и будущего рассматриваются как система мыследействий – элементарных единиц деятельности, – структура которой обусловлена языко-



вым семиозисом. Модель феноменологии времени Гуссерля применяется к анализу переживания субъектом собственных действий. Показано, что если переживаемое настоящее основано на совершаемых действиях, то прошлое и будущее конструируются рефлексивными мышледействиями в когнитивной сфере языка. Подчеркивается, что организация временного ряда, связывающего то, что есть, с тем, чего уже нет или еще нет, возможна лишь в языковом семиозисе. Аналогия с гуссерлевской трехчастной структурой потока сознания-времени помогает понять триаду «настоящее – прошлое – будущее» как пример эпистемологической ловушки языка: прошлое и будущее – это мысленные конструкты, так же принадлежащие настоящему, как и любые другие акты мысли.

Ключевые слова: эпистемология, конструктивизм, феноменология, язык, действие, темпоральность

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Для цитирования:

Охоцимский А. Д., Кравченко А. В., Дружинин А. С. Мыследействия и генезис времени в языковом семиозисе // *Слово.ру: балтийский акцент*. 2021. Т. 12, №2. С. 7–28. doi: 10.5922/2225-5346-2021-2-1.