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Towards a Theoretical Model of Trajectories and Transitions of Thought

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Abstract

This article develops a theoretical model about the trajectories and transitions of thought from a perspective of semiotic cultural psychology. An integration between the inner speech theory, concept formation, and dialogical self theory was done to explore the particularity of thought transitions. It is concluded that the thought transits in a vertical and horizontal axis—from an irrevocable past to an uncertain future and from the lower levels of consciousness to the higher levels of thought—determined by the nature of inner speech—structural and semantic—the quality of concept formation process and the different dialogical relationships that occur between the I-positions of the self. It is proposed that it is these dynamics of thought that make it an idiosyncratic, historical, and genetic phenomenon, which makes empirical approaches difficult and influences theorizing about the thinking process.

Keywords Transitions · Thought · Dialogical Self · Inner Speech

Introduction

The thought in psychology as a phenomenon of study constitutes one of the most complex and relevant processes to explore in its developmental quality (Vygotsky, 1934). From the beginning of the discipline, thinking as well as other psychological processes capture the interest of researchers as a way to explore the most intimate psychological experience of the human being. For example, Wundt (1912) considered thought as the main object of study in psychology, and through thought, he tried to explore all psychological processes. Its fundamental methodological strategy was introspection, which, although it received criticism, managed to be a propitious methodology to investigate the phenomena of

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thought in particular and cognition in general. Wundt (1912) defines thought as conscious and immediate experience.

The socio-cultural perspective has contributed a body of knowledge to the study of thought, describing its forms of development and its relation to other cognitive functions. Vygotsky (1934) focused his study on the exploration of interfunctional connections—relationships between different psychological functions—which, in his opinion, constitute the emergence of consciousness and the basis for psychological development. Thought, its quality, and transitions, from the perspective of Vygotsky (1934), then depend on the complex relationships it establishes with other psychological functions.

The study of human transitions has become relevant in recent times, as a fundamental basis in the study of developmental processes (Grannot & Parziale, 2002). Transitions are the development of a new skill, the emergence of a new meaning, or to give way to a new way of experiencing the world (Zittoun, Duveen, Gillespie, Ivinson, & Psaltis, 2003). The study of human transitions has been addressed mainly during ontogenetic development (Zittoun et al., 2003; Zittoun, 2007), from one stage of development to another, or evaluating cognitive achievements in periods of time of weeks, months, or years (Berger, Chin, Basra & Kim, 2015); Mezulis, Funasaki & Shibley-Hyde, 2011; Ossa, 2013, among others). Nevertheless, there is little empirical evidence regarding the microgenetic transitions of thought (Grannot & Parziale, 2002) and even fewer attempts to develop theoretical models of the inner mental activity trajectories (Fossa, Gonzalez & Cordero Di Montezemolo, 2018). Most studies on trajectories and transitions of thought have approached the phenomenon from a microanalysis perspective—namely, the study of thought divided into small time ranges—and have under-dimensioned the genetic, evolutive, and semiotic-cultural orientation in the approach of the phenomenon (Aldunate, Infante, Carré & Cornejo, 2009). This last perspective is important, as it would allow exploring the process of formation, development, and deconstruction of thought as an ongoing process. In this article, we seek to contribute to the theoretical understanding of thought, in its genetic character, to re-react what we know about the phenomenon of thinking and thus contribute some dimensions to be explored by empirical inquiry.

To deepen the study of thought and its trajectories, some theoretical perspectives, such as inner speech theory (IS), concept formation (CF), The Theory of the Dialogical Self (DST), and the Triple Gegenstand Model (TGM), will be used, which integrated that will allow to understand the temporal dynamics of permanent irreversibility and circularity in the flow of thought. Following this integration, this article is positioned from a dialogic-semiotic-cultural perspective to show what dimensions are involved in the evolutionary development of thought from a micro-level genetic orientation, thus constituting the thought in a historical and idiosyncratic psychological process.

The proposal developed in this article attempts to generate greater reflection on the complexity of human thought and to grant greater complexity to the methodological designs focused on the study of the phenomenon of thought and cognition.

The Transitions of Thought

The transitions in psychological development are the border space between what has been developed and what has not yet emerged. They involve ruptures of previous states that create new illusion of stability, pointing at a spatial metaphor as border that connects and divides two moments or states of development (Zittoun et al. 2003; Valsiner, 2014a, b).

Connection and discontinuity are an inclusive separation that refers to the opposite motives that are addressed in a dialogical relation through transitions (Valsiner, 1997). The two parts of the transition, the previous and the new, establish a dialogical relationship, which grants continuity and temporal orientation to the self.

Ossa (2013) raises the existence of states of balance and imbalance in human experience and cognitive activity that lead to transformations of the forms and contents of thought. The idiosyncratic quality of these processes explains the cognitive variability among people, the different ways of arguing, and the multiple paths of the transitions, both in a particular expression and in human development in general. In the same way, Zittoun (2007) argues that people's lives never follow a linear order; quite the contrary, life goes through points of inflection, breaks, and transitions.

The thought processes express different forms of transitions. Considering ontogenetic development, the flow of thought transits into qualitative and quantitative levels. For example, along the years of childhood, the thought advances in quantity of information (quantitative level—working memory), but also, the integration of that information gives rise to new wholeness and new complex forms of thought (qualitative level). Likewise, thought fluctuates between past, present, and future (during a cognitive act—chronogenesis model), as well as between its iconic (images) and verbal forms of expression (symbolic nature of thought). Other forms of transition of thought are the fluctuations between its voluntary and involuntary forms. Voluntary refers to controlled thought directed to goals, while involuntary regards to mind-wandering (Fossa, González & Cordero di Montezemolo, 2018a, b).

Transitions act as a process of change and development from (a) tension/rupture, going through (b) ambiguity and uncertainty, to (c) the transition to a new momentary stability. Ruptures of thought cause a momentary suspension of the sense of continuity in the experience of the self, but at the same time, ruptures are at the service of granting continuity to the self and the psychological experience. This means that the thought conformed by a dynamic of multiple breaks and transitions is experienced as a sequence of ideas that transmit the thought as a single totality. Totality and sequence of parts are experienced integrated in the development of an idea. In this sense, the break-transition unit composes a space that divides and connects two parts of thought. This means that transitions threaten the continuity of thought, so that the rupture-transition pair establishes the fundamental basic unit for the study of change (Zittoun, 2006, 2007).

As thinking is a moving, historical, and genetic phenomenon, it is important to revisit Vygotsky's ideas. From the perspective of Vygotsky (1934), the relationship between language and thought changes both in quantity and quality during development. The development of language has an independent genetic origin and maintains a parallel development to thinking in the first years of life. However, as Vygotsky puts it, in the ontogenetic development of the human species, "their growth curves come together and separate repeatedly, cross each other, during certain periods they line up in parallel, even melting at some point, re-branching off continuation" (Vygotsky, 1934, p.91). The phenomenon that allows this intersection between both psychological processes is that in ontogeny, the development of cognitive processes receives important influence of biology and culture. Human beings develop in an environment of cultural signs, instruments, and other artifacts, which allow thought to be verbal and language to be intellectual (Vygotsky, 1934; Valsiner & Van der Veer, 2000). From this perspective then, the transitions of thought could be influenced by the quality of the relationship between both processes, thought and language, its dynamics, its dialectic, and its historical relationship in the ontogenetic development of a person.

In historical-cultural psychology, thought emerges from a motivational matrix, which determines an emotional positioning and inclination towards the world. This area is the origin of thought and its engine. In the last passages of *thought and language*, Vygotsky declares:

Thought is not the last resort. The thought is not born from itself or other thoughts, but from the motivational sphere of our consciousness, which encompasses our inclinations and needs, our interests and impulses, our affections and emotions. Behind every thought, there is an affective-volitional tendency. If we have compared thought to the cloud that casts a shower of words, we should compare the motivation of thought—following the metaphor—with the wind that sets the clouds in motion (Vygotsky, 1934, p. 342).

In this quote, Vygotsky defends the idea that thought responds to the deepest motivation needs of consciousness. That is, each thought emerges from a hybrid and diffuse area of interests, emotions, and sensations. Vygotsky emphasizes that this path can take multiple directions and disappear in any of its stages on the way to the word. In this sense, Vygotsky develops in his work the keys to understand the most superficial areas of thought and the deepest areas of it, also referring to the possible trajectories and transitions that can occur between the different levels of thought. For Vygotsky (1934) then, there is a non-verbal phase of thought and a non-intellectual phase of language, and it is from its intersection that cognitive development occurs in human development.

In these permanent connections between thought and language, different trajectories and transitions occur, for one side and the other. In a passage of his work, Vygotsky declares:

Speech does not merely serve as an expression of developed thought. Thought is restructured as it is transformed in speech. Thought is not expressed but *completed* in the word (Vygotsky, 1934, p. 251).

In this section, Vygotsky declares that the word is not a mechanism of expression of thought, but the place where thought ends. The word is established as a border that pushes the thought forward. This means, returning to the Vygotskian hypothesis, that there is a dimension of experience where thought takes place without language and that it can only be communicated through its mediation in words. Although at the same time, thought entails the mediation of the experience itself, in another moment, Vygotsky complements: Thought is not expressed in the word, but is *realized* in it (Vygotsky, 1934, p. 298).

In this extract, Vygotsky emphasizes the interfunctional relationship between thought and language. Vygotsky proposes that thought is realized in the word. A fundamental temporal difference stands out. Thought is done as language is used. That is, thought and language unfold each other in real time during the experience. As the words are found, the thought is realized, and as the thought develops, the words appear. In this way, thought and language follow opposite microgenetic paths, and it is their intersection that generates the so-called *verbal thought*.

Realized and end are two dimensions that Vygotsky establishes as a key in the flow of thought. While the word as “end” of thought refers to the temporal dimension—backwards—the notion of “realized” refers to the dynamic and dialectical link between both psychological processes, namely, thought and language.

Verbal thinking—or also called inner speech—corresponds to what Piaget (1923) called egocentric language, which after school age onwards becomes an internalized function. Although inner speech and egocentric language are not the same, Vygotsky proposes inner speech as the internalization of Piaget’s egocentric language.

One of the main functions of inner speech described by the literature is problem solving (Vygotsky, 1934), although recent evidence has evidenced new functions of the

phenomenon (Fossa, 2017; Fossa et al. 2018a, b), as per for example, the expressive dimension, cognitive effort, and control of thought and action.

Inner speech differs from vocalized speech on three specific levels: phonetic, syntactic, and semantic (Vygotsky, 1934). At the phonetic level, inner speech has no sound; it is lived at the sub-vocalized level. On a syntactic level, there is a tendency towards predicativity in inner speech; that is, the predicates are preserved and the subjects are omitted. At the semantic level, inner speech is more meaningful than vocalized speech; that is, to convey the significance of inner speech in vocalized speech, multiple words and sentences are required.

Inner speech does not have these characteristics at all times and at all levels of training. On the contrary, its semantic and syntactic quality changes as the genetic development of verbal thinking progresses. This means that there are variations between the most primitive levels of thought formation, for example, nonverbal thinking, until its mediation in words, and finally its final state prior to vocalization.

Thought transitions are then dependent on the characteristics and dynamics of inner speech. The transitions of thought depend on the level of significance of the inner language and also on the structure of the inner discourse.

On the other hand, thinking and its transitions depend on the level of formation of concepts used in inner discourse. Vygotsky (1934) conducted research on the process of concept formation which also allows us to understand the complexity of the trajectories of thought, product of observation about the development of meanings.

The formation of concepts as a superior psychological capacity accounts for the functional use of the sign. That is, the formation of concepts allows us to observe the level and the way in which individuals use the instrument of the word as a mediator of thought. Vygotsky (1934) begins from the idea that the formation of concepts is not a mere association between words and objects they designate, but implies a dynamic and complex process of understanding meaning that designates the word. In this sense, verbal or iconic signs are not always used by everyone in the same way, but they are dynamic and develop. This is how the development of the concept does not imply a quantitative change, but a qualitative emergency (Vygotsky, 1934), which depends on the historical and cultural relationship of the subject with the word.

Vygotsky (1934) distinguishes between spontaneous or everyday concepts and scientific concepts. Spontaneous concepts are those concepts that are used daily to designate actions or objects, and that throughout development are possible to understand scientifically. On the contrary, scientific concepts are those acquired in the process of instruction and through development are used spontaneously. In this sense, Vygotsky (1934) proposes that scientific and spontaneous concepts have opposite lines of genetic development. Scientific concepts advance until they become everyday and everyday concepts advance until they become scientific.

Scientific concepts lack historicity, while everyday concepts maintain a historical relationship with individual consciousness. Scientific concepts are learned by instruction and do not have a history in the ontogeny of the person. Not so, the everyday concepts maintain a historical relationship with the person, since they are acquired in natural and everyday interactions.

However, in the evolutionary development of the formation process, scientific concepts begin a particular story with the person, thus being an articulating vector for the development of everyday concepts. Scientific concepts outperform the genetic development of everyday concepts, by requesting a higher level of description and significance. This is the way in which scientific concepts strengthen everyday life and

vice versa, taking educational processes a fundamental role in the development of thought.

In summary, in this section, it has been suggested that human thought then transits in various ways due to the influence of the affective sphere of consciousness and the influence of the social-cultural context. On the one hand, the quality of the inner language has an important role in the transitions that the course of thought takes, namely, its semantic and syntactic quality. On the other hand, thinking depends on the level of concept formation of that particular consciousness, that is, the fluctuations of thought are related to the level of development of the meaning of the word in the ontogeny of a person. All these phenomena, dynamically articulated, are those that are displayed during the transitions of thought. However, these phenomena articulated and integrated into the psychological experience are established as an emergency in the here and now, which fosters a dialogic relationship with otherness—or with other parts of the self—generating sustenance for new forms of transition of the thought.

Thought as an Emerging and Dialogical Phenomenon

Dialogical self theory (DST) offers a basis to underscore the non-linearity relation between thinking trajectories and their social bases. The theory of the dialogical self belongs to the great tradition in psychology that has developed a social model of the mind. DST understands the self in terms of a dynamic multiplicity of voices or positions of the self (I-positions) that constitute a “society of the mind”, that is, a landscape in which the individual mind is intertwined with the minds of other people while our experience with others act as internalized voices in their own minds (Hermans, 2002). In this way, the voices of others are in permanent and dynamic dialogue with the individual.

The self in DST is understood as a process of complex interrelations, not as a predetermined entity, but rather as an emergent construction based on the interaction of personal, historical, and social processes that transcend any dichotomy or separation between individual and society (Hermans & Hermans-Konopka, 2010). This dynamic process of permanent positioning, counter-positions, and re-positioning allows the process of meaning construction during the human experience.

DST is understood in literature as a spatial metaphor, as it uses the concepts of positions, positioning, landscape, and horizons (Hermans, Konopka, Oosterwegel & Zomer, 2017) to refer to the organization of the self, omitting any idea of temporal orientation. Valsiner (2002) complements DST, endowing it with dynamism and sequential function, as dialog implies a process of meaning construction in a communicative chain. The notion of dialogical sequence comprises a temporal quality of the interaction between I-positions and others. Dialogicality is based on a dialogical tension in which two speakers or voices generate a thirdness, that is, a new position that in turn becomes a new alterity for establishing a dialogical relationship.

There are different forms of dialogicality within the self, for example, self-conflict, self-criticism, self-agreement, and self-consultation, among others. There is an otherness in the self, dominant positions, coalitions, exiled and/or repudiated positions (Hermans & Hermans-Konopka, 2010).

The dominant positions (Hermans & Hermans-Konopka, 2010) are what Valsiner (2002) has called promoter positions. These positions are constituted as articulators on which other positions are constructed (in a dialogical relation) thus giving continuity and sense of stability to the self. These promoter positions have some characteristics. First, they

have a specific temporal orientation, a “forward” orientation from the immediate past to the near future. On the other hand, the promoter positions open possibilities within a range for future positions. Finally, these promoter positions give continuity to the self, which constitutes the relational aspect of the I-positions.

Some examples of positions that can be useful to understand the transitions of thought in human experience are the shadow positions, the imagined positions, and the meta-positions (Hermans & Hermans-Konopka, 2010).

The shadow positions constitute consulted positions in the past for new decision in life (Hermans & Hermans-Konopka, 2010). These positions dominate the psychological experience even when we are not always aware of them, constraining what we do and do not do, and telling us how we should act in certain situations.

Other sort of positions is created by the imagination in the inner dialog while looking for what can be acted in a future, real, or imaginary (Hermans, Konopka, Oosterwegel & Zomer, 2017). Even as it may not occur as an observable fact, imaginary positions act as a source of desires, self-images, or inner motion in the psychological experience. The imagined positions have been treated in literature as the phenomenon of prolepsis. Prolepsis constitutes a literary resource in which a certain situation is anticipated (Zittoun et al. 2013) manifesting its ability to enable self-transformation and development. In Greek literature, prolepsis constitutes an anticipated knowledge of a thing, an alteration of the present product of an imagined situation.

Temporality and dialogicality of the self are also found in what literature has called meta-position. The meta-position constitutes a meta-cognitive thirdness, which allows us to observe and analyze the dialogical relationship between the different positions of the self. They constitute a position of the self that acts at a higher level of abstraction, characteristic of introspection, questioning, evaluating, supporting, and weakening the deployment of other I-positions (Hermans & Hermans-Konopka, 2010). (Fig 1)

Figure 1 is an adaptation of the Sato & Valsiner (2010) time model . The horizontal line shows the time, from the irrevocable past to the near future. The vertical line shows

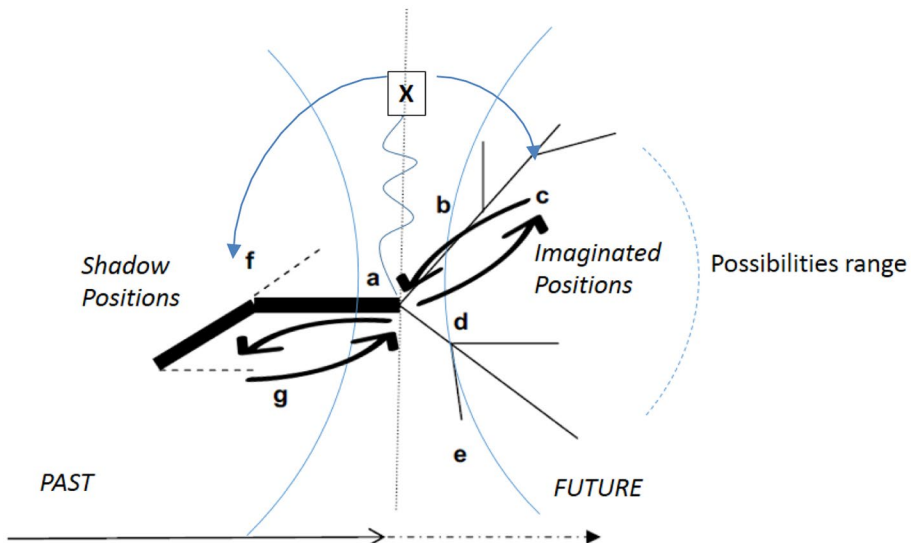


Fig. 1 Interactions between shadow, imagined, and meta positions

the present moment. Point A constitutes the current I-position of the present time in which the past is directed towards the future. This I-position (A) establishes a dialogical relation with the shadow position in the past in transit (points F and G), while, at the same time, it establishes a dialogical relationship with positions imagined in the future (prolepsis) (point C). Human thought transits in a dialogical relationship between the I-position (present), the shadow position (past), and the imagined position (future). At the same time, this dialogicality allows the emergence of a metacognitive third (point X) or meta-position, which will also establish a dynamic and dialectical relationship with the other I-positions.

The famous literary work *In Search of Lost Time* by Marcel Proust is a good example to illustrate the above mentioned. In the first volume of his work, Marcel Proust writes:

When going up to bed, my only consolation was that mom would come to give me a kiss when I was already in bed. But that farewell lasted so little and Mom returned to leave so soon, that moment when I heard her go up, when she felt down the corridor the touch of your suit, was for me a very painful moment... because it announced the moment that would come next, when he left me alone and came back down. Moreover, that's why I came to wish that goodbye with which I was so fond would come as late as possible and extend the space of truce that preceded the arrival of Mom (Proust, 1913/1996: 26–27).

In this extract, we can observe a dialogical tension between the present I-position, with a past in transit and an imagined future. “My only consolation was that Mom would come to kiss me when I was already in bed” acts as a I-position 1 of desire and longing, which comes into tension with a I-position 2 “lasted so little that farewell (...) it was a very painful moment for me”. Both positions of the I lie their tension and opposition in the expression “but”, which brings out the confrontation of two aspects of the self. In this first part, we observe how past, present, and future come together in the experience of thought. On the other hand, a transited past trajectory comes into tension with an imagined position (prolepsis). That is, previous experiences with his mother when going to sleep anticipate fears of what will happen in the next moment: “that moment when I heard her going up, when she felt down the corridor the touch of your suit, was for me a very painful moment ... because it announced the moment that would come later, when I left alone and came back down”. Shadow positions and imagined positions are integrated into the present experience.

The Inner Dialogical Self Speech

The integration between the inner speech theory and the dialogical self theory allows a new understanding of the transitions of thought. Valsiner (Nedergaard, Valsiner, & Marsico, 2015; Valsiner, 2017a, b; Valsiner et al., 2018) has developed a problem-solving model by integrating both theories: The Triple Gegenstand. The Triple Gegenstand model offers a description of the microgenetic crossing of these personal borders to reach a decision and enabling a desired action and the construction of notions of stability about own life and self. It visualizes the process of building and crossing individual boundaries for oneself within a system of internal and external influences. The perception of constricting external norms becomes salient simultaneously with the emergence of the desire to act, and the Triple Gegenstand emerges with the tension created. In the Fig. 2, the individual borders (2) are born in the context of confrontation between internal factors (1), including

needs and wants, and internalized perceived societal pressures (3), such as laws, norms etc. The opposite interacting factors make the final overcoming (5) of the border through negotiation (4) which is an inherently dialogical process (see Hermans; 2001, 2002). The Triple Gegenstand model could be understood, in other words, as a model of microgenetic trajectories of thought and a zoom into decision-making process.

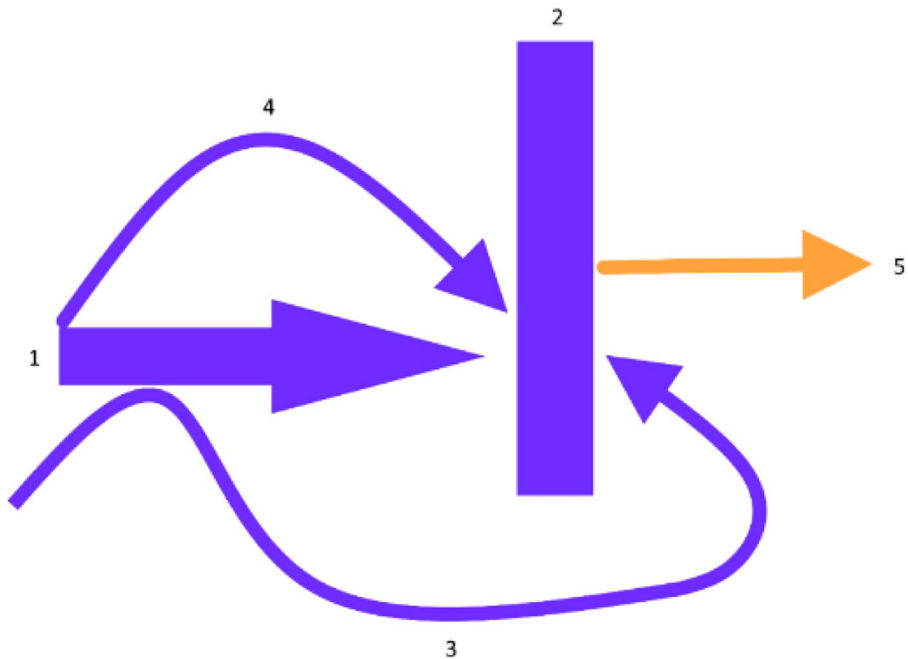


Fig. 2 Triple Gegenstand (Valsiner, 2017a, b)

The negotiation process carries the desires to action through circumvention of the societal limitations that enable releasing the tension between internal and external influences. Each negotiation between internal and external factors leads to a momentary, not permanent conclusion, as each new emergence of a desire to action activates the opposite counter-position again and necessitates a renewed negotiation. The resolution of any single Gegenstand in this microgenetic decision process, i.e., the crossing of a specific border, sets the stage for the emergence of any subsequent Triple Gegenstand system emerging for the next decision. It is assumed that the enabling conditions resulting from the negotiation for one action will be incorporated in the border building process and negotiation of any action in the future. So even though the Triple Gegenstand model is applied to a single microgenetic episode of decision making, each negotiation and conclusion related with upcoming opposition or tension will have a continued influence that imply a more long-term interconnected development along the ontogenetic timeline.

To model the more long-term development of a person's decisions and the resulting actions, attitudes, and decisions, the Triple Gegenstand model has been adapted into a

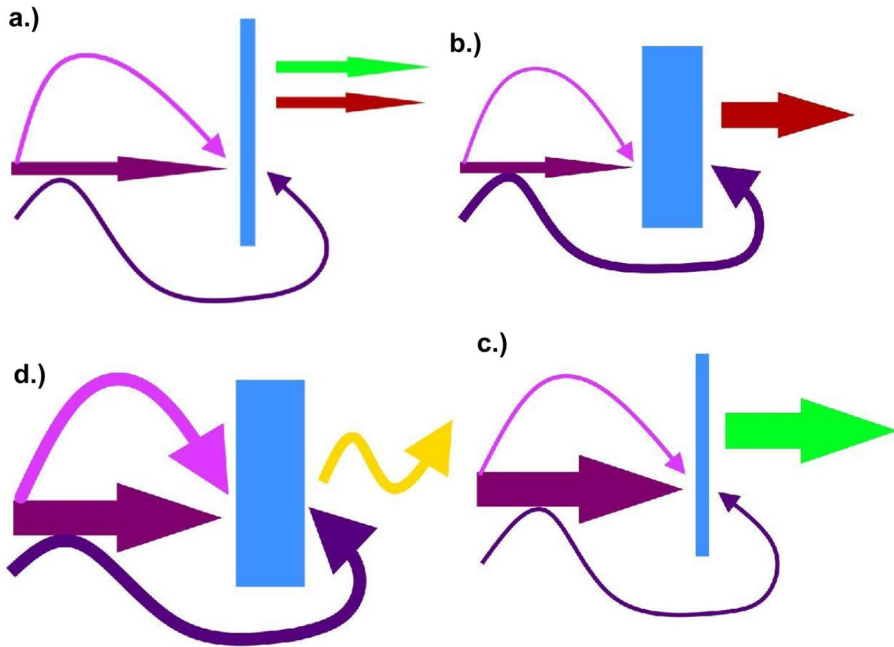


Fig. 3 The four modified Gegenstand modalities

model of Modified Triple Gegenstand and further developed into the so-called Trajectories Model (TM) (Jacob Carande, 2018). This model provides a method to map the life-long development of a person's actions and attitudes as emerging from the ongoing interaction between their social environment and internal factors. A first assumption that TM makes is that within the Gegenstand Model, each factor influencing the border crossing is a summarized representation of several opposite, interacting currents within that same factor. The personal drive to action, which motivates the negotiation process, is formed out of all internal elements and positions pushing the individual *towards* a border crossing as well as all internal elements and positions pushing the individual *away* from a border crossing, i.e., there is not only a dialog between different factors, but also dialogicality within each factor. Similarly, the social counter-position contains all positive as well as negative societal influences perceived by the individual and is merely summarized into a single vector in the basic Gegenstand model. From this assumption, it follows that the amount and strength of different positions within the same factor will most likely influence its direction and weight, e.g., if there are many societal positions opposing the desired action and few encouraging it, the societal position will have a strong negative influence on the desired action and will set up a stronger border to be crossed. In the same vein, if there are many internal factors that push a person toward the desired actions and only a few that speak against it, the drive to action will be stronger and increase the likelihood as well as the outcome of the border crossing, i.e., the person's actions and attitudes surrounding the desired action.

The Modified Triple Gegenstand uses this idea to model variations in predicted outcome based on different factor combinations. This model also allows for a certain level of prediction of the attitude outcome of the border crossing based on the influencing factors. Four different factor combinations with different subsequent border crossing outcomes were identified, but it

can be assumed that the emotional, attitude, and action outcomes will range on a continuum from very positive attitude towards the desired action with low amounts negative emotion/conflict and a high likelihood of acting all the way to a very negative attitude towards the desired action with high amounts of negative emotion/conflict and a low likelihood of acting (Jacob Carande, 2018).

In the case shown in Fig. 3a, both the desire to action and the opposing societal perspective have a quite low intensity. This can result from a lack of influential elements in both factors or it could result from strong, but conflicting influential elements within each factor. In either of these cases, the confrontation between relatively weak internal and external pushes can be assumed to lead to quite a limited negotiation with a low amount of emotional involvement and will ultimately result in a quite balanced match between internal and external factors. This means that both the case of a border crossing AND a non-crossing are possible. In either case, it is assumed that the low level of emotional push will lead to a low-emotion attitude even after the decision. Strong negative or positive feelings towards the desire are unlikely to develop in this case.

In the case Fig. 3b, a low internal drive to the positioning meets a strong negative societal counter-position. In this case, a low desire (or even an ambivalent/conflicted desire) will most likely not suffice to overcome the overwhelming opposite push perceived in society. The most likely outcome in this case is a non-crossing of the border and likely even an internalization of the extreme societal views. This may lead to a strong emotional/behavioral attitude against the desire after only minimal negotiation, since the overpowering societal perspective makes the search of a circumvention condition seem futile.

Case (c) shows the opposite constellation of factors, with a strong desire and only a weak societal counter-position. In this case, the likely outcome is an enthusiastic crossing of the border without much need for negotiation, as there is no opposite to overcome.

In the last case (d), strong drives in either direction, with potential ambivalence within each factor, lead to conflicted and unstable decision outcome. The clash of strong desires and strong opposition in society leads to an extreme amount of negotiation, often accompanied by strong and fluctuating emotions.

To summarize, the thought trajectory model allows mapping how every individual moving across non-reversible time and changing constantly within an unstable societal system will see an emergence of a very individual and unique trajectory—following the development of their surroundings and inner positions—of their attitudes and actions relating to a certain phenomenon. It is assumed that the phases of internal individual development, changes in social groups, cultural changes, moving across national borders into different legal systems, and many similar elements will all influence the trajectory of an individual's attitude.

The most interesting takeaway from the trajectory model is that it theoretically enables the detailed and contextually informed mapping of a person's transition through different attitudes and therefore a mapping of their development across life. In this representation, the previously explained four modalities of the modified Gegenstand model are represented as five distinct outcomes ranging from strong positive emotions and high likelihood of doing an action all the way across conflicted emotions and unknown outcome up to a strong negative emotional outcome and low likelihood of conducting the action in question. Logically, each of these full and self-enforcing trajectories is a hypothetical, ideal trajectory as it is likely to occur when each of the previously mentioned Gegenstand modalities is repeated ad infinitum without change in any factor. A hypothetical individual trajectory is mapped across these different conceptualizations of idealized trajectories, with the stars that represent moments of transition caused by changes in the surrounding or internal factors and the zig-zagging vector

representing the movement of the person across attitudes throughout their development over time.

The Trajectories model, through allowing for a mapping of the individuals' attitude and thoughts, gives an indirect insight into that individual's likely living environment and internal drives. Overall, it maps in detail transitions across stances of thoughts, allowing both for an ontogenetic overview AND for a zooming into single decision instances and times of thought's transitions.

If we analyze the extract of Marcel Proust (1913/1996) above mentioned from the triple Gegenstand perspective, we can observe an individual trajectory determined by desire "my only consolation" faces the frontiers of reality and the internalized mother herself "but it lasted so little and Mom returned to leave". This internal motivation that collides with external barriers now internalized finds a solution through "prolonging the truce".

Irreversibility and Circularity of Thought

A new thought is the emergence of a novelty, qualitative and quantitatively different, that arises from the tension generated by lower levels of complexity (Sawitzki, 2018). The lower-level abstractions are united, integrated, or tensed, thus generating an abstraction of a higher level. In this sense, thought moves towards permanent emergence of a different, qualitatively novel quality, which includes inferior abstractions, but at the same time forms a new complex totality (Sawitzki, 2018). It does not constitute the sum of the lower levels, but a complexity and integrated phenomenological entity.

The transitions of thought are unlimited and infinite, that is, the new emergency can enter into dialogicality with a counter position and thus generate new meta-thoughts. Each new meta-abstraction maintains the quality of a new holistic and gestalt unit, which includes and incorporates the lower levels of abstraction. In this new complex, new meanings emerge loaded with senses for personal experience. This is what Charles Peirce called *unlimited semiosis*, that is, that the interaction of the sign with other possible signs generates a new synthesis, which in turn will establish a dialog with new signs, and so on to infinity (Peirce, 1892). This is the reason why thought is not static, but dialectic and dynamic. The new emergencies are in permanent interaction with others, which allows the process of generalization and abstraction of thought.

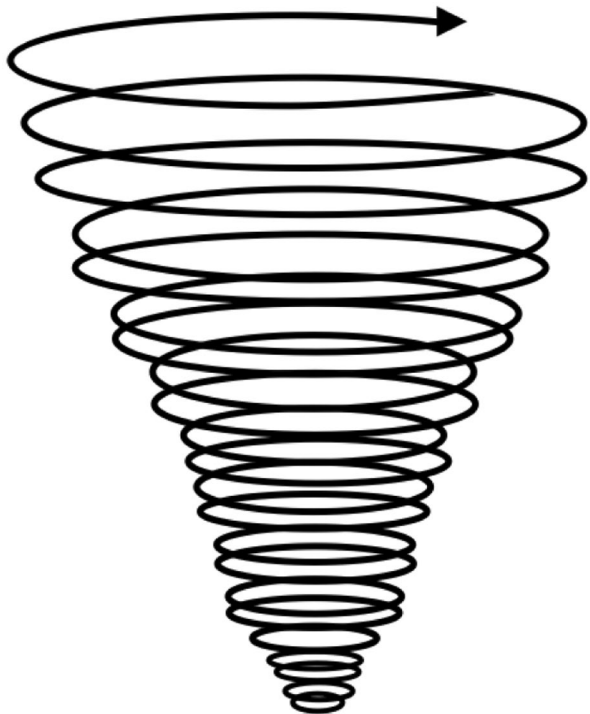
From Vygotsky's perspective (1934), every act of thought is an act of generalization. For example, the process of concept formation is, in itself, a generalization action. Each new generalization of thought is based on the generalization of the preceding phase. That is, in Vygotsky's sense, "the action of thinking is a generalization of generalization" (Vygotsky, 1934, p. 267).

Advanced forms of generalization integrate previous forms, so thought transitions are not a quantitative sum of ideas, but a new integrated gestalt. Even more generalized forms of thinking can maintain a distant relationship with previous forms, since they are hierarchically integrated into a new totality. Of course, the new abstractions of thought are not static but dynamic, open to change, and the creation of new meanings; they are permeable and can be provoked, maintained, or limited by the social context and culture (Sawitzki, 2018).

The abstraction and generalization of thought are determined by semiotic tension. Tension and opposition are the force that mobilizes the emergence of a new meaning complexity, this, a thirdness with greater qualities of abstraction (Sawitzki, 2018).

The flow of thought to advance in a logic up-down and down-up. The transitions and trajectories of thought can be understood as processes of meta-abstractions, that is, the point that unites the lower levels with the higher levels. The trajectories of thought show how cognition advances from more primitive areas—or lower abstractions—to more abstract and complexity—higher areas. Thought is the emergence of a new quality, that is, a meta level thought, which includes the tensions caused by thoughts with lower levels of abstraction. The tension and contrast that moves thought towards areas of greater abstraction is then the tension between two thought zones or two thoughts in semiotic dialog, which makes emerge a new gestalt, of holistic and global quality. That is, a new unity in thought, formed by the multiplicity of lower cognitive abstractions.

Fig. 4 Irreversibility and circularity in the flow of thought



The movements of thought follow a hierarchical continuum, in which the thought of greater abstraction is not a new thought—or at least it is a new thought, dependent of previous thoughts. It constitutes a qualitative and quantitative change of more primitive forms of thought (Fig. 4). More abstract thought forms include thought forms of abstractions of lower levels. The higher unit of thought includes the essence of previous thoughts, integrated and reorganized, thus generating a new gestalt unit in thought. In the cognitive actions of everyday life, meta-abstractions may seem new and different thoughts; nevertheless, a detailed observation could allow to observe the successive and continuous elaboration of minor abstractions, which were geared and articulated in new thought organizations that allow a greater abstraction or meta-abstraction.

If we look again at the aforementioned quotation from Marcel Proust's work, the solution of "prolonging the farewell" can be a meta-abstraction of the thought product of the tension between the lower abstractions crystallized in the I-position 1 "my only consolation was that Mom would come to kiss me when I was already in bed" and I-position 2 "lasted so little that farewell (...) it was a very painful moment for me". On the other hand, the complete quoted excerpt constitutes an interpretation and generalization of the thoughts lived during the remembered scene. That is, a new generalized elaboration of thoughts that are at a previous level. However, thinking can also move from higher levels to lower levels. Although advanced forms of thinking integrate previous forms, it is also possible to descend into areas of greater concreteness. This last phenomenon is characterized by the function of contextualization and categorization. The act of contextualizing is always moving towards a way of thinking of less abstraction and generalization. The experience categorization process is a characteristic of this direction.

As in the process of concept formation developed by Vygotsky (1934), thought goes from the general to the particular and from the particular to the general. Lower levels of generalization stimulate the hierarchical integration of higher levels, but also generalized levels of thinking transform, weaken, or strengthen some lower levels. In concept formation, Vygotsky exemplifies:

The child assimilates before the word "flower" that the name of the different flowers, or even, if he gets to dominate the word "rose" before "flower", uses and applies that word not only to the rose but to any other flower, that is, it uses that particular denomination as general, while at other times it uses the general denomination as particular (Vygotsky, 1934, p. 174).

This is how the thinking process moves towards hyper-generalization while, on the other hand, it can descend to lower levels of categorization and contextualization.

Werner & Kaplan (1963) identified that the experience of the world and human perception advances from diffuse and ambiguous areas, to integrated areas of greater abstraction. This is only what Valsiner (2014a, b) calls hyper-generalization.

The transitions of thought follow an orthogenetic orientation in the sense of Werner (1955, 1956). That is, it advances from undifferentiated zones towards states of greater generalization and hierarchical integration. The double game between circularity and linearity of thought is a process of mutual interaction. On the one hand, an unlimited tendency towards generalization and hyper-generalization while, on the other hand, a tendency towards categorization and contextualization.

Linearity is evident in the micro-transitions of thought in all its diverse nature: symbolic, structural, syntactic, semantic, and concept genesis. While the surrounding constitutes the major trajectories that integrate the previous elements, until almost completely detach from them since they are recursively integrated into the higher levels of thought. These levels can even be irreversible. Only the thought can descend to the contiguous lower levels, since when reaching certain levels of generalization, the new emergencies maintain such a level of quality, that they differ from their previous parts that conform it.

Conclusion

In this article, we have reviewed different models to understand the trajectories of thought. In this attempt, it has been proposed that the different positions of the self developed in the Hermans model (Hermans & Hermans-Konopka, 2010) encourage trajectories in both levels of thought: horizontally and vertically. The tension established between the imagined positions and the

shadow positions allow the past-future or future-past trajectory, thus generating thoughts of consultation or analysis, on the one hand, and an imaginative or planning thought, on the other. Past, present, and future gather in the experience of thought and plot their trajectory, in all possible directions. This, in turn, allows us to also explore the transitions between the different symbolic natures of thought. The shadow positions, for example, as though forms characterized by an inner voice that consults, guides, and helps in decision-making—proper of a transited position—while, on the other hand, the imagined positions allow to develop a thought loaded with mental images that anticipate or prepare a future experience. Thus, thought is a complex gear of voices and mental images that move from the trajectories already transited—such as consultation or memories—to the planning or reverie of the future, and vice versa.

Words and images as forms of symbolic nature emerge at any time from the temporal line of thought (past-future/future-past). At the same time, words and images maintain a microgenetic path between one and another, a complex and diffuse edge space in which psychological experience and human thought move.

On the other hand, the emergence of a meta-position makes it possible to turn from the horizontal plane of thought towards the vertical plane. The meta-positions understood as metacognitive thirdness generate an observation and analysis of the other positions of the self, and in turn of the other levels of thought (Hermans & Hermans-Konopka, 2010). That is to say, while thought transits between shadow positions and imagined positions, or between words and mental images, it also advances from its different I-positions towards its meta-positions. This is, from the experience of first order to the experience of self-observation or second order, and vice versa.

On the other hand, following the transitions of the vertical axis and integrating the Vygotskian theory of thought and the inner language (Vygotsky, 1934), it is possible to understand that thought transits from the deepest motivations of the consciousness—*affective sphere of volition*—to the zones more superficial of the consciousness, in all possible directions, and being able to stop the trajectory in any phase of the process. The deepest areas of thought—namely, the motives of thought—establish a dialogical tension with the environment and the immediate context of the subject. The changes in the context and the motives of the thought advance in opposite directions being in a point of tension and thus generating bifurcations in the course of the thought, in all the possible directions. This means that thought has ruptures generated by the demands of the immediate environment (for example, a classroom, entering a temple, or a new environmental stimulus that breaks into an everyday activity), as well as ruptures produced by internal motivations of the subject (example, impulses, concerns, and current interests of the subject). That is, the transitions of thought can also be understood as a point of encounter between interiority and exteriority, as well as the tension generated in the border zone between different positions of the self.

When Vygotsky says: “thought is not the last resort. Behind every thought, there is an affective-volitional tendency” (Vygotsky, 1934, p.342), proposes a semiotically mediated journey that goes from the motivations and interests of the subject, to the realization of thought in words (Fossa, Madrigal Pérez & Muñoz-Marcotti, 2020). However, integrating this classic Vygotskian observation with the theory of abstraction and generalization of thought (Sawitzki, 2018), it is possible to understand that this microgenetic process of multiple mediations is what allows the hierarchical integration of thought as a meta-abstraction. The dialogic tensions of the different areas of the development of thought allow the process of meta-abstraction of thought, which rescues and maintains the essences of the lower levels, now integrated hierarchically.

The theory of the triple *Gegenstand*, on the other hand, allows us to observe the microgenetic development of thought during the decision-making process. Through the modified triple *Gegenstand* model, we can observe four possible solutions to the internal tensions generated by

the internalized barriers themselves, the social barriers of the context, and the specific cultural norms and laws. The modified triple Gegenstand shows thought trajectories as produced by internal tensions themselves, on the one hand, and between internal tensions and external demands of the context, on the other.

The integration of the models developed in this work allows us to understand that thought is essentially dialogical. That is, it fluctuates and transits incessantly during the experience product of the tension generated by its dialogicality. That is to say, between the tensions generated by the lower zones and the meta-abstractions, between the different positions of the self, and between the personal motivations and the internal barriers as two I-positions (triple Gegenstand), which implies that there is a dialog between the self and another part of the self, which acts as a basis for the development of thought.

Some tensions that allow us to observe the theory of the dialogical self and the triple Gegenstand are related to tensions between possessing and repudiating. That is to say, the thought transits between that which is mine and belongs to the self, and that which is not mine and repudiation of myself, as two positions of the self in conflict. On the other hand, the trajectories of thought can take place between the encounter with one's experience in the present moment versus expectations based on the past or needs based on the future (Cooper, 2004).

On the other hand, the integration of the microgenetic development of thought (Vygotsky, 1934) with the meta-abstraction model (Sawistki, 2018) leads us to think about the trajectories between the lower or primitive zones and the higher or advanced areas of thought. Werner and Kaplan (1963) in their treatise on the symbol formation propose the *orthogenetic principle*, through which they reflect the development and microgenetic path of inner experience and psychological processes (Barten & Franklin, 1978). In the words of the authors: "Human development progresses from a state of relative globalization and loss of differentiation to a state of increasing differentiation, articulation and hierarchical integration" (Werner & Kaplan, 1963, p. 108–109).

The experience then is a constant process of differentiation and integration in the flow of thought and cognition. The diffuse and hybrid experience is categorized in differentiated forms or schemes (Valsiner, 2014a, b; Rosenthal, 2004). Thought then is the mediation of experience in itself, through which the process of categorization and stabilization of experiential forms takes place. Thus, thought constitutes a permanent process of genetic development of categorization of the diffuse and global experience into something specific and better defined (Rosenthal, 2004). This phenomenon of categorizing experience into specific thought forms is what gives continuity and discontinuity to the microgenetic development of thought (Werner & Kaplan, 1963; Barten & Franklin, 1978) during the tensions and movements that allow the different positions of the self, the meta-abstraction and the triple Gegenstand. The tensions generated between the lower and upper levels, the different I-positions, and the crossing of borders of the triple Gegenstand are what allows the emergence and novelty in thought, as well as the gap and rupture of their trajectories.

However, in the evolutive genesis of thought, something remains stable even when its successive sequences of tensions and ruptures make it think otherwise. The multiplicity of emergencies in thought constitutes, in synthesis, instances of the same category, which gives continuity to the flow of thought (Rosenthal, 2004). The psychological experience and the thought are constituted by successive and gradual sketches, even though it is difficult to observe their primitive deployments or pre-formations, because when analyzing them, they have already been ignored by the following occurrence. Thus, thought is the expression of the multiple possible trajectories that its own constitution process requires (Rosenthal, 2004).

When Vygotsky refers that the concept formation is an act of generalization, the orthogenetic orientation of the functioning of thought is appreciated and together with them the verticality and horizontality of the flow of thought: from the past to the future and from the future to the past, and from bottom to top and top to bottom.

These characteristics of the transitions and trajectories of thought, together with the symbolic, structural, and semantic nature, in addition to the level of concept formation guided by the historical relationship of the subject with the living word, are what make the process of thinking something so idiosyncratic and unique for each subject. In addition, this complexity of thinking is what makes mutual understanding and communication between human beings difficult.

In this article, we have tried to describe the psychological phenomena involved in the act of thinking, which make thinking an idiosyncratic phenomenon. In this work, we have highlighted the role of inner speech, concept formation, dialogicality, and recursivity in the flow of thought, which makes the thought process dynamic, complex, and unique. All these processes and phenomena involved in the act of thinking are those that deliver a variability to the forms of human thought and that hinder their approach from the empirical.

In summary, from this work, it is possible to understand the genetic, functional, and structural difference in the thinking processes of human beings. However, in much of the updated literature, thought has been studied as if it were a unique process, as if the thought were always the same for everyone, in all its dimensions.

The main proposal of this article is to show the complexity of processes, dynamics, and tensions that interact during the act of thinking. This constitutes a great contribution to empirical research related to the study of thought and to theoretical contributions on the psychological experience of thinking.

In short, this article has developed an integration of theoretical models that allow us to understand how thought fluctuates through multiple tensions of vertical and horizontal relationships that together constitute the inner human experience. Future developments should continue to, empirically and theoretically, the complex trajectories that take place in human thought.

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