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Formatting Faces: Standards of Production, Networks of Circulation, and the Operationalization of the Photographic Portrait

Roland Meyer

Every picture has a format. Indeed, one could even say that having a format, i.e., measurable dimensions and technical specifications, is what distinguishes a picture from an image. As W. J. T. Mitchell and Hans Belting have argued, images float freely across different media while changing their formats, sizes, and material qualities; even more, images can be merely verbal or mental, and not materialize themselves in visual form at all. Pictures, on the other hand, have traditionally always been bound to specific media like painting, sculpture, photography, and film, or technical *dispositifs* like screens and displays—material image carriers that determine the physical dimensions and visual qualities of images as pictures (Mitchell 1994, Belting 2014). Thus, if format matters are central to defining what images and pictures are (and as I argue, even more so to what they *do*), then it comes as no surprise that the idea of “format” as a theoretical concept has gained some prominence recently, not only in media studies but also in visual studies and image theory.

Focusing on contemporary art, David Joselit has proposed a notion of “format” that aims to replace the traditional concept of the work of art. According to Joselit, the most relevant current artistic practices today no longer focus on the aesthetic production of singular works and original

content but rather on the appropriation and reformatting of images circulating as endless streams of data in networked media. From the 1960s on, artists began developing new formats for dealing with these preexisting images, “dynamic mechanisms for aggregating content,” as Joselit defines his notion of a “format.” Such new aesthetic formats, whether they materialize as multimedia installations, performative spaces, or conceptual practices, can be understood as aggregators or assemblies that establish new patterns of connections within vast populations of images—nodes emerging from the endless network of contemporary visual culture (Joselit 2013, 55). Thus, for Joselit, formatting becomes “as much a political as an aesthetic procedure” because the question how to assemble and connect the images appropriated from the endless streams of networked media “introduces an ethical choice about how to produce intelligible information from raw data” (Joselit 2015, 268).

Taking their lead from David Summers’s (2003) analysis of the relationship between images and “real spaces,” Wolfram Pichler and Ralph Ubl propose quite a different, more phenomenological notion of “format” in their recent introduction to image and/or picture theory (*Bildtheorie*). Pichler and Ubl’s extended concept of “format” not only covers the material substrates of pictorial media and the physical properties of image carriers, e.g., measurements, dimensions, materialities, surface qualities, and technical specifications; it also includes established conventions of representations, e.g., linear perspective, and ultimately all “culturally specific conditions of presentation” that mediate between the real-spatial situation of an image carrier and the “image objects” depicted on it (Pichler and Ubl 2014, 147). Thus, “format” for Pichler and Ubl more or less replaces the idea of “media”: whatever an image needs to become visible, i.e., materialize itself in time and space, can be called its “format.”

What both of these definitions—despite their obvious differences—seem to have in common is that they reflect a model of sovereign aesthetic production in which the question of format is more or less subject to an individual decision, which can be made based on mainly aesthetic (or ethical) considerations. These broad notions of “format” thus do not seem to address what is to me the most salient aspect of formatting: the idea of repetition and standardization. Unlike media studies, art history has never been very interested in the idea of standards, focusing rather on the unique, singular, and exceptional—a predilection that it passed on to its offspring in visual studies and picture theory, at least in their German version called *Bildwissenschaft*. But as I would like to argue, the notion of format can only be made productive as a basic term for analyzing visual culture if we

take into account that formats are meant to be repeatable and binding, if not universal, and that they become formats by being applied not only to singular artifacts but also to vast numbers of different, albeit comparable, items. Formatting is, almost by definition, a practice of specification, regulation, and restriction (Krajewski 2007). Formats manifest themselves in rules, protocols, and technical apparatuses, in hardware and software, in juridical specifications, bureaucratic processes, and social arrangements. “Format,” media scholar Jonathan Sterne writes, “names a set of rules according to which a technology operates” (Sterne 2012, 7). Although these rules and standards may at some point have been the contingent effect of a sovereign decision, once they are established, they become encoded in physical and symbolic infrastructures that become extremely difficult to change (Bowker and Star 1999, 34–39). In visual culture, such infrastructures specify the conditions for the production and distribution of images and other visual “content”; regulate what can be stored, transmitted, and processed; determine how these items are handled; and in doing so establish standards for what becomes visible and remains invisible (Bruhn 2003, 8–18; Heidenreich 2004, 7–26).

In the following, rather than proposing my own definition of what a format *is*, I would like to ask what formatting as a repeatable and standardizable pictorial practice *does* and how it becomes productive in the field of visual culture. Unlike Joselit or Picher and Ubl, I won’t focus on (contemporary) art, but on much more mundane visual practices that have nevertheless completely changed the way pictures are used, in everyday culture as well as in more specialized fields of knowledge such as police identification.¹ Thus, in what follows, I will present three small case studies, three “primal scenes” of formatting, which, rather than adding up to a continuous history, should be read as distinct but related stories of beginnings: the beginnings of popular portrait photography in the 1860s, the beginnings of standardized police photography in the 1880s, and the beginnings of Facebook as a platform of image circulation in the 2000s. In each case, the introduction of a new pictorial format not only changed the conditions of pictorial production but also helped to establish new practices of distributing and connecting pictures, thus fostering new logistics of images.

It is no coincidence that the focus of these three case studies is on images of the face. After all, the history of photographic portraiture has been determined by technical, commercial, and institutional formats almost

1 On how the notion of formatting as a repeatable and standardizable pictorial practice can be made productive for an analysis of artistic production, see Meyer 2019b.

since its beginnings. More important, unlike any other field of pictorial production, photographic portraiture involves formatting that not only influences pictorial practices, modes of production, and means of distribution but also in doing so informs our notions of individual identity. Thus, formatting faces also means establishing new formats of identity. What follows, then, can also be read as a short and incomplete visual history of identity and identification, focusing on three paradigmatic shifts in the modern history of photographic portraiture: mass production, systematic operationalization, and networked datafication.²

Disdéri: Increasing Production, Unbounding Circulation

Mass photographic production literally begins with the introduction of a new standard format, namely Adolphe-Eugène Disdéri's *carte-de-visite* format. "In order to render photographic prints practical for commercial needs," Disdéri stated in his patent application of November 1854, "it would be necessary to diminish greatly the costs of production, a result which I have obtained by my improvements" (quoted in McCauley 1985, xviii). The formulation is as precise as it is telling: Disdéri does not claim a technical invention, but rather some "improvements" (*perfectionnements*) on an already established technology, namely the collodion wet plate process. The focus of his "improvements" is on the efficient use of storage space: A camera with four lenses exposes one half of a photosensitive plate with four images; the plate is then moved by means of a cassette so that the second half can be exposed. After the prints have been made, they are cut up and mounted on cardboard, with each individual portrait measuring around nine by six centimeters, almost the size of a contemporary calling card, hence the name "*carte de visite*" (fig. 1). With this measure of standardization, Disdéri could offer a dozen portraits at a price for which customers previously would not have gotten even a single one. The patent, however, was of little use to Disdéri. He set a new industrial standard that would soon be copied by others, and after an unprecedented career he died impoverished and forgotten, while his format lived on until after 1900 (McCauley 1985; 1994).³

- 2 The case studies are based on my PhD dissertation *Operative Portraits*, HfG Karlsruhe 2017, published as Meyer 2019a, which gives a more nuanced and detailed account of what can only be sketched out here.
- 3 My presentation of Disdéri is very much indebted to Elizabeth McCauley's groundbreaking and still fundamental work on the subject. But while McCauley mainly focuses on the social and economic history of early portrait photography, as well as



[Figure 1] Adolphe-Eugène Disdéri, uncut Carte-de-Visite sheet, around 1860. Source: George Eastman House Collections.

Formats, as is evident in Disdéri's standardizing operation, always presuppose a certain interpretation of preexisting technical media, their possibilities, affordances, and limitations. Before Disdéri, hardly anybody conceived of the photographic plate as a limited storage space whose efficiency can be multiplied by division and subdivision. And something else becomes apparent in Disdéri's economical view of picture production: formats in a technical sense are the effect of formatting procedures and are based on repeatable operations of division and partitioning, of establishing, specifying, and standardizing material and symbolic frames, arrangements, and dispositions that structure (visual) media.⁴ Because the formatting of an image carrier limits the contingency of possible images, formats provide predictability and comparability. Thus, the standardization of pictorial formats proves to be an essential prerequisite for establishing the connectivity of image operations in large institutions and networks,

its relations to portrait painting, I would like to develop in the following some of the more general implications of Disdéri's practice for a history and theory of pictorial formats.

4 See also Jancovic in this volume.

meaning that formats, as Axel Volmar (2017) has convincingly stated, can be understood as “media of cooperation” (12).

The standardization of operations and predictability of their results also characterized the modes of production in Disdéri’s studio, as well as those of other early portrait photographers in general. With the standardization of photographic formats, the large portrait studios, which were founded around 1860 in Paris and elsewhere, were able to establish a strict division of labor and thereby pioneer the commercial mass production of pictures (Kempe 1982; Tagg 1988, 34–59; Lalvani 1996, 66–68). In its best days, Disdéri’s studio employed around 60 people, most of them doing routine tasks in pre- and postproduction, e.g., preparing the plate, producing the prints, cutting the cartes. But pictorial production itself became largely standardized as well, in that Disdéri personally went behind the camera only for very prominent customers, while employed “operators” did the day-to-day business according to his style specifications. The portrait photo thus became the standardized product of an aesthetic-technical apparatus in which a limited set of poses, a selection of interchangeable backgrounds, and a fixed repertoire of props could be continuously rearranged and recombined. And the existence of this apparatus became preliminary to every single photographic act. Before any image was taken, its essential coordinates had already been specified and determined. Rather than being individually chosen according to aesthetic (or ethical) considerations, a universal pictorial format now preceded the whole process of photographic production, thus determining what could become an image in the first place.

Formatting limits the contingency of possible images—and that’s what makes it productive. The *carte-de-visite* format not only allowed for the mass production of photographic pictures based on the division of labor but also set in motion new social practices of images distribution. Technical images were becoming media of social communication for the first time. Since the cartes were designed for reproduction, and a minimum purchase of 25 pictures was not unusual, a portrait was hardly ever produced for oneself or one’s own core family alone. Rather, the pictures were meant to circulate in more or less loose networks of friendship. Thus, they inherited older printed calling cards not only in respect to their physical measurements but also concerning their social function (McCauley 1985, 23). Calling cards as well as photographic cartes de visite were to be exchanged during visits and festive occasions, and they became sought-after collector’s items, as they allowed a visible demonstration of the network of kinship and friendship of which one was part.

The place where this network manifested itself and became truly visible for the first time was the bourgeois family photo album—and this too, at least in its most popular format, was an effect of Disdéri's formatting (Maas 1977). The standardization of image sizes allowed for the production of pre-fabricated albums with standardized sections in which to put the cards (fig. 2). Sold in large quantities and integrated into a developing media economy of image exchange, these albums served as repositories that brought the circulation of photographic portraits to a temporary standstill and at the same time sped it up, as they were waiting to be filled with images of relatives and friends as well as of prominent personalities (Bickenbach 2001).



[Figure 2] Photo album, 1860s. Source: The Elisha Whittelsey Collection, The Elisha Whittelsey Fund, 1969.

In addition to the private production of portraits, the mass production of collectors' pictures in the 1860s became the most important source of income for the large photographers' studios. Statesmen, aristocrats, clergy members, military heroes, prominent figures from the arts and sciences, and stars of the vaudeville and theatre stage were called upon to sit as models, and their portraits, for which they usually granted the photographer all rights of commercial exploitation, were now "easily purchased and passed from hand to hand" (McCauley 1985, 86). Prominent and anonymous faces, in private portraits and commercial pictures, thus circulated through the same networks of exchange, and they became often mixed together in the same private albums. This new visual economy was mainly an effect of the preexistence of a universal format. Disdéri's

standardizing operations decoupled the picture format from the specific image object and thus created a market in which portraits of almost any person could circulate under standardized conditions (Starl 1989, 12–18).

Bertillon: Controlling Capture, Universalizing Comparison

The history of the photographic portrait is a history of not only formats and formatting but also, through its standardization, increasing instrumentalization and operationalization. From its earliest years, photographic portraiture enabled individual representations that made it possible also to classify and identify individuals. One of the “primal scenes” of this operationalization of photography can be traced back directly to the new private culture of collecting and exchanging *cartes de visite*. Soon after the brutal suppression of the Paris Commune in 1871, a flourishing trade in collectible *carte-de-visite* portraits of leading communards began, which were sold individually or in entire albums. In order not to endanger the fragile “public peace,” the sale of these pictures was soon forbidden by the police, who at the same time began to use them for their own purposes. Confiscated studio portraits of prominent communards were used to identify captured suspects and also sent to border posts to hunt down those who fled the capital. The success of these measures was limited but sufficient enough to politically enforce the police plans of photographing all prisoners and arrested suspects, which had been debated for years but could only now be put into practice (English 1984, 54–70).

Initially, the police commissioned commercial portrait photographers to photograph the arrested; it was not until 1879 that the *Préfecture de Police* set up its own photo studio. According to a statement by the *Préfecture budget rapporteur* in 1883, the photographic service had in only four years produced 75,000 images of suspects. But it was precisely this vast number of pictures taken that rendered them basically useless. To find out the true name of a suspect, one would need a photograph for comparison, but to find the photograph in the registers, which were sorted alphabetically, one would first need to have the name (Phéline 1985, 34).

Finding a single entry in an extensive collection is basically a problem of information retrieval, of indexing files, addressing data, and specifying metadata. Alphonse Bertillon’s anthropometric system of identification, or “Bertillonage,” which he developed in the 1880s as an answer to the problem just described, can be understood as an early attempt at devising

a bureaucratic protocol for information retrieval. Moreover, Bertillon developed a new medium of photographic storage that could replace the older medium of the album, which was used by the police as well but had reached the limit of its efficiency due to photographic overproduction. Albums, be they bourgeois family albums or criminal mug-shot albums used by police, assemble mobile—or rather, mobilized—pictures into physically stabilized, materially limited, and visually assessable arrangements and constellations. Finding a picture in an album always needs a subject able to recollect and identify the order of the album and its contents. Basically, in an album, you more or less only find what—and whom—you already know. However, if the sheer number of pictures to be stored and collected becomes so huge that individual subjects are overwhelmed with their sorting and management, new media of access are required.⁵

This new medium developed by Bertillon, as Allan Sekula (1986) has classically analyzed it, is the archive, an expandable symbolic structure, in which every single image becomes a standardized and interchangeable element within a structure of relations and differences. All the protocols of information production, storage, and retrieval that Bertillon devised follow precisely specified standards, and their main goal was to disconnect the process of identification from the individual memory of the police officer, his ability (or inability) to recollect the physiognomic features and bodily marks of a suspect. The central element of his system was thus not the photograph or any visual representation at all, but a set of bodily measurements, a collection of numerical data that could be discretely notated and unambiguously sorted and compared. These anthropometric data formed the basis of a system of metadata that allocates to every single body, i.e., its photograph and the file card it is mounted on, a unique position within the structure of the archive. By measuring an anonymous body and comparing its data to the statistical mean (that was Bertillon's basic idea), one could calculate a stable and unforgeable code of identity, supposedly much more reliable than a name or a face.

In devising his system of identification, Bertillon undertook a double formatting of the police photograph. First, with his anthropometric file card

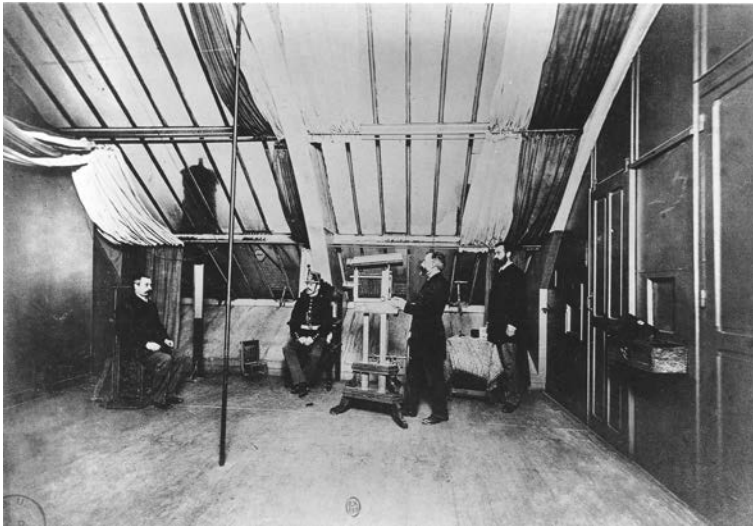
5 My account of Bertillon's operationalization of the photographic portrait is very much indebted to the classical studies by Phéline (1985) and Sekula (1986) as well as as Ellenbogen's detailed (2012) interpretation of Bertillon's theoretical stance toward the photographic image. In focusing on Bertillon's procedures of formatting, though, I hope to shed some light on the specific productivity of his system of identification: Bertillon not only standardized police photography but also combined the production of images and (meta)data in a way that in some respects prefigures today's digital culture.

or fiche, he created a hybrid storage format that combined photographic and written records, integrated visual data into numerical data sets, and made pictures as data retrievable using measurements as metadata (fig. 3). On the other hand, the pictures themselves were also being reformatted: not in terms of their external dimensions, but in terms of their internal organization. As far as the physical dimensions of his mug shots were concerned, Bertillon adopted the commercial *carte-de-visite* format, by then a commercial standard for over 20 years, out of “habit,” as he writes (Bertillon 1895, 20). However, he used the limited space of the *carte de visite* in a fundamentally different way than the commercial portrait photographers did. Whereas Disdéri and his contemporaries used the *carte-de-visite* format vertically, for staging the individual in full figure in some kind of imaginary bourgeois interior or garden setting, Bertillon switched the format by 90 degrees, divided it into two segments, and used each print for two separate shots, *en profile* and *en face*, in front of a neutral background, a standard that had its model in ethnographic photography (Phéline 1985; Ellenbogen 2012).



[Figure 3] Alphonse Bertillon on one of his anthropometric file cards, 1891. Source: Fritot 1985.

As stated before, formatting always presupposes a certain interpretation of existing media, their possibilities, affordances, and limitations. Disdéri interpreted the photographic plate as a limited storage space for pictures, and pictures as commodities that could be distributed more profitably the cheaper they were produced. Bertillon, on the other hand, interpreted photography as but one structural element in a system of capture or data acquisition (Meyer 2016a). Photographing becomes a form of measuring the body, a way of recording visual data. Accordingly, the photographic standards Bertillon devised are marked by their unconditional will to transform the photographic act into a repeatable “experimental situation” (Rheinberger 1997, 21), and controlling the conditions of capture as completely as possible is supposed to guarantee that comparable results are achieved regardless of the location and time of the recording. To this end, Bertillon designed a complex technological apparatus, meticulously arranging bodies and cameras, chairs and instruments, places, directions and distances (fig. 4). As Bertillon (1909) stated himself, this photographic “dispositif” was intended to force the “opérateur” into “uniformity” and “precision,” namely through the “material impossibility” of deviating from the standardized picture format (quoted in Phéline 1985, 13).



[Figure 4] Photographic studio of the Paris Préfecture de Police, around 1900. Source: Frizot 1985.

With this combination of data capture and picture production, Bertillon indeed established a new format for photographic portraits. And this

format was not supposed to be limited to suspect identities and deviant subjects. On the contrary, as far as Bertillon was concerned, his system was a way of making all bodies comparable and thus providing each and every person with a uniquely defined and scientifically determined identity (Bertillon 1890). Perhaps the most notable example of this “inclusive” approach to identification is Bertillon’s portrait of Émile Zola, which was created in 1896 as part of a comprehensive medical-psychological examination of the author (Hagner 2004, 192–93). Under the direction of the psychiatrist Edouard Toulouse, a team of scientific experts subjected Zola to a series of psychometric tests to determine his memory and his responsiveness to stimuli, they prepared graphological and hereditary reports, and examined his fingerprints as well as his urine. Zola himself saw the result as a document of his “physical and moral individuality,” which presented his brain to the public “like in a glass skull” (Toulouse 1896, v–vi). Bertillon was responsible for recording Zola’s anatomy and physiognomy and determining possible deviations from the statistical norm. Somewhat disappointingly, given the extraordinary significance of his subject, he concluded his report by stating that the anatomical characteristics of Zola “do not exceed the limits of normal variation” (Toulouse 1896, 142).

The example shows how Bertillon’s new format of the photographic portrait went far beyond a mere “means of surveillance” (Jäger 2001). Rather than being only intended to make recidivist criminals identifiable, the interweaving of photographic production and data acquisition aimed to make any “ordinary” body comparable with any other “ordinary” body, to record its deviations from the mean and locate them in a distribution of differences. Individual identity thus becomes relational and structural, based as it is on the acquisition and comparison of large sets of anthropometric data (Meyer 2016b). A quite similar project was undertaken by Francis Galton at the same time. Since 1882, Galton had been promoting the establishment of “anthropometric laboratories” in England, “where a man may, when he pleases, get himself and his children weighed, measured, and rightly photographed, and have their bodily faculties tested by the best methods known to modern science” (Galton 1883, 40–41). Unsurprisingly, being “rightly” photographed for Galton also meant according to anthropometric standards, i.e., in a format combining two headshots *en profile* and *en face*.

Formatting creates the means for comparison— and not only between individuals. The standardization of the means of recording also makes visible the changes of a body and a face in the course of time. Both Bertillon and Galton saw this form of biographical (self-)recording as a valuable

enterprise. From the birth of his nephew François through François's youth, Bertillon regularly made anthropometric photographs of him documenting his development (Meyer 2016a). Similarly, Galton propagated a *Life History Album* with which parents could record the physical changes of their offspring from year to year until they themselves would be able to continue their self-tracking autonomously (Galton 1902).

In a sense, projects such as these drew a radical consequence from Disdéri's formatting, standardization, and serialization of the photographic portrait: if the classical individual portrait was based on the idea of the uniqueness of the person, represented in an equally unique picture, the standardization of formats created spaces of comparability that preceded every individual act of pictorial production. The photographic picture ceased to function as the representative double of a unique individual; instead, it became a serialized document of the always repeatable confrontation of a random subject with an anonymous apparatus of data acquisition.

Facebook: Unbounding Access, Distribution, and Comparison

Neither the history of mass portrait production nor that of police identification ends with the formats of Disdéri or Bertillon. One could, for example, draw a line from Disdéri's cartes, across the photo booth portraits popularized in the 1920s, to today's selfie culture, or from Bertillon's fiches past the invention of fingerprinting around 1900 and the introduction of obligatory passport photographs during World War I to their biometric standardization after 9/11.⁶ But all of these examples, in a way, still follow one of the two logistics of the image introduced earlier, falling rather neatly into the spheres of either commercial pictorial production and private exchange or bureaucratic data acquisition and institutional identification. With my third example, though, I would like to show that the boundary between these spheres has become quite blurry during the last two decades.

With the beginnings of Facebook in the early 2000s, we once again witness a kind of "primordial scene" of appropriation and reformatting. As is well known, not least through David Fincher's movie *The Social Network* (2010), the story of Facebook started in autumn 2003 with a legendary hack, through which Mark Zuckerberg illegally gained access to the Harvard

6 These and other episodes are discussed in Meyer 2019a.

servers and thus to the digital image data of the university's college yearbooks, the so-called face books. These official collections of freshman portraits, which had a decades-old tradition as printed albums or "Freshman Registers," were by then already online, but only available within the social limits of Harvard's dormitories. Zuckerberg took these portraits and used them to launch a website he called Facemash, which allowed visitors to view and compare the photos of their fellow students, without any limitations. The site was inspired by the then very popular—and quite misogynistic—photo rating site hotornot.com, and featured a telling motto: "Were we let in for our looks? No. Will we be judged on them? Yes." (Mezrich 2010, 49).

Again, we are dealing with a practice of reinterpreting an existing pictorial format—whereby the images themselves remain unchanged, but their status is redefined by their embedding in a new data structure. The result was a new logistics of access to an already existing population of images. What previously remained a common, informal social practice, namely leafing through the yearbooks and spitefully comparing the portraits, now became technically implemented and socially unbounded. Although Zuckerberg only sent the link to his site to a few friends to test it, it got more than 22,000 hits within a few hours. But protests arose almost as quickly; not least, complaints from feminist campus groups eventually led to Facemash being taken off the net and Zuckerberg being warned by the university. Obviously, he didn't let himself be discouraged for long. Less than half a year later, thefacebook.com went online, and regardless of its infamous prehistory, within just one month half of the Harvard undergraduates registered and voluntarily uploaded their images and profile data (Kirkpatrick 2011, 23–25).

In its early years, Facebook allowed only a single image in its otherwise largely text-based interface: the standard "profile picture." However, some users soon started changing their profile picture several times a day—and thus assigned a new function to it: what was meant to be a static representation became a dynamic status update. Facebook responded quickly to this development, and in autumn 2005 launched the Photos feature, which in a very short time made it the largest photo sharing platform ever (Kirkpatrick 2011, 153–57). The history of Facebook Photos shows once again how formatting can become productive by being restrictive. Compared to photo sharing platforms such as Flickr, which were already established at the time, Photos' usability was extremely limited. Where Flickr allowed freely chosen categories to tag motifs, genres, and camera types, Facebook used a tagging function that allowed nothing else but to link a face with a

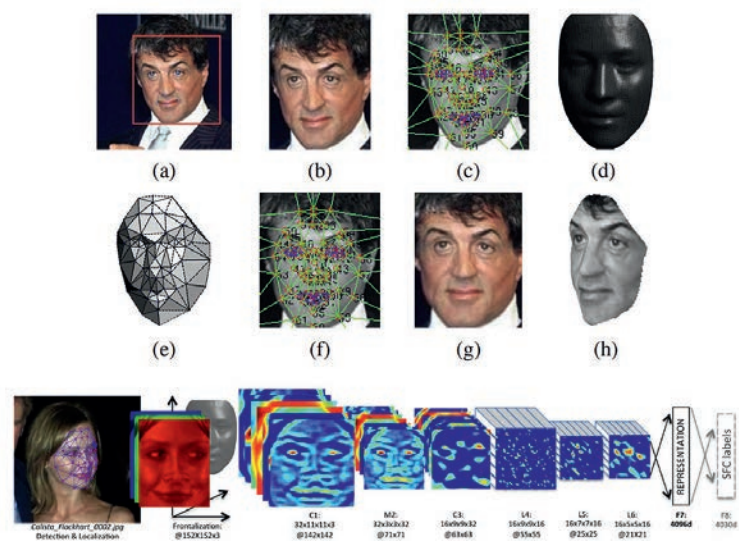
name and a profile. Showing private photos to friends, pointing to faces, and naming names is as old as the photo album. But with Facebook's technical implementation, this largely innocent social practice changed its character completely. If someone is marked on a photo in Facebook, then the friends of this person get to see these pictures as well. Identification between friends thus becomes the key mechanism of an almost uncontrollable logistics of images in which labeling and distribution are merged into a single operation (Hand 2012, 173–78).

What Facebook still anachronistically calls an “album” has thus largely changed its function. What once was a material medium for the storage and arrangement of photographic prints has become a database function, serving less to stabilize collections than to mobilize mass image flows. These digital albums channel digital data streams (the size of which would exceed any physical album or institutional archive), regulate their visibility as images, and link them to data profiles and communication networks. In turn, the maintenance and growth of these profiles and networks become by and large functions of the constant circulation of images as data.

By limiting tagging to facial identification, Facebook Photos not only sets in motion a new logistics of distribution but also creates a huge database of individual faces identified by name and linked to personal profiles. It is no coincidence that in recent years Facebook has become one of the leading developers of face recognition algorithms. Today's facial recognition algorithms are increasingly based on machine learning: instead of analyzing faces according to fixed rules and comparing them using predefined features, as was the rule until a few years ago, new algorithms optimize their parameters and criteria autonomously. They learn how to discriminate faces by searching for patterns in vast populations of images. By analyzing many different photographs of the same person, they become better and better at identifying the particular patterns specific to that individual's face (Alpaydin 2016). With its endless series of tagged photographs of known individuals, taken in different circumstances, under varying lighting conditions and over large spans of time, Facebook's databases offer an optimal testing ground for this form of machine learning. Thus, it came as no surprise when Facebook's research department proudly announced in 2014 that its DeepFace software had (almost) successfully closed the “performance gap” between human and machine face recognition (Taigman et al. 2014).

DeepFace is interesting not only because it would probably never have been created without the globally distributed participation of millions of

Facebook users but also because it shows how today the production of comparability by means of formatting has moved from production to post-production. Since the beginnings of automated face recognition around 1970, one thing has remained largely unchanged: optimum comparability presupposes strict frontality (Gates 2011, 25–61; Kammerer 2014). However, this frontality, which is still required for “biometric” ID-cards, can now be produced by retrospective simulation. Before the artificial neural networks begin to analyze digital face images, DeepFace first rotates them in virtual space (fig. 5). Based on individual feature points, a grid-shaped 3D model of the face is created, onto which the digital pixel image is then projected. Even semi-profiles can be “frontalized” in this way (Meyer 2018). Thus, in a certain way, pictorial formats have become flexible and preliminary under the digital conditions of elementary addressability and complete computability, as formal standards can always be algorithmically superimposed in postproduction.



[Figure 5] Facebook’s *DeepFace* facial recognition algorithm, 2014. Source: Taigman et al. 2014.

Facebook and similar platforms realize what can be characterized as a digital short-circuit of the two logistics of the image I have described in the first parts of this essay: the mass circulation of private portraits and the institutional instrumentalization of photographic documents as sets of data. Furthermore, with these platforms, we witness what could be called the preliminary endpoint of a history of (photographic) portraiture

in which operationality increasingly replaces representation. Rather than re-presenting a supposedly stable identity that prefigures its pictorial representation, the billions of digital portraits circulating on social networks contribute to the continuous and never-ending production of digital identities. As digital portraits become elements in operational processes of connecting and comparing them to each other and aggregating them to data profiles, identity turns into an ever-expanding network of images and data, held together by processes of algorithmic comparison. Although social media platforms like Facebook do everything they can to stabilize online identities and prevent their proliferation, the profiles they aggregate are not fixed entities but rather fluid processes, the continuously updated products of operational chains involving large populations of images. And characteristically, these operational chains no longer require the prior formatting of the visual or pictorial form of the image—rather, under the digital condition, the data structures in which image files are embedded and the resulting possibilities of relating images as data sets to other data sets prove to be the decisive format specifications.

Coda: What Formatting Does

While the short case studies I presented in this essay may not lead us to a precise theoretical definition of what a “format” is, they provided us with some preliminary theses on what formatting pictures *does*, which I hope can prove useful in studying the role of pictorial formats in visual culture:

1. Formats are always the product of formatting. Rather than simply having a format, pictures are subjected to repeatable and standardizable processes of formatting: of establishing, specifying, and standardizing material and symbolic frames, arrangements, divisions, and dispositions. Such processes of formatting organize and structure pictures as products of media technologies and embed them within larger technical ensembles such as albums, archives, and databases.
2. As a cultural and economic practice, formatting always requires a certain interpretation of media technologies, their possibilities, affordances, and limitations. Formatting can be seen as a form of investment: it analyses the opportunities already latent in technological apparatuses and tries to systemize their usage, optimize their use of resources, and maximize their effects.
3. Formatting is thus more often than not some kind of re-formatting: new formats are generally based on existing formats, which they further specify, differentiate, supplement, and extend.

4. Most important, formatting becomes productive because and in so far as its effects are mostly restrictive: formats channel, accelerate, and intensify modes of production and networks of circulation; they create expectability and thus the possibility of new practices, apparatuses, and formats of collecting, comparing, and connecting; and in doing so, they change the way we not only deal with images but also think about ourselves, about who we are, what constitutes our identity, and how individuality can be determined with and through images.

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