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MEMORIZATION, COMMUNICATION, IDENTIFICATION AND WHAT ELSE?**

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WHY OUR UNDERSTANDING OF THE EMERGENCE AND EARLY DEVELOPMENT OF PICTURES IN ONTOGENY MUST UNDERGO A REVISION, AND WHAT REVISION MAY OFFER FOR THE UNDERSTANDING OF EARLY PREHISTORIC PICTURES

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Abstract

On the basis of a comprehensive phenomenological investigation of early graphic expressions in ontogeny, first, basic aspects of the characteristics and status of early pictures in ontogeny and associated clarifications are discussed. Second, with regard to early pictures as such and including phylogeny, four suggestions are made:

- (i) a picture concept referring to the pragmatic perspective of Peirce (1902);
- (ii) systematic differentiation of produced visual forms, understood as two-dimensional, as representing the primary character of early pictures;
- (iii) graphic form precedes, enables and parallels graphic analogy formation, depiction, denotation and other types of graphic referencing as a structural formula for early picture development;
- (iv) early picture production as a phenomenon of a layered concept in which aspects such as syntactic structure and production procedure possess a semi-autonomous status. In these terms, the thesis of a picture-inherent agency in early graphic manifestations is exposed.

Introduction

The question of whether or not the very early development of pictures in ontogeny – drawings and paintings in the first years of life, true to

tradition termed early children's drawings, although such terminology needs revision – can be compared with or is even parallel to that in phylogeny, has been discussed ever since picture development in ontogeny became the subject of a scientific investigation in the late 19th century. Yet, to date, no uniform view has emerged on this matter, mainly for two reasons. First, concerning ontogeny, different descriptions of the character and the development of early pictures related to different picture concepts and different empirical foundations exist in the literature side by side, and second, with rare exceptions, there is no archaeological record for the time of early pictures in phylogeny. (Note that, as pointed out by many scholars, the prehistoric pictures from about 40,000–10,000 BCE we know of have to be understood as high art, and they have nothing to do with the emergence and early development of pictures, which probably has to be traced back to *Homo erectus* (Joordens et al. 2014.) Against this background, we have undertaken a long-term and comprehensive phenomenological investigation of the morphology of drawings and paintings produced by children in their first years of life – morphology in terms of the assessment of single qualities, structural formations, and developmental tendencies in early pictures – including cross-contextual comparison (often termed “cross-cultural”) and including the examination of the early picture process. The empirical record created consists of a picture archive of European children (c. 25,000 pictures of c. 200 children), a picture archive of Asian children (c. 31,200 pictures of 150 Indonesian and Indian children) and a video archive documenting the early graphic process (184 videos of 43 European children; all archives are open access). As for the methodology of such a phenomenological and descriptive approach to early pictures, an extensive catalogue of picture attributes and

attribute classes was created and related to rules of assignment. This catalogue includes both aspects of graphic manifestations as such and their relation to non-graphic aspects (figures, objects, actions, scenes, symbols, emotions, impressions, indices). Finally, the examination of the picture and video archives allowed for a clarification in terms of a revised description of how pictures emerge and how they develop in the first years of life. (For references to extensive documentations and publications, see the References section.) At an earlier date we made some reflections on the status of early pictures in ontogeny and their indications for picture genesis in general (Maurer, 2013, 2016a, 2016b; see also Maurer et al. 2009). Here, these attempts are taken up and extended in terms of speculations on early picture characteristics which are at least in part not at the will of the producer but “emanate” from the picture itself and may therefore structurally be comparable for ontogeny and phylogeny. To avoid misunderstandings: we do not take the stand that early pictures in ontogeny can be compared directly with very early prehistoric pictures (for details, see below). However, having examined early pictures in ontogeny, we argue that there are some important conclusions on basic and structural aspects to be considered, possibly governing picture genesis as such. Thus, in this paper, we first outline the major clarifications concerning the understanding of early pictures in ontogeny which we have established by means of our empirical re-examination. (For references to exemplary illustrations of the course of early graphic development, see the References section. For a few paradigmatic illustrations, see the Appendix.) On this basis, and with regard to early pictures as such, we propose:

(I) a picture concept referring to the semiotic –more precisely to the pragmaticistic– perspective of Peirce (1902);

(II) systematic differentiation of produced visual forms understood as (not exclusively, but in inalienable terms) two-dimensional, as representing the primary character of early pictures;

(III) “graphic form precedes, enables and parallels graphic analogy formation, depiction, denotation and other types of referencing” as a structural formula for early picture development;

(IV) early picture production as a phenomenon of a “layered” concept in which aspects such as syntactic structure and production procedure possess a semiautonomous status.

Early pictures in ontogeny: a synopsis and clarification of their morphology and developmental tendencies

It is often assumed that the first characteristics and the first development of drawing and painting in early childhood consist of sensomotoric traces and marks (hence termed scribblings) and that only when the first figurative manifestations appear can there be a production of graphic forms that do not directly reflect the sensomotoric apparatus. This view corresponds to a structuralistic understanding of syntactic differentiations imperatively related to semantic differentiations (see e.g., Vinter et al. 2008), in which the syntactic manifestation, here the picture, stands for something other than itself, here the depicted. (For other assumptions, see below.) Yet the above-mentioned re-examination of early drawings and paintings of children in their first years of life contradicts such a view, as will become evident in the following synopsis of the graphic development. Early picture development from its beginning is not primarily driven by the sensomotoric apparatus but it is predominantly motivated by a systematic differentiation of visual forms, abstract in kind and self-referred in their status.

This differentiation already starts with the contrasts or even oppositions of basic effects of color application such as representations of strokes, strikes, pendular or push-pull and circling movements. (Note that because of the representative and categorical status of these manifestations, labels can be associated.) Immediately after these first elementary graphic contrasts in terms of first-form contrasts, the line itself is discovered and differentiated, accompanied by first variations and arrangements of graphic manifestations. Thereby, early line formations witness an overcoming of the rhythmic impulses which the sensomotoric apparatus spontaneously tends to impose. Early line formations thus witness for the tension between visual ideas and sensomotoric execution: the former is advanced, and its graphic realization is therefore clumsy or gawky. In parallel with the more drawing-directed development of line formation, form variation and form arrangement, first painting-directed differentiations of the effect of color alteration and color contrasts can also be observed. The progress with conducting and differentiating a line, varying single tokens of a type of graphic manifestations, differentiating topological types of graphic arrangement, and the progress with first attempts to link single forms lead to the idea of bringing the end of the line to its own beginning as a closed form. At the same time, first fragments of structure formations such as fragments of grids (based on approaches of quasi-parallel and quasi-orthogonal lines) and first references to the form of the drawing four-plane and its borders and edges can be observed. Further, painterly characteristics such as extended and often monochrome painting of parts or of the entire picture plane appear, with no specific contours that would refer to a form type or class. Most importantly, children start to comment on these graphic

differentiations by naming them as purely abstract or formal – directly form-related, form-conscious – manifestations, and adults can understand that they are aware of the graphic characteristics as such and that they are able to categorize the graphic aspects they produce. Besides, they also sometimes give a comment on a relation to non-graphic aspects (e.g., to figures, objects, actions, scenes, events, etc). In part, these comments are not understandable for adults by looking at the picture, the reason why such comments were called romancing in the literature. In part, however, if adults participate in the picture process, they sometimes can understand the referencing made by the acting child, often made in terms of a simple analogy formation between one or two graphic characteristics and one or two characteristics of the signified (including actions; see Matthews 1984), and sometimes being read off (Golomb 1974). This indicates that the child in its first graphic referencing does not always include the concept of adults in understanding pictures and in building up analogy formations as a basis for subsequent depiction (and the fictions that run parallel) and designation. From now on, the pictures become very rich in graphic variety and also in aesthetic and compositional quality. They manifest the creation of a quasi-geometrical form repertoire (circles, ovals, trapezoids, rectangles, squares, triangles, polygons, odd shapes, etc), including geometric subdivisions, of form compositions, form complexes, aggregates, structure formations, and patterns, of all elementary topological arrangements (intentional gap, scattered, abutting, adjacent, overlapping, overlaid, into one another, reciprocally aligned including parallelism, reciprocally adapted in size or form including proportions, sequencing, angular, orthogonal, concentric, mirror symmetry). They further express the development of painterly aspects such as specific color relations and

circumscribed surfaces painted in. Finally, this most remarkable graphic expansion culminates in formal picture compositions, in which individual graphic aspects are subordinated to a predominantly graphic overall concept and aesthetic quality of the entire picture plane. (Many adults may name these pictures abstract compositions.) In parallel, step by step, children achieve analogy formations between graphic compositions or complexes and non-graphic aspects which can be understood by the adults looking at the pictures. First, the adults must also know the child's comment in order to visually recognize the intended analogy, but in the course of development, the analogies become visually evident even without a verbal comment. At the same time, first attempts to copy letters and numbers can also be observed. Following (and then paralleling) the abstract or formal picture compositions, and on the basis of the developmental process of analogy formations, figurative compositions of the entire picture plane emerge, in which depictions predominate, the borders and edges of the canvas are used to coordinate them in terms of a quasi-consistent arrangement, both according to the relationships of single depictions and to rudimentary spatial orientations and positions in terms of left-right and bottom-top of the depicted (orthogonal projection: see Willats 1997).

Early pictures in ontogeny: process-related, in part cross-contextual, often heterogeneous, and discontinuous in development

The synopsis of the morphology of early graphic manifestations and developmental tendencies needs many additions and extensions. However, here, only three of them will be given, the first concerning the early graphic process, the second concerning cross-contextual and context-specific aspects, and the third concerning the homogeneity-heterogeneity of

early picture characteristics and continuity-discontinuity of their development. If the realization of visual form contrast related to their understanding as two-dimensional is the first agent of early pictures, the differentiation of graphic manifestations refers not only to the visual effect but in parallel also to characteristics of the graphic process of production. Thereby, some important processual aspects are as follows:

(I) part of the graphic intention does not exist prior to the graphic act but emerges in the act itself;

(II) part of the expressed meaning and referencing of the acting child is not recognizable any more in the finished product (in fact, many picture processes have no picture-related end, but other motives lead to an abandon of graphic acting);

(III) however, this often does not disturb the child in question, because it seems to be only in part interested in whether or not the picture as a product is understood in the same way as it was intended and produced;

(IV) this parallels the observation that the intentions of the acting child are often of fragmentary kind, and that they often change in the process both with regard to the formal as well as the depicted (or as other kinds of referencing);

(V) the same holds true concerning the attention of the child; thus, early picture making often includes heterogeneity in intention and attention, additive and step-by-step realizations, and shifts in the graphic and referencing related focus;

(VI) graphic processing is difficult to acquire and demands an extensive development of conceptual competence and executive skills (this may explain the difficulties of young children in expressing themselves through pictures compared with their verbal abilities; this also explains why young children

understand pictures made by others, including adults, in a much more advanced way than they are able to produce pictures themselves); (VII) children are aware of what their intention is and what their skills allow or do not allow them to realize, and they verbally express their valuations; thereby, they explicitly differentiate between graphic manifestations as such and graphic referencing such as analogy formation, depiction, symbolisation, expression, and so on;

(VIII) early graphic referencing is complex, not limited to depiction in its narrow sense, and often related to rampant story-telling and, as said, it often evolves or changes during the picture process; therefore, after the process, many pictures cannot be related in a simple way to a specific meaning. In these terms, the development of conceptual abilities and skills of realization as well as purely process-inherent experiences, intentions, understandings, and feelings of the acting child make up a part of the structural reference the entire early graphic development refers to. To say that early pictures are primarily motivated by a systematic differentiation of visual forms, abstract in kind, and self-referred in their status, does not contradict the simultaneous influence of the context, above all the effects of context-related picture culture, picture praxis and art education of young children, of available material and utensils, of influences exerted by peers and adults, of copying and of being taught. To the contrary, every increase in the variety of graphic manifestations and of related conceptual abilities and processual skills opens and widens the field of adaption, imitation, and copying. Thus, as will be discussed in a more direct way below, we are asked to understand early pictures as an indissociable development of picture-inherently and picture-externally (although picture-related) motivated manifestations. Indeed,

the investigation and comparison of early pictures produced in very different contexts strongly supports this claim, with evidence given, however, for cross-contextual and thus picture-inherent graphic characteristics and developmental tendencies as being dominant for the very early pictures (Maurer et al. in press).

The above synopsis describes early pictures in ontogeny as a systematic building up of single graphic forms and qualities, of interrelating them in terms of temporary graphic systems – as pictorial systems in a wide sense – and of extension and progression in forms, qualities, and system building. However, this description is only meant to outline the field of early pictures and their development, but it does not allege that, in an actual and specific developmental course, all single attributes named can be observed, all attributes occur in the same temporal order, and progression is continuous. To the contrary, specific graphic developments are often characterized by the realization of only a selection of the described graphic manifestations and types of graphic referencing, and progression and regression, often combined with citations and stylizations of graphic forms or form complexes (realizations of graphic manifestations already developed much earlier in life, often combined with mastered realization or even with explicit model building and related to an aesthetic quality) are common. Further, as already indicated, early picture production is in part additive and heterogeneous, and so is the early picture itself. Finally, some children express themselves with an extensive variation of abstract, figurative, and other types of pictures, while others prefer a single type, often focussing on depiction in the course of development.

The synopsis given so far represents a purely phenomenological description of early pictures derived from looking at drawings and paintings

produced outside experimental conditions and with no production task. Thereby, no embedding of the graphic development in the general course of developmental psychology is carried out, including references to the conditions and limitations given by the sensomotoric and cognitive constitutions of young children. However, even in its limited version, the synopsis represents a sufficient basis for theses and speculations on early picture characteristics which are inherent in picture genesis as such, and which may therefore structurally be comparable for ontogeny and phylogeny. Yet, before directly addressing these characteristics, a post-modernist objection to a cross-cultural (note our avoidance of this term) description of the early graphic development is addressed, the revision of our understanding of early pictures in ontogeny called by the above re-examination is discussed, and a thesis of how to understand the motivation and agency of the course of the development in question is brought forward.

Early pictures in ontogeny: in part cross-contextual, but not universal in all manifestations and developmental tendencies

Before considering the implications of the course of development described, a principal objection of postmodernist argumentation and, at the same time, a possible misunderstanding of our undertaking has to be discussed. Wilson (2004, pp. 321-322) states: "Every visual artefact produced by a young person is a product pervaded by culture. The very possibility that children might engage in artlike behavior is a cultural construct, and children's early mark-making, modeling, and constructing activities are frequently initiated by adults and then viewed by and classified by them through cultural lenses." And: "To state the obvious conclusion from my observations, stage-based developmental accounts based on a natural

unfolding fail to stand up to scrutiny. Feldman (1980) has offered a brilliant theoretical and empirical critique of developmental stage theory in which he demonstrates that even with Piaget's cognitively grounded levels of map drawing [...] children perform on several levels simultaneously. In short, the levels do not exist; nor do stages of artistic development. Moreover, young people's development in the realm of visual culture is non-linear, non-hierarchical, multidimensional, and multipurposeful (Kindler and Darras 1997)." Such a reflection is related to an understanding of pictures as artefacts and therefore pictures being cultural in principle, that is, entirely to be understood as consequence of coding (on this matter, see Eco 1972, Goodman 1976). In consequence, it is based on a deep suspicion of any human production of artefacts not being considered as fully pervaded by various influences, above all by forms of practice, teaching, codes, and related ways of producing, understanding and handling pictures, and any indication of a culturally independent natural reference of picture making is rejected. With regard to early pictures, we also assume extensive context-specific picture affection and we do neither refer to a naturalness of graphic characteristics and development nor to a simple concept of a universality of early pictures. Indeed, we question the dualism nature - culture or nature - nurture, and we consider the principal rejection of graphic development as such as not substantiated. Concerning the former, an argument is provided below. Concerning the latter, evidence for a cross-contextual similarity of not only general graphic structures and principles but in part also single graphic manifestations and their age-related order of appearance strongly supports the notion of an early graphic development as a phenomenon of early picture making, however the details of this development and its conditions may

empirically be assessed (Maurer et al. in press). The same holds true for the question of early analogy formations (see, e.g., Maurer 2014). It is for these reasons that we do not discuss here in more details the position of pictures as entirely coded cultural phenomena and a correspondent full rejection of a developmental character of early pictures.

Early pictures in ontogeny: a clarification of perspective

As outlined earlier (see Maurer, 2013), apart from the above post-modernist understanding, literature offers us three perspectives and related descriptions on pictorial development in ontogeny, corresponding to three concepts of pictures as such. The first one assumes that pictures come into being with depiction. Correspondingly, the development is described as a succession of sensomotoric traces or marks, followed by first single depictions (often related to early human figure drawings) and then developing more differentiated and varied depictions (elaborated in exemplary fashion by Luquet 1927, Lowenfeld 1952, Golomb 2002, 2004, Cox 2005, Willats 2005; cf. in this context Wallon 2007, pp. 29–31). The concept thus opposes sensomotoric manifestations and pictures, the latter equal to depictions. According to the second concept, after the sensomotoric traces or marks, the drawing is developed preceding the depiction. Correspondingly, the development is described as a succession of sensomotoric manifestations, followed by abstract forms in terms of the differentiation of a graphic vocabulary, which subsequently is used for depictions. However, if depiction is occurring, abstract forms are assumed to disappear: the drawing permits the depiction and subsequently merges with it (elaborated in exemplary fashion by Widlöcher 1995; see also Lurçat 1979). This concept thus differentiates sensomotoric manifestations, “abstract

drawing, and subsequent transformation into depiction. According to the third and more open concept, sensomotoric traces or marks only make for the very beginning of graphic expressions. The main part of early graphic development is then of an abstract kind and, in its course allows for depiction but does not merge with it (elaborated in exemplary fashion by Kellogg 1959, 1967, 1970; cf. Stern 1978). This concept thus differentiates between sensomotoric manifestations at first, then, abstract manifestations, and subsequently, abstract and figurative pictures coexisting at the same time. As our re-examination shows, the first two concepts and descriptions of early pictures are empirically contradicted, and only the third one is confirmed in its general perspective, even if the details and the status of the described graphic characteristics and development have to be critically reviewed. This conclusion drawn from a comprehensive phenomenological examination of early pictures represents the starting point of any further reflection on picture genesis.

Early pictures in ontogeny: a thesis of how to understand their motivation, agency, and logic

But what motivates and drives the early graphic development? What is the logic of the course of observable early graphic manifestations and pictorial systems? Again, the literature offers us different suggestions. Scholars adhering to the above first perspective assume that the intention to depict is the principal agent of picture making and picture development. Scholars adhering to the second perspective generally assume the same but accept an intermediate phase in graphic development, in which the hand follows the eye in a purely formal way, conceding that the subsequent attempts to depict make use of previously differentiated graphic forms which cannot be

understood as being of primarily sensomotoric kind. Thereby, the shift from the sensomotoric traces or marks to visually dominated graphic forms is understood to originate from the increase in the control of the acting hand. However, no explanation then is given for the systematics of the forms created. Some scholars adhering to the third perspective assume that early pictures relate to fundamental structures of visual sensory function and perception (e.g., phosphenes and Gestalts; see Kellogg 1959, 1970; Kellogg et al. 1965), while other scholars understand them as expressions of individual or depth-psychological processes and developments, occasionally incorporating ante-natal experiences (see e.g., Grötzinger 1952; Stern 1966, 1978; Lefebure 1994; Gier 2004). However, first, the above resumed re-examination calls to reject depiction intention as the primary motor of early picture development. Further, such understanding does not take into account that there is no form differentiation and no related conceptual ability and skill of realization for any graphic analogy formation at the beginning of drawing. (Note in this context the statement of Gombrich 1960, p. 116: “making comes before matching”.) Second, explaining abstract forms only by an increase of the ability to control the hand and to allow for a dominance of the eye may hint at a condition of picture production but does not explain the course and the systematics of observable graphic form production. Third, explaining the first graphic manifestations as related to phosphenes again suffers from not taking into account that there is no conceptual ability and skill of realization to copy any picture-external percept at the beginning of drawing, and explaining the subsequent development of abstract pictures as related to Gestalts is not based on compelling evidence of observable graphic variation matching with a definition of Gestalt and the systematics of

Gestalt characteristics. Understanding early pictures as representations of individual or depth-psychological processes and developments in their turn suffers from not taking into account that any analogous graphic representation needs abilities and skills of production, and that the latter are not given but have to be acquired before they can be taken into service. Besides, we understand such suggestions as an attempt to fantasize about another type of meaning than depiction but still having some motivated relations between graphic manifestations and the signified, instead of abiding graphic appearances which do not satisfy the solicitation that, as representations, they have to refer to something other than themselves, to point beyond themselves (for such understanding of prerequisite of representations, see Golomb 2004, pp. 15–16). We take the stand that the phenomenology of early pictures in ontogeny calls for a reflection on a possible genuine picture-inherent and directly picture-related motivation of early graphic development: that an indispensable part of early pictures cannot be derived from something outside, beyond themselves—from the sensomotoric apparatus, from visual sensory function and perception, from individual or depth-psychological processes and developments, from intensions to depict the visual (or the outer) world, from culturally exerted rules and codes – but that early pictures originate and are motivated by the notion of the picture as such. Our re-examination led us to suggest that graphic differentiation according to the visual contrast of single graphic forms, form arrangements, and form compositions, colors, surfaces painted, compositions related to the entire canvas, and so on, always related to their character understood as two-dimensional, drives the development in terms of an inherent logic, that is the graphic rationale of differentiating single graphic forms and qualities, of temporary pictorial

systems, and of extension and progression in forms, qualities, and system building as a basis of the early "consistent generation of sense and meaning with picture-inherent and picture-related means" (Boehm 2004, p. 28; translation by the author; original quotation: "Unter Logik verstehen wir: die konsistente Erzeugung von Sinn aus genuin bildnerischen Mitteln"). Thus, on the basis of a phenomenology of early pictures in ontogeny, the thesis of and reflection on picture-inherent and picture-related logic is opposed to existing concepts, whose rationale of the motives and agency of early pictures and their development is appraised as fragile and is therefore called into question.

Widening the field of reflection

Having obtained evidence that: (I) the early characteristics and developmental tendencies of pictures in ontogeny are first of an abstract kind;

(II) they subsequently allow for different modes of analogy formations (not restricted to figurative modes), for coded manifestations and for other types of referencing;

(III) the further picture development corresponds to a parallel differentiation of many different types of pictures, including abstract ones, thus not in principle teleologically culminating in depiction;

(IV) for a substantial part, all these observations prove to be cross-contextual phenomena. Having then proposed that the course and logic of early pictures in ontogeny may have to be understood as a phenomenon of a picture-inherent agency, this perspective and understanding will be widened in terms of some considerations and speculations on basic conceptual aspects of early pictures as such.

Picture concept, part I: visual product, flat, two-dimensional, physically useless, perceptible and ideational, icon, sign character, representational status

To put it in short terms, both the abstract and the observed cross-contextual beginning of pictures in ontogeny cannot be understood in a perspective, in which any form differentiation of the signifying is supposed to be directly related to a differentiation of the signified, the latter pointing beyond the former, referring to something other than itself, and in which any parallel syntactic and semantic differentiation is said to be ruled by codes and their teaching. In widening the field of our considerations, we thus assume that early pictures as such, including early graphic manifestations in phylogeny, cannot be understood in a structuralistic way. However, a pragmaticistic perspective does offer a concept to understand their characteristics, their status, and their course of development, as is reflected on here.

Early pictures are visual products. They are made by looking at and to look at. They are appearances of color application or engraving on flat surfaces. These appearances are understood - not exclusively, but in inalienable terms - as being of a two-dimensional kind. They are of no use in physical terms. They are a phenomenon of understanding by producing and looking at, and that is at the core of their intention. (However, they subsequently may be imbued with other functions.) Thus, they are phenomena of merged perceptual and ideational aspects, named here graphic manifestations. This is what Peirce defines as an icon (although with the specification of a visual character of the icon discussed here): "An icon is a sign which would possess the character which renders it significant, even though its object

had no existence; such as a lead-pencil streak as representing a geometrical line.” (Peirce 1902, CP 2.304) Noteworthy, the definition of an icon as given by Peirce in general terms is not that of an analogy formation or depiction, but that of any likeness and similitude, here of the likeness of a token to a type, the latter being an idea. Thus, early pictures are graphic manifestations of ideas, representations of the understanding of two-dimensionality, presumably not derived from the outer or inner world, but emerging with the notion of pictures as such. In these terms, sign character and representational status appertain to all graphic manifestations.

Picture concept, part II: attention, intention, contemplation

Considering that pictures are of no physical use, and assuming that the communicative character of early pictures is also a matter of development, the communicative function of pictures cannot be a prerequisite and primary motivation that makes for the beginning and the characteristics of early graphic manifestations, leading us to suggest that pictures come into being in a state of mind where, at least in part, attention and intention are led aside from picture-external objectives and functions, what can be understood as a kind of contemplation. This state of mind may be tightly interrelated with explorative and playful behaviors, although we do not consider early picture production as a play in a narrow sense because, in its course, the entire basis of cultural behaviors may be affected and even change (modern picture development and digitization is the most recent example of this).

Picture concept, part III(early) pictures are impregnated with a logic in their development, and thus (early) pictures are essentially genetic

Referring to the definition of the icon given by Peirce, it is the shift from the understanding of a visually perceptible trace or mark on a flat surface to the understanding of a produced and realized manifestation of a graphic idea, which is related to two-dimensionality, that makes for the picture. And this shift in its first and early occurrence is of an abstract or formal kind. Further, the systematics of early picture development mirrors the building up of basic characteristics and differentiations of manifestations understood in relation to two-dimensionality. This building up makes for their picture-inherent and directly picture-related structural reference of specific graphic aspects and specific types of graphic referencing to appear in the course of graphic development, as their graphic logic: any specific graphic aspect represents a contrast to another specific graphic aspect, and as soon as the first contrasts are established, any new graphic aspect contrasts already existing contrasts; any set of differentiated graphic aspects are interrelated and build a pictorial system, as fragmentary, only temporarily existing and only in part consistent it may be; any actual pictorial system will be transformed into another system by a substantial increase of occurring new graphic manifestations and improved skills; some systems allow for a referencing (action representation, analogy formation, depiction, symbols in terms of coded signs, and so on); some systems allow for compositional realisations related to the entire picture plane. This sheds light on the

development we have described: no graphic contrast formation without a categorization of produced manifestations on a flat ground according to their visual appearance and effect and to their understanding as of being of a two-dimensional kind; no discovery of the line and no differentiation of line types without avoidance of the directions and rhythmic effect caused by the sensomotoric apparatus; no effect of a painted surface without contrast to a line (a non-surface); no development of types of graphic arrangements, compositions, structures, patterns, aggregates without a set of single graphic forms; no specific relation between different colors without their intentional alteration; no visually recognizable analogy formation without a set of abstract forms and their topological arrangement; no depiction without its counterpart, the abstract; no composition related to the entire canvas without interrelations of single graphic manifestations, and so on. In these terms, the characteristics and development of early pictures are understood here as appertained with a picture-inherent and picture related logic which, in its turn, expresses an inherent genetic character of early pictures and probably of pictures in general. That said, early picture development is a manifestation neither of a natural unfolding nor primarily of a nurture. It is a phenomenon for which picture agency has to be reflected on.

Graphic form precedes, enables and parallels graphic analogy formation, depiction, denotation and other types of graphic referencing as a structural formula for early picture characteristics and development

This all comes down to the thesis of graphic form differentiation preceding and enabling graphic-related analogy formation, depiction, denotation, symbolism, and other referencing, and also to the thesis of a subsequent

coexistence – synchronicity or parallelism – of graphic manifestations different in their kind and pictorial status, and from here to the notion that any actual differentiation of single attributes and of types of pictures expresses, precedes, and calls for future attributes and types, a reason why pictures grew to multiple kinds. This formula meets recent general reflections on pictures, which attribute “energeia” and “potentia” and thus activity to pictures, as is developed in a paradigmatic way by Bredekamp in “Der Bildakt” (“Picture Act”, Bredekamp 2015a; in this context, see also “What Do Pictures Want”, Mitchell 2004). Of specific interest is the “intrinsische Bildakt” (“intrinsic picture act”), the agency and “Kraft” of the “gestaltete Form als Form” in terms of an effect and impact originating and exerted from the picture, and conceived, adhered to, and reflected on by the picture maker and spectator. (For Bredekamp directly addressing the question of aesthetic artefacts in prehistory and discussing them in the perspective of “form allows for function”, see Bredekamp 2014, 2015b; in this context, see also Lorblanchet 1999; Hensilwood et al. 2002; Henshilwood and d’Errico 2011, Le Tensorer 2012.)

Early picture production and perception as a phenomenon of a layered concept in which aspects such as syntactic structure and production process possess a semi-autonomous status

Early pictures are understood here as being a manifestation of a layered concept, in which different aspects, in part of very different kinds, are intertwined or merged, above all. These consist of motivations related to the picture as a product, and motivations related to the picture process; motivations of effects of visual contrasts, and motivations of production-related planning and skill; motivations of forming single graphic entities, and motivations of composing the entire picture

plane; motivations of graphic differentiation and composition as such, and motivations of other types of referencing; and picture-inherent form agency and picture-affectation by context-related influences. In addition, the embedding of early pictures in the context of other types of expression and of artefact making and the corresponding interrelations have to be taken into account. However, in all this, early abstract or formal characteristics and developmental tendencies of pictures, often named as the syntactic aspects of pictures, as well as directly process-related aspects and significations are in part autonomous and impose themselves on to the picture-making.

Remarks on terminology

In developing the thesis of a substantial – although not exclusive and not isolated – picture-inherent agency of early graphic expressions, no explicit clarification of the terms was given. Such clarification needs extended discussion and a proper framework of argument and, therefore, it must be given in a separate text. However, on the basis of our considerations, a few indications on the terminology adhered to in this text are given in short here.

The adjective “graphic” is used to denote any color application or engraving on a flat surface, motivated by a differentiation of visual forms and understood – not exclusively, but as a condition – as two-dimensional. (We are aware that, e.g., Mitchell [1987] uses the attribute “graphic” in a more general way for pictures, statues and designs, and not in a restricted way for pictures only, as we do.)

The adjectives “abstract” and “formal” are used to denote any aspect of early graphic manifestations which are self-referred, that is, which cannot be derived from an affection of

the picture mentioned above. However, the two attributes are commonly used in terms of either a negation of or contrast to “meaningful” or “realistic” or “worked-out” depictions (including imaginations, phantasies, dreams, and so on) or coded signs. All this sometimes leads to the opposition of “ornaments versus pictures versus signs”, or they are used to assign syntactic aspects as opposed to semantic aspects. Yet in the context of early pictures, it is important to note that what is named here “abstract” and “formal” is not opposed to or contrasting with “concrete”, “realistic”, “depiction-related”, “worked out” characteristics; and simplification, abstraction, ornamentation, and syntactic function opposed to semantic function or supplemental role are not at issue. The “abstract” and the “formal” discussed here precede such oppositions or contrasts. However, future reflection has to address a more appropriate terminology which allows for the separation of different concepts of “abstract” pictures as well as for a “form-related semantics”.

“Picture”, denoting here any type of graphic product, is not equated with “depiction”, denoting a specific type of graphic product (note the distinction of the German expressions “Bild” and “Abbild”). The same holds true for the adjective “pictorial”, here used in general terms as a synonym with “graphic”, and not equated with “depiction-related”. Where “syntactic” and “semantic” aspects are not denoted in a structuralistic sense as principally opposed to each other, the corresponding terms are set in quotation marks. Even if the former may be considered as a “syntactic” kind because of their character of being produced and perceptible manifestations, their “semantics” are understood here as referring to themselves as such.

Afterword

As indicated above and as explained earlier (Maurer 2016), we do not want to insinuate that early pictures in ontogeny and phylogeny are not related to and not impregnated with other kinds of artefact productions, techniques, and expressions, their conceptual basis and the corresponding needs to survive in a specific environment, or that they are not related to historical epochs, the age of the picture makers, their physical and mental conditions, social and communicative motivations and aims, context-related picture praxis, teaching, and tradition. On the contrary, the emergence of graphic manifestations is of course related to all of this and, in consequence, there must be correspondingly substantial or even crucial differences in the course of early picture development when comparing ontogeny with phylogeny. However, because of the demonstrated cross-contextual character of early pictures in ontogeny, here we speculate on an underlying general structural and picture-inherent agency of early graphic manifestations, above all, their initial characteristics as being of the “abstract” or “formal” kind, their initial pictorial status as self-referred, and their role in enabling graphic analogy formations, depiction, denotation, and other types of referencing, which may shed light on their appearance and development in phylogeny. (The bias of the text to focus on the “abstract” and the “formal” of the emergence and first characteristics has to be understood according to this perspective.) To end, we again want to emphasize that, however marginal early graphic manifestations may seem and contrary to the scant attention they receive, they may provide direct and fundamental access to the origin of pictures and they concern a core of human symbolic and aesthetic behavior (see Maurer 2013).

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Appendix: Illustrations

Because of the limitation of the present contribution, reference is made here to earlier exemplary illustrations of the course of early graphic development (see the References section). However, four comparisons of pictures produced by children living in India (rural region in the south of India; mostly communities of Indigenous People; pictures on the left), in Indonesia (region in the mountains of Bali, pictures in the middle), and in Europe (regions of Switzerland, Germany and France; pictures on the right; age range of the children = c. 2-6) are given below in terms of paradigmatic illustrations of form-related and cross-contextual early graphic expressions, supporting the thesis of a picture-inherent agency. (For the "figurative" pictures, occurring in parallel, see also the References section.)

