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Visual, Pictorial, and Information Literacy

Abstract

Literal literacy can be used as a vantage point for the reconstruction of intricate relations between three further kinds of literacy. *Pictorial* literacy can be contrasted with *literal* literacy at least in phenomenological and epistemological regards. This contrast helps to separate different modes of representation as issues of *information* literacy. *Information* literacy relies on a productive concurrence of different types of literacies, while *visual* literacy is neither restricted to the search for information nor to pictorial signs. After some preliminary remarks on different kinds of literacies in the first section, the second section discusses technologically and linguistically biased approaches to *information literacy* with regard to a proposal by the UNESCO. Section three will then explicate certain epistemic features of *pictorial literacy* in regard of informative pictures, which can show us how things are looking. The broader significance of *visual literacy* and its relation to multi-modal articulations and artefacts is then examined in section four.

1. Kinds of Literacy

Any analysis of literacy draws on some types of artefacts as representing mental content. Hence, the *capacities to comprehend artefacts as presenting content* can be specified as different types of literacy with respect to different media, needs and purposes. The artefacts in question range from the short-lived sound-patterns of speech, over the textual and the pictorial plane up to

the interactive multi-media arrangements populating the internet. Since multi-medial modes of representation call for a comprehensive view on the interrelations within mixed literacies,

> the promotion of »new-« or »multiliteracies«, combining the traditional reading and writing skills (functional literacies) with visual, multimodal, digital and critical literacies, has entered into the limelight of (foreign) language learning theories. (ELSNER 2013: 57)

Although multi-literacies might be the ultimate goal of explication, one should first separate some characteristic modes of representation and comprehension in order to relate them. In the following, some basic features of pictorial and information literacy are discussed and then related to the category of visual literacy. While the medium of language allows for the most prominent access to information, *information* literacy seems to overlap with *visual* literacy, which in turn appears to encompass *pictorial* literacy (cf. SERAFINI 2014). Many *visible* expressive artefacts promise epistemic value, while only some of those rely on the genuine epistemic potential of the various kinds of pictorial signs. In order to explicate the capacities at work in information and visual literacy, it should help to specify at least some crucial forms of *pictorial understanding*. This appears to be no easy task in itself, because of the many types of pictures and the correspondingly large range of practices drawing on those types. But with regard to information literacy, it might even help to specify some *paradigmatic* types of epistemic practices, where pictures play a central and not just a subsidiary role. Specifying at least some of our key epistemic uses of pictorial representations and the related forms of understanding, should help to differentiate some types of information and visual literacy building on these forms of comprehension.

The concept of visual literacy appears to be a misleading metaphor if pictorial representations are forced under a linguistic perspective. This happens, for example, if the interpretation of pictures is rendered as a form of »reading« a text (SCHIRATO/WEBB 2004). Even if linguistic understanding comprises the most crucial capacities in need of explication, this can not imply that every other sort of comprehension or content should be subsumed under some sort of *literal* literacy, which transforms any representational format into propositionally structured content. Consider the case of music for example: we can perceive, memorize, recognize, imagine, and reproduce melodies, for which we have no linguistic analogues. The forms of understanding involved in the production and interpretation of music could arguably be rendered as the realm of music literacy. Still, the idea of *literal* literacy, comprising the capacities involved in the interpretation and production of well-formed *textual* artefacts, might serve as a contrasting foil against which other forms of literacy can gain contour.

Traditionally, analytic philosophy is focused on mental content expressed by propositionally well-formed speech-acts (cf. GRICE 1957; SELLARS 1956). But the growing interest in image sciences sheds light on the specific types of communicative content articulated with pictorial signs. Those find-

ings do not only relate to questions about non-conceptual content or to the connection between knowing-how and knowing-that, but also to the role of pictures in the so called information society. Hence, the issue of pictorial understanding is not of purely analytical interest, but meets the call for the advancement of educational programs and political emancipation.

Philosophical questions about content, knowledge, and information dominate the recent heralding of a philosophy of information, which supposedly allows us to transform old philosophical questions into information-theoretical terms (cf. FLORIDI 2011). Some even take the underlying transmission-model of communication to be »virtually unchallenged« (FLORIDI 2010: 53) and think of the philosophy of information as some new *philosophia prima* in which philosophical problems can be reformulated in information-theoretic terms (cf. FLORIDI 2011: 25). To some less optimistic thinkers, the notion of an information-transfer appears to be a metaphor, which is not only a weak explanation, but also misleading (cf. KREBS 2014): If we are to understand information in a strongly *propositional* manner, as Floridi's theoretical approach suggests, we miss significant *phenomenal* features in our *informative use of pictures*. Admittedly, it is by no means an easy attempt to differentiate all the capacities involved in the interpretation of informative pictures. But although the interpretation of pictures seems to call for aesthetic theories, it is also of interest in an epistemological perspective. The epistemological aspect is less significant with respect to the impressive paintings of the old masters or the enigmatic presentations of modern art. Instead, I will focus on those pictures that serve practical epistemic needs in our everyday life, like pictures used in a lexicon, in instruction manuals, or in tourist maps. What kinds of *epistemic contributions* can pictures make in contexts, where we seek information by pictorial means? What kinds of *understanding* are involved in the respective forms of pictorial interpretation? And to what extend do the capacities to understand and to produce *informative pictures* differ from the competences we need to comprehend linguistic artefacts?

2. Information Literacy

Ultimately, information literacy appears to be an emancipatory desideratum with regard to the beneficial participation in the so called information society. In terms of the *Information for All Programme* promoted by the UNESCO, information literacy is an essential prerequisite for any form of sustainable well-being (cf. IFAP 2014). Accordingly, information literacy comprises the capacity of people to recognize their information needs, locate and evaluate the quality of information, store and retrieve information, make effective and ethical use of information, and apply information to create and communicate knowledge (cf. CATTS/LAU 2008). All of these aspects of information literacy are linked to age-old epistemological considerations, and none of them seems

trivial. Fortunately, the above explication easily extends to pictorial representations used to inform oneself or others. But three issues concerning the concept of information itself may conflict with the idea of pictures as epistemic means. The first is a technological bias in accounts of information; the second is the metaphorical conception of information as a mobile commodity; and the third concerns the strictly linguistic definition of information, which requires for informative pictures to be translated into propositional form. All three conceptual biases threaten a comprehensive account of information literacy: firstly, preoccupations with digital technologies tend to underrate the various interpretative modes of communicative interactions. Secondly, a reifying concept of transferable information is ill-equipped for an explanation for our multifarious forms of epistemic practices. Thirdly, linguistic constrictions regarding communication occlude phenomenal aspects central to some pictorial practices.

The above reservations are reflected in part in the *Moscow Declaration on Media and Information Literacy*, which refers to competencies extending »beyond information and communication technologies to encompass learning, critical thinking and interpretive skills [... addressing] all types of media (oral, print, analogue and digital)« (IFAP 2014: 94). But this reasonably broad understanding of *media* and *information* again contrasts with the emphasis on the *technological access* to information. The significant *digital divide* supposedly implies that »many people in developing countries have no access to information and media at all« (IFAP 2014: 95). Consistently, it is intended to claim that many people lack any *technologically* provided access to *digital* media. But this developmental issue is not to be confused with a general and world-wide lack of »critical and higher-order thinking skills needed to make informed decisions« (IFAP 2014: 95).

The technological bias remaining in the UNESCO's proposals illustrates a broad and persistent preoccupation with information and communication *technologies,* afflicting the emancipatory dimensions of information literacy. According to the UNESCO's c*onceptual framework towards information literacy*, »the digital divide is much more than a ›technology access‹ divide; without the skills to use the technologies an even greater divide emerges—the information literacy divide« (CATTS/LAU 2008: 5). Although the skills to use technological devices is clearly a necessity for the participation in the technical distribution of data (cf. WAKS 2006), these skills alone hardly guarantee the emancipatory improvement referred to in the above IFAP-definition for media and information literacy. Neither the *recognition* of epistemic needs, nor the *evaluation* of informational quality, let alone the successful *application* in terms of knowledge, can be accounted for in terms of technological utilization.

This technological short-sightedness is contrasted with the UNESCO's more ambitious definition, according to which information-literate individuals

> can analyse information, messages, beliefs and values conveyed through the media and any kind of content producers, and can validate information they have found and produced against a range of generic, personal and context-based criteria. (IFAP 2014: 94)

Still, this formulation remains ambiguous: the first mentioning of information seems to refer to secured knowledge, while the latter information is simply *found*, awaiting its validation by certain criteria. The former conception of information is epistemically favored over mere messages or beliefs, while the latter notion appears to be epistemically neutral and related to the technological access to all kinds of data. The conceptual confusion does not differentiate between a robust *epistemic understanding of information as knowledge* and an *epistemically neutral notion of transferable data*. Any resilient conception of information literacy, which incorporates critical capacities, cannot be satisfied with transferred or reproduced data. In contrast, the higher-order thinking skills required by the UNESCO's proclamation are needed exactly because a lot of data *fails* our best epistemic interests. What we need in order to make informed decisions is *data that is understood as informative for us*. It is this understanding of *relational informativeness* that calls for the development of sophisticated cognitive skills like practical reasoning, critical thinking and ethical reflection. Only on the basis of such reflexive skills, interpreters are capable to differentiate between *vacuous*, *manipulative*, and *informative* data. Although this might involve the skillful use of technologies, the critical capacities need to reflect potentially manipulative uses of the so called *information and communication technologies* as well. The exercise of reflexive skills is basic for all informed agents, while their application to certain types of technology is not.

To assume a *transfer of information* implies that what is sent and what is received is identical. In contrast, *informativeness* is a relational property, which varies with respect to the capacities and interests of interpreters. Respectively, *information literacy* is basically a capacity needed for the interpretation of data in relation to one's epistemic interests. Since information literacy aims at relational informativeness, it cannot be accounted for in terms of the objective transfer of information. Explicated in relational terms, information literacy comprises the *reflection* of the relational nature of informativeness, the *modification* of data as a means to preserve and communicate knowledge, the pragmatic *reasoning* with regard to informative data, and the *expression* of suitable specifications and generalizations. Such a relational perspective, although a bit intricate at first, allows for the differentiation between data that prompts all sorts of interpretative processes on the one hand and the *resulting epistemic improvements* on the other. This separation can account for all those epistemically oriented interpretations and practices, in which the *same* data can facilitate *different* epistemic enhancements—everyday speech being one of the most obvious cases. Data does not undergo some mysterious transubstantiation into information and in the same manner information does not ›become‹ knowledge. Rather, the same data can facilitate different epistemic improvements, insofar it can become informative

in different respects. What accounts for the *epistemic improvement* is not a (technological) transfer of information, but the respective interests of interpreters and their capacities in terms of information literacy. This holds for ambiguous, but contextually informative linguistic expressions as well as for informative pictures. Pictures do not transmit a certain quantity of information and they cannot *say* more than a thousand words. In contrast, a basic epistemically relevant feature of pictures is that they can show the appearance of things under certain conditions and according to certain standards of accuracy. Pictorial *appearances*, *conditions* and *standards* are subject to pictorial literacy, which can be related to certain epistemic interests of interpreters and their interpretative capacities in terms of information literacy. The following section is supposed to illuminate *some* of the epistemologically relevant aspects of pictorial literacy, while it can hardly give a full account of the many interpretative and critical capacities allowing pictures to be informative.

3. Pictorial Literacy

Any account of literacy should keep a conceptual connection to learning and success. To improve one's literacy means to fail less—not to succeed in all laboratory trials. In terms of capacities, we see how children develop and how adults can be trained to attend to certain pictorial features, conditions, and standards. These are intentional endeavors, obviously based on cerebral dispositions, while they are not fully explained in terms of unconscious mechanisms. The following section spells out a basal aspect of the epistemic relevance of phenomenal experiences, which are shown to be subject to the training of information literacy. But it takes a stand against widespread philosophical intuitions according to which a *transfer of information* counts as the hallmark of epistemic reliability (cf. ALLO 2011). Instead of asking for the quantity of information a picture might transfer, I propose to formulate the epistemological question in the following way: *what makes a pictorial sign informative?* The following approach will thus explicitly refer to *relational informativeness* instead of reified information. The notion of informativeness as a *relational property* forces us to take the interpreters' capacities and her epistemic desires into account, while favoring capacities of understanding over some intake of information. The price we pay is the explanatory loss of information as some mobile and »objective commodity« (DRETSKE 1999: x) with conclusive causal force. An advantage of the relational account of informativeness is its neutral stance towards phenomenal content. In contrast, semantic notions of information tend to subscribe to some exclusive form of propositionalism about informative content.

We regularly use pictures, when we want to inform others or ourselves about the *appearances* of persons, objects or scenes, or about *bodily*

movements. For example, we track unknown persons by photographs, we check the view from a hotel room in advance online, or we learn to play the guitar with the help of instructive pictures. In informing about appearances, our propositionally individuated thoughts and expressions turn out rather inaccurate. In contrast, *pictorial accuracy* seems to be a better candidate for the information about appearances, ranging from simple things to complicated actions. This is why the preoccupation with linguistically biased definitions of mobile information seems off-key with respect to many of our manifold epistemic practices. Especially, this concerns our many ways of communicating various forms of knowing-how, ranging from the qualitative aspects of subjective, sensual experiences to our more complex and entangled capacities to comprehend complex interrelations. In this light, informative pictures allow us (at least) to communicate and to comprehend perceptual appearances in regard of their significance for our enactment with worldly structures.

Although pictures are common epistemic tools, they are often accused of a precarious ambiguity, which renders them epistemologically suspect. According to a rather strict view, only propositionally structured content can convey information, while no other mental format allows for proper forms of justification. In accordance with this propositional account of knowledge, information has recently been redefined in a strongly semantic fashion (cf. FLORIDI 2011). For something to count as information, it must exist as a transferable *infon*—as well-formed, meaningful, and true data (cf. FLORIDI 2011: 104). If information is defined semantically in this way, then a picture cannot transmit information without a corresponding true statement. According to Floridi, a picture can only mediate knowledge, if it can provide us with information in form of well-formed, meaningful, *and true* data. But he concedes that *truth* does not suit pictures, maps or diagrams, since only »factual semantic information encapsulates truth« (FLORIDI 2011: 108). Therefore, non-propositional pictures need to be ›translated‹ into *propositionally structured true semantic content*, which is »a necessary condition for knowledge« (FLORIDI 2010: 53). Floridi thinks it absurd that we should profit epistemically from a map or a picture, while not being able to translate it into propositional form. He argues that

> since natural languages have been acknowledged to be ›semantically omnipotent‹ at least since Leibniz [...], one can arguably assume that the translation is always possible, even if it is likely to be onerous at times and hence often unfeasible in terms of resources. (FLORIDI 2011: 187)

So although information is always dependent on some semiotic code, it is not semiotically bound, insofar all codes can be translated into propositional content (cf. FLORIDI 2011: 187). Hence, pictures can only mediate knowledge, if their *non-propositional semiotic code* is translated into propositional content, so that (in the light of all relevant propositional information) the »relevant information *that p* may be upgraded to knowing *that p*« (FLORIDI 2011: 208; emphases J.K.). Although it is not Floridi's concern, this amounts to an information-theoretic reformulation of the ambiguity thesis of pictorial repre-

sentation: since pictures cannot state themselves which semantic information they express, they always threaten to transfer *too much* information and hence can not count as reliable epistemic means. According to this argument, pictorial literacy would require the capacity to translate the semiotic code of pictures into propositional form in order to acquire knowledge.

Besides the metaphysically vague idea of transferable infons, the *translation account* of informative pictures seems phenomenologically suspect. Even if it were true that every pictorial sign could be entirely translated into a list of propositions, this assumption would neither reflect our individual experience nor our epistemic practices. On the contrary, this line of argument stands in contrast to those epistemic needs and practices, where pictorial are *favored over* verbal expressions. To restrict ourselves to the translation of pictorial representations into propositional content seems to suspend genuine pictorial recognition and crucial aspects of our learning about appearances. The connected theoretical denigration of pictorial modes of interpretation falls short of a range of epistemic practices. Paradigmatically, we use pictures when we want to inform about the looks of objects or scenes, about spatial relations or bodily movements—like the correct way of knotting a neck-tie, for example. Just in those apparently simple matters, our propositionally individuated expressions turn out to be rather *uninformative*. One central kind of a*ccuracy* of pictures emerges in communicative and epistemic contexts, where the visual appearance informs us about some phenomenal resemblance. Next to initial states of recognition (cf. LOPES 2003) and regardless of different conventions (cf. GOODMAN 1968), certain epistemic benefits result from our capacity to understand how many pictures show the way things or scenes look.

Reflecting on specific pictorial competences is an attractive approach explored within semiotics. In this regard, a range of interpretative skills exploited in certain contexts and media can be recovered. In accordance with Posner's scheme, aspects of *general* literacy might converge in reflexive forms of interpretation, while differences prevail with regard to perceptual affordances, since young infants recognize depictions without being literate in any strong sense (cf. POSNER 2003: 19). These findings might even support the thesis that pictorial recognition forms a basis for conceptual thought (cf. SACHS-HOMBACH/SCHIRRA 2009). This might be correct, although only propositional thought allows for the kind of *meta-representation* that represents other representations as being true or *appropriate* (cf. DETEL 2011). But even if meta-representation is the hallmark of reflexive rationality, it does not follow that *any* pictorial representation is a mere analogue to a propositional thought: some mental contents, like images or melodies, simply appear to be *inappropriate* to be represented propositionally. Moreover, knowledge about the sounds or the looks of our surroundings do not need to be misconstrued as propositional analogues, since sounds and looks can be individuated phenomenally. In this regard, our sensory access to sounds or looks can serve epistemic needs concerning our phenomenal experience. For example, this

might concern the look of things one wants to buy unseen, or the look of bodily actions one wants to perform, for some reason or other. In these epistemic contexts the propositional articulation or translation does not seem to meet our best epistemic interests.

In accordance with the work of Posner (cf. POSNER 2003) and Sachs-Hombach (cf. SACHS-HOMBACH 2003), multiple levels of pictorial content and literacy can be distinguished. On a first level, a picture merely shows some thing as looking a certain way, which amounts to the visualization of a concept—without any indication of referential or communicative function. For example, if we were to find a picture on the street with the drawing of a face, we recognize some appearance, which amounts to the visualization of the very broad concept ›human face‹. This formulation fits the mechanisms of recognition that Lopes counts as explanatory preferential (cf. LOPES 2003). But a theoretical preference of the basic modes of recognition does not exclude epistemic aspects of our phenomenal access to the recognized. When we recognize the face as something seen before elsewhere, we may reach a second, referential level, thinking ›Nietzsche!?‹, when becoming aware of some striking similarity in terms of phenomenal experience. On a third level of content and literacy, we comprehend the found picture as exemplifying Nietzschean faces, which means that we cluster a set of properties salient in the picture. According to Sachs-Hombach, only a further level grants something like full-fledged communicative content, which means that a propositionally analogue thought can be formed. This would be the case if we understand that the police uses our found drawing as a so called identikit picture in a public search. Only then can we understand, *that* the police is searching for someone with a face that looks similar to the one depicted. The example from the identikit-case is revealing, since it draws to our attention those cases, in which we want to communicate some memorized phenomenal content, while our public concepts betray us for their coarse character. An identikit may provide us with depicted shapes of various moustaches, while we may be neither trained nor interested in the correct terminology. To be sure, more fine-grained concepts might exist and the expert investigator might be able to communicate with his colleagues using those. But the point here is that the expert can communicate with laypersons by showing them characteristic shapes, allowing them to compare the look of pictorial samples with their *memorized phenomenal content*. Moreover, for investigators using different terminologies, pictures would be an efficient instrument to adjust their concepts and the corresponding words.

Although Sachs-Hombach differentiates a range of contents and conventional uses of pictorial signs, his account integrates the characteristic resemblance between depiction and depicted as an *internal phenomenal effect*. In contrast to other signs, pictorial appearance stands ›close-to-perception‹, since it exploits our regular visual capacities (cf. SACHS-HOMBACH 2003: 86). Accordingly, resemblance is a feature of our perception, since we are able to compare the phenomenal quality of our visual percepts. Our perception of

pictures internally resembles our perception of voluminous objects to some extent, when the former exhibits some of the latter's characteristic visual qualities (cf. SACHS-HOMBACH 2003: 144). Most notably, Lopes has argued against the explanatory value of experienced resemblance in accounts of depiction (cf. LOPES 2003). His account of depiction grounds any experience of resemblance in underlying mechanisms of our evolved capacities to recognize objects and scenes in the real world. Without these mechanisms, we could not recognize objects or scenes in flat pictures, which supposedly shows experienced resemblance to be a secondary effect without theoretical import (cf. LOPES 2003: 641). In other words, we see things in pictures, since they constitute an affordance for the productive use of our everyday perceptual capacities (cf. LIPTOW 2008). But while Lopes presents the recognition account of depiction as the best and basic explanation for our ability to see things in pictures, he doesn't have to deny experienced resemblance to play any role in our epistemic practices. He sometimes even adopts the gradual view that »we can identify objects in pictures even when there is limited similarity between picture and object« (LOPES 2003: 644).

Which role resemblance should play in our theories of depiction is an issue that cannot be resolved here. What I want to stress is that in many regards we are epistemically concerned about resemblances and we expect them to be an epistemically salient feature in many pictorial systems. If the pattern or the design of the shirt I bought online does not resemble the picture I saw before, I would be entitled to give it back—because of the lack of similarity, not because I did not recognize it as a patterned shirt. Neither the idea that we can recognize things in pictures without any conscious experience of similarity (cf. LOPES 2003: 648), nor the fact that resemblance is a matter of degree, means that similar experience is irrelevant to us as perceivers. Most intriguingly, while the basal abilities to recognize are accounted for in cognitive or even innate terms, the epistemic value of pictures extends to the knowledge about things we don't know—things we have no concepts for and things we do not know the appearances of. In this light, the experience of resemblance can arise in different regards and in different sense modalities—and it even allows for some sort of reverse engineering from pictorial imagination to fictional content. Since certain epistemic desires correspond to *knowing how something looks phenomenally* (cf. BROGAARD 2014), and since many if not all pictorial signs allow for perceptual resemblance, we do well to favor pictures over speech when we want to inform others or ourselves about visual qualities.

Although conventions may guide our understanding of prototypic usages of pictures and relevant qualities, it is experienced resemblance that allows for pictures to be informative at least in *some basic regards*. This means that apart from our abilities to recognize, some aspects of the kind of literacy specific for pictorial representations consists in the capacities to understand pictures as signs, which are used to communicate the looks of things (cf. GREGORY 2013). At least, pictorially literate interpreters should be

able to comprehend pictures as a sign for the approximate visual appearances of things or scenes. In this way, the characteristic sensation-types afforded by pictures are »subjectively informative« (GREGORY 2013: 54), with regard to typical looks of the things they show. Considering works of art, the looks that are shown may be epistemically neutral, but many social epistemic practices draw upon the epistemically beneficial potential of pictures to show the characteristic appearances of things.

With regard to the ongoing philosophical debate on the status of recognition (cf. LOPES 2007) and experience (cf. KULVICKI 2014), there will be more to say on the role of phenomenally individuated visual sensations. But, although we all had to learn how abstractions or simplifications are exploited in different genres of pictorial representations, we *can* use our phenomenal experience when we determine what is to be seen in a picture at first sight, even if this is accompanied or constituted by some mechanism of recognition. With regard to the epistemic evaluation of relevance, appearance, resemblance, design or style, learners have to train and develop their capacities to understand what aspects pictures are supposed to show and to what extent this meets our epistemic interests. In this light, we can take into account the findings of cognitive neuroscience, while at the same time address the capacities to understand the epistemic value of phenomenally experienced appearances as aspects of deliberative pictorial literacy in certain contexts.

In an epistemological regard, the mechanic recognition of objects (be it in the world or in a picture) can be distinguished from the phenomenal recognition of the experiential qualities accompanying the initial type of recognition. The experience of resemblance might be triggered by the initial cerebral mechanisms, but for the evaluation of similarities we need access on the phenomenal level—how else could we investigate the *visual* similarities of objects, real or depicted? Not only in abstract pictures, we *recognize* similarities in terms of experience, even if we have no access to a recognition of the first type. Likewise, we can evaluate pictorial representations with regard to the experienced appearances and use the results epistemically, while operating beyond the initial stage of recognition. Otherwise, we would hardly understand what it means for a picture to meet some standard of accuracy or to be epistemically relevant: relevance and standards of accuracy depend on our respective epistemic interests, which outreach the initial recognition of objects in the visual field.

Central to the epistemic access to phenomenally experienced appearances are those practices, in which we rely on pictures in order to know how things look. Correspondingly, a very basic epistemic function of pictures is the *depiction of appearances*, relying on the understanding of pictorial signs as showing the visual appearance of things that are not in the vicinity of the interpreter. Another revealing epistemic function is the *instructive pictorial representation*, showing how an action and its constituents are to be performed, requiring a type of literacy linked to the recognition and execution of the bodily movements and their represented appearances. A third related,

although not straight forward epistemic function, is the *warranting pictorial representation*, which shows the look of things not (yet) existing. They demand for imaginative capacities, while allowing for knowledge about the looks of products, which may be intended to be realized in the future. All three functions of pictures are linked to certain types of understanding related to the communication of knowledge about how things look, although they differ in their direction of fit. Phenomenally accessible *depictions*, *instructions* and *warrants* all bear epistemological import, which links them to information literacy. As stated above, information literacy is defined as the capacity to fulfil one's epistemic needs, by using different means, ranging from face-to-face-communication to digital multi-media arrangements. Basically, pictures can help to fulfil an agent's epistemic needs, if those needs are concerned about the look of things or scenes, while equally informative linguistic expressions are not available. This holds for all kinds of practices where we gain knowledge about the look of things or events, ranging from illustrated dictionaries to travel brochures, from how-to-instructions to facial composites of suspects.

4. Visual Literacy

Visual literacy appears to be a metaphor that represents our capacities to comprehend and to produce representations in the visual medium in terms of our abilities to understand spoken or written texts. Nevertheless, visual literacy does not contrast well with literal literacy, since texts of all sorts are presented in the visual medium as well: they have to be seen in order to be read, interpreted and understood. In this light, visual literacy appears to be a sensual or medial specification of our capacities to understand. Visual literacy concerns all kinds of articulations in the visual medium—and maybe even unintentional and natural signs we learn to see or to »interpret« (MILLIKAN 2004). It comprises optical, pictorial, textual, and some multi-modal representations like diagrams, while it contrasts with the comprehension of audible signs like speech. Although audible speech and visible text might often communicate the same content, there are also aspects of understanding concerned with specific practices and properties of the respective medium, like vocal intonation or visible textual arrangement. But the arrangement of text on a plane is also central to diagrammatical representations, which essentially present abstract relations in a graphic fashion (cf. STJERNFELT 2007). Next to the intricate configurations found in maps, there are many simpler forms of hybrid representations calling for a fruitful interaction of both pictorial and literal literacy. But in order to approach our capacities to comprehend multimodal articulations, we need to refrain from a linguistically biased conception of pictures and pictorial literacy.

An extreme form of a linguistic bias is the treatment of pictures as a *visual text*, which must be *read*. From this perspective »seeing is a kind of reading [...] decoding the visual material that surrounds us«, while visual literacy »requires specific skills in the process of seeing and reading« (SCHIRATO/WEBB 2004: 57). To understand a picture for some even means that »as ›readers‹ we are also ›writers‹, selecting, editing and framing all that we see. [...] [W]e [...] make what we see by using the same kind of techniques« limited by »context, habitus and cultural literacy« (SCHIRATO/WEBB 2004: 33). In this narratological perspective, to see something in a picture is a deeply cultural phenomenon: when we perceive something visually or pictorially, some cognitive inference procedure is always at work. Although the ideas of *pictures as a visual text*, the correspondingly unspecific concept of *visual literacy* and the unquestioned *decoding-process* all seem dubiously metaphoric, it is the suggested *textually mediated and inferential understanding* that is of interest here. With approaches like this, striking differences between arbitrary symbol systems and pictorial representations are levelled out, as are the various capacities called for in terms of visual literacy.

Any strictly linguistic approach to the comprehension of visually articulated content kills the metaphor of visual literacy, since it takes its linguist implications rather literally. Correspondingly, the shortcomings of linguistically biased definitions of information can be exposed in the light of various epistemic practices—namely the use of informative pictures. Searle, in one of his vivid examples, stresses that explicit speech acts are not a necessary condition for successful communication. Speech can be substituted or complemented by pictures, if the *interpreter* has a sufficiently clear grasp on the context of the pictorial expression: in order to inform a foreign mechanic about a broken crankshaft of your car, you might draw that defect part and leave the rest to the interpretative skills of the mechanic (cf. SEARLE 1988: 213). Searle proposes a distinction between the drawing as a representation of a *broken crankshaft* and its being used to communicate the proposition *that the crankshaft is broken*. For the mechanic to understand the communicative meaning of the presented picture, he first needs to recognize a broken crankshaft in the picture in order to understand the practical implications of this presentation. So although Searle seems to reserve the term communication for the mediation of propositionally structured contents, he allows for genuine pictorial representations as well.

Visual literacy, however construed, should not be conflated with pictorial literacy, since articulations in the medium of the visual also comprise texts, diagrams, and maps, as well as three-dimensional models meant to represent worldly structures. With regard to visual, pictorial and information literacy, the combination of visible texts and pictures is of special interest, since the understanding of those multi-modal arrangements depends on the interplay at least of literal and pictorial literacy. Thus, visual literacy should encompass (amongst other capacities) pictorial literacy, the latter contributing to the interpretation of multi-modal visible presentations. Especially

maps present parts of their content in pictorial modes of presentation, which makes them the salient informative devices in terms of spatial relations that they are. Although many aspects of maps are arbitrary and therefore symbolic, many maps show what they represent without recourse to symbolic coding (cf. CAMP 2007). This holds for maps even if they (often at the same time) use iconic representations in a symbolic manner, for example, when a few depictions of a tree are used as a sign for a forest. Since maps are hybrid representations of complex spatial affairs, the forms of understanding corresponding with the represented relations are by no means trivial. But their interpretation draws in part upon the comprehension of pictorial representations aiming at the recognition of the represented and the phenomenal experiences related to it. More abstract features in a map call for aspects of visual literacy concerned with conventional modes of arbitrary signs.

Conventionalist semiotics rightly stresses the many different convenient functions which linguistic or pictorial (re-)presentations can play. But conventionalism tends to disregard the peculiar *pictorial mode of representation related to the phenomenal experience of visual perceptions.* It is this phenomenally distinctive visual feature that distinguishes the pictorial from syntactically regular but *arbitrary* signs like speech or writing. While speech and writing can be *perceived* auditorily and visually as well, we learn to understand linguistic content by mastering current expressions and their combinatorial usage. Although there are of course arbitrary aspects and modes of pictorial representation, these conventional aspects do not operate at the basic epistemic level concerned with knowledge about appearances. For example, we may *recognize* in a picture a hand holding a guitar in a certain way. But in order to learn the represented chord, we try to *mimic* the exact bodily position by means of our visual *experience*. This emulation of bodily postures might work out instantly, given enough practice, but even without further training we can figure it out by comparing the depicted with the actual appearances of our fingers. The basal visual literacy at work here consists in the interpretation of text and picture in the manual as a means to learn how to play a chord, while relying on the description of a given chord together with the accurate appearances made accessible by the picture.

If we adopt the idea of the *phenomenally facilitated experience of resemblance* and its epistemic relevance, we cannot only account for pictures that show how things or scenes look. Another rather prominent pictorial practice is the mediation of *knowing how* in regard of more or less complicated bodily actions. In this epistemic domain, we find a range of pictorially mediated epistemic support, like the so called *exploded assembly drawing* or sequences of depicted body postures that constitute an action. Here textual elements may give us terminological or functional explications of the artefact or the action in question, while pictorial elements gives us access to its appearances. When learning how to play a guitar, pictures can provide helpful insights as to how one should place one's fingers without cramping. One difficulty in learning such unnatural finger *movements* arises from the lack of

public concepts apt for the guidance of ourselves or others. The linguistic advice to ›shape one's hand like a claw‹ brings some concept and a similarity into play. But this does not explain to us exactly *how* our fingers are supposed to be positioned, although it might help a bit if we are able to *imagine* how prototypical claws are looking. Likewise, sequential pictures demand more sophisticated types of visual literacy. These require an imaginative supplement from the interpreter, since the action is not shown or described in its totality, but in didactically selected freeze images and text boxes. Such pictorially supported instructions feature the important phases of a continuous movement, whereas a video could show the whole exercise, but without the didactic emphasis. If the actions result in a product, the instruction might even show *how the product should look like*. This is the case for many neck-tie instructions. Here it might be less important whether the bodily movements that compose the action look exactly as shown. But if the appearance of the resulting knot does not resemble the *prototypical look mediated by the picture*, the action has failed. Knowing how to knot the Half-Windsor, for example, consists in the performance of an *adequate* sequence of bodily movements, so that the resulting configuration of the tie looks just right.

Sequentially presented instructive pictures often draw on the appearances of executed actions and their parts, as well as the internal resemblance we try to anticipate in imagination and imitation. But these instructions differ from the mere informing about certain appearance. As Lopes observes, action-instructing pictures are at the same time *descriptive and directive* (cf. LOPES 2004), so that they seem close to the basic type of signs that Millikan labelled »pushmi-pullyu-representations« (MILLIKAN 1995). Instructive pictures do not merely show how the execution of some action looks like, but at the same time how it *should* look like. The accuracy of those pictorial signs depends on capturing the look of a prototypical action of that type. Only if the depiction allows an interpreter to understand how the bodily implementation of an action is to be performed can it be called informative, rendering the interpreter sufficiently literal in the visual sense. While Lopes explains the informativeness of pictures in terms of their appearances as cognitive affordances, it is again part of the linguist framework that he dubs one aspect of informative pictures ›descriptive‹. Epistemologically, it might sound a bit odd that we *recognize* a *pictorially described* action we yearn to know about, while using instructional pictures in the learning progress. Of course, we are prompted to recognize a body or a part of it, but we make epistemic use of it by trying to match our own bodily movements with the depicted position. Although an instruction for the Half-Windsor knot for neck-ties might exist in the form of a linguistic description or a translation as demanded by Floridi, many pictorial instructions do well enough with little or without linguistic help.

Despite different conventions of depicting humans knotting ties and the limited resemblance instantiated by pictures, the epistemic benefit of the respective visualization draws on the phenomenal comprehension of the cor-

responding actions. The interpretation of visualized knowing-how draws on forms of pictorial content for which we find only demonstrative propositional analogues, like ›*this* is how one knots the Half-Windsor‹. While expressions like ›*I know that* this is how one knots a Half-Windsor‹ render *knowing-how* as *knowing-that*, the demonstrative ›this‹ inherits its utterance meaning from *phenomenally knowing how some type of action looks like*. Knowing how something looks like means to anticipate the phenomenal experience, which we would have if we had direct perceptual or pictorially mediated contact with some thing or event. In this regard, many pictures enable us to have phenomenal experiences sufficiently similar to those we would have if we were in an actual contact with the depicted. In other words, we recognize things in pictures, while our perceptual capacities force us to *see in* pictures what their appearance suggest. Because many types of pictures grant us access to the appearances of things, persons or events, we can use them to inform each other about these appearances, or we can gain knowledge about those appearances in a phenomenal manner. We do not need to represent all the experienced appearances propositionally, even if a translation would be possible or some descriptive aspect necessary. That we acquire know-how from the appearances mediated by pictures is not at all surprising, when we understand all seeing as »an activity of exploring how things are by exploring how they look« (NOË 2008: 692). According to Noë, we should understand pictures as a special type of model, which can extend our access to the real world (cf. NOË 2012: 99). Drawing on our acquaintance with things and their looks, we can probe pictorial models in order to understand not only how a surface looks, but furthermore the voluminous shape and conduct of things.

Ultimately, informative visualisations can also serve the function of mediating knowing how to delude or *knowing how to misinform* credulous interpreters. For example, many magical performances aim at some sort of illusionary effect for their audience. It looks as if one act is performed, while actually something else is happening unbeknownst to the spectators. In many cases such magic tricks exploit our ordinary expectations concerning how the things and events in our surroundings typically look like. If the magician is able to meet these perceptual routines, while concealing other parts of his actions, we are forced to experience scenes thought impossible. According to a disjunctivist theory of perception, the mediated impression should not count as a proper perception. Coins for example cannot change their form or color without massive physical impact. What we experience in a magical performance is some hybrid effect of normal perceptual appearances and the states of affairs they suggest. In order to explain how to perform such delusions, school books for magicians naturally resort to pictures, a nicely illustrated example being *Now You See It, Now You Don't! Lessons in the Sleight of Hand* (TARR 1976). The Instructive pictures spare magicians lengthy and uninformative descriptions by *showing* which appearance the audience needs to see, while mostly providing tips for the execution of actions one should *not* see. Interestingly, we can learn to see what really happens on stage if we

know when and (from) where to look. With a bit of training, we may be able to inhibit our perceptual routines by concentrating on the crucial sequences in order to prevent ourselves to ›perceive‹ impossible events. In order to *know how a trick is performed*, magicians and their victims alike turn to pictorial instructions. Intriguingly, visualizations of the performance of magical tricks are informative only if they show how to arrange a presentation that is suitable to misinform. While stage magic might be no central epistemic practice, its informative visualisation nicely demonstrates the intricate relation of visual, pictorial, and information literacy. Unfortunately, manipulative misinformation by pictorial means is a common medial practice, which calls for emancipatory forms of literacy in contexts of consumption, opinion formation, and politics.

To conclude, although information literacy may exceed genuine knowledge claims and their utility for capable interpreters, its epistemological dimension appears to be essential. Since the kinds of literacy aiming at valuable knowledge comprise all kinds of media, they should also encompass the pictorial medium. Correspondingly, critical pictorial literacies have to reflect the specific epistemic potentials and risks of pictures. Moreover, since visual literacy comprises (at least) literal and pictorial literacy, the former should expand over the capacities to interpret, evaluate and produce multi-modal presentations in which visible written texts and pictures may interact. While some multi-modal presentations communicate certain knowledge claims, others may aim at purely aesthetic pleasures. The critical capacities to reflect those differences lie at the centre of any emancipatory account of literacy. A truly multi-literate interpreter knows about the manipulative potentials of various knowledge claims expressed by pictures, info-graphics, maps, or diagrams. But the same should hold for seemingly unsuspicious, since only entertaining fictional presentations like films or graphic novels. Again, this is to say that aesthetically rich visual presentations can bear important epistemic potentials. An emancipatory account of visual literacy needs to reflect the fundamental role of varying interests and capacities which emerge from the concurrence of literal, pictorial and information literacy.

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