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Psychologism in the study of children's semiotic development

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Abstract: This essay discusses the notion of 'semiotic development in child development' and highlights potential concerns for 'psychologism' when semiotics turns into cognitive semiotics. The notion of 'semiotic development in child development' indicates a transdisciplinary approach involving both semiotics, the general study of meaning and signs, and child psychology. This, however, invites the criticism of committing the fallacy of psychologism. Piaget was aware of this dilemma when developing his theory of the semiotic function as a united capacity in children's cognitive development. Sonesson's proposal of a general definition of signs in meaning-making is suggested to, at some points, meet the dilemma with psychologism in studies of children's semiotic development. Starting from a phenomenological point of view in semiotics and integrating Piaget's theory on cognitive development and meaning-making meet the study of subjectivity in intersubjectivity. On the one hand, the sign as a theoretical object is not reducible to any given psychological process or processes; on the other hand, sign meaning can only exist if there are beings (consciousnesses) capable of grasping and using signs.

Keywords: anti-psychologism; semiotic development; sign; psychology; phenomenology; Piaget

Preface

A pivotal contribution of Göran Sonesson to the advancement of semiotic research was his integration of Edmund Husserl's phenomenological inquiries, positioning them as indispensable within the field of semiotics. It was, notably, through a deep engagement with phenomenology that Sonesson subsequently articulated his conception of cognitive semiotics. Besides insisting on the relevance in semiotics of learning from both the methodology of structuralism derived from Lévi-Strauss and Saussure, and pragmatism according to Peirce, Sonesson took pains to discuss Husserl's and Peirce's approaches to phenomenology side by side. This was an undertaking evident already in his 1989 publication *Pictorial Concepts*. In the

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coming years, Sonesson pursued an ambitious endeavor to formulate semiotics as a fundamentally phenomenologically marked science by investigating topics in visual semiotics, cultural evolution and the emergence of sign meaning in ontology. All of which are when experience, in some way, meets meaning-making, and vice versa.

1 Introduction

The notion of 'semiotic development in child development' spans a broad spectrum of theoretical considerations and, possibly even, the concerns that emerge from the intersection or tensions between disciplines. This notion encompasses both the research tradition of 'semiotics' with its complex relationship to logic in the philosophy of knowledge (Deely 1982; Stjernfelt 2007), and empirical studies of child development within psychology. This conceptual convergence thus embodies the potential to serve as a quintessential example of what has been termed "the fallacy of psychologism" from the point of view of logic (Kitchener 1980).

The concept of 'psychologism' addresses the relationship between logic and psychology. It emerged around the turn of the 20th century in Germany, a time when psychology was in its nascent stages as an academic discipline (Kusch 2024). Originally, psychologism unified diverse viewpoints that challenged traditional philosophy, advocating for psychology as the scientific foundation of logic or considering logic as a branch of psychology (Kusch 2024). Conversely, anti-psychologism opposed these views, often criticizing psychologism for mistakenly conflating non-psychological (i.e., logical) entities with psychological ones (Kusch 2024). The early debate over psychologism was intertwined with inquiries into the truth values of research. Logicians, such as Frege, argued against the application of psychology's inexact methods and ambiguous concepts to logic, which seeks to explain the complexities of human behavior and its correspondence to logical structures. This debate not only continued within, but also possibly influenced, the development of Husserl's phenomenology. Despite sharing Frege's leanings towards ideal realism, Husserl introduced his own anti-psychologistic arguments, emphasizing the empirical ramifications he associated with psychologism (Kusch 2024; Stjernfelt 2013). Similarly, Peirce engaged with the logical and mental science issues, advocating for an anti-psychologistic approach in his unique interpretation of phenomenology, or phaneroscopy (Stjernfelt 2013). For both Husserl and Peirce, phenomenology was envisioned as a methodology to balance the ideal of theoretical objectivity in science with a critical examination of the subjective capacities for acquiring knowledge (Sonesson 2017; Stjernfelt 2013). Furthermore, they posited phenomenology as a foundational discipline for both philosophy and logic, underscoring its rigor (Spiegelberg 1956: 182).

In this essay, theoretical challenges arising at the complex juncture of semiotics, psychology, and phenomenology are addressed. The focus centers on the exploration of how sign meanings emerge within ontogeny, with a particular emphasis on the semiotic development of children – a topic that implicitly encompasses elements of psychology. The relationship between psychology and phenomenology is notably intricate, characterized by a rich historical and thematic interconnection. Despite the distinct ways in which Peirce and Husserl articulated phenomenology, both scholars underscored the profound differences between phenomenology and psychology (Spiegelberg 1956; Stjernfelt 2013). Nonetheless, phenomenology and psychology converge in their mutual interest in understanding human experiences, consciousness, and behaviors. However, these disciplines diverge in their starting points, methodologies, and, most importantly, their objectives. Psychology, with its ontological aims, employs empirical methods to understand and explain thought, emotion, and behavior through experimental and observational studies, seeking to uncover the underlying mechanisms of these processes. In contrast, phenomenology addresses fundamental epistemological questions – inquiring into the nature of our knowledge about the world. It advocates for a mode of knowing that transcends traditional analytic or synthetic approaches, embodying both dimensions (Dougherty 1980: 364).

Instead of centering on the brain as seen in psychology, phenomenology centers its inquiry on the mind, prioritizing the exploration of consciousness and lived experiences prior to delving into the brain's mechanisms and their connections. Phenomenology, on the other hand, seeks to understand the elements tied to knowledge acquisition, such as consciousness and lived experiences. Similarly, semiotics aligns with phenomenology in its profound commitment to investigating and unveiling both the particular and the abstract general structures underlying meaning and the process of meaning-making (Stjernfelt 2013). Semiotics does not readily lend itself to definition as a scientific domain with a cohesive set of theories (Sonesson forthcoming), and interpreters of semiotics do not present a unified perspective on categorizing semiotics as a science. Here, it becomes pertinent to engage in a discussion on semiotics that embraces a cognitive semiotic turn, adopting a phenomenological approach as interpreted by Sonesson and others (e.g., Zlatev et al. 2016) in the context of the challenges posed by the debate on psychologism.

1.1 Psychologism and semiotics

Stjernfelt (2013) highlights anti-psychologism as a prerequisite for semiotics per se. It is, therefore, crucial to comprehend what he implies by anti-psychologism, as well as how semiotics is delineated as a scientific domain or endeavor. Particularly

significant is the connection to signs, as such assume a defining role in demarcating semiotics as an autonomous science. In Stjernfelt's comparison of Husserl's and Peirce's interpretations of the sign, it becomes apparent that the regularities, or mechanisms, underpinning semiotic processes, and thereby essential for the creation of meaning, belong to structures independent of the specifics of human psychology, or any "empirical mind" (Stjernfelt 2013: 88). Stjernfelt emphasizes the importance of avoiding circularity between systems to achieve scientific validity in the description of both logical and psychological entities. A cornerstone for scientific description and scientifically founded claims is the separation and correlation of distinct systems where, from a certain perspective, one system is (more) dependent on the other but not vice versa.

Sonesson (e.g., 2010, 2019), on the other hand, advocates for a broad definition of semiotics and a narrower definition of signs. Semiotics is thereby not confined to the study of signs but is conceptualized as the science of meaning and meaning-making, where signs play a pivotal role within intersubjective cultures. From this perspective, signs are delimited to a specific type of meaning relationship that requires definition in its meaning relations, involving both inner (mental) and outer factors (Daddesio 1994; Sonesson 2011), and which are integrated into the communication and meaning-making that humans engage in their daily lives. This viewpoint on signs has several implications. One implication is that the extensive branch of semiotics that has developed from Saussure's theories of language can be included in the definition of semiotics and the discussion on the concept of signs. Another consequence is that the definition of signs risks remaining anthropocentric. In the study of children's semiotic development, human cognitive development is key. Whether what is uniquely human, or if that is of interest, is another question that should be discussed in a different context. Nonetheless, with Sonesson's broader definition of semiotics, the study of children's development in meaning-making assumes a natural place within the investigative domains of semiotics, particularly within cognitive semiotics. This inclusion is not merely as part of semiotics as a historical intellectual tradition or the application of semiotic categories (if applied) and concepts, but as a pursuit of deeper understanding (and ideally knowledge) of processes and relationships that underpin meaning and meaning-making, essentially a philosophy of mind. However, if semiotics is defined more narrowly, as the study of signs understood as "logic proper" (Stjernfelt 2013: 90), then the study of semiotic development cannot, by definition, be "semiotics proper". However, as Stjernfelt points out, this does not mean that empirical studies are irrelevant to semiotics (proper). He cautions against the overuse of the sign concept, specifically its misuse for incorrect reasons in cognitive sciences. Signs (which are ideal) cannot explain psychological phenomena (which are real).

In a continued discussion unpacking Barsalou's theory of 'perceptual symbols' to explain processes of abstraction, Stjernfelt (2013) highlights 'signs' as pervasive

throughout, though not governed by, cognitive processes. Moreover, the ideal quality of concepts (necessary for abstractions) cannot be explained by cognitive processes alone; the outer extension of signs is needed. Hence, on the one hand, the sign as a theoretical object is not reducible to any given psychological process or processes; on the other hand, in following Sonesson, signs (sign meaning) can only exist if there are beings (consciousnesses) that are capable of grasping and using signs.

2 Semiotic development

Before delving deeper into the constraints of psychologism in the study of child development, it is essential to delineate the concept of 'semiotic development' as it pertains to this essay. In this process, a brief discussion on the term 'development' within this specific context is warranted. Additionally, elucidating the role of semiotic development within the realm of cognitive semiotics is crucial.

The terms 'development', 'change', and 'growth' share similarities yet do not completely overlap. In certain scenarios, 'development' and 'growth' may be used interchangeably, particularly in the context of emergent development, as discussed by Vygotsky (1986) and also referenced by Bruner (1966). These terms allude to a process, with 'change' being inherent to development. However, 'change' alone does not suffice to define 'development', and 'growth' does not always equate to 'development'. 'Development' signifies an evolution marked by qualitative transformations rather than merely quantitative ones.

In the context of developmental psychology, Hurlock (1956) defines development as a continuous, cumulative process distinguished by qualitative changes that generally hold positive implications for the individual or group. This definition suggests that development is directional. Furthermore, 'child development' is identified as a complex, multifaceted, and somewhat unpredictable process encompassing the advancement of perceptual, emotional, intellectual, and behavioral capacities during childhood, as outlined by Britannica (2023). Thus, development transcends mere physical growth, encapsulating the attainment of higher mental functions, adaptation to the environment (following Piaget and Vygotsky), self-regulation (Hurlock 1956), sign-mindedness (DeLoache 2004), and secondary intersubjectivity (Trevarthen and Aitken 2001), among others. These progressions signify robust changes, acknowledging that while regression is possible, it entails a loss of previously valued capacities, without reverting to the exact previous state.

Semiotic development refers to a wide array of research interests unified by the understanding that semiotic reading plays a crucial role in following the evolution of sign processes and meaning-making. This concept spans the investigation of the emergence, growth, and transformation of meanings and meaning systems both

individually and culturally. Semiotic development is analyzed across ontogenetic (e.g., Piaget 1945; Vygotsky 1986) and, evolutionary and cultural scales (e.g., Donald 1991; Sinha 2023), within sign systems themselves (e.g., Colapietro 1989; Deacon 1997), and in relation to technological advancements. For the purposes of this essay, the focus will be narrowed to an ontogenetic perspective, addressing an epistemological challenge within cognitive semiotics (cf. Stjernfelt 2013).

2.1 Children's semiotic development

In the realm of 'semiotic development in children', two distinct research paradigms converge (Sebeok 1986: 65): semiotics informed by methods and psychology, and psychology informed by semiotic concepts and principles. Krampen's (1991) investigation into iconic coding in children's drawings was a call for the former. Further advancing this paradigm towards cognitive semiotics are research initiatives focused on the precursors of sign usage, spearheaded by Sonesson and undertaken at the *Center for Cognitive Semiotics* at Lund University from 2009 to 2014 and beyond. Contributions from Andrén (2010), Lenninger (2012), Sonesson and Lenninger (2015), Lenninger et al. (2020), and Zlatev et al. (2013) extend the dialogue on semiotic development, anchoring these endeavors when critically taking on conclusions and methods from psychology (Lenninger et al. 2015¸ 2020).

The investigation of the sign as a dynamic component of human cognitive development throughout ontogeny has been fundamental, as evidenced by the seminal research of Jean Piaget and Lev Vygotsky in the 20th century. Their investigations of cognitive development and the development of meaning-making capacities in children have laid the foundation for the contemporary study of semiotic development in children. In this spirit, studies in psychology basically ask semiotically informed questions, as evidenced by the research of Elizabeth Bates, Jerome Bruner, Judy S. DeLoache, Tara Callaghan, and Michael Tomasello and many more.

In his early works, Piaget (2002 [1926]) argues that the use of language by children cannot be simplistically linked to 'thought' but should rather be regarded as an integral aspect of actions. This perspective is further developed in his subsequent works (1936, 1937, 1945), where he elaborates on the sensorimotor stage, setting the groundwork for his stage theory that ranges from sensorimotor development to the acquisition and competence in understanding sign meanings and abstract reasoning. This was identified by Piaget (1945: 6–7, 292) as the 'symbolic function' then later as the 'semiotic function' (Piaget and Inhelder 1966: 41–43). Piaget's investigations delve into how thought develops within individuals across ontogeny. His approach uses a

logic grounded in lived experiences, and in doing that he emphasizes the individual picking-up a 'logic' in the physical environment.

According to Piaget (2002 [1926], 1945), communicative meaning-making in ontogeny gradually emerges from a child logic of being in the world (Furth 1969). In *Thought and Language* Vygotsky (1986) offers a critical perspective on Piaget's earlier propositions regarding language and cognition, highlighting Piaget's inadvertence of the social and cultural dimensions in development (commented in next section). Nevertheless, although Vygotsky and Piaget have differing views on children's communicative capabilities, both scholars have extensively examined children's conception and utilization of sign meanings in thought and communication. They argue that the capacity to grasp and make meaning by signs (in a narrow sense) signifies qualitative transformations in cognitive development, involving a complex understanding of 'sign' and the perception of sign meanings as instances of meaning-making.

While there are several studies on the similarities (e.g., Matusov and Hayes 2000; Tryphon and Vonèche 1996), and differences (e.g., Bruner 1997) between Piaget and Vygotsky's theories it is crucial to underscore their shared interest in the psychological dimensions of signs, incorporating both internal and external structures, in the development of meaning-making. Furthermore, both scholars emphasized the significance of empirical research in advancing our understanding of sign meanings as central to cognitive growth.

2.2 Psychologism – Piaget and beyond

Piaget's discussions of semiotic development may pose a challenging foundation for engaging with the critique of psychologism and the imperative for anti-psychologism in semiotics. Starting from a biological perspective, Piaget seeks universal and holistic systems to understand the development of intelligence in the individual, that is, the development of adaptive, imaginative, and innovative thinking (Furth 1969). This approach is especially relevant in discussions where the critique of psychologism is emphasized, with Piaget exploring the intricate relationship between logic, the development of 'intelligence', and meaning-making processes in the individual. A critical point for the discussion here is the role and nature of what Piaget denotes as "the semiotic function" (or symbolic function). I will come back to this after a more general presentation of the theoretical framework the semiotic function is a part of.

Piaget framed his theory on children's semiotic development within the concept of 'genetic epistemology'. Genetic epistemology, according to Piaget (1972: 2) "… is the psychological origins of the notions and operations upon which [knowledge] is based". It is a theory of cognitive development that aims to situate the still-open

possibilities of the individual's interaction with the environment and her disposition of cognitive (con)structural constraints in a structural whole (Piaget 1953: 41). It is also a theory that, without equating with it, takes stands from evolutionary stages through which human beings developed such structures for knowledge development; "Denoting both the problem of logical (necessary) origins as governed law, and the individual's historical origins" (Goodwin 1982: 528). In *The Principles of Genetic Epistemology* from 1972 (originally *L'épistémologie génétique* 1950) Piaget summarizes:

> … knowledge starting from the initial indifferentiations […]. The progressive interiorization of the subject's logico-mathematical operations as a result of the reflective abstractions that construct operations on other operations, finally leads to the attainment of that extra- temporality characterizing systems of possible transformations and the subject is no longer tied to real transformations. The physical world in its spatio-temporal dynamism, which includes the subject as an integral part, becomes accessible to an objective 'reading off of certain of its laws and, above all, to causal explanations (that force the mind to a continuous decentring in its mastery of objects). In other words, the parallel development of interiorization and exteriorization, active since birth, underlies this paradoxical accord between thought, which at last frees itself from physical action and the universe, which contains this latter and yet surpasses it in all respects. True, science has long acquainted us with the surprising convergences between mathematical deduction and experience; but it is a striking thought that at much lower levels than that of formalizing and experimental techniques, a mind which is still very qualitative and scarcely able to employ numerical methods, arrives at analogous correspondences between its attempts at abstraction and its efforts of observation, however unmethodical they be. (Piaget 1972: 50)

In this passage, Piaget describes how knowledge develops from a state where children are assumed to have no differentiation between the inner and the outer world, to a more advanced stage where they can think abstractly and understand complex concepts beyond immediate physical experiences. This process develops, according to Piaget, from leaning on concrete reactions on their own actions to, years later, be driven by reflective abstraction. Abstractions where children learn to think about their own thought processes, leading them to grasp abstract concepts and the possibility of transformations not tied (anymore) to the physical world. Being naturally predisposed for acting in the sensory-motor stage (in a physical world with stability) this cognitive evolution enables a balance between internal thought processes and the external physical world. Thus, even without advanced mathematical or scientific methods, children naturally progress towards making abstract connections and observations about the world around them.[1]

1 From a logical point of view, this effect of evolution in Piaget's thought can be compared to Peirce's (CP. 1.417) distinctions between *Logica Utens* and *Logica Dosens* in mathematical reasoning. Logica Utens is pre-reflected deductions, whereas Logica Dosens is knowledge-based and "submitted to the

In defending Piaget's concept of genetic epistemology, Kitchener (1980: 276) approaches the issue of psychologism in the interrelation of logic and psychology from both angles. This includes mistakenly deriving the validity of normative (logical) constructs directly from empirical (psychological) data, or inappropriately using psychological methods to tackle questions that are inherently logical inquiries. Notably, Kitchener brings up the necessity of *equilibration* to explain why individuals move from lower stages to higher (and not settle for good enough levels). Kitchener (1980) contends that Piaget's conceptualization of development, fundamentally viewed as a progression toward logical reasoning, required the integration of psychological constructs such as *wants* and *desires*. This approach, Kitchener concludes, might position Piaget as an advocate for psychologism (also cf. Goodwin 1982 cited above). However, Kitchener clarifies that Piaget was aware of the fallacy of psychologism and made efforts to distinguish between psychological and logical phenomena (e.g. see Piaget 1953). Therefore, to navigate these challenges in a pragmatic way (Kitchener 1980: 278), Piaget characterized 'intelligence' as an outcome of logical processes, achieved through attaining levels of cognitive equilibrium.

The hypothesis of developmental stages in Piaget's epigenetic epistemology aims to account for significant behavioral transformations through changes in the structural dispositions of an individual's cognitive schemas explained on a universal scale. Still, there exists ambiguity if these schemas are psychological or logical in nature; however, they are posited to mirror logical entities in the environment. A way around the dilemma with stage hypothesis has been, of course, to show that changes do not occur in distinct stages but progress and are gradually processed in adaptation to the external world (Thelen and Bates 2003). The principle of such flexibility is somewhat acknowledged *within each stage* in Piaget's (1945) investigations. Unlike behaviorism, Piaget views development as not merely a change in behavior but also a transformation of qualitative cognitive structures, as was also key for Vygotsky (1986).

Piaget's developmental theory ties an individual's early interactions to the external world, emphasizing physical engagement from the start of infancy. However, it might underestimate the parallel significance of the social and emotional dimensions. These aspects, as highlighted by Vygotsky (1986), play a crucial role in a child's development, independent of and sometimes separate from physical interactions. Piaget's theory overlooks how interactions within these social and emotional contexts are equally vital, contributing to the child's development in ways

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principles of the philosophy of thought". However, differentiating between logic only tells about the two types of logic (not their origin to be). In the same passage, however, Peirce states that the necessity for these to exist comes from a truth so broad "as to hold not only for the universe we know but for every world that poet could create."

that are just as important as physical experiences. Hence, even if social encounters are initially characterized by egocentrism (the absence of distinction between the self and the other) from the child's perspective, they are not so from the social environment's perspective. The adult world seeks contact, and research indicates that the infant is predisposed to be in contact not only to the physical world but also to the social (Csibra and Gergely 2009; Sauciuc et al. 2020; Trevarthen and Aitken 2001).

Besides the shifts, challenges, and offers provided in encountering the physical and social world, the child also encounters a plethora of more or less conventionalized sign systems. These systems, established through human communication, extend beyond the natural world. At this point, the creation of meaning by signs in its narrow sense, discussed in the following passage, enters as a challenge and possibility in the child's development as a partner in a communicative culture. It also provides tools for grasping one's own understanding or knowledge of the world.

2.3 The conception of sign

The tension between logic and psychology, as it relates to Piaget's approach and Kitchener's defense, does resonate with readers of Charles Sanders Peirce's and Edmund Husserl's philosophy of signs in phenomenology (cf. Sonesson 2014, 2017; Stjernfelt 2013). The indispensability of the generality of signs that characterizes both Peirce's and Husserl's concepts of signs, as Stjernfelt (2013: 106) clearly explains, rejects any attempt to delineate the sign in "… terms of sets of mental representations …". This, however, also seems to be of concern for Piaget (Kitchener 1980). Introducing the concept of 'semiotic function', Piaget suggests a structural principle for the individual's construction of meaning on general levels. It is not suggested as a 'mechanism in brain;' it is rather a logical possibility in the individual's development in meaning-making. However, to be realized it requires cognitive dispositions such as attention and memory (and as noted before, also wants and desires) studied in psychology. According to Piaget (1945), the steps of developing 'signs' in ontogeny correspond to the steps in his stage theory. 'Imitation', 'deferred imitation', and 'object constancy' are all stepstones in behavior open for empirical studies in the development towards master 'fully fledged signs' according to Piaget (1945).

Sonesson (e.g., 1989, 1992) notes that Piaget spotted the need for a definition of the 'sign' in semiotics. The call for a definition of a prototypical sign in meaning-making is the view that not all meanings that are basic, frequent and present in the individual's meaning-making processes are "sign meanings". Moreover, through his reading of Aron Gurwitsch, Sonesson (1989: 99) noted that Piaget's approach to

meaning highlights the impact of subjectivity in meaning-making. Sign meanings, according to this view, are defined by having specific constraints and directionalities between meaning relations in the specific sign process from someone's point of view (see definition below). Yet from a phenomenological point of view (Sonesson 2017), subjectivity is the default in an interpersonal sense. The minimal sign according to Sonesson (Sonesson and Lenninger 2015: 193) is defined as follows:

A. It contains (a least) two parts (expression and content) and is as a whole relatively independent of that for which it stands (the referent);
B. These parts are differentiated, from the point of view of the subjects involved in the semiotic process, even though they may not be so objectively, i.e. in the common sense Lifeworld (except as signs forming part of that Lifeworld);
C. There is a double asymmetry between the two parts, because one part, expression, is more directly experienced than the other;
D. And because the other part, content, is more in focus than the other;
E. The sign itself is subjectively differentiated from the referent, and the referent is more indirectly known than any part of the sign

This sign definition is drawn from both Piaget's proposal of 'semiotic function' and Husserl's definition of 'representation' as an active, intentional act through which consciousness constitutes and apprehends the meaning and being of objects (Sonesson and Lenninger 2015). Piaget (e.g., 1945), in his turn, was influenced by the Saussurean sign concept. *Differentiation* and *asymmetry* are key for Sonesson's definition of sign (Lenninger 2012: 16). Piaget (1947) noticed the impact of *differentiation* as a structural possibility in meaning (not necessarily linked to an equivalent distinction in a physical world) as a cornerstone for the individual to manage sign meanings. Asymmetry is also key; one part of the sign meaning (expression) indicates for the conceiver the meaning of the other (the referent), which also becomes of focal interest (c and d),[2] although the latter (the referent) is only indirectly "known" in the relation by means of the expression (e).

This definition does not rely on a specific type of sign expression, anything can fulfill that part in a sign relation. The concretization of the sign relation is a point of view by the one that perceives the sign relation (the "addressee" in Sonesson's terms). This circumstance makes it possible to define the meaning relation as *a sign* in language and pictures alike, but also to cover singular sign events. Such as when the 'mittens-left-on-a-table' is taken for the sign (expression) that 'Anna has been here' (and left her mittens behind). The same pair of mittens could be seen by someone else simply perceiving them as 'mittens' – not taking them for a sign (expression) indicating that 'Anna has arrived, perhaps she left for a cup of coffee

2 … or at least another object of meaning brought to mind by the expression.

before the meeting'. Of course, there is the option of a less clear case when the perceiver pre-reflectively associates the 'mittens' with 'Anna'. In this meaning relation, there is no differentiation as mentioned above even though the perceiver does not mistake the 'mittens' for 'Anna'. It is, however, a case of meaning by mere indexicality.

The point I try to illustrate here is that the notion of sign as defined above is drawn from a semiotic concern looking for general levels of meaning-making. It is not bound to specific types of sing expressions (such as language or pictures etc.), neither is it by definition bound to a 'particular thinking subject' (cf. Stjernfelt 2013: 86). It *is*, however, linked to there being a thinking subject (i.e., consciousness). Moreover, it cannot be denied that the road model for the sign definition, as suggested above, has meaning in human culture. This Anthropocene approach is not the same as to say that meanings by signs, as defined above, are necessarily uniquely human. However, while clarifying qualitative stepstones for the young child developing abstract thinking and sign function Piaget also pointed out the impact and richness of meaning-making beyond signs and initiated means for studying them experimentally in human ontogeny.

For the sake of investigating semiotic development in ontogeny, it should be noted that the sign definition above is aimed to frame 'meanings by signs' on a general level. It does not distinguish the impact of applying those relations by different means of sign expression directed to different kinds of objects. To simplify (and make the point short), Piaget's study on children's semiotic development posits that at each developmental stage, children express the same cognitive structure through five distinct modes of meaning-making. According to Piaget and Inhelder (1966), these are: drawing, symbolic play, imitation, language, and mental imagery. The generality of Piaget's model of the 'semiotic function' risks obscuring the impact of different meaning systems which may vary in development and the consequences this can have in the long run for the individual and human culture. This was, we know, more clearly taken into consideration in Vygotsky's (1986) investigation on the development of the word concept more specifically. Experimental studies on the individual's responses to visual information communicated in different visual media (although all rely on relations by perceptual similarity) indicate the relevance of looking closer at such semiotic constraints (DeLoache 2000; Lenninger et al. 2020; Sonesson and Lenninger 2015).

3 Conclusions

To the extent that semiotic relations, categories and processes have bearing on (e.g. human) meaning and meaning-making they should also show across development.

The study of children's semiotic development is concerned with the presence, emergence and changes of such things in growing children. In this essay the notion of 'semiotic development in child development' is discussed with regard to concerns for 'psychologism' when semiotics turns into cognitive semiotics (cf. Stjernfelt 2013). The notion of 'semiotic development in child development' indicates a transdisciplinary approach involving both semiotics as the general study of meaning (Sonesson 1992), and child psychology. Starting from a phenomenological point of view in semiotics integrating Piaget's theory on cognitive development, understood by Sonesson (1989), generalities in meaning, and meaning-making, meet the study of subjectivity in intersubjectivity. The discussions in this essay suggest that instead of proposing 'the semiotic function' as according to Piaget (i.e. a unified capacity to process meaning by signs developed in stages across ontogeny), Sonesson's proposal for a general definition of signs in meaning-making poses a semiotic approach to meeting the issues regarding psychologism in the studies of children's semiotic development.

This essay aims to illuminate theoretical tensions inherent in adopting a phenomenological perspective to understanding children's semiotic development. However, it is important to recognize that both phenomenology and psychology have experienced shifts, perhaps developments, since the psychologism controversy at the turn of the 20th century, and will continue to do so. The methods to trace, or investigate, cognitive processes are still blunt but are advancing. Moreover, semiotic development in terms of new technologies for meaning-making (still) proceeds reaching beyond her own understanding.

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