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Limiting the Power of the Copy

Abstract The extensive debates in twentieth century media theory are hardly something which lends itself to succinct summary. One striking fact, however, is that "reproducibility" is a recurring theme. The ease with which content can be reproduced is seen as a distinguishing feature of technical media (since the emergence of photography and film, and in particular of new, i.e. digital, media). What is more, such content is designed to be reproducible; it seems as though the very difference between original and copy is becoming obsolete. This observation has been described by various theorists with varying emphasis as a specific feature or objective of media development. Part I of this text will briefly present a few relevant positions. The mere existence, however, of terms such as "piracy" or "pirated copy," and of campaigns against "copyright pirates," shows that reproducibility is not a phenomenon that is welcomed unreservedly. Reproducibility clashes with the economic imperative of scarcity, and therefore with legal regulations. Thus judicial, technical, and didactic procedures work together to prevent unauthorized reproduction, a process that is outlined in Part II. Part III offers a short conclusion.

Keywords Counterfeiting, commodity, holography, piracy, reproducibility

Theories of reproducibility and simulation

The obvious association evoked by the term "reproducibility" is Walter Benjamin's well-known text *The Work of Art in the Age of Its Mechanical Reproduction*, which was first published in French in 1936.[1] It should be noted that Benjamin, thinking to diagnose a whole epoch, describes an "*age* of technological reproducibility" (which would be a better translation) which, however, initially refers mainly to works of art. He does stress that the work of art has always been manually reproducible, but that the "[t]echnological reproduction of the work of art is something else, something that has been practiced intermittently through history, at widely separated intervals though with growing intensity."[2] Thus it seems that reproducibility has at least intensified in the modern period.

According to Benjamin, the result of this intensification is, *firstly*, "the most profound changes" in the impact of "traditional artworks."[3] Reproduction detaches the artwork from tradition and makes it "come closer to whatever situation the person apprehending it is in;"[4] the exhibition value supplants the cult value. *Secondly*, he underlines this diagnosis by pointing to the emergence of two art forms—photography and cinema—that are already structurally designed to be reproducible: "From a photographic plate, for instance, many prints can be made; the question of the genuine print has no meaning. *However, the instant the criterion of genuineness in art production failed, the entire social function of art underwent an upheaval*."[5]

Benjamin's suggestion has been taken up repeatedly in recent debates on the subject. Rosalind Krauss, for example, writes that "The structural change effected by photography's material base is that it is a medium of direct copies, where there exist multiples *without* an original." She takes this as evidence of a "totally new function of art,"[6] arguing that the art of modernity cannot be understood without this recourse to viewing photography as a "multiple" without an original (and the art of so-called postmodernity even more so). She thus regards the appropriative art forms of the 1980s, which made intense use of the concept of the copy, as particularly important, pointing to the work of artists such as Sherrie Levine, who famously photographed the photos of Walker Evans and presented them as her own work.

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2 Benjamin 2008, 3.
3 Benjamin 2008, 5.
4 Benjamin 2008, 7.
5 Benjamin 2008, 12. Emphasis in original.
6 Krauss 2001, 1002. Emphasis in original.

Benjamin had already noted that the "significance [of reproducibility] points beyond the realm of art."[7] Indeed, even without explicit recourse to Benjamin, comparable diagnoses were made elsewhere. Günther Anders, for example, remarked on television reporting in his 1956 text *Die Welt als Phantom und Matrize* (The World as Phantom and as Matrix), noting that "When the event in its reproduced form is socially more important than the original event, this original must be shaped with a view to being reproduced: in other words, the event becomes merely a master matrix, or a mold for casting its own reproduction."[8] Again, reproduction seems to be the signature of an epoch, replacing the "original," whatever that might be, and/or cancelling out the difference between original and reproduction. Admittedly, Anders was referring to television rather than to photography and film, and his attitude towards this change was marked by much greater cultural pessimism than Benjamin's.

A similar but more affirmative diagnosis is found in the work of Jean Baudrillard, whose work from the mid-1970s onwards formulates—partly with reference to Benjamin—a history of simulacra. He argues that "Western" societies, after a phase of imitation in the Renaissance and a phase of industrial production of identical objects, entered an era of "hyperreal simulation" at some point (he does not specify when) in the twentieth century.[9] By "simulation"—insofar as it is possible to determine this precisely in his sometimes confusing texts—Baudrillard does not mean (or only means in a metaphorical sense) the construction of performative models in computer simulation, which has become increasingly important since 1945 (and particularly in the military, technology, and science).[10] Instead, his main contention, rather like Anders,[11] is that reproduction has already secured a conclusive victory over the real, and that original and copy can therefore no longer be distinguished from one another. He seems to argue that, today, no substantial depth of reference can be assumed to exist behind chains of signifiers pointing exclusively to other signifiers. In such a case, political attitudes, for example, become interchangeable lifestyle accessories. Kramer summarizes as follows: "simulation thus levels out the differences between original and copy, between the real and its reproduction, and in the end eradicates all references to the referent."[12]

Whatever one may think about individual aspects of this strident diagnosis, Baudrillard's texts were extensively discussed in the 1980s and early 1990s. It is probably no coincidence that a series of further publications on related issues followed in the 1990s and early 2000s, such as Hillel Schwartz's *Culture of the Copy* (1996) and *Originalkopie: Praktiken des Sekundären* (Originalcopy: Practices of the Secondary), published in

7 Benjamin 2008, 7.
8 Anders 1956, 20.
9 Cf. Baudrillard 1993, especially 70–76. On Benjamin, see 55–57.
10 Cf. Schröter 2004a.
11 Cf. Kramer 1998, on Baudrillard and Anders.
12 Kramer 1998, 259.

Cologne at the research center for "Media and Cultural Communication" in 2004, which describes the diverse forms and processes of reproduction.[13] We can see, even beyond the question of originality and its relationship to the copy in art, an increasingly firm diagnosis that we live in an "age of technological reproducibility," (Benjamin) and a "culture of the copy," (Schwartz) or even the "era of simulation" (Baudrillard). This diagnosis does seem plausible. Just a few examples, deliberately taken from a wide range of spheres, highlight the pervasiveness of this phenomenon:

1. *Science*: the sciences relevant for modernity are based on an epistemology of experiment (however problematic this may be), in which the validity of a theory can only be confirmed if an effect is reproducible. Baudrillard wrote: "The very definition of the real is *that of which it is possible to provide an equivalent reproduction*."[14] In this sense, reality depends on reproducibility.
2. *Material production*: The industrial manufacturing of goods surrounds us with an abundance of largely identical copies, e.g. of common household items such as chairs. These items obviously follow a reproducible prototype. Andy Warhol provided a well-known, ironic commentary on this development with his series on Campbell's soup tins and Brillo boxes.

   Here an interesting problem emerges: although the "prototype" for an industrially-produced line of products seems to be "original" in the sense that all specimens comprising the series (e.g. all the produced chairs) resemble it and are constructed according to its "pattern," significant differences exist between the two different relations—of prototype to specimens on the one hand; of original to copies on the other:

   Firstly, the prototype is very seldomly exhibited as such, whereas the original in other art forms (e.g. painting) is the central object of attraction—although prototypes can become originals, such as when the prototype of a famously designed chair is exhibited in a show on a star designer.

   Secondly, no one would see a mass-produced chair as a kind of "degraded" version of the prototype; normally, one doesn't even think about this relation at all. The question if one chair is a "better" or "worse" copy of the prototype than another makes no sense—and this obviously has something to do with the process of production—a point which Baudrillard also makes.[15] Industrial production is, by its very definition, a serial process, characterized by standard technological procedures, whereas in other forms of production (let's say in painting) copies *may* be made from an original, but that is not necessarily the case. The aim of industrial production is to produce a series: the prototype is only the

13 Cf. Fehrmann et al. 2004.
14 Baudrillard 1993, 73. Emphasis in original.
15 Cf. Baudrillard 1993.

necessary pattern, but the important thing is the series itself, because it contains the commodity to be sold. The aim of an art form like painting (at least in the Western tradition), however, is different: here it's the singular original, touched by the hand of the artist (often glorified as "genius"), that is the important commodity, and to copy this "work" is at best an exercise in emulating and understanding the "genius." At worst, it's simply a crime. But in any case, the copy is normally created not though a standardized technological process, but by hand, such that different people will make different copies of one original. Here, the question of whether there is a "better" or "worse" copy does apply. One perhaps could say that the more standardized routines to produce (nearly) identical specimens are put in place (and this need not only apply to industrial modernity, since such processes were established long time ago[16]), the more the difference between original and copy transforms into a difference between prototype and specimen.

Thirdly, this points to another interesting difference: normally, original and copy have nearly the same materiality. A copy of a statue made of marble may not be marble, but let's say made of bronze, and may not even be to the same scale, but it's still a three-dimensional object. A painting of a statue (or a photo of it) would normally not be called a "copy" of the statue, but a reproduction. A prototype and a specimen can also differ in materiality. Although the prototype of a series of chairs may also be a chair, normally prototypes should give precise information on how to produce the specimen, meaning that prototypes are normally highly complex drawings, scaled down three-dimensional models, or computer models (or an assemblage of all three of these) containing exact quantitative measurements and so on. In sum, a prototype is not an object (like an original), but a kind of "set of instructions" on how to produce an object. While a copy is an object imitating another object (the original), a specimen is a material instantiation of the instructions enclosed in a prototype.[17] In this sense, Baudrillard was correct: industrial production, with its distinction between prototype and specimen, lies halfway between modes of production not centered around a series[18] (and therefore having a strong sense of an "original") and digital modes of production in which even the difference between

16 With thanks to Philipp W. Stockhammer for his highly interesting talk at the conference "The Transformative Power of the Copy."

17 See Meretz 2010. On the problems of defining "copy," see also the contribution by Philipp W. Stockhammer in this volume.

18 See Baudrillard 1993. An interesting point is that Baudrillard suggests, in his teleological model, that "imitation" (and therefore the "copy") belongs to a phase before industrial production. However, the ongoing importance of the role of the original in the art system (in keeping with Luhmann) until today suggests that different regimes of production now exist side-by-side and cannot be described in a historical sequence alone. On the problem of the history of the copy, see the contribution by Philipp W. Stockhammer in this volume. On the role of original and copy in the art system, see the contribution by Susanne Knaller.

prototype and series seems to make no sense anymore because a "copy" of a finished software product is simply identical to its predecessor (though there are limitations to that, too, as we will see below).

3. *Production of signs*: Reproducible photography covers the world with identical-looking photos. We all use photocopiers to duplicate written documents or pictures, a development Benjamin could not have foreseen, and the emergence of digital media really seems to have brought about the collapse of the difference between original and copy, as already hinted at above. Digital data is, on a basic level, just a sequence of zeros and ones, and if one simply copies this sequence (or if a computer does), the resulting file is *exactly* the same as the original. Unlike analog processes, copying no longer causes a loss in quality that would differentiate the copy from the original. The difference becomes obsolete. Indeed, the argument initially seems more convincing for digital data than for photography (the focus of Benjamin's and subsequently Krauss's theses); most photographic procedures, after all, still distinguish between an original negative and positive prints.

This, then, is the grand narrative recounted by certain representatives of media theory: we are entering an "age of reproducibility" in which everything and everyone will soon be able to be reproduced—and the differences between original and copy will thereby collapse. Thus, for example, Geoffrey Batchen also claims: "We are entering a time when it will no longer be possible to tell any original from its simulations."[19] Cinema and television are full of corresponding phantasms, particularly in the case of science fiction. There are the fantasies of genetic reproduction, which suggest that we will soon be able to create clones of dinosaurs or humans, or phantasms of virtual simulation, in which future computers will be able to reproduce the world in its materiality—just think of the "holodeck" from the *Star Trek* series, or the premise of the film *The Matrix*.[20] The simulations shown there are (almost) as real as reality; the difference between original and copy becomes meaningless.

Stabilizing the reproductive difference

Having followed this idea to its final, phantasmatic climax, a critical commentary on this grand narrative is pertinent, and several points of departure offer themselves here. From a historical point of view we can ask whether culture has not always been based on reproducibility (take language as an example: to learn it means to reproduce the spoken or written signs of language); thus reproducibility does not exclusively correlate with technical or new media. One should also draw attention to the historical

19 Batchen 2000, 10.
20 Cf. Schröter 2004b, 152–276.

contingency of reproducibility as an attribute of certain technical media: photography, for example, is not reproducible "in itself" and non-reproducible photographic processes (daguerreotype, polaroid, etc.) do exist.

The thesis that we live in an age of technological reproducibility can be criticized from another angle, too. One could argue that the expansion of reproducibility—regardless of whether the principle has always existed or not—into an increasingly broad range of subject areas inevitably entails the emergence of strategies to counter it. The description of modernity as an age of ever-increasing reproducibility is not false, but one-sided: it can also be argued that modernity is also an age of technological non-reproducibility. Especially if, as Anders and Baudrillard have done, one takes the ever-increasing reproducibility as evidence that the difference between original and copy is imploding—or has already imploded.

It is obvious that this difference still exists on an everyday level, despite the expansion of analog and digital technical media. The reproduction of money, confidential documents, and identity documents for example is prohibited for all but certain institutions. Otherwise their "authenticity"—and this means nothing less than their operability—would be nullified. These types of documents function on the basis of a distinction between original and copy—a copied banknote is no longer a banknote. Of course there is a history of "unauthorized reproduction,"[21] as it is explicitly called in the relevant guidelines in the European central bank, and the counterfeiting of coins, for example, has long resulted in severe penalties.[22] There are legal regulations against certain forms of reproduction—regulations which find expression in pejorative terms such as "pirated copy" or "piracy."

But the legal penalty always comes *after the fact*. When it comes to the currency system, the damage must be prevented in advance, since large-scale counterfeiting would lead to inflation and could even bring about economic collapse. Because of these dangers, increasing efforts were made in the twentieth century to develop technical—and sometimes legally protected—processes, simply to preclude reproduction.

For example, the spread of photocopiers since the 1960s has resulted in increased ease of reproduction. Parallel to this increase, new types of non-reproducible markings have been devised, and older techniques such as the watermark (as found on bank notes),[23] have been resurrected to prevent counterfeiting. But such technical processes only work if the subjects concerned—i.e. all of us—know how to decipher the mark denoting authenticity. Hence information about techniques of observation which help to detect forgeries has been widely distributed.

The German police advice website, www.polizei-beratung.de, gives information on a holographic "special patch" on the lower right-hand side

21 EZB/2003/4. Accessed March 31, 2014. http://www.ecb.int/ecb/legal/pdf/l_07820030325de00160019.pdf, last modified March 25, 2003.
22 Cf. Voigtlaender 1976.
23 Cf. Gerstengarbe, Lang, and Schneider 2010.

of the 50 Euro note: "On the right side of the front of the note is a holographic patch. If you move the banknote, depending on the angle of viewing, either the value of the note or the architectural motif will be visible. Concentric circles of rainbow colors wander inwards and outwards through the hologram."[24] One is supposed to learn how to view a banknote, and what to pay attention to in order to distinguish genuine from fake, original from copy. The hologram added to the banknote, which changes its appearance in the light and which cannot be photocopied (with a modern color copier), helps achieve this.[25]

The source of the non-reproducibility of holography lies in its epistemology. The intention here is not to reconstruct the history of holography *in detail*. That would go beyond the scope of this essay.[26] It is enough to state that a central condition of holography is the (re)discovery of wave optics in the nineteenth century.[27] The underlying idea of holography, namely to record the interference pattern between the wavefronts of two coherent light beams, assumes the understanding of interference as a property of light. The recording of the interference between object waves and reference waves permits the exact reconstruction of the object wave. The idea of recording these interferences was formulated in 1948 by Denis Gabor, for the purpose of decreasing limitations to electron microscopes: "It is known that the spherical aberration of electron lenses sets a limit to the resolving power of electron microscopes at about 5 Å. [5×10^{-10} m] ... The new microscopic principle described below offers a way around this difficulty, as it allows one to dispense altogether with electron objectives."[28] This is the central point of Gabor's early considerations—it is possible to avoid lenses, lens systems, and their limitations. This accounts for the unique status of holography in the history of technological imaging methods: it is the only procedure that can depict objects without their having to be projected through a lens.[29] The hologram does not underlie geometrical optics or linear perspective projection and the 1:1 correlation of image and object points.[30] In fact, every object point is correlated with every pixel, which is why each sliver of a broken hologram contains the entire image.[31] Nevertheless, visual media utilizing lenses and therefore being technologically based on the principles of geometrical optics (perspective) are clearly in the overwhelming majority: photography, film, television, video, and

24 Accessed March 31, 2014. http://www.polizei-beratung.de/medienangebot/details/form/7/189.html. Translated by the author.
25 For a detailed account of the very different optical technologies used to prevent counterfeiting, see Renesse 2005.
26 See Johnston 2006.
27 See Buchwald 1989.
28 Gabor 1948, 777.
29 Photograms do not need a lens either, but offer no image of the object. Instead, they are only records of its shadow.
30 See Carter 1970.
31 Albeit with a resolution that decreases in proportion to the part size.

even many digitized and digitally-generated images belong to this paradigm.[32] The fact that holography arises from a knowledge of wave optics, while all other imaging technologies (relying on the level of the projection of objects on the image sensor) follow geometrical optics (i.e. perspective), has important implications.

Historically, geometrical optics, i.e. the conceptualization of light in the form of straight rays—as in linear perspective—is the older knowledge. It is, as an approach, still a firm component of optics. A contemporary textbook on optics says: "In many situations, the great simplicity arising from the approximation of Geometrical Optics more than compensates for its inaccuracies [in comparison with wave optics]."[33] One of these situations is the calculation of optical systems on the basis of lenses. Wave optics describes phenomena such as diffraction, polarization, and interference of the light, phenomena that cannot be described by geometrical optics—but that's not problematic for the efficiency of geometrical optics. Refraction and reflection as descriptive categories are sufficient because the structures that interact with light (mirrors, lenses, etc.) are large in comparison to the wavelength of light. If the relation between our macro-world and the wave length of light were different, it would be possible to see around corners, as light would flow around them in a wave-like manner (like water). This actually happens to a small degree—the effect is known as diffraction—but such wave-optical phenomena occur in the field of geometric-optical technology only as disturbances. Diffraction restricts the resolution of lenses (exactly the problem Gabor tried to solve in his early paper), but such disturbances were historically the starting point for new knowledge and, consequently, new wave-optical technologies like holography.

Wave-optical knowledge encompasses geometric-optical knowledge; the latter is only an approximation of the former. This means that a) the wave-optical imaging technology of holography can include the phenomena of geometrical optics but b) this property is not possible in reverse.

In concrete terms, a) means that a holographically recorded lens still works like a lens and a holographically depicted mirror still works as a mirror.[34] Today, the construction of such holographic-optical elements is an important branch of research and industry, as space-saving optics can be created for very special purposes.

Just as precisely, b) means that no geometrical-optical technology—such as the photographic optics of a photocopier—can copy holographic images because the information saved in wave-optical images exceeds the potential of the geometrical-optic image.[35] A holographic image contains more information about the object than a photograph of the object, simply

32 For computer generated imagery, see Schröter 2003.
33 Hecht 2002, 149.
34 For one of the first Soviet experiments on holography in the early 1960s, during which Yuri Denisyuk holographed a mirror, see Johnston 2006, 69.
35 It goes without saying that holograms can, in turn, be reproduced by other holograms.

because holography can record both the amplitude and the phase of light, thanks to the recording of interference patterns. A photocopy of a hologram no longer appears captivatingly three-dimensional and no longer changes when the viewing angle is changed (iridescence). For this reason, imaging technology based on wave optics is well suited when applying safeguards to items such as printed money:[36]

> The first banknote with a hologram patch was the 1988 Austrian 500 Schilling note. In 1994, Kuwait integrated a hologram patch onto three of its banknotes and Bulgaria issued the first banknote in the world with a hologram strip, the LEAD® strip. The first banknote with a hologram window strand was issued in Finland, in 1985, followed by the Latvian 5 latu note, which was issued in 1996. In Germany, the first banknotes were equipped with holograms during the last appreciation of the D-Mark series in 1996. At that time, the 50, 100, and 200 D-Mark notes were enhanced with a hologram patch as an additional security measure. By 2000, 80 different denominations from over 30 countries were in circulation with a hologram. In 2003, 150 denominations were equipped with various optical features, such as in the thread, as a foil strip, or as a patch. Currently, approx. 350 denominations are in circulation with a hologram element.[37]

The whole point of such non-reproducible markings is that they cannot be copied without significantly changing their appearance—but this implies that someone has to look at the markings and register the differences. To support this aim, the website www.polizei-beratung.de provides a Java applet with the name *Euro-Blüten-Trainer* ("fake euro trainer," or sometimes translated as "funny money advisor"—fig. 1). Here, applying comparative visual analysis in a way Heinrich Wölfflin would surely never have imagined, one can learn to recognize the crucial security markings on banknotes. "Train your gaze to 'incorruptible inspector' standard."[38] Similar training software with corresponding short films can be found on the website of the German Federal Bank.

This didactic endeavor also includes film and poster campaigns featuring phrases such as "Copyright pirates are criminals" (fig. 2). These and similar disciplinary paratexts are important since—and this brings us back to the legal side—there are severe penalties (prison sentences of up to ten

36 Pizzanelli discusses the various attempts and processes created to forge safety holograms and comes to the conclusion that holography is a very effective copy protection method, which is in contrast to occasional claims to the contrary (at least, given the state of the art in 1998 when Pizzanelli wrote his text), see Pizzanelli 1998.

37 Wikipedia, s.v. "Hologramm." Accessed April 11, 2008. http://de.wikipedia.org/wiki/Hologramm.

38 Accessed April 11, 2009. http://bluetentrainer.polizei-beratung.de/blueten_euro/trainer_d.html.

Figure 1. *Euro-Blüten-Trainer* ("funny money advisor"), screenshot.

years in Germany) even for unknowingly passing on counterfeit money. These paratexts alert us to our responsibility to learn techniques of observation that will help us recognize legally-protected technical effects—the absence of which signal the criminal offence of unauthorized reproduction of money or documents. For this reason, counterfeiters try to distribute their fake notes in chaotic, hectic situations where there is too little time and/or light for a thorough examination.

In summary, the aim is to prevent unauthorized reproduction with a heterogeneous combination of three components:

1. Legal threats and the institutional conditions which allow them to function, i.e. the legal-institutional complex.
2. Technical effects that cannot be reproduced by the general public (e.g. holograms).
3. Techniques of observation focused on the special effects provided by the processes in 2) that enable one to recognize the differences between authorized and unauthorized reproduction as defined according to 1).

This heterogeneous configuration, designed to stabilize what one might call the reproductive difference between original and copy, appears in a wide variety of areas. I will outline just a few examples:

Figure 2. *Raubkopierer sind Verbrecher* ("Copyright pirates are criminals").

1. Product counterfeiting is a concern in the area of material commodities. At the beginning of 2009, a group of secondary school students from Lübeck, Germany, went on a fatal drinking spree in Kemer, on the Mediterranean coast of Turkey, drinking raki laced with methanol. Following this incident, the April 3, 2009 issue of the *Süddeutsche Zeitung* reported on problems with the counterfeiting of raki in Turkey, and more precisely on "2005, the year of the raki crisis," in which one

incident stands out in particular: "First of all, 500,000 holograms, which were supposed to be attached to bottles to guarantee the authenticity of the liquor, were stolen from a raki distillery in Izmir [...]."[39] Two points can be deduced from this.

First, even if Baudrillard may be right in thinking that the industrial mass production of goods has led to an unprecedented spread of identical series of objects, this does not necessarily nullify the distinction between original and copy.[40] Legitimate and illegal specimens should be distinguishable—at least in principle.

Secondly, holograms are mentioned again here, as in the discussion of banknotes above. As was said, holography is one of a number of irreproducible photographic processes, designed to curb reproducibility in conjunction with corresponding legal institutions and observation techniques for assessing validity. The fact that there are small, identical holograms on many banknotes or on "original products" shows that holographs can be reproduced in certain circumstances, but not by the general public. Reproducibility is not something that exists or does not exist; it is present in a graduated and variously distributed state.[41]

2. As already mentioned, one of the most important areas in which reproducibility must be contained and reduced is that of documents pertaining to governmental and economic structures. Money and personal identification documents (of the kind general found in wallets) must only be duplicated or produced by appropriate institutions. Readers will undoubtedly understand the basis for this restriction: you likely have, in your wallet, both identity documents and money or cards with which you can access money. You can easily verify the vital importance of this archive of non-reproducible elements for your economic and political existence, i.e. your existence—to use Marx' terminology—as a *bourgeois* and *citoyen*. If you go to a bank without a credit card or identity card and try to get money, or try to travel to another country without a passport, you will soon run into trouble—especially if you reach a checkpoint. You can claim that you are creditworthy but no one will believe you unless you can present a real credit card or a real passport. You would be considered highly suspicious if you dared to present a photocopy of your passport (or your credit card). You are only "yourself" by virtue of your *original* documents.

   A clear difference does emerge here, though: in the case of money, you have to be able to recognize a fake 50 euro note, i.e. you have to learn to distinguish it from real 50 euro notes. But you come across a lot of 50 euro notes, which means you have to learn to tell *genuine copies* from *fake copies*. With your ID card, the situation is somewhat

39 Translation from Strittmatter 2009, 10.
40 Cf. the example of machine construction in Paul 2010.
41 Cf. Schröter 2009.

different. It is only allocated to you, and of course it would make no sense to distribute numerous copies of it. I can scarcely use a copy of someone else's ID card to prove my identity, however good the copy may be. Here the non-reproducibility of the ID card is connected to the prototype of my signature and face. My signature and the photo of my face connect me and my identity document *indexically* (this also applies to biometric data).[42] My face and my signature have to match the face and signature on the document—and vice versa. Thus the prototype has to be reproduced, but it is fixed on a document that is rigorously protected against unauthorized reproduction by security features that cannot readily be reproduced. This shows that it is not a matter of playing reproducibility and non-reproducibility against each other, but of observing their actual configurations, historically, culturally, even situationally. This essay is just a preliminary attempt to chart this difficult terrain. The ID card, which I cannot validly produce myself, assigns my face, and therefore my body, to my name. And this ID card can only be allocated to a specific, i.e. addressable, person by an approved governmental body. In this sense, a person can be defined as a living body + an identity document.[43] Much the same can be said for employee or military ID cards. Access to certain institutions or resources can only be obtained through such processes of identification; this is why "identity theft"[44] is now a key crime in the areas of espionage, industrial espionage, illegal immigration, and emigration.

While every banknote in a series shows the same reference, e.g. a value of 50 Euros, the singular reference is the difference between ID cards, meaning every ID card shows a different person. The issue with ID cards is therefore one of being able to distinguish a *fake* card from a *genuine* one. Strictly speaking, every banknote is also an original, since it has a singular number, but here the question is whether a given banknote is a valid copy of its prototype. In practice, we as users do not really have the opportunity to check whether the serial number on a banknote is correct—e.g. by visiting a bank. Hence we can and generally must disregard this singularity and differentiate, in the case of banknotes,

42 The indexicality of the signature is also demonstrated by the fact that erasable pencil is not "acceptable for use on official documents," since the trace can be deleted or changed. (See *Wikipedia,* s.v. "Dokumentenechtheit." Accessed March 31, 2014. http://de.wikipedia.org/wiki/Dokumentenechtheit.) A particularly strange phenomenon that we cannot go into here is the so-called "facsimile signature stamp," a stamp that imitates a hand-written signature as closely as possible.

43 It is not customary to possess ID cards in every country or culture—though this could be the subject of a comparative cultural study on the production of identity. In the conditions of modern mass societies, however, some sort of mechanism of identification is generally necessary. See a very detailed overview at *Wikipedia,* s.v. "Identity document." Accessed March 31, 2014. http://en.wikipedia.org/wiki/Identity_document.

44 Cf. Hoofnagle 2007.

between *fake* and *genuine* copies.[45] This strange expression may cause discomfort—perhaps it would be better to say "authorized" and "unauthorized"—but, from the point of view of the authorizing bodies, this is the same as the difference between genuine and fake.[46]

3. In the art system, of course, the distinction between original and copy is still maintained.[47] This is particularly evident in the "vintage print" in photography, a practice which would undoubtedly have seemed very peculiar to Walter Benjamin, and would probably also strike Rosalind Krauss as odd. The first print made from the negative by the photographer is valued higher than every subsequent reproduction, and there are always conflicts about the reliability of the documentation of these processes. It is, furthermore, standard practice today for photographers to make just a few prints of their photos—sometimes even destroying the negative after producing the prints—to ensure that only a small number of copies are in circulation. Thus even the works of Appropriation Art which Krauss valued so highly have now become expensive originals.
4. In the digital field, especially, reproductive differences are continually being reconstructed. Precisely *because* a loss-free reproduction could theoretically diminish the difference between original and copy,[48] frantic efforts to rebuild this distinction have been redoubled. Increased reproducibility seems liable to break down the object's nature as a commodity and thus the very conditions which make a capitalist economy possible. A digital commodity—whether software, a film, or music—can be reproduced any number of times. This has a huge negative impact on its commercializability if the digital commodity is reproduced by users rather than producers. But this problem is even more fundamental: whether I hand over a piece of software for money or for free, I always keep a copy. No exchange takes place, and thus the object's nature as a commodity seems questionable.[49] Again, strict laws and

45 Both Jochen Venus and Timo Schemer-Reinhard have raised the question of whether it would be better to speak of banknotes as "specimens" or "examples" (German: *Exemplare*) rather than "copies." This question is quite justified, but it raises the further question of how to distinguish between "example" and "copy"—a difficult question that can only be suggested but not answered here. The first problem is that the distinction between an example and a copy may only be possible in certain languages—what is referred to as an *Exemplar* of a book in German is simply called a "copy" in English.

46 Jochen Venus, in an email to the author, objected: "The distinction between a 'genuine copy' and a 'fake' one seems to me to be contrary to the meaning of the term copy. I don't think you would talk about a fake imitation either." And yet clearly this difference does exist, as one can see from the phenomenon of "certified copies" of documents issued by administrative bodies. Cf. *Wikipedia,* s.v. "Beglaubigung." Accessed March 31, 2014. http://de.wikipedia.org/wiki/Beglaubigung.

47 See the contribution of Susanne Knaller in this volume.

48 If one disregards the frequent need to compress data (and thus entail losses). See Salomon 2008.

49 Cf. Grassmuck 2004.

their institutions of enforcement, whether through complicated technical processes—think of digital rights management[50] or copy protection systems for DVDs[51] and audio CDs[52]—as well as techniques of observation of validity are designed to prevent the digital technology's technical potential for mass production from being usable; this is done because this potential is not compatible with the economic principles that are currently in place.

Conclusion

Reproducibility presents a fundamental threat to the existing governmental and economic structures of modern societies; I believe Benjamin saw this correctly, albeit in a different way.[53] Hence the emergence of dramatic terms to describe acts such as "piracy."[54] To combat these threats, a heterogeneous ensemble of special technological processes (such as holography), legal regulations, and observational techniques is constructed, which I call the "heterogeneous ensemble of reproductive difference." It is intended to stabilize the differences between genuine and fake originals, and between genuine and fake copies.

The heterogeneous ensemble of reproductive difference is a mode of—to borrow Foucault's use of the term—"rarefaction,"[55] without which neither the circulation of money or goods, nor of personal identity can be maintained. Such rarefaction seems, depending on the individual practice or subsystem, to be a more or less urgent necessity. It is nonsense to claim that the difference between original and copy is now obsolete. Whole industries earn their money by preventing copies from being produced—and thus stabilizing originals. To sum up, there is indeed a transformative power of the copy—it is so transformative that it threatens the economy and the state. And that is why there are so many mechanisms to contain its power and to tame it.[56]

50 On DRM, see the wealth of information at the website of Humboldt University's Institut für Informatik. Accessed March 3, 2014. http://waste.informatik.hu-berlin.de/Grassmuck/drm/. On the problem of law relating to digital media, see Boehme-Neßler 2008.
51 Cf. Heilmann 2010.
52 Cf. Wöhner 2005.
53 Benjamin hoped that reproducibility would encourage socialist transformations of society.
54 Cf. Yar 2005.
55 Foucault 1981, 58.
56 In a sense the taming of the copy provides a very good example for what Winston calls the "law of the suppression of radical potential" (1998, 11).

Figures

Fig. 1: Accessed March 31, 2014. http://bluetentrainer.polizei-beratung.de/blueten_euro/ trainer_d.html.

Fig. 2: Accessed February 16. 2017. http://images.mediabiz.de/newspics/032/145032_1/b279x396.jpg.

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