

ARTISTIC TOOLS IN THE AGE OF DIGITAL REPRODUCTION

PHOTOSHOP AND THE AURA OF ITS TOOLS



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Abstract

The digitization of artistic tools in programs such as Adobe Photoshop - which employ remediative metaphors to convey particular possibility spaces to their user - has brought not only an expansion of the artist's toolkit, but also problems for organizations which still rely on the practices of older disciplines. There is, then, a problem of media illiteracy: a misunderstanding of the working of the program, and this problem is rooted in the claims the program user interface makes about its tools. In this thesis I use the Benjaminian aura, the aura of (artistic) creation, semiotics and etymology to assess what happens to the aura of artistic tools when these are (re)produced digitally in the software-world of Adobe Photoshop.

Photoshop employs remediative interface metaphors in its graphical user interface. While these metaphors may have been intended as a coping mechanism to acquaint the user with the unfamiliar software-world, they, instead, have come to facilitate a vicious circle of media illiteracy. For the metaphors they present to their users are not accurate and therefore create a faulty model of the tool's working. Through these remediative metaphors the artistic space of Adobe Photoshop is mythologized over consecutive software versions: it is imbued with the aura of creation. This aura of creation, embeds the Photoshop-tools in a customized, individual "here and now": the personalized interface constellation with the custom brushes, settings and so forth. Yet it also provides a perceived historical context of artistic tradition. By doing so it facilitates the careful construction of a simulated aura around the Photoshop-tools: a parasitic aura that is more resilient than a Benjaminian one and that can, indeed, survive reproduction.

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1. Introduction

Never in my life have I set foot into a traditional photographic dark room. Thus, when I started working with Photoshop as a teenager I was unable to recognize the remediative metaphors that alluded to specific photographic practices such as burning and dodging – the darkroom practices which alter the exposure of a photograph. The moment I found out that these tools were motivated by the practice of manipulating a photo's exposure, I was dumbfounded. There is no light whatsoever in the software-world of Photoshop, thus 'exposing' a photograph to a non-existent light source seemed ridiculous.

This initial wonder was one of the reasons I took the software program Adobe Photoshop as my Honours research subject. In an Honours essay on the semiotics, myths, metaphors and simulacra employed in Photoshop, I tried to explore this initial wonder in depth. I tried to find out the precise relationship between the tools of the program and the actual world tools they were modeled after.

At some point in the working process I briefly played with Walter Benjamin's notion of the aura. Benjamin posited that when an artwork is technically reproduced, it loses its 'aura': the special characteristics that can only be found in the original (e.g. what makes the original *Mona Lisa* much more valuable than a poster one can buy in the gift shop). What I was particularly interested in, however, was not so much in artworks, as well in the reproduction of the artistic tools and practices in the form of interface metaphors in Adobe Photoshop's interface. I had, however, neither time nor room left to pursue the line of thought. I therefore chose to explore this topic in my bachelor thesis instead.

1.1. Status quaestionis

While the Benjaminian aura has been the subject of many academic studies, it has – to my best knowledge – never been applied to artistic tools. Yet in a time in which these tools are reproduced in digital

environments, the authenticity and aura of these tools may be more important than ever.

Just like there has been no academic work which links the aura to artistic tools, also very little academic work has been done on Adobe Photoshop. I have only been able to find Herman van den Muijsenberg's thesis *Identifying affordances in Photoshop* (2012), which deals extensively with the affordances of the interface. Bardzell makes a few mentions of Photoshop, in which he affirms, for example, that the interface of Photoshop has influenced other design interfaces (Bardzell, 2009, p. 2363). In another essay Bardzell briefly discusses Photoshop again (2007). This small amount of mentions and discussions of the program, are to the best of my knowledge all there is academically written about Photoshop itself (so not the applications in fashion photography, etc.).

Because of this lack of previous academic work, I will mainly draw upon earlier essays I have written for my Honours research (which are attached as appendix 8.1 & 8.2). My Honours research resulted in four essays, which deal with various aspects of Photoshop's interface and together these essays were meant to serve as a foundation for further research. One of these essays dealt with the semiotic signs of Photoshop's tools and their relationship to their actual world counterparts. I concluded that the signs no longer refer to actual tools, but instead point to the algorithms/code that govern their possibility space within the program. The possibility space being that what can potentially be done within the constraints inherent to the program (Bogost, 2008, p. 120). The second essay deals with the aesthetic development of the interface elements (I limited myself to the toolbar and the splash screens) over time.

This thesis will add to the above mentioned existing academic work in two ways. First, it will help in coming to a new understanding of the auratic value attributed to artistic tools in general. Secondly, it will specifically bring new understanding of the (auratic) consequences of digital reproduction of artistic tools in Photoshop.

1.2. Hypotheses

In this bachelor thesis I hypothesize that artistic tools, like artworks, have an aura.

H1: *Artistic tools have an aura, similar to that of artworks.*

In our highly digitally mediated culture, these artistic tools are transferred to digital software worlds like those of Photoshop, and are employed by artist to craft new artworks. I posit, however, that these tools do not afford the same possibilities as their actual counterparts, they are merely remediated through metaphors to familiarize the user with them. In short, I posit that the Photoshop tools do not resemble the actual artistic tools they are modeled after. The resemblance is based only on a superficial metaphor, which remediates an actual tool.

H2: *'Digital reproduction' of artistic tools is not an actual reproduction of the qualities and affordances of the tool, but a remediative metaphorical reproduction.*

Remediative metaphors are those interface metaphors which attempt to look like something from the actual world. For instance the paintbrush tool remediates an actual paintbrush. My final hypothesis is that these remediative metaphors may be employed to attempt an auratic transfer between the actual and remediated tools.

H3: *Remediative metaphors are employed to attempt an auratic transfer between the actual and the digital reproduced artistic tools.*

A transfer such as this may add to Adobe Photoshop's myth of its position in a 'canon' of artistic tools. This in turns helps to constitute an aura of creation in the Photoshop interface. In short, I posit that through the

employment of remediative metaphors that allude to artistic practice, Adobe Photoshop endeavors to place itself amongst these tools. Furthermore, by doing so, it also promotes its own craft and glorifies its own possibility space, thereby creating an aura of creation around itself.

1.3. Research questions

1.3.1. Main question

What happens to the aura of artistic tools when these are (re)produced digitally in the software-world of *Adobe Photoshop CS 5 Extended*?

1.3.2. Sub questions

1. Can we apply the concept of 'aura' to artistic tools as well as artworks?
 - a. What are the differences between artworks and artistic tools?
 - b. What are the characteristics of the 'aura' as formulated by Benjamin?
 - c. Do artistic tools display these characteristics?
2. What happens when these tools are (re)produced digitally?¹
 - a. How are these tools (re)produced digitally?
 - b. Do they still refer back to their actual counterparts?
 - c. Do they share the same affordances as their actual world counterparts?
3. Is there an auratic transfer between the actual world tools and the digital (re)productions, and if so in what way?
 - a. What are the implications of an auratic transfer to Photoshop?

¹ I will draw upon an essay written for my Honours research for sub-questions 2-2c, see appendix 8.1.

1.3.3. Structure of the thesis

Chapter 2 contains the theoretical background of the thesis. In it I will explain the Benjaminian aura in depth as well as explain Ann-Sophie Lehmann's notion of the aura of creation. In chapter 3 I will consider H1: the application of the aura concept on artistic tools. To either confirm or disprove this hypothesis, I will answer sub-question 1-1c. Chapter 4 deals with the way in which digital reproduction of artistic tools refers to an 'original'; its central question is whether or not digital reproduction is a factual copying of an original artistic practice, or if it is a metaphorical reproduction, thus, it answers sub questions 2-2c. In chapter 5 I will discuss the effect of this digital reproduction of the aura of the reproduced artistic tools, by answering sub questions 3-3a. The conclusion of this thesis, and thus the reflection on the main question, can be found in chapter 6.

1.4. Corpus

I will limit myself to the software program *Adobe Photoshop CS 5 Extended*. The corpus involves both the 'static' elements of the interface, as well as its 'dynamic' possibility space. In short: both the unchanging elements, such as tools, and that what does change, for instance what the tools allow the user to do. Adobe Photoshop is among the most well known and most widely used graphic editors, especially within the industry. It is no coincidence that 'photoshopping' has become a commonly used verb. Furthermore, it has become the industry standard for interface metaphors. Younger programs like *Painttool SAI*, *GIMP* or *Second Life* (Bardzell, 2009, p. 2363) employ similar interface metaphors to Adobe Photoshop. I therefore feel that Adobe Photoshop is an adequate representative of graphic manipulation software programs; it is both widely used and the interface metaphors it employs have been very influential.

The choice for this specific version of the program is due to convenience and familiarity: I own this particular version and have been

working with it for several years. *Adobe Photoshop CS 5 Extended* was launched in 2010 (Adobe, 2010). Although there are newer versions of the program, the interface metaphors and the possibility spaces the tools afford remain the same.

1.5. Methodology

Before I can progress to the assessment of the auratic qualities of artistic tools, I will need to determine whether I can apply the concept of aura to these tools. To determine this, I will excavate the term 'art' etymologically. To assess the auratic qualities I will take a hermeneutical approach in discerning them in artistic tools. I will then evaluate the relationship between the actual tools and the digitally reproduced tools, using semiotics, the notion of interface metaphors and the Deleuzian simulacra, by basing myself on results of a semiotical analysis of Photoshop (see appendix 8.1).² Once the relationship between the reproduced and actual tools is clear I will evaluate the reproduced tools, using Benjamin's discerned characteristics as well as the Lehmann's aura of (artistic) creation.

1.6. Relevance and purpose of the research

We live in a digitized era, in which nearly everything has become digital. This may present us with particular problems, such as the confusion around 'manipulated' World Press Photo entries. A great percentage of the contestants entered photographs that were too excessively manipulated, and were therefore excluded from the competition (PhotoQ, 2015). What we are dealing with here, in a nutshell, is a discussion about authenticity. The World Press Photo organization implies with this particular stance that heavily edited photographs are no longer

² I will therefore not elaborate on these theories in my theoretical framework but assume these theories to be known. Should the reader wish to familiarize him- or herself with these theories, I recommend reading the essay in appendix 8.1. prior to this thesis.

authentic or ‘real’.³ The WPP (Campbell, 2014, p. 2) describes manipulation as: “involving material changes to an image through the addition or subtraction of content (...).” Small adjustments, “such as limited cropping, dodging and burning, toning, color adjustment, conversion to grayscale”, are acceptable to the World Press Photo organization (Campbell, 2014, p. 2).

Yet this idea of big/small adjustments is – as the WPP itself admits (Campbell, 2014) – based on the idea of the imprint of an actual ‘reality’ on the photochemical film. The WPP organization seems to long for some kind of “Firstness” (Marks, 2002, p. 148).⁴ Digital photography, however, is inherently bound to “Thirdness” (Marks, 2002, p. 149), as the ‘image’ is rendered in symbolic code. When an image consists out of nothing but code it becomes extremely problematic to discern between big and small adjustments to an image. Burning/dodging a digital image (and therefore altering its code) is ontologically just as great an impact on the image’s code as removing some of the image’s visual content.

Part of the WPP problem lies, I believe, in unfamiliarity with the procedures underlying the various photo-editing software. The World Press Photo organization relies on a felt difference between extensive and small adjustments which is rooted in the old darkroom practice of photography (Campbell, 2014). When programs like Adobe Photoshop start presenting themselves as “digital darkrooms” (Brady, 2015), with

various remediative interface metaphors, they are trying to familiarize their users with the program. Inadvertently, these program-tools create a kind of model in the user’s mind: a burn tool will work in a similar way as the burning procedure in a darkroom (Erickson, 1992, pp. 66–67). But models like these can be faulty. The Photoshop burn tool does not operate in the same way as the darkroom burning procedure, it does not affect the photochemical elements of the photograph, it just alters the image’s code and it does not need light to do so.

The WPP organization acknowledges that digital photography does not result in original images, but in collected data (Campbell, 2014). A further step that they have yet to acknowledge is that the old divisions of big/small adjustments to images cease to make sense when using software like Adobe Photoshop. The major problem, however, is that the illiteracy of organizations like the WPP is fueled by the software programs’ attempt to accommodate for it. Adobe Photoshop, for example, employs remediative interface metaphors to help people understand the program’s and the tool’s possibility space (leading eventually to the construction of the “digital darkroom”). But by employing such metaphors, the program does not require the user to actually understand it, leaving the user stuck with a faulty model, which does not solve their illiteracy.

³ Of course the notion of photographs are indexical objects is problematic in itself, as photographs have always been susceptible to manipulation or staging. At the very least it is a manipulative image because it shows the viewer only a cut-off portion of the ‘real’ it is supposed to represent. This, however, is neither the time nor place to discuss this particular issue.

⁴ Marks (2002, p. 148) explains the three terms of Firstness, Secondness and Thirdness as follows: “Firstness takes place in that microsecond when something appears to perception, but before it has been distinguished from other phenomena (Secondness) and related to symbols and other general rules (Thirdness).”

In this thesis I use Walter Benjamin’s concept of the aura, which refers to the unique characteristics of original artworks (2008). These unique qualities would be ‘shattered’ when an artwork were to be reproduced mechanically. By applying the aura-concept to artistic tools, it becomes possible to trace the ‘genuineness’ of artistic tools when they are reproduced in a digital environment. Do these tools even refer to their actual, analogue counterparts? Do they correspond to them? Do they even have an aura of their own? As shown in the status quaestionis, there is little to no academic work done on Adobe Photoshop. Outside the

community of software developers that write the actual code, the users and general public do not know how the program really works. We seem to have been lulled to sleep by the same familiar metaphors as the WPP has. It is time, then, to start analyzing the graphical user interface, to cut through the pretty façades and to work towards media literacy, towards a better understanding of the program that (indirectly) influences our lives so much.

2. Theoretical framework

2.1. Benjamin's concept of the aura

Walter Benjamin (2008) states that the introduction of technological reproduction in the arts had profound effects. While reproduction has always been possible, Benjamin maintains that technological reproduction was something different entirely due to its increased pace, scale, autonomy and mobility (Benjamin, 2008, pp. 3–6). He poses that the technologically reproduced works were lacking certain qualities that the original did possess. These qualities he terms 'the aura'.

While Benjamin's translated essay bears the title *The work of art in the age of mechanical reproduction* (2008), the German original is called *Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit* (Benjamin, 1974). This original makes no mention of mechanical reproduction, but instead concerns itself with technological reproduction. While the difference may seem small, it is still substantial. Cinema and photography involve a technological reproduction of images, through photochemical processes, but that process is not (per se) mechanical (Hullot-Kentor, 2003, pp. 158–159). I will therefore use the term 'technical reproduction' rather than 'mechanical reproduction'.

2.1.1. The characteristics of the Benjaminian aura

While Benjamin does not provide his readers with a clear list of the characteristics of the aura, he does mention these characteristics throughout his essay. Below I will list the major characteristics that Benjamin ascribes to the aura.

2.1.1.1. Genuineness

The first characteristic which Benjamin (2008, pp. 5–8) describes is that of genuineness. This idea of genuineness includes both the "here and now" of the object, and its history. The "here and now" concerns the art work's "unique existence in the place where it is at this moment". Yet this unique

being in the world comes forth out of the art work's particular history: its physical structure may have been altered, colors may have changed due to chemical processes and so forth. Benjamin (2008, p. 7) himself summarizes it as follows: "The genuineness of a thing is the quintessence of everything about it since its creation that can be handed down, from its material duration to the historical witness that it bears."

2.1.1.2. Cultic value and autonomy

A second characteristic is the object's cultic value, as opposed to its display value. Benjamin (2008, p. 10) notes that the uniqueness of an art work is connected to its "embeddedness in the context of tradition". The value of a 'genuine' work of art can be traced back to a particular way it has been used (e.g. an ancient Greek statue of Venus was used for worship). The genuine work of art, then, is still connected to its cultic roots.

When art came to be reproduced, it lost this cultic value in favor of display value. The tradition, from which the cultic value is derived, appreciates the art work because it is genuine, because of its history and so forth. The display value of an artwork deals only with the status of the original with regards to its reproductions. Reproductions make art dissemination much easier, thus increasing its displayability. This, however, also means that a lot of people may become acquainted with a particular original only by proxy, that is, through its reproductions. The value of the artwork is then 'merely' that of being the origin of the reproduction, rather than its long history (Sturken & Cartwright, 2009, pp. 195–197).

2.1.1.3. Distance

A final characteristic of the aura is that it creates a distance between the viewer and the artwork. The aura "prevents a direct grasp (...) of the 'auratic' object, removes it from material consumption, and constitutes it as 'pure' image" (Link, 2003, p. 99). As the viewer cannot grasp or acquire the auratic object, he or she can only contemplate it.

The aura creates a spatial or temporal distance between the viewer and the object. This distance is one of 'otherness'. As viewers we are embedded in our mundane daily reality. This embeddedness creates a disconnect between our experienced reality and the reality of tradition in which the genuine artwork was embedded. Technological reproduction obliterates this distance as it makes the artifact "readily available to domestic life" (Nichols, 2003, p. 256), and hereby embedding it in our own experienced reality, without regards for its cultic roots.

2.2. The aura of (artistic) creation

Aside from the Benjaminian aura, I will also draw upon the "aura of creation", as it is formulated by Ann-Sophie Lehmann. Lehmann (2009) underlines the importance of (depicting) the materials, tools and spaces. This aura of creation is not the same as the Benjaminian aura. Where the Benjaminian aura deals with auratic objects, the aura of creation deals with spaces. It has to do with what might be called the myth of artistic genius.

Artists have often depicted artistic practices and working spaces to promote their skills, in the hopes of furthering their careers (Cole & Pardo, 2005, p. 118). By doing so, they "invest an artist's working space with near magical qualities" (Lehmann, 2009a, p. 268): the aura of creation. Furthermore, they offer the viewer a glimpse of the artistic practice in a paradoxical way. At first they seem to instruct the viewer (e.g. depicting the artist at work, mixing paint). Yet, the viewer would never be able to master the art of painting purely by looking at these visual representations. Therefore the artist keeps his secrets, while making the process of artistic creation "all the more mysterious" (2009b, p. 34).

This aura of (artistic) creation implies that an artistic space need not only contain the tools and materials necessary of artistic creation, but that it must also house "the inspiration and genius necessary" for this creative process (Lehmann, 2009a, p. 268). Like the Benjaminian aura,

the aura of creation assumes that object or space x has particular characteristics that are different from those of normal objects or spaces. The space that is created through/imbued with the aura of artistic creation continues to "breathe the aura of creation and is treated as a shrine, with the material remains as relics" even when the artist has passed away (Lehmann, 2009b, p. 34). Yet, while Lehmann focuses on the actual, physical spaces of (new media) artists, design labs or ateliers, for instance (Lehmann, 2009b), I propose that it is just as useful to continue applying the term to fictional, pictorial 'studio'/'atelier' or 'darkroom' (Cole & Pardo, 2005, pp. 108–146). The representations of the space are, after all, what facilitate the mythologization of the actual, physical space.

3. From artwork to artistic tools

Although Walter Benjamin (2008) refers only to artworks, my thesis deals with artistic tools. Below, I will therefore time address my first hypothesis and argue that artistic tools have an aura, similar to that of artworks.

In the following chapter I will pose through a brief etymological tracing that our contemporary conception of ‘the work of art’ is closely related to the skills and tools that are necessary to create it. Subsequently, I will demonstrate that artistic tools possess an aura similar to that of artworks, by discussing the palette of the famous 19th century artist Vincent van Gogh (1853-1890) as an example.

3.1. The origin of ‘art’

In the 1600s in Europe, ‘technology’ referred to “a discourse or treatise on an art of the arts”. The word is derived from the Greek ‘τέχνη’ (tékhne) which designates ‘art’/‘skill’ but also ‘craft’, “as in a set of rules, system or method of making or doing” (Liddell & Scott, 2009).

The English word ‘art’ is originally derived from the Latin ‘ars’, which can be translated, amongst others, as ‘method’/‘way’/‘skill’/‘craft’ (Harper, 2014; Mahoney, 2015). These words refer to both immaterial and material things. The artist needs the required skills, which are immaterial, and the material tools or technologies to practice his or her craft: the method as it were (Meelberg, 2015). Examples of these technologies are paint brushes, a drawing tablet or a hammer and chisel. All of these tools ‘extend the body’ in a McLuhanite way (Lister, Dovey, Giddings, Grant, & Kelly, 2009, pp. 80, 83).

Technology and art are therefore closely related. The two concepts are, at least etymologically, connected. Below I will determine if we can then also apply the notion of the aura on tools.

3.2. Transfer of auratic characteristics to artistic tools

Artists themselves have often portrayed and celebrated the technologies, materials and spaces that enabled them to practice their art (Lehmann, 2006, 2009a). Examples of this practice are Rembrandt’s *The artist in his studio* (ca. 1629), Vermeer’s *The art of painting* (1666-1668), or the here depicted *Self portrait* (1889) by Van Gogh, in which he holds his palette and paintbrushes. By depicting the artistic workspaces, the artistic tools/materials and the artist at work, these spaces and objects are invested “with near magical qualities” (Lehmann, 2009a, p. 268): the aura of creation. This aura of creation implies that an artistic space need not only contain the tools and materials necessary of artistic creation, but that it must also house “the inspiration and genius necessary” for this creative process (Lehmann, 2009a, p.

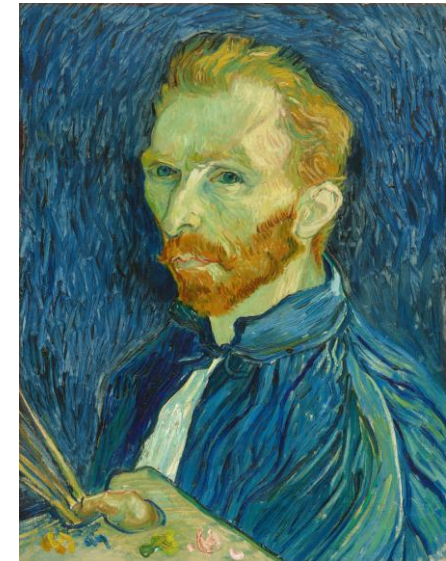


Figure 1. *Self portrait* by Vincent van Gogh.

Vincent van Gogh, 1853–1890. *Self-Portrait*, 1889, oil on canvas, 57.2 x 43.8 cm. National Gallery of Art, Collection of Mr. and Mrs. John Hay Whitney.



Figure 2. Palette of Vincent van Gogh.

Palette of Vincent Van Gogh. 1890. Wood. L. 0.35 cm ; D.0.27 cm. Musée d'Orsay, Paris, France.

268). Consequently, these scenes facilitated the mythologization of the artistic genius (Cole & Pardo, 2005, p. 34; Lehmann, 2009a, pp. 268–269). Artistic tools are both facilitators and products of this mythologization.

To illustrate this phenomenon, I will focus on a self portrait (1883) of Vincent van Gogh in which he holds his palette and paintbrushes (figure 1.). The portrait emphasizes the materiality of painting and employs the palette and the paintbrushes as icons of this practice. The materials, meanwhile, function as saint-like attributes of the artist. While Van Gogh's contemporaries did not appreciate his artistic qualities, he is now much venerated. The appreciation for this artist goes so far that even his palette and paint tubes are put on display in museums as if they were artworks themselves (figure 2.).

Arguably, these tools have been altered in a particular way due to them being handled by the artist. If one were to replace the Van Gogh palette with a replica it would not have the same 'aura' around it. Similar to artworks, the palette has a particular genuineness. This genuineness (e.g. the history of the object) can be verified, for instance, by chemical analyses, as Benjamin himself observed was the case for artworks (Benjamin, 2008, pp. 5–6).

Furthermore, these artistic tools are venerated because of their cultic value. Their value is, quite literally, derived from "the ritual in which it had its original, initial utility value" (Benjamin, 2008, p. 11), that is to say, in this particular case, their role in the process of artistic creation. Even though this value is derived from its connection to the ritual of painting, it is still autonomous, because the artistic tool is still connected to its cultic roots.

Finally, the Van Gogh palette creates a temporal-spatial distance between itself and the viewer just as one of his paintings would. There is, in this case, a literal spatial distance since the palette is kept in a glass display. Thus, the viewer is literally forced to contemplate rather than handle the object. This elevates the palette from a mundane object to one of veneration. Yet there is also a temporal distance. The palette speaks of

a different reality, it is an object from a particular time that is not (fully) embedded in our own. This creates a temporal disconnect between viewer and artifact. Taking all of this together, it becomes clear that artistic tools have an aura, just as artworks have.

Of course, the above example describes a possession of a consecrated artist. Still, I believe it also holds true for an 'ordinary' artistic tool, once it has been used. These objects are only used for the ritual practice of painting and by augmenting the artist's capabilities they are irrevocably altered. Paintbrushes are damaged, the palette becomes smudged, pencils need sharpening and are being chewed upon, and so forth. This creates a temporal distance as well, as the used object commemorates the situations in which it was used earlier. Thus, they are just as capable of displaying the auratic characteristics as the tools of a consecrated artist.

In conclusion, artistic tools are capable of having an aura. Like the art works they help to produce, artistic tools have a particular cultic value. Furthermore, these tools can be just as genuine as art works: they too can be analyzed chemically, for instance, to verify their age and the material traces that are left on them. Finally, these artistic tools create a (spatio-) temporal difference. The tools are altered in the artistic process and their alteration thus commemorates earlier usages. In this way, artistic tools will, like an art work, always 'lag' behind: their existence in the present refers to a past reality as well.

4. The digital ‘reproduction’ of artistic tools

Before trying to establish whether the digital tools of Adobe Photoshop have an aura, the nature of these tools needs to be assessed. In other words, it is essential to uncover in what way the digital reproduction of the actual artistic tools takes place. I pose, as my second hypothesis, that ‘digital reproduction’ of artistic tools is not an actual reproduction of the qualities and affordances of the actual artistic tool, but a remediative metaphorical reproduction.

In an earlier essay (see appendix 8.1) I have used semiotics as a way to uncover the relation between the image used in Photoshop to convey the possibility space of a particular tool and actual tools. I will briefly summarize the findings of this essay in this chapter.

4.1. Remediating artistic practices

Graphical user interfaces (GUIs) are communicative entities.⁵ They communicate through visual representation. To help users get acquainted with the meaning of the various interface elements, interfaces often employ interface metaphors (Erickson, 1992). These metaphors, like all ordinary metaphors, tell us that A is a bit like B because they share a common characteristic, C. In the context of Photoshop, for example, the digital canvas is a bit like an actual canvas, because like an actual canvas it can be used as a support for the artist’s work. Interface metaphors tell us

⁵ I regard the program as having agency. Software is inscribed with agency by the programmers, as the program needs to be able to act (Czarniawska & Hernes, 2005, pp. 72–73). For Akrich and Latour (1992, p. 259) an actant need not be human, it merely needs to be able to act or shift action. “Action itself being defined by a list of performances through trials; from these performances are deduced a set of competences with which the actant is endowed.” In short, human conscience is not required for something to be an actant, what is needed is an *acting* entity, that will respond to trails proposed to it/him/her.

something about the possibilities of a particular interface aspect because they bring to mind the possibilities of their actual world counterparts.

This, however, means that interface metaphors do not tell us something about the thing itself. They merely highlight one or a few characteristics that this thing has in common with the metaphor’s vehicle (Van Boven & Dorleijn, 2010, p. 162). Thus, metaphors are at risk of becoming empty images, which do not actually correspond to the thing they are meant to explain. They are at risk of becoming simulacra: mere empty shells which may externally resemble something, but internally share no characteristics with the thing they outwardly resemble.

In *Photoshop: signs and simulacra, metaphors & myths* (see appendix 8.1) I have found that the signs of the various Photoshop tools (‘icons’ in the everyday usage of the term) are motivated through remediative interface metaphors. They are remediative as they willfully refer to or simulate older media. Although the ‘paint bucket tool’ has little to nothing to do with an actual paint bucket, for it does not afford the same possibilities as a paint bucket would, yet Adobe consciously employs the metaphor nonetheless.

4.1.1. The problems of remediative metaphors in Photoshop

There are a few problems that remediative metaphors can cause. The first problem is that they only tell us something about the ‘thing’ by proxy and that they only communicate the similarities, while they fail to tell us about deviations. Being part of the post-darkroom generation I was unable to recognize the burn-tool metaphor. For me, this tool-sign was completely symbolic (in the Peircean sense (Short, 2007, p. 215)). Furthermore, when I found out that these tools did indeed refer to darkroom practices connected to photographic exposure, the metaphor’s constructedness was highlighted. For me the remediative metaphor highlighted the discrepancy between the actual practice of burning a photograph with actual light and the Photoshop practice of burning by manipulating a digital file. In the digital world of Photoshop there is no light, and thus no

exposure. Nevertheless, the tool does manage to emulate the effect of the burning practice, through algorithmic manipulations.

A second problem and perhaps a more acute one, is that remedial interface metaphors may contradict the affordances of their actual counterparts. The digital tools are not bound to material limits, but merely by the limits of code, which I have discussed in the ‘sponge tool’ case-study. The sponge tool is able to both saturate and desaturate the content of the canvas. It is modeled on the actual sponges which are used by water color painters to soak up excesses of water and pigment from their paper or canvas. While the sponge metaphor may help us to understand the operation of the tool (Ryan, 2002, p. 583), I have argued that it also confuses us:

Because the [digital] sponge tool is able to do the precise inverse of an actual sponge, the sponge tool metaphor undermines its own ground. The interface metaphor seems to function as a simulacrum: an image freed from its ground (Deleuze, 1994, p. 272). The simulacrum of the sponge tool calls an actual sponge to mind, refers to it in its name, and metaphorically asserts that it works in a similar way. Yet it is fundamentally different from an actual sponge. It bears only an external resemblance to the object, but shares no internal likeness with the thing. It is not a copy of a sponge, but only a superficial remedial effect.

Thus, the sponge tool operates in the logic of inductive reasoning: ‘if it looks like a duck, swims like a duck, and quacks like a duck, then it probably is a duck’. Yet the ‘duck’ in question, that is the sponge, is only called to mind because the sponge tool externally resembles a sponge. We may notice some other similarities between the sponge and the sponge tool, but we may ignore the discrepancies between the sponge tool and the ‘duck’. Our ‘duck’, then is not so much a duck, but a coot, which also lives on the water, and lays eggs, but is not related to the duck.

4.1.2. The loss of iconicity

Due to the two problems highlighted above, we cannot regard the interface metaphors of Adobe Photoshop as exact reproductions of the affordances and possibility spaces of the traditional artistic tools. Instead, the tool-signs function as symbols for particular algorithms. The tool-signs function as metaphoric, familiar façades behind which the unfamiliar coding resides. As Steven Johnson puts it: “Our interfaces are stories we tell ourselves to ward off the senselessness” (S. Johnson, 1997, p. 242).

This means that the nature of the digital ‘reproduction’ of the artistic tools within Adobe Photoshop is of a different order than reproduction that Walter Benjamin (2008) describes for the reproduced artwork. Whereas the artwork loses its aura by being technologically reproduced (e.g. a poster of the *Mona Lisa* being sold in a gift shop), the reproduction still refers to its original and derives its display value from it. In other words, there is an iconic relationship between the reproduced artwork and the original work.

Yet, with the digitally ‘reproduced’ tools, this is not so. The tool-signs which are employed in Adobe Photoshop are not iconically related to the traditional tools they are modeled after. Instead, they function as symbolic signs for their algorithms. These algorithms, in turn, do not constitute a similar array of affordances as their traditional ‘counterparts’ would. The tool-signs of Adobe Photoshop, then, only seem to be related to their ‘originals’ metaphorically. The signs constitute a story, as Johnson (1997, p. 242) put it, for their users; a comfortable, familiar fairytale to comfort the user, even if the motivation for this metaphorical relation is dodgy at best.

4.2. ‘Reproduction’?

Thus far we have seen that Adobe Photoshop reproduced artistic tools via interface metaphors. The signs which it uses to convey these metaphors do not, however, iconically relate to the traditional tools, but are symbolically related to the algorithms related to that particular tool. Thus,

they do not refer back to an 'original', as even the algorithms allow for possible interactions and uses which the original did not afford.

'Reproduction' is a very problematic term in all of this, and as a slight digression, I believe it is vital to understand the various meanings of the word. 'Reproduktion', in the way Benjamin (1974) used it, refers to the "Nachbildung, Wiedergabe eines Originals, die ein anderer, eine andere angefertigt hat" (Bibliographisches Institut, 2013). The way in which Adobe Photoshop employs this 'Reproduktion', however, seems more "(bildungssprachlich) das Reproduzieren; Wiedergabe" (Bibliographisches Institut, 2013). While the first explicitly underlines the iconicity of the 'reproduction', the second emphasizes a more subjective rendition of the 'original'. In short, while Benjamin (1974) speaks of truthful copies, the tool-signs of Adobe Photoshop are only renditions or representations of a particular procedure or algorithm.

The term 'reproduction', then, is liable to be stretched, when reading Benjamin. Yet, what is of particular importance, is that Adobe Photoshop may not intend to copy the traditional tools themselves, but in fact the particular aura that surrounds them. As will become clear in the next chapter, it employs the interface metaphors to render a particular story (S. Johnson, 1997, p. 242): a story of artistic 'evolution'.

5. A digitally reproduced aura?

So far we have seen that the Photoshop tools do not accurately reproduce the affordances and possibility spaces of the actual tools they allude to. In fact, the tool-signs are motivated simulacra that do not refer to the actual tools, but symbolize the algorithm governing the particular tool. In other words, the tool-signs function as Peircean symbols for the algorithms (Short, 2007, p. 221). There is then, a loss of iconicity (Short, 2007, p. 215). The signs no longer refer to the actual tools they resemble, because this resemblance is only a matter of exterior appearance. Instead, the signs function as symbols for the code that delineates the tool functions. The tool-sign itself symbolizes the algorithm governing the tool's possibility space – yet the remediative interface metaphor for which the tool-sign functions as an image, obscures the code. To put it simply, Adobe Photoshop need not have chosen a paintbrush image to convey the possibility space of the paintbrush tool, as a paintbrush does not resemble this possibility space and is therefore not iconic. Instead, it is a symbol – an arbitrary sign of which the meaning needs to be learned. The likeness of the paintbrush tool to an actual paintbrush is then not one of iconicity, of resemblance, but one of metaphorical likeness, in which the two share one or two characteristics.⁶

⁶ If this may seem abstract, a more concrete example may be Hercules, a famous mythological hero, who is often depicted with a lion's skin draped over his shoulders. When we say "Hercules is like a lion" we mean that he is, for example, as strong as a lion (metaphor). We do not intend to say that Hercules is like a lion because he resembles one in his appearance (iconicity), even though he may wear a lion's skin. Hercules does not function like an icon for a lion because he does not resemble a lion. He is, however, metaphorically a lion, because he does share particular characteristics with it (i.e. strength). Similarly, just because the paintbrush tool wears a 'paintbrush's skin' does not make it an icon, but it does share one or two characteristics of that paintbrush and it therefore it functions as a metaphor.

Even though there is no resemblance between the Photoshop-tools and the actual tools, Adobe Photoshop employs the remediative metaphors. As I have shown (see appendices 8.1 & 8.2) there are two reasons for this. First, Adobe attempts to add canonic value to Photoshop. The tools presented to Photoshop users are more precise, reversible, clean etc. than actual artistic tools they metaphorically allude to.⁷ The metaphorical connection, however, facilitates a comparison between the digitally reproduced and the original tools. Because the Photoshop-tools grant the user more options (reversibility and so forth), the interface implies that they are more sophisticated or evolved than their actual world counterparts. Thus, not only does Adobe attempt to place Photoshop in the canon of artistic tools, it attempts to frame Photoshop as the culminating point of artistic tool evolution (see appendix 8.1.).

This is further emphasized by a second observation: the digital tools Photoshop presents the user with, transcend the material constraints of the actual, physical, tools they allude to. Furthermore, while the actual tools are connected to a particular artistic discipline, the Photoshop-tools are not limited to one kind of material, or artistic discipline. The sponge tool, for example, can be used on photographs as well, even though it is metaphorically only associated with water color painting. Thus, Adobe Photoshop presents itself not only as the summit of artistic evolution, it also claims it is a collection of universal tools: it does not discriminate between artistic disciplines or materials, one can use the tools on whatever is displayed on the Photoshop-canvas (see appendix 8.1.).

⁷ As I have shown earlier with the sponge tool example. The sponge tool is capable of things an actual sponge is not because it is not limited to material constraints, but is instead bound to the constraints of the code. Furthermore, this sponge is more accurate (e.g. because it can effect only midtones instead of the full spectrum) and it is reversible. An actual sponge would only be able to affect the whole spectrum of the area it is applied to and is not reversible.

Taking these two observations together, Adobe creates a ‘myth of artistry’ around Photoshop (see appendix 8.1). I find that through this myth, which is grounded in the employed remediative metaphors, Adobe attempts not to transpose/accurately reproduce actual tools and their affordances/possibility spaces in its software-world, but instead tries to mythologize the program itself. In short, I come to my third hypothesis: remediative metaphors are employed to attempt an auratic transfer between the actual and the digital reproduced artistic tools. The remediative metaphors constitute a myth of artistry, which leads to an aura of (artistic) creation (Lehmann, 2009a, p. 268). This aura of creation, in turn, may form the basis for the aura around the Photoshop tools.

Two things are important to note here. First, as pointed in paragraph 4.2., the Photoshop tools are not reproductions of the actual tools they are metaphorically modeled on. They are new tools, *made to look* like they are reproductions. As the Photoshop-tools are unique tools and not merely reproductions, they are already –theoretically at least - capable of having an aura. From this a second issue arises: while the Photoshop-tools may not be reproductions of actual paintbrushes/pencils and so forth, they are themselves reproduced in the various software-copies distributed to users. In the end, the user is therefore still working with reproduced tools, they were just copied from a different source. But even this is problematic, as there is no ‘original’: nowhere can one, see, visit or make use of the ‘real’ *Adobe Photoshop CS 5 Extended*, for instance.⁸

⁸ In short, if there even is a kind of ‘master copy’ it is inaccessible and the ‘reproductions’ that would be copies made from this master copy could not derive their value from the relation to an original. Similarly, a poster of the *Mona Lisa* could not be described as a reproduction of the painting if the original painting would not exist (or if no-one knew it existed). Thus, in Benjaminian terms, while there are various copies available, they do not add to the displayability to the supposed original, as this original itself is not on display,

At the same time, the tools (and the program itself, by extension) of every single user is unique. The user can add or create various additions to the tools (e.g. add shapes, gradients, effects, brushes and so forth) and the appearance of the interface changes every time the user works with it (see appendix 8.3.). In a way then, every single copy of the program is unique: each ‘copy’ has its own realization of a “here and now”. This extends to the Photoshop-tools within the program. By adding new brush sets to my paintbrush tool, for instance, I alter the possibility space of that tool and thus that of the program.

In short, the GUI of Photoshop and the thereby constituted possibility space is universally unique. Every interface constellation has its unique existence in the “here and now”, but each user has the same possibilities to change the interface, to add to the tools and so forth. Because the program lacks an apparent original, the various copies do not derive their value from being related to an original. Instead, they derive their value from an universal, yet customized interface: something that the user can make his/her own.

5.1. The auratic transfer

The program acknowledges that it is a tool in its own right, yet simultaneously seems to undermine this by borrowing metaphors from or making allusions to other disciplines (see appendix 8.2.). These borrowed metaphors, however, serve a particular function. While they may seem to subvert the legitimacy of Photoshop as a tool in its own right, they also strengthen its claim of originality. The remediative metaphors employed in Photoshop’s interface facilitate the invention of the ‘digital darkroom’, filled with all kinds of artistic tools (Brady, 2015). This digital darkroom evokes a similar interiority as the studio does (Cole & Pardo, 2005, p. 34); it is a space filled with tools, but tools themselves are not enough to

something that Benjamin seemed to deem necessary in his text (Benjamin, 2008, p. 13).

create an aura of creation, one needs artistic inspiration and genius as well (Lehmann, 2009a, p. 268).

The interiority of Photoshop's digital darkroom frames the user as a homo universalis. Due to the democratization of the materials and the tools, while they still allude to the various disciplines, Adobe Photoshop asserts that mastering Photoshop is akin to mastering the various artistic disciplines the metaphors are referring to. The user navigates through a 'digital darkroom', wielding metaphorical paint brushes, sponges and pencils, whilst also being able to create texts and apply darkroom practices. Photoshop users, then, are implicitly profiled as a Leonardo da Vinci-like person: proficient in various art forms. In fact, Adobe actively promotes this ideal multi-disciplinary user, which they term 'new creative', in a commercial for their latest program, Creative Cloud (*WHO ARE THE NEW CREATIVES*, n.d.).

If we go by the logic of the presented interface, all the user needs to bring with him/her is inspiration. Of course, in reality this is quite a different story, as the user needs to be acquainted with the possibilities of the Photoshop-tools. Yet, the digital darkroom presented in the Photoshop-world, is akin to the 'pictorial studio' in that it is not only an individual's workshop, but "also an ideal place where the idea of the artists and his (or her) profession are crafted and put on display" (Cole & Pardo, 2005, pp. 108–109). In this ideal place, this Photoshop-world, the program exists only to facilitate the user's artistic working process; it exists to be filled with the inspiration and actions of the user-artist. It is framed as a space that is at once personal, and customized, yet also a universal space. Just like the pictorial studio of Rembrandt's *Artist in his studio* (ca. 1629) and Vermeer's *The art of painting* (1666-1668), Photoshop celebrates the studio and the artistic practice – or at least, appears to do so. It mythologizes studio and practice, even. Rembrandt mostly emphasizes the artistic genius and inspiration, Vermeer places emphasis on the studio itself: "the studio as an imagined place, the space of not just an individual painter but of the entire history of painting, the

home of an idea" (Cole & Pardo, 2005, p. 146). Photoshop, I believe, operates in the same way. It presents itself not just as a space filled with tools, but as a universal *and* individual, customized, artistic space, as a particular tool in itself *and* as a collection of tools and artistic disciplines.



Figure 3. *The Artist in His Studio* by Rembrandt.

Rembrandt van Rijn, 1606/1607-1669. *The Artist in His Studio*, 1629, oil on panel, 56.2 x 72.1cm. Museum of fine arts, Boston.



Figure 4. *The Art of Painting* by Vermeer.

Johannes Vermeer, 1632-1675. *The Art of Painting*, ca. 1666-1669, oil on canvas, 120 x 100 cm. Kunsthistorisches Museum, Vienna.

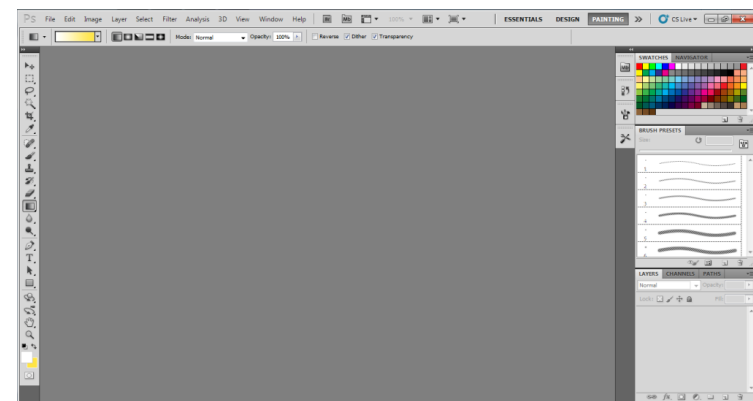


Figure 5. The painting workspace of Adobe Photoshop CS 5 Extended

The space thus created through the employment of the remediative metaphors and the graphical user interface is imbued with the aura of (artistic) creation (Lehmann, 2009a, p. 269). This aura of creation, this mythologization of artistic space, materials and tools embeds the Photoshop-tools in a customized, individual “here and now”: the personalized interface constellation with the custom brushes, settings and so forth. Yet it also provides a perceived historical context of artistic tradition. The remediative metaphors instantly create a mental link between the Photoshop-world and the actual artistic practices of various kinds. The interface metaphors, as I will show in the next paragraph, recall these practices to mind. It is the facilitation of the “here and now” and the positioning in tradition that facilitate an auratic transfer, for they provide the user with two key characteristics of the Benjaminian aura: genuineness and cultic value.

5.2. Photoshop-tools and the Benjaminian aura

5.2.1. Genuineness

The first characteristic of the aura that Benjamin discerns is genuineness (Benjamin, 2008, pp. 5–8). As I mentioned above, the aura of creation provides a basis for the tool’s genuineness. Benjamin describes genuineness as enveloping both the “here and now”, the unique manifestation of the object, and the history of that object. The aura of (artistic) creation (Lehmann, 2009a, p. 269) provides a tool with history. This history, however, is not the tool’s own history, but the history of the actual, physical, tool that the interface metaphor alludes to. This perceived history of the tool is hence a simulacrum. Through the simulacrum the history of the actual tool is evoked, even though it does not pertain directly to the Photoshop-tool. As Deleuze points out: “The power of simulacra is such that they essentially implicate at once the object = x in the unconscious, the word = x in language and the action = x

in history” (Deleuze, 1994, p. 299).⁹ In other words, the history of the Photoshop-tool itself is circumvented, by offering an alternative history. In a way it is similar to a roadblock when one is urged to take an alternative road.

Yet genuineness comprises not only the history, but also the “here and now” of the work as well. The user has a copy of the program which he/she can customize to his/her liking. This implies that every single copy of the program is unique, yet it is also universal as every user purchases the same product. The Photoshop-worlds which are constituted while these users work with the program will therefore contain the same rules, consistencies and so forth, but the particular appearance will differ in each copy (see appendix 8.3.).¹⁰ Furthermore, the interface constellation shows traces of earlier uses. Upon creating a new canvas it offers the last used settings as a starting point for the user, and the workspace which the user had last selected is still open. By facilitating this Adobe explicates the “changes [the auratic object] has undergone in its physical structure over the course of time” (Benjamin, 2008, p. 5).

In short, through the remediative metaphors which are employed, the history of the metaphor’s tenor is evoked.¹¹ This evocation operates as a simulacrum: as an image which has gotten loose from its ground (Deleuze,

⁹ This, of course, holds for the long term history. Whilst using the program, Photoshop *does* offer a history, in the form of the history panel.

¹⁰ Users acquaint themselves with particular tool possibility spaces through repetition: with setting x the user gets result x. The consistency of the world is then essential for user acquaintance with the program. Furthermore, the malleability of the interface constellation is also known, as the interface openly affords the various tabs/toolbars etc. to be moved around.

¹¹ The image of the metaphor is that what is given, in this case the tool-sign (e.g. the paintbucket tool), the tenor is that what the image is supposed to represent (e.g. a paintbucket), the metaphor is motivated by what the image (or “vehicle”) has in common with the tenor. These shared characteristics are called the ground of the metaphor (Van Boven & Dorleijn, 2010, p. 162).

1994, pp. 272, 299), yet still brings the metaphor's tenor to mind. The program, while it has a fake history, does have a legitimate unique existence. Every single one copy of the program becomes unique in its appearance over time, as the user customizes the interface in the working process. Thus, while the program does depend on a fake history it has a genuine "here and now".

5.2.2. Cultic value

The second auratic characteristic Benjamin discerns is an object's cultic value (Benjamin, 2008, p. 10). Cultic value means the embedding of an object in the context of the tradition in which it has been used. An auratic work of art, then, is still connected to this tradition.

The aura of creation provides a basis for the Photoshop-tool's cultic value. Because of the unrelated history it evokes, the tool is embedded in a tradition of artistic practice and production. More importantly, however, the Photoshop-tool actively affirms the connection because it is itself a tool used in the process of artistic production. By actively affirming the connection to the unrelated history of the actual tool, Adobe disavows the Photoshop-tool's display value. The Photoshop-tool is not venerated because its relation with an original, as this would be problematic, but because it is embedded in a (fake) historical tradition.

That, however, is still problematic. The Adobe Photoshop claims to provide the user actual tools which are digitally reproduced. But, as we have seen this is not entirely the case. Yet through these claims, made by the remedial metaphors, the user may *believe* it nonetheless. To illustrate this, let us turn back to the burn tool. I belong to the post-darkroom generation and because of that, I had no knowledge of the burn and dodge procedures. Whilst working with Adobe Photoshop, I gradually came to understand what these tools did. Yet only when I found out that these tools were metaphorically modeled on darkroom practices did I understand that these tools positioned themselves in relation to a metaphorical original, namely the actual darkroom practices of burning and dodging (see appendix 8.1). In sum, Adobe Photoshop may claim that

it focuses on the cultic roots of the artistic tradition, yet it also employs displayability to achieve this.

5.2.3. Distance

The third and final characteristic Benjamin describes is that of distance (2008, p. 31). He poses that an auratic object is removed from material consumption and thus can only be contemplated by the viewer. This constitutes a temporal/spatial distance between the object and the viewer.

Between the user and the program of Photoshop there are, I believe, two kinds of distances. Firstly, a spatial distance: the user is located in the actual, physical, world, whilst working with Photoshop implies interaction with another, possible/fictional digital software-world. The second form of distance is that which Benjamin discerns when he writes about contemplation (2008, p. 31). Yet while he poses that this contemplation can only take place because the auratic object is removed from "material consumption" (Link, 2003, p. 99), I will argue that this works differently with software-tools.

Software, unlike works of art such as paintings, require user interaction. When the user interacts with the possible/fictional world of this program he/she can only do so because this world (i.e. the underlying program) allows him/her to have agency in that world. In other words, while paintings do not need interaction to be contemplated or studied, software programs do. To put it simply, a painting will not show anything that is not already present on the canvas. A software program, however, needs user interaction to display all of the possible screen contents (see also appendix 8.3.).¹²

¹² In addition to this paintings or statues do not need to be 'turned on' before one is capable of viewing them. The user interaction is, thus, essential to software. The program would not even be in view if the user would not take action to display it on the screen. Once the program is on display, further interaction is necessary to explore the program's possible screen contents.

Software, then, requires to be handled first, in order to be contemplated. But where Benjamin seems to imply that the inability to handle the auratic object leads to contemplation, in software it is, I believe, the reverse. It is only in the act of using software-tools such as the sponge tool in Photoshop that one can discover the possibility space of that tool. This exploration of the possibility space in turn allows the user to reflect on the adequacy or inadequacy of, for example, the interface metaphor which is used. In other words, interaction with the program allows the user to contemplate differences between that what is communicated and that what the tool can, in fact, afford. Thus, if the Photoshop-tools have an aura, it is an aura that requires to be handled in order to experience the distancing effect of its auratic qualities.

5.3. Implications

In short, Adobe attempts to create an aura around the Photoshop-tools. These digital tools, however, lack certain characteristics which are essential to the aura. To circumvent this they place the Photoshop-tools in an actual tool-tradition it does not belong to, by employing interface metaphors that overtly refer to this tradition.

The implication of all this is that Photoshop suggests that it accurately transposes actual tools and their affordances/possibility space to a digital software world. It does not, of course, but still users may initially believe so. This is problematic, because, as we've seen the Photoshop-tools do not correspond the actual tools they metaphorically allude to. In this sense they may mislead the user, because they can believe it does x, because the tool is metaphorically modeled after tool x, when the Photoshop-tool does in fact y (Erickson, 1992, pp. 66–67). The interface metaphors present the user with a “wrong model” of the tool, preventing that same user to fully grasp the correct way in which the tool can be used (Erickson, 1992, p. 68).

Furthermore, while the Photoshop-tools suggest that they have an aura, this aura is based upon associations with other artistic traditions. The Photoshop-tools, then, draw upon an artistic tradition that is not theirs, as a foundation for the auratic characteristics of genuineness and cultic value. It is similar to a person buying a reproduction of a Van Gogh painting when the seller convinces him/her of its genuineness. The buyer believes he/she is buying an auratic object, when it is, in fact, merely a reproduction. Adobe strives to convince her customers that the Photoshop(-tools) are auratic, when they only ‘borrow’ that auratic value from traditional tools.

Yet Adobe Photoshop is not the only program that applies user interface metaphors. Nearly every single program/operating system employs them. As users of these programs we are bombarded every single day with metaphors we may or may not recognize. As long as users still recognize that these metaphors are, in fact, metaphors, there is no issue. A narrative may be constructed in the interface employment of these metaphorical tool-sign, but it can be deconstructed by the user.

When, however, users can no longer identify these interface metaphors as metaphors, it becomes problematic. The metaphors become frozen: metaphors we are so used to that we no longer recognize them (Goodman, 1976, p. 68). The meaning of these metaphors is emptied out and what is left is the tool-sign, which then, in its appearance, seems to be an iconic sign as it resembles the thing it metaphorically alludes to (Short, 2007, p. 215). In fact, however, the tool-sign is symbolic (Short, 2007, p. 221), as it is an arbitrary sign referring not to an actual tool but to the algorithm governing the possibility space of the tool. The fake iconicity of these tool-signs, when their metaphorical nature is unrecognized, can start to function as a simulacrum (Deleuze, 1994, p. 272). In short we move, in Photoshop's case, from ‘the paintbrush tool is like a paintbrush, because it allows a person to apply color to a surface’ to ‘the paintbrush tool = paintbrush’. This, in turn,

allows the developers (in this case Adobe) to draw upon older traditions to embed these tools in, which facilitates the construction of a fake aura.

While equating the paintbrush tool with a paintbrush, for example, is not inherently bad or good, it does create an inaccurate model in the user's mind. As I argued in paragraph 1.6., organizations like the World Press Photo still rely on these false models. They rely on the remediative metaphors that attempt to cope with their illiteracy of the program, which – in the end – does nothing to solve this illiteracy and instead only perpetuates it. By appropriating the history and tradition of older tools Adobe does not alleviate the problem of illiteracy. Instead, they intentionally frame the program as belonging to particular artistic traditions – it is even framed as their culminating point – in order to further emphasize the metaphorical connection, furthering the construction of faulty models. The fake aura is, in a nutshell, problematic because it prevents breaking through a vicious circle of media illiteracy, which is the greater underlying problem of scandals such as that of the World Press Photo entries that were too excessively manipulated, according to the jury (PhotoQ, 2015). The conception of heavy manipulation is, however, rooted in the analogue, physical photographic practice. Yet precisely because programs like Photoshop argue that they are similar to these practices when they are, in fact, not, the misunderstandings will not be resolved. Ontologically, there is no difference between small or big adjustments to the image's content: the data is just altered. Yet the cloaking metaphors, this pretty, yet deceptive façade, prevents the user and organizations like the WPP to come to a fuller understanding of the program's workings, and therefore by extension of their own work or field of work.

Furthermore, the aura that is constructed in Photoshop, is not only fake, but requires an entirely different approach from the viewer toward its object. The viewer is no longer a passive observer, but needs to actively engage with the interface in order to be able to contemplate it. The constructed aura may be fake, but it is also more durable and less

likely to shatter. This is an aura that can survive reproduction, because it draws upon older practices to provide it with a history.

6. Conclusion

If we return to the central research question, it becomes clear just how complicated the ‘aura’ of the Photoshop-tools is. “What happens to the aura of artistic tools when these are (re)produced digitally in the software-world of Adobe Photoshop CS 5 Extended?”, was the question I originally started out with. What we have seen is that, strictly speaking, the program’s tools do not show all of the different characteristics that Walter Benjamin discerned. At the same time, however, Adobe employs the ‘aura of creation’ as a substitute basis for the characteristics the program itself lacks.

In short Photoshop-tools do not have an aura. Still they appear and indeed even advocate that they do, by employing interface metaphors which in turn create a narrative of artistic production: an aura of (artistic) creation. This logic is similar to the loss of iconicity in the tool-signs. Interface metaphors present themselves as being iconic, while they do not share characteristics with the things itself. It is the logic of a motivated simulacrum. It is the logic of an empty image which has gotten loose from its ground which is employed to explain a particular function or promote a particular narrative to which the thing it represents need not correspond with.

All of this is neither inherently bad nor good, but it continues the formation of inaccurate models of the various tools in the public’s mind. Thus, what is problematic about the construction of a fake aura is that it instigates a vicious circle of media illiteracy. The fake aura perpetuates the media illiteracy it was designed to cope with.

Furthermore, this constructed aura has consequences for the way in which the aura can be regarded in general. I believe the aura-concept has proven itself very useful in dissecting the rhetoric of tool-presentation in Adobe Photoshop. As argued the Photoshop-tools construct an aura by drawing upon histories other than their own. In Benjamin’s book their aura is considered to be fake. Yet, for better or for worse, they do possess a kind of aura, the aura did not “shatter” after reproduction. While

Benjamin would thus consider it fraudulent, the type of aura that the Photoshop-tools possess is more resilient than the Benjaminian one. It is a reproducible aura, based on simulacra rooted in remedial metaphors, which evokes older aura. It is not merely a constructed aura, but a carefully simulated aura: aura 2.0, if you will. Benjamin (1974, 2008) spoke about the work of art in the age of technical reproduction, now, it seems, we have come to the point where we need to discuss the aura in the age of technical reproduction. While Benjamin (1974, p. 17) asserts that: “was im Zeitalter der technischen Reproduzierbarkeit des Kunstwerks verkümmert, das ist seine Aura”, but the aura does not fully wither, it is reappropriated and used as a foundation for another, more resilient kind of aura, one that indeed can survive, and thrive on, reproduction.

6.1. Discussion and further research

Though I would have loved to do more research on several things I had neither space nor time in this thesis. This leaves me with several discussion points that in turn may require more research. I have discussed the aura of (artistic) creation in this thesis. Lehmann (2009a, pp. 268–269) sees the display of the artist at work as contributing to the aura of creation. Due to the limited space in the thesis I was unable to focus on the way in which Adobe Photoshop displays ‘the artist’ at work. Photoshop does, however, make use of this through algorithmic procedures which seem to show just what is going on, but are obscured by the GUI. What is shown on screen, is what is happening in reality. Another way in which users themselves may put their artistic genius on display is through the distribution of Photoshop actions. A Photoshop action is a recorded series of actions made by the artist. The action-user can play this action and may thus apply this series of artistic action but is not (often) able to reproduce the series of actions by him/herself. In a way, then, these actions and algorithms function in a similar paradoxical way as Lehmann (2009b, p. 34) notes when talking about the mystery of

artistic creation. Further research focusing exclusively on the relation between the aura of creation and Photoshop is, however, needed.

Another point of discussion is that I have only looked at Adobe Photoshop itself and not at the way this aura may affect public perception. It is therefore unsure if and how the constructed fake aura may affect the appreciation of the program. Yet, as the aura grants a special status to the object, I hypothesize that it is likely that a constructed aura increases user appreciation of the program. It would be interesting to see whether further research will either prove or disprove this hypothesis.

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7.1. List of illustrations

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Figure 5: courtesy of the author.

8. Appendices

The following appendices include several of the essays I have written for the Honours program. These essays are as of yet unpublished, but as they provide a groundwork for my thesis I needed to be able to reference to them. Please note that the bibliographic references from the three essays can be found in the general bibliography on page 27.

8.1. Honours program essay – Photoshop: signs and simulacra, metaphors & myths

Interfaces communicate with their users. A typical graphical user interface conveys meaning through visual representation. These interfaces are constructed so that we, users, can (usually) understand their meaning and respond to them. The constructed nature of the GUI implies that the meaning they convey is not 'natural'. Meaning – like the GUI itself – is constructed by people, through signs.

People agree that signs may mean one thing in one context, but something else in another. Signs are situated in signs-systems, which is the context in which their meaning is constructed and agreed upon. For instance, the 'T' in physics has a different meaning than a 'T' in the Photoshop character window. While the first refers to temperature, the second is a showcase that displays the various font faces. These two signs thus, while they may look similar, do not share the same meaning due to their different contexts. This implies that meaning is something that has to be learned within the sign-system context (Chandler, 2007).

To help their users get acquainted with the sign-system context, interfaces often employ interface metaphors (Erickson, 1992). These metaphors tell us that something is like something else. For instance: a Photoshop canvas is like an actual world canvas, because it too can be used as a surface to be worked upon by an artist. Such interface metaphors thus tell us something about the possibilities of use of these various interface elements.

Metaphors, however, do not tell us something about the thing itself directly, but only do so by proxy (e.g. "it is a bit like..."). Thus, metaphors are at risk of becoming empty images, which do not actually correspond to the thing they are meant to explain. They are at risk of becoming simulacra: mere empty shells which may resemble something, but in fact share no characteristics with the thing they outwardly resemble.

Simultaneously, the conscious deployment of the metaphors and simulacra may lead to a myth which surrounds the interface. For instance, the desktop metaphor, the recycle bin and the folder system in Windows are all metaphors which may lead to a myth of the computer office, because these metaphors alluded to office practices, such as filing, or objects, such as the desktop or the recycle bin. In this essay I look at the way that Adobe Photoshop CS 5 Extended's interface deploys its signs, metaphors, simulacra and myths. I will do so by discussing three case-studies.

Photoshop's sign systems

Software – like Photoshop - is constructed to communicate the available variety of possible actions to its user. To aid the communication with the GUIs, language and images are used. To put it simply, the interface communicates through signs. These signs derive their value from the contrast with other signs within the sign-system (Gordon, 1996, p. 46).

To analyze the signs in Photoshop I will make use of semiology: 'the study of signs' (Chandler, 2007, p. 2). I will use both the three-part Peircean and the two-part Saussurian types of signs. The reason for this is that both Peirce and De Saussure introduced concepts which are useful in understanding how Photoshop's interface works semiotically: motivated/unmotivated signs (De Saussure) and the iconic, symbolic and indexical signs (Peirce). Another reason to use both of the conceptions is that De Saussure has not incorporated a referent, while Peirce has. This may help us to perhaps uncover problems that are caused by the Peircean sign's referent, that do not exist for the Saussurean sign.

In Ferdinand de Saussure's book a sign is "anything that tells us about something other than itself" (Gordon, 1996, p. 14). He posed that a sign was made up of two parts: the signified, and the signifier. The signified is a "a mental representation of 'the thing'", while the signifier is a mediator to the interpreter of the sign, such as the written/spoken word or a visual representation of the thing (Barthes, 1967, pp. 42, 47). The signified and the signifier are inextricably connected and together they form the sign.

Charles Sanders Peirce had another conception of the sign. Both worked on their ideas separately, and while De Saussure formulated the sign as a dyadic entity, Peirce regarded it as triadic (Chandler, 2007, p. 29). The three elements of Peirce's conception of the sign are the representamen (the form which the sign takes), an interpretant ("itself a sign in the mind of the interpreter" as Chandler (2007, p. 31) puts it) and an object (the referent). As in De Saussure's model, all parts are essential for the sign to exist.

The most important difference between the two conceptions of the sign is the presence/absence of the referent in the sign. While De Saussure does not acknowledge a relation with actual world objects within his sign system, Peirce does. This is especially problematic for the signs in Photoshop, which often seem to refer to actual world objects, even though their relationship with them is obscure. I will discuss the paint bucket tool, the burn tool and the sponge tool. Each of these case-studies – I feel – highlights a particular issue with regards to the interface of Adobe Photoshop.

Paint bucket tool

A first case-study is the paint bucket tool in Photoshop. This tool uniformly colors a selected area, which is the signified. The button featuring the image of a paint bucket is used as a signifier to represent this function (Marianne Van den Boomen, Lammes, Lehmann, Raessens, & Schäfer, 2009, p. 274). Together they rather straightforwardly form a Saussurean sign.

When we turn to the Peircean sign we see the Saussurean signifier overlap with the representamen and the Saussurean signified roughly overlap with the interpretant. What is new is the object: the thing outside the sign to which the sign refers. The addition of this component complicates the paint bucket tool sign. The object to which the paint bucket tool seems to point is an actual world paint bucket. Thus, the sign seems to be an icon. An icon – in the Peircean sense – resembles its object. This likeness is not necessarily visual. An icon is something that "is like that thing and used as a sign of it" (Peirce, 1998, p. 291). Using a paint bucket, however, would not achieve the same effect as its digital counterpart. The actual paint bucket would lead to a more splattered, messy and uneven effect. Photoshop's paint bucket is much more clean, flat, precise and sterile compared to its object counterpart. This complicates the iconic nature of the sign, as it does not seem to resemble a paint bucket that much, yet it does seem to remind us of it in a more metaphorical way.

But while the representamen of the sign is a button which shows the image of a paint bucket, the name of the tool is 'paint bucket tool', it need not point to an object paint bucket per se. As Adobe Photoshop is a software program, all of its tools are essentially code. The object of the paint bucket tool would in fact be the code procedures/algorithms that allow the user to use the tool itself. In this sense the sign is indexical. An index – unlike the icon – does not represent the object so much, as is a sign of it because it is connected to it (Peirce, 1998, pp. 460–461). The index exists because its object exists, but – contrary to the object - its interpretant is not essential to its indexicality (Peirce, 1932, p. 304). An index points to the object – in this case the 'paint bucket tool' points to the code that allows the user to use the tool.

Yet the sign – though not iconic – is motivated: it leans on other signs. Because a sign like this leans upon other signs it is no longer an arbitrary sign. The motivation of naming it a 'paint bucket tool' and to use a paint

bucket image for its button, seems to have its basis in remediation (Bolter & Grusin, 2002). By picking an already known object – which is associated with artistry, such as Pollock’s action-painting - for the (Peircean) sign to refer to, Adobe points to older and known forms of artistic practice, in this case painting.

Photoshop is a digital medium, while a paint bucket refers to an ‘analogue’ practice. Thus, the paint bucket tool does not only claim to be artistic, it claims to be able to transpose the ‘analogue’ artistic practice to the digital realm as well: it remediates the artistic tool in code and in the interface metaphor. This transposition essentially frees the sign from any actual world object. While it seems iconic at first glance (and thus related to an actual world paint bucket), it is in fact a motivated, indexical interface metaphor, that refers to the underlying code (Ryan, 2002).

Burn tool

This play with remediation does not always work out the way it might have been intended by Adobe. In some cases younger people working with Photoshop might be unaware of the remediative motivation of the sign. Such is – for example - the case with the burn tool for the post-darkroom generation. In this particular case remediation can occur in an inverted way, when people who are not familiar (and are thus unable to acknowledge the remediative, metaphorical nature of the representamen) with darkroom procedures start acquainting themselves with this tool.

For these people the object of the sign is not recognizable, therefore it is arbitrary, perhaps doubly so, as the intention was to make it a motivated sign. What once was a motivated sign then suddenly becomes an unmotivated one. Instead of recognizing that the tool remediates its darkroom counterpart, the user is faced with an arbitrary signifier. Perhaps he/she is not even sure what it signifies, but as soon as the tool is used, the signified will reveal itself: darkening the area of choice. When the metaphor is illegible to the interpreter of the sign, the sign ceases to be motivated, as the motivation of the sign rests in its

metaphorical nature. When the interpreter finds out about the intended motivation, the sign only further emphasizes its artificiality through this failed remediation attempt.

So why would Adobe continue to use the burning procedure as the object for the sign’s representamen if it is not recognized by the interpreter/user and emphasizes the construction of the signs of the toolbar? When a sign is arbitrary it doesn’t matter what signifier is used, really. It does not matter if the sign originally was motivated. The interpreter/user needs to figure out the signified regardless of the signifier if it is not legible at first sight. Here, the originally metaphorical relation is turned into a symbolic one. A symbol represents its object, not per se because it resembles the object or because of any real or obvious connection, rather the representation of a symbolic sign rests on habit and convention (Peirce, 1933, p. 531, 1998, pp. 460–461). The symbol is a sign because it is interpreted as such. The association ‘darkening a selected area’ and the burn tool representamen is based purely on habit (e.g. employing this tool results in that particular effect) instead of a metaphorical relationship with the darkroom procedure of burning that is noticed by its user.

But the referent of the burn tool is as problematic as the paint bucket tool’s. Digital cameras no longer have photosensitive films, for which exposure is of key importance. Terms like ‘burning’ and ‘dodging’ which (metaphorically) refer to this exposure, no longer make any sense when the photograph is comprised of binary data and not carried by photosensitive film. This does not mean that the procedures that ‘burning’ and ‘dodging’ represent are no longer meaningful, it just mean that us calling them that way is completely arbitrary and rests on remediative habit. The difference between the burn tool and the dodge tool is arbitrary as neither has to do with actual exposure, anymore. Yet, Photoshop remediates this difference by creating different buttons for each tool. The buttons are located in the same spot on the toolbox, and they cannot be on top/visible at the same time. The burn and dodge tool

are equated (position wise) with the sponge tool, which I will discuss below. These tools are then interchangeable, if we go by the logic of the interface. One of these will be visible, but can be swapped for any of the two others. Thus, while the tools metaphorically allude to different disciplines and practices, they have become democratized in the Photoshop interface. They are indexical signs that point to interchangeable functions for the user to be employed in the practice of manipulating an image.

The organization of these tools is, however, not based on their remediative source material (we will see below that the 'sponge tool' – problematically - alludes to water color painting) but on similarity of the procedure of use. All three make use of brushes that designate the area that is to be affected. These brushes can take various forms. All three of the tools have options for the user to pick from: range (midtones/shadows/highlights) and exposure for the burn/dodge tool and mode (desaturation/saturation) and flow for the sponge tool.

Sponge tool

The sponge tool, like the paint bucket tool and the burn tool seems to refer to a 'sponge' at first glance. Sponges are used in watercolor painting to soak some of the paint up and thus 'desaturate' the painting (B. Johnson, 2009). In Photoshop, however, the sponge tool allows the user to saturate the painting as well. Here the sponge tool, even though it tries to remediate an actual sponge, gets equipped with qualities that seem the exact opposite of what an actual sponge does (namely to soak something up).

Like with the burning and dodging of digital photo's, who need no photochemical light exposure process, the sponge tool is an arbitrary metaphorical remnant of remediation. But where the burn and dodge tools would be logical remediative metaphors for those familiar with darkroom procedures the sponge tool is not as obvious for those who have practiced watercolor painting. What the burn and dodge tool do is,

however fundamentally different, still similar to their referents. They emulate those practices, albeit in a 'refined' way because one can choose to affect, for example, only midtones. The sponge tool has a new function that does not correspond with the metaphor's vehicle: namely to saturate the painting. The sponge tool can not only be used to desaturate (which was its actual world sponge's sole function) it can also add more 'pigment'. To be fair, once a sponge is saturated it will secrete its pigments – but never in such a precise way as the Photoshop tool does – it can saturate colors/pigments that it has not been in contact with before and can switch between saturation/desaturation mode instantly. An actual oversaturated sponge would merely leave a smudge of color and could never do so without first soaking the pigment up.

The discrepancy between the metaphor and the sign is caused by the different things they refer to. The actual world object of the sponge tool sign, as we've seen before, is not a sponge, but the underlying code it refers to. This code is not materially hindered to saturate or colors like the actual world sponge would be. The difference for the sponge tool to desaturate or to saturate is a different setting that the user can opt for, which results in the deployment of a different piece of code. Because of the transfer from analogue to digital, the tools are not limited to the material constraints of the actual world practices they remediate. They are merely bound by the constraints that the code imposes on them.

The metaphor of the sponge tool, however, does point to an actual world sponge. The sign (and most notably its representamen/signifier) functions as the vehicle (the 'image'), while the actual world sponge is the tenor of the metaphor. The relation between vehicle and tenor is motivated, and this motivation lies in what the two have in common, which is usually referred to as their ground. In this case the ground of the sponge tool and an actual world sponge is that they can both desaturate the 'painting' (Van Boven & Dorleijn, 2010, p. 162). As an interface metaphor, this helps us to understand "the design or mode of operation of a computer application" (Ryan, 2002, p. 583). An interface

metaphor, then, helps us to understand how the various tools in Photoshop can be employed, because it gives us a frame of reference for its usage.

Yet simultaneously the ground upon which this metaphor functions is more than dubious. Because the sponge tool is also able to do the precise inverse of an actual sponge, the sponge tool metaphor undermines its own ground. The interface metaphor seems to function as a simulacrum: an image freed from its ground (Deleuze, 1994, p. 272). The simulacrum of the sponge tool calls an actual sponge to mind, refers to it in its name, and metaphorically asserts that it works in a similar way. Yet it is fundamentally different from an actual sponge. It bears only an outwardly resemblance to the object, but does not actually correspond to the thing. It is not a copy of a sponge, but only a superficial remediative effect. One does not resemble the other. One is not a variation of the otherwise same other (Parr, 2010, pp. 74–75). They are singular phenomena, which only differ from each other. Thus, there is only difference (Deleuze, 1994, pp. 273, 299; Masumi, 1987), a difference which is freed from its resemblance and variations of sameness (Parr, 2010, pp. 74–75). The sponge tool interface metaphor, then, is a hollow simulacrum which points to nothing more than its fundamental otherness.

Photoshop's artistic myths and simulacra

The Photoshop user is able to fill a 'canvas' with 'paint' and use 'photography procedures', like the burn tool, or 'watercolor techniques', like the sponge tool, on it. The material that is represented on screen belongs to all yet neither of the various traditional artistic genres. It seems to combine various aspects of the different traditional materials, and goes beyond the material limits of these traditional tools: the code is the limit.

Even when the user explicitly imports a photograph, for example, he/she can still use the sponge tool to (de)saturate its colors. Once the material (be it a drawn image/photograph etc.) is imported into

Photoshop, the material is democratized. It can be edited with procedures that refer to a variety of artistic practices that were previously seen as distinct. In the program these procedures can be used indiscriminately.

What we see in Photoshop, then, is code cloaked in remediative metaphors. These employed interface metaphors do, however, not cover the nature of the code completely. These metaphors help users to make abstract algorithms and code more concrete (Erickson, 1992, p. 66). The signs of the various tools are used to communicate the various possible actions to the user. Additionally, they allude to various artistic practices, but their object remains the code that governs the function/tool/procedure. This code democratizes all the various artistic genres that are alluded to in the interface metaphors, in the various signs. Photographic procedures, water coloring equipment and paint brushes are each other's equals on the code level. The interface has rendered them interchangeable.

Because of their transfer from the actual to digital world, the tools are not limited to the material constraints of the actual world practices they remediate. They are merely bound by the constraints that the code imposes on them. As a consequence, the referents of these tool-signs no longer point to an actual world tool or procedure. Instead, the image of these actual world objects is used to create an explicitly remediative metaphor that only partly corresponds to an original. The object of the sign (e.g. the paint bucket tool) is not the object we would expect it to be (e.g. a paint bucket), instead, the object refers to an obscured set of coding. But the relation between the object-code and the tool-sign is, however remediatively motivated, also symbolic. While the relation between the sign and the interface metaphor – which conveys a sense of the possibility space to the user – is motivated, the relation of the sign to the object-code is symbolic and arbitrary, because we can't infer the direct relationship between code and the perceived software tool. Any number of signs and metaphors could have been chosen to represent

these particular lines of code, to serve as a symbolic index for them – as there is no iconic relationship between representamen and object.

The representamen, however, acts as an interface metaphor in its communication with the user. The arbitrary representamen functions as the vehicle of this metaphor and communicates the possibility space of the tool, the tenor. This metaphor is motivated by ground that the representamen shares with an actual paint bucket/burning procedure or a sponge (Van Boven & Dorleijn, 2010, p. 162). For instance, the sponge tool is like a sponge, because it can desaturate a colored surface. But, because the sponge tool can transcend the material limitations of the sponge, and is only hindered by the limitations of code, it has the extra capacity of saturating the image. This results in a ground that is dubious at best, as it denies its own similarity to the actual sponge in the act of transcending the metaphorical likeness. The relation between the two is not one of similarity, but one of difference and empty outwardly resemblance: it is a simulacrum. Yet it is a motivated simulacrum at that.

By favoring the terms like ‘paint bucket tool’, ‘burn tool’ or ‘sponge tool’ Adobe constructs a narrative in its interface. Something to which I referred in an earlier essay as the ‘myth of artistry’. It is no coincidence that these terms and metaphors are used in the program, rather, it is an intended construction by Adobe. As we’ve seen with the sponge tool, the sign itself is arbitrary – the motivation rests wholly on the metaphor it employs.

By employing these particular metaphors, Adobe seems to place its program in a canon of artistic tools. But while these digital tools allude to their analogue counterparts, they are not alike. They do not afford the same possibilities entirely, but they may correspond on some level. For example, the sponge tool – like the burn tool and the paint bucket tool – seems to be a more sophisticated piece of equipment than their actual world tenors. One does not risk smudging the rest of the picture when using the sponge tool, one can use it on one layer instead of the entire plane, the action is reversible and the tool has more options than its

referent. Similarly, burning/dodging requires less precision of the user (as actions are reversible), and is less time and physically demanding (where the analog photochemical burning dodging processes were irreversible and both physically and time demanding). Similarly, if one were to try and cover a surface with an actual paint bucket, it would be a quite messy (and quite irreversible) affair, while in Photoshop its clean, sterile and reversible. Taking this into account, it becomes clear that Photoshop tries to canonize itself as a more sophisticated or evolved tool for artists by direct comparison to older forms of art production. The remediative metaphors that are used in the interface are more precise, clean, reversible and often have more options than the actual world objects than are their tenors.

Yet the metaphors are self-contradictory and thus expose themselves as simulacra. These simulacra do not all function in the same way. While they are arbitrary, interchangeable and democratized in nature, they metaphorically refer to different sign-systems (e.g. that of photography, painting, drawing and so forth). It is this eclectic, simulated agglomeration of signs that, when it is simulation is uncovered, loses its depth (Jameson, 1991, p. 34). The empty simulacra are exposed as being devoid of any meaning: they are only superficial images, mirages and facades (Van den Braembussche, 2000, pp. 353–354).

Conclusion

The sign-system of Photoshop employs various signs to communicate to the user. In this essay I have discussed the paint bucket tool, the burn tool and the sponge tool. The signs of these tools are motivated through remediative interface metaphors, which gives them the feel of iconic signs. Yet, their object is not found amongst the corresponding traditional artistic tools, but in the code that governs the possibility space that is afforded by the tool in Adobe Photoshop. The tool-signs are motivated due to their external relationship to the user (who is grounded in an actual world to which the metaphors’ tenors belong), yet are arbitrary at the same time.

The Photoshop tools are democratized by the interface, as most of them are interchangeable due to the interface organization. The burn tool, dodge tool and the sponge tool can never be displayed on top of the tool box at the same moment in time. Only one of these is able to be on top. The user has to swap one for the other. This democratization of tools leads to a sign-system in which the signs are equal. This equality, however, is problematic, as the various tenors of the interface metaphors originate in different artistic traditions and may share more or less ground with their vehicles. Within the interface then, the signs are interchangeable and thus rest on equality, while the metaphorical ontology of these signs is one of inequality. In a nutshell, while all of the signs point to their coding in the same way, not all of the metaphors share the same amount and sort of likenesses between the vehicle and the tenor.

Adobe actively promotes 'the myth of artistry' by employing the various interface metaphors. By using these metaphors, Adobe seems to insinuate that it transposes analogue artistic practices in a digital environment. But this is not where the myth ends. All of the case-studies that were discussed in this essay were more 'sophisticated' than their tenor counterparts. The Photoshop paint bucket does not drip, it does not spill, it is sterile, contained and reversible. The burning tool does not require any lengthy and precise physical movement on the part of the user. All one needs to do is drag the cursor over the desired areas to affect the 'exposure'. Furthermore, this digital burning is more precise, as the user can opt to affect only a specific range of tones and is reversible, whereas the darkroom procedure would require to make a new print if the developer made a mistake. The sponge tool is a slightly different case. Whereas the paint bucket tool and the burn tool emulate their actual world tenors in a more precise and sophisticated way, the sponge tool adds something to its tenor that it could never do. The sponge tool can decrease *and* increase image saturation, whereas an actual world sponge is normally only able to desaturate the image. For the sponge tool, the

material constraints of the tenor are replaced by the constraints of code, which now allows it to also perform the inverse of its tenor.

The ground upon which the metaphorical likeness is based is thus undermined. The metaphor seems to be founded on nothing but mere outwardly resemblance, emptied out of the characteristics the vehicle and the tenor were assumed to share. The tools in Photoshop function as simulacra of the tenors they metaphorically allude to. They are not mere 'copies' of their analogue tenors, they are of a different order entirely. These simulacra refer to different sign-systems (that of painting, water color painting, photography and so forth), by calling them to mind, remediating them in name and metaphorically allude to them. Yet, while they are thus motivated simulacra, they are without depth. The interface-metaphors are simulacra employed for the sake of familiarity and canonization, but share no relation with the tools they symbolically represent.

8.2. Honours program essay – Photoshop's interface aesthetics

Since its (commercial) introduction in 1988-1989, Adobe Photoshop's interface underwent some profound changes. Over the years, new functions were added and others deleted. This required adjustments to the interface. Another important facilitator of changes in the interface is the increased possibilities of the computer itself. One can imagine that when computers are not capable of executing very demanding processes, the interface is likely to be simpler, because a simpler interface demands less of the processor.

In this essay, I will try to explicate three major aesthetic changes in Photoshop's version history I will do so by analyzing splash screens and toolboxes of the selected iterations of the program. I have selected these interface elements for three reasons. First, they are a part of every Photoshop iteration. Secondly, they are well documented in the form of screenshots. Thirdly, because of the good documentation, they can be discussed without installing the older versions of the program, as some simply do not work on present day computers. A splash screen is the screen depicted while the program is loading. In the case of Photoshop, this screen also displays the credits. The splash screen is not a part of the actual interface – in the sense that it mediates between the user and the actual code - but it is a paratextual element which we encounter upon booting the program. A paratextual element being something that stands apart from the main 'text'. Paratextual elements can be, for example, bookcovers, notes, prefaces and so forth (Brillenburger & Wurth, 2009, p. 412). Apart from this, it is also the most picturesque (and the least interactive) part of the entire program and therefore it is interesting to see how it changed over time. The toolbar is the interface element in which a lot of the image manipulating tools are grouped together and can be selected by the user. This toolbar is, unlike the splash screen, not a paratextual element, but it actively contributes to the possibility space of

the program, which is the free space of movement and action that is afforded within a more rigid structure (Bogost, 2008, pp. 120–121). The four versions I will be analyzing are Photoshop 2.0, Photoshop 7.0, Photoshop Creative Suite 3 and Photoshop Creative Suite 6. The last three introduce both major changes in their toolbars and in their splash screens, which is why I have chosen these. Photoshop 2.0 is an early version that still has a lot of the same elements as its predecessor, Photoshop 1.0, but also contains elements that would be used in later versions.

For this analysis I have made use of the theories of compositional interpretation as formulated by Gillian Rose in *Visual Methodologies* (Rose, 2012). The compositional interpretation concerns itself with formulating what the image actually shows: it is a visual analysis, therefore it will allow a good basis for comparing the various versions. The composition is built up out of a few elements which are not entirely distinct from one another. The elements that Rose mentions as part of the composition are content, color, spatial organization and expressive content. By interpreting the results from this analysis I will try to come to an understanding of the developments within Photoshop's interface over the years.

Photoshop 2.0

Upon booting up Photoshop 2.0 the user is confronted with the paratextual splash screen. This splash screen displays an image, the program's title, version information, credits and copyright information and finally two buttons. The entirety of the splash screen is confined within its black border. This border mildly provides a sense of depth by adding an extra row of pixels on the right and bottom side of the splash screen.

On screen, the splash screen appears in the center, both horizontally and vertically, as is custom with these kind of paratextual elements. The splash screen itself is spatially divided in the following way: it is roughly divided up in threes, where one third of the width and two

third of the height is reserved for the image, which is located at the top left of the screen. The remaining two third of the width is reserved for the program's title, version number and the customized licensing information. In the bottom one third of the splash screen the authors, copyright information and the two buttons are located. Though the most space seems to be reserved for the title, version number and licensing information, this is not where the 'weight' of the screen resides. Because the image is much more vivid it quickly draws the eye from the relatively empty title segment next to it.

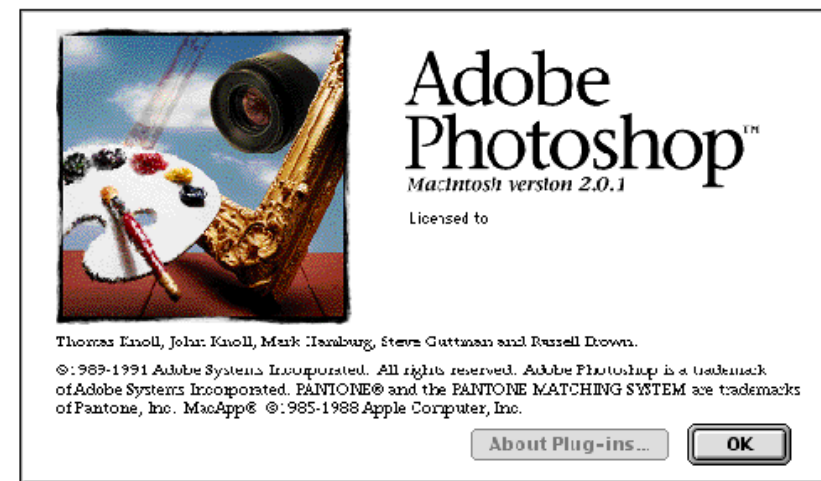
Within the image there is also a tripartite organization. The red-brown surface, on which the frame seems to rests its one corner, vertically takes up one third. The other two third is reserved for the cloudy blue sky. Horizontally the image is roughly divided in halves, where the pallet and the transparent part of the frame take up one half, and the opaque frame and the photographic lens take up the other. The amount of depicted objects is three, however, which further underlines the numeric logic of the splash screen.

The splash screen of Photoshop 2.0 is extremely ordered. The screen is divided in a tripartite way, both horizontally and vertically. While the horizontal ordering of the image within the screen is governed by '2', the rest of the screen is divided by '3'. This ordering is rigid. The borders firmly separate the various element from one another and do not allow for transgressions.

The image is the only source of color in the splash screen. Its text, buttons and background are devoid of color and are either white, black or light grey. Because the image is the only colorful element in the splash screen it immediately catches the eye. The image is a collage of a pallet, baroque frame and a photographic lens. Its dominant hues are browns, blues and black. Of the various collage elements, the baroque frame seems to be the most saturated, the other colors appear less vivid. Thus, the baroque frame guides the beholder's eye towards the pallet and the photographic lens, both of which seem to float in mid air, with nothing to

support them. The image depicts a kind of Magritte-like world of surreally floating objects; a dream-like world. The lens and pallet seem to allude to older artistic practices, such as painting and photography, which underline the craftsmanship of these practices, perhaps in an attempt to transfer these to Photoshop. Thus, the image is, in Greenberg's book, romantic, in the sense that it looks back to older artistic practices and tries to 'reinstall' them (Greenberg, 1980), in this particular instance this reinstatement operates on the basis of remediation (Bolter & Grusin, 2002). The possibility space (Bogost, 2008, p. 121) of the program's tools is explained in the image as a combination of painting and photographic practices. The baroque frame, in turn, seems to connote institutionalization of art, as it is related to the display of artworks, for example in museums. Thus, the newly created art, which the splash screen advocates is similar to older artistic practices such as photography and painting, is able to create art that is just as valuable as institutionalized 'high art'.

The image has a stark, though playful, black border, which firmly



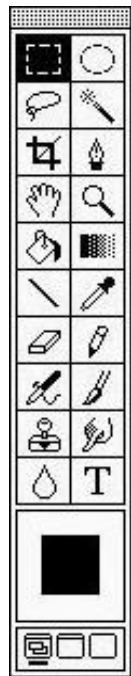
1. Splash screen Photoshop 2.0 (Agonistica, 2013)

denotes a strict separation between the image and the rest of the splash screen. There is a sense of order in this early version splash screen. The image is separate from the rest of the splash screen's content, just as the splash screen itself stands apart from the rest of the program. There are firm borders in place which do not allow transgressing.

Furthermore, the splash screen requires the user to explicitly comply with the given copyright information by having him/her press the 'ok' button on the bottom right of the screen. This further underlines the rigid order that is imposed by this splash screen. The image is set apart from the splash screen, just as the splash screen is set apart from the rest of the program and the program is set apart from the user, who needs to subject himself explicitly to the terms of the program by pressing the button.

The toolbar of Photoshop 2.0, likewise is organized in spatially rigid way. The grid overlaying the tools separates each individual tool from the others. And the tools again, are separated from the color selection tool and the screen mode setting at the bottom. This separation results in yet again a tripartite vertical division. Horizontally, the toolbar is either comprised of halves (tools), three parts (screen mode) or not divided at all (color selection tool).

The toolbox contains two rows of each ten icons. These icons represent their respective function. For example, the paint bucket (fifth row on the left) allows you to color a selected surface in its entirety. The icons are designed in a really basic way, on pixel level, as you can see in the detail on the left. These black on white pixelled representations do not allow for a realistic



2. Toolbar
Photoshop
2.0
(Agonistica,
2013)

presentation. As, for example, elaborate shading would damage the legibility of the icons. Below the various tools are a few other instruments of which the color selection the most important is.

A sense of depth is created by the black pixels on top bar of the toolbox which suggest little dents. The icons themselves show no depth. In fact, the only depth that is discernible is the depth caused by selecting a particular tool. This selection invert the normal black on white to white on black. The inversion causes the idea that the black is further away and therefore creates a sense of depth.

The tool selection allows for a dynamic interaction with the toolbar. The user can select a different tool and thereby alter the appearance of the toolbar – because of the inversion upon selecting. The user can also select a different active color, thereby altering the color in the color selection tool (e.g. from black to blue). He or she can also select a different screen mode which affects the way in which the interface is presented to him/her. By using this tool, the user can rearrange the mise-en-scene of the interface in its entirety.

Just as the splash screen, the toolbar of Photoshop 2.0 is very strictly ordered. The toolbar communicates are no subtle nuances. There are no grey tones (not even in the gradient icon), there is only the stark opposition of black and white. Everything seems to be confined to its own place and is kept in place by firm borders, so that it is unable to blend in with other features. This division occurs at all levels: within the program, between the paratextual splash screen and the program and between the user and the program.

Photoshop 7.0

In the next case study, Photoshop 7.0, a lot has changed. The eye motif returned, which was first introduced in Photoshop 1.0, and the photographic lens is replaced by a filter. The pallet and baroque frame are entirely absent. The eye and the filter covering it inhabit the foreground. In the background a scene with mountains, a sea, a beach and a sail boat

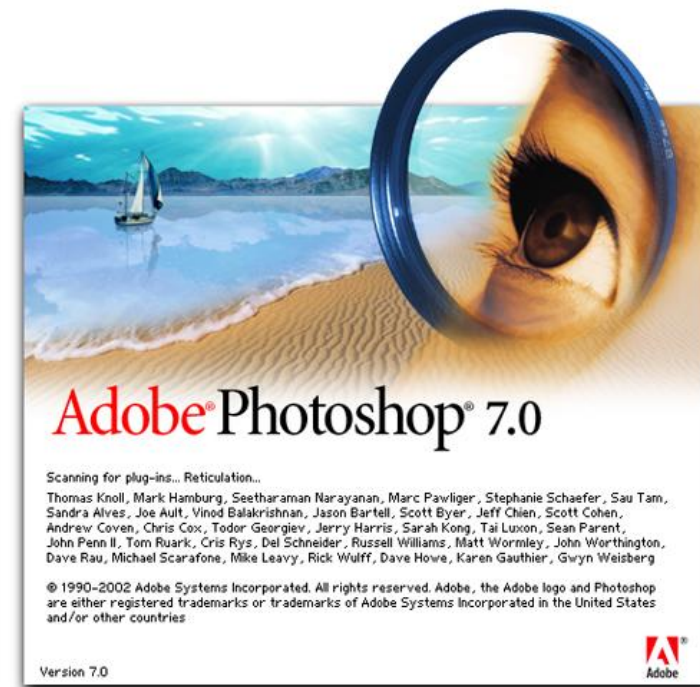
is visible. The eye motif connotes the visual nature of the program. The filter – like the lens in 2.0 – alludes to photography. The image does not point to the own program, but instead to things external to it. Adobe Photoshop 7.0 is still a celebration of romantic, escapist notions (Greenberg, 1980), where one can look through a photographic lens to enter another scenery, another world.

The image comprises the top half of the screen. The bottom is reserved for the title and the various sorts of information. The splash screen can be divided by twos. First in the vertical direction: image – information. And within the image there are two halves in the horizontal direction (scenery – eye and filter).

The hues of splash screen are predominantly blues and browns, with some red and black. These colors are highly saturated. As opposed to the splash screen of Photoshop 2.0, there is also color in the information part, in the form of the Adobe logo and the red 'Adobe' lettering.

Another striking difference is the lack of borders. While Photoshop 2.0 had very rigid borders, these have entirely disappeared in version 7.0. Even though we can still make out the end of the splash screen, it is no longer confined by a rigid border, but is instead shown by a drop shadow. The image, too, is no longer confined by borders, but gradually dissolves to the white background of the bottom part. Most importantly, however, the splash screen is no longer boxed: the filter breaks out of the typical box shape.

The splash screen of Photoshop 7.0 is of an entirely different sort than that of Photoshop 2.0. Where 2.0 imposed a strict sense of order by separating the various elements from each other. The Photoshop 7.0 splash screen rids itself of these divisions. The image gradually dissolves to the information bit, and the image is not confined to the box shape that was so rigidly imposed on the splash screen until this version. Colors are now sparsely introduced in the information part (since version 3.0). With the borders gone, things seem to blend together more.



3. Splash screen Photoshop 7.0 (Agonistica, 2013)

In the toolbar there are a number of important changes as well, but there are different changes in the Windows and the Mac versions. Both versions sport new icons. For the first time the icons, show shading, smoothness and a pallet of grayscales as opposed to the stark black and white that was used in Photoshop 7.0's predecessors.

More detail can be added to these shaded icons. For instance, the blur tool, which is symbolized by the water drop icon (seventh row on the left) now has texture. Where it was an empty, pixelled outline in earlier

version, it now has volume. The icons, then, go from purely functional to more decorative in Photoshop 7.0.

These decorative versions of the tools may, however, compromise legibility. What further complicates legibility is the stacking of tools, which was introduced in Photoshop 4.0. The existence of other tools below the shown one is made apparent by the little arrow in the bottom right of the icon box. Cascading menus, which unfold when holding the left mouse button, allow the user to foreground particular tools and hide others from view. Thus, the user can practice a kind of montage in the interface, by choosing between these tools.

The dominant hues of the toolbar are now grey and blue (Windows) or grey with some additional colors in the top image (Mac), instead of white/black. This is a huge difference as opposed to the toolbar of Photoshop 2.0, and was a gradual change over the various versions. As computer screens – and thus their GUIs – emit light, the grey is easier on the eye, as it has a lower value than pure white, especially when it is combined with low saturation. Back lighting is a characteristic that is typical for software GUIs. Adjusting the colors of the interface to heightens user comfort, and guides the eye to the interface's centerpiece: the initially white canvas.

In the Mac version toolbar, we see that instead of an even grey or white background, the boxes now have a background which display a gradient that gradually fades to a lighter grey. However, on the borders of the box there is a relief suggested, as the colors become a bit lighter/darker. Overall the colors of the toolbar are softer, as the lines within the toolbar are no longer the sharp black, but instead a dark grey. Likewise, most of the black used for the icons in previous versions has also been replaced by different shades of grey. Another new development is the disappearance of the box previously surrounding the color selection tool. This border erasure would be followed in later versions, as we will see in the next version. What is interesting as well is that the toolbox in its entirety was granted some measure of depth by giving it a drop shadow.

While the Mac version only removed the color selection tool from its grid, the Windows version did away with the grid entirely. By deleting the grid, the toolbar becomes flatter, as it lacks the skeuomorphic button appearance. Upon selecting one of the tools, it seems to move backwards as suggested by the shading. Furthermore, while the tools are grouped in the same way as in the Mac version, there no boundaries between the tools are even between the groups of tools. While there are small grey lines indicating the various sections, these do not extend all the way to the border of the frame. Thus, they do not divide the various sections, but merely attend the user to them, while also affirming that all of these tools belong to the same interface element: the toolbox. Another characteristic which renders the Windows version flatter than its Mac counterpart, is that it lacks a drop shadow.

There is then, in the toolbar of 7.0, a first move to 'flatness' (Greenberg, 1982). The skeuomorphic button-grid is done away with in the Windows toolbar for the first time. Even though the splash screen evokes a romantic association, as well as the toolbar icons which are now display illusions of depth, I believe this gridless toolbar is a precursor for the



4. Toolbar Photoshop 7.0 - Windows (software. informer 2015)



5. Toolbar Photoshop 7.0 - Mac (Agonistica, 2013)

modernist approach of later versions, starting with CS 1.

The Photoshop 7.0 toolbars are of an entirely different order than the Photoshop 2.0 toolbar. Where the Photoshop 2.0 toolbar was one of rigid order and of functionality, Photoshop 7.0 is decorated and dispenses with a lot of the borders. Though the Mac version is more conservative than the Windows version it too gradually relinquishes the grid, by no longer confining the color selection tool.

Photoshop CS 3

With the third Creative Suite package, Adobe started color-coding the different programs. This transition was accompanied by a kind of conservatism, which led to the use of the ordinary, bland rectangle splash screens with simple blue gradients. The blue hue is to date still the characteristic color of the program.

The conservatism seems to be aimed at creating a sense of familiarity for the users. By quoting earlier versions a sense of continuity is established, instead of the feeling of a break with tradition. This



6. Splash Screen Photoshop CS 3 (Agonistica, 2013)

continuity is also established in the way the credits and title are positioned, across the entire breadth of the splash screen. This positioning is reminiscent of the earlier 3.0-7.0 versions. What is remarkable is that the drop shadow that was present ever since 7.0 is missing in both of these screens. This further emphasizes the nostalgic feeling, as it reminds us of the earliest splash screens. The spatial organization of the splash screen is also similar to that of Photoshop 2.0. The major difference is that in the CS version the title and version information are moved to the place where the image was placed in Photoshop 2.0. Also, the credits have continued to increase in size over the course of the years, as more people helped develop Photoshop.

Yet in a way, this splash screen seems more 'medium-specific' than the Photoshop 2.0 and Photoshop 7.0 ones (Greenberg, 1982). It displays no allusions to media like photography or painting. At the same time, gradients can be employed within the program – and it can be interpreted as a reference to the possibilities of the program itself. Thus, while the splash screen is again confined to a box shape, it is freed from referencing external artistic practices as a legitimization of the program's status.

Another self-referential move is the lack of drop shadows. Up until CS 3, the splash screens were given a measure of depth by giving them a drop shadow. This drop shadow creates the illusion of the splash screen floating in front of the GUI as if light from 'outside the screen' were creating the shadow behind it. Of course, the computer screen does not permit light entering it or affecting the GUI. Thus, by relinquishing the drop shadow, the splash screen is, again, emphasizing its



7. Toolbar Photoshop CS 3 (Agonistica, 2013)

medium specificity. The GUI, after all, is flat. Furthermore, the only sense of depth that this kind of splash screen creates is that of layering. By placing the flat layer on top of the GUI, the splash screen is then seemingly foregrounded. This is a similar kind of depth as the one that Photoshop employs in its layers.

Photoshop seems to grow more self-confident over the years, meaning that it increasingly does away with references to other artistic practices in its splash screen. This move is combined with a display of medium-specificity which displays the possibilities of the program itself in its paratextual element. This medium-specificity is characterized by moving to flat, depthless depth (in which the only depth is suggested by layering as in the layer functionality of the program) and a display of the tools that are presented in the program (e.g. the gradient tool).

In a way these developments are similar to the ones that Clement Greenberg propagated in his essay *Modernist painting* (1982). Greenberg thought that each artistic medium had to emphasize the characteristics that were unique to that particular medium, whilst eliminating the effects that were not exclusive to it. “Thus would each art be rendered “pure” and in its “purity” find the guarantee of its standard of quality as well as of its independence” (Greenberg, 1982, pp. 5–6). More importantly, however, with the disappearance of references to other media in the splash screen, Adobe stops justifying the program in terms that do not belong to it. By relinquishing this practice, the medium is not only rendered more pure, but also more autonomous: it “doesn't have to teach, doesn't have to celebrate or glorify anybody or anything, doesn't have to advance causes” (Greenberg, 1980). This relinquishing of the justification of the program takes the form of the relinquishing of subject matter. We go from the logic of ‘painting and photography for Photoshop’s sake’ to the logic of ‘Photoshop for Photoshop’s sake’. The splash screen preserves no external artistic practices, only the one inherent to it (Greenberg, 1939).

Photoshop CS 3 has the same toolbar icons as the Windows version of Photoshop 7.0. However, these grid-less appearance is now standard in both Mac and Windows versions. Furthermore, the icons move toward the user, instead of away from it, as is suggested by the shading. The dominant hues remain grey and blue. Though the blue is more vibrant than the pastel tone in Photoshop 7.0.

Photoshop CS 6

The splash screen of Photoshop CS 6 is still flat. There is a drop shadow (even though Photoshop CS 5 did have one) and the box is slightly transparent. The dark blue-purple box is decorated with bokêh-like circles, which also continue behind the box – which again results in a depthless depth of layering.

This bokêh-effect may allude to the practice of photography, just as earlier versions alluded to particular artistic practices in their splash screens. Yet, the way in which CS 6 does so is profoundly different. While the pre-CS versions alluded to these artistic disciplines by displaying tools associated with these disciplines, CS 6 displays a possible result of using a particular photographic lens (bokêh). However, bokêh can quite easily be simulated in the program itself. The allusion is of a double nature: it references both the photographic practice as well as itself. In short, the program alludes to this practice, but does so on its own terms. It no longer seems to strive for recognition, rather, it seems to have achieved the same status as it can now emulate these effects just as well.

What is particularly interesting is that this splash screen quotes its shortcut icon in its square shape instead of a horizontally elongated shape and by displaying the abbreviation 'Ps', instead of 'Photoshop' (though this has been the case since Photoshop CS 3 and elements of the splash screen have been featured in the icon since Photoshop 7.0). The splash screen – which is itself a paratextual element, thereby quotes another paratextual element. By doing so it affirms its embeddedness within the OS. This is another medium-specific element that is added to the interface of the program. Photoshop will always operate within the larger frame of the operating system. The operating systems for which Photoshop is designed all make use of graphical user interfaces, which communicate the existence and potential usage of the program by shortcut icons. By quoting this shortcut icon, then, Photoshop overtly affirms its existence within the larger operating system.

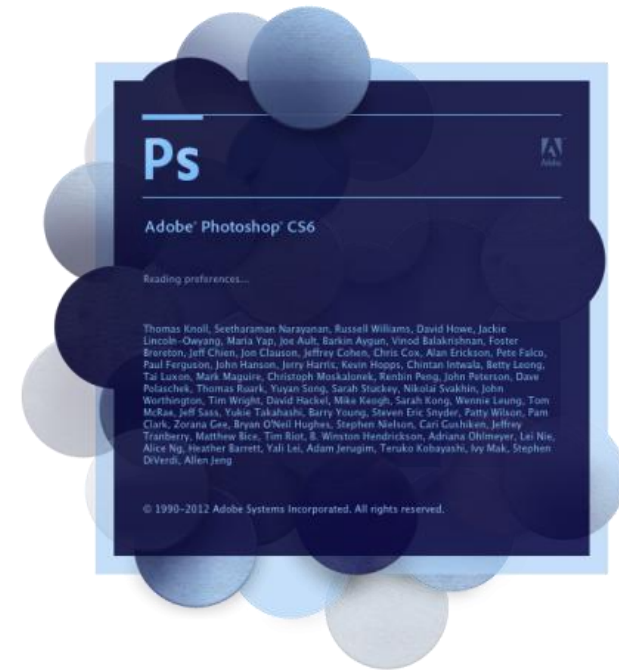
Though it is not the first time since the more conservative shape of CS 3 that the splash screen breaks out of its rigid box shape again, it does so in a different way than the Photoshop CS 5 splash screen. Whereas the splash screen of CS 5 is a polygon, there is little space that is not functionally used to display credits, titles or other sorts of information. Furthermore, there is nothing that 'sticks out' out the shape itself. In CS 6 the bokêh transcends the borders of the square shape and is purely decorative.

Compared to the rigid boxes and sharp angled polygons of CS 3 – CS 5, CS 6 has a open and transparent air. The border of the splash screen, for instance, is not a stark, dark border. Instead it is a transparent, light blue. It is not a rigid border, one can see through it. Where the borders that were used in Photoshop 2.0 fiercely segregated everything, those of Photoshop CS 6 allow for passing through.

The splash screen of CS 6, then, possesses both modernist and postmodernist characteristics. Its playful allusion to photography is postmodern, just as the blurred boundaries can be seen as feature of postmodernism. Yet other aspects remain modernist. The quotation of

the shortcut icon is a move towards medium-specificity, as it acknowledges the embeddedness of the program in the larger operating system.

While the spatial organization has remained nearly the same, the most notable difference in Photoshop CS 6's toolbar is its much darker appearance and its inverted shading of its tool icons. While there is still a minimum of grey shades in the icons, the shading is much less pronounced. Less pronounced shading leads to a flatter space, as the volume is not as discernible. In this way, the icons of CS 6 may be more detailed than those, of Photoshop CS 2, but they are quite similar in their less pronounced/lack of volume. Furthermore, the coloring of CS 6's



8. Splash Screen Photoshop CS 6 (Techinch, 2012)



9. Toolbar
Photoshop CS
6 (Agonistica,
2013)

toolbar is reminiscent of Photoshop 2.0's inverted selected tools.

Aside from being flattened, there is also a play with light. Graphical user interfaces like Photoshop are, as I have noted before, designed to operate on computers. The interfaces are then displayed via a computer monitor. This computer monitor can display the interface through light emission. Light emission is a medium specific characteristic of graphical user interfaces of computer programs, as most other art forms merely reflect light. The choice to darken the toolbar, then, seems to be in line with earlier self-referential, modernist design choices, for now the medium emits less light even than that of Photoshop 7.0 and later versions.

When the tools are selected they suggest moving backwards again, though it is a very shallow move. The background of the selected tool is only a few shades darker than the toolbar itself. Thus, while there is some measure of depth suggested, it is a shallow one. Shading wise the toolbar of CS 6 is as simple as the shading used in Photoshop 4.0-6.0: a single line of slightly darker colored pixels at the top of the selected tool, opposed to the gradients which were used in 7.0-CS 5.

Over the years, Photoshop has become increasingly self-referential and more 'at ease'. Where it used to employ stark and rigid borders and shapes it now has open and transparent borders. Where it used to refer to artistic practices which preceded and were outside of the program it now barely does so and if it does, Photoshop does so on its own terms. It now shows the

result of a practice which can be found or emulated within the program as well – whereas earlier the artistic practice was alluded to by placing the artistic tools which are connected to them in the splash screen. In the toolbar too, we see this self-referential move. The toolbar, like the splash screen, becomes flatter and starts playing with its medium-specific light emission, by darkening the interface element. Furthermore, the grid that characterized the first versions is gradually done away with (first on Windows and later for all operating systems). Both the splash screens and the toolbars, then, display a kind of Greenbergian development: from romantic influences, to modernist design and finally beyond it. They gradually eliminate references to practices outside of the program and instead emphasize the program's unique characteristics.

Yet these developments are not linear. They are gradual. Not all interface elements relinquish older design principles when new ones are introduced. Part of the interface elements may be modernist, when others evoke romantic or postmodern associations. As we have seen in CS 6, for example, where the toolbar is modernist, even as the splash screen introduces postmodern elements.

Summary

The major changes of the splash screen and the toolbar are not per definition linked to a shared version. The table below contains the major changes observed in the two elements of the interface. The most important are displayed in bold font.

Version	Splash screen	Toolbar
0.07	Functional splash screen, minimal depth.	
0.87		Black and white, pixelled icons, little to no depth.
1	Still functional, mostly black and white with accent of pastel blue, still little depth.	„
2(.5)	Colorful illustration of the program is added, the rest is still black and white. Stark borders.	„
3	Banded format is introduced. Illustration shows various motifs.	„
4	„	Minimal illusion of depth is introduced, as well as the detail of the splash screen on the top of the toolbar. Cascading menus are introduced.
5(.5)	„	„
6	„	„
7	The boundaries of the rigid box are broken. Lack of borders. Parts of the splash screen return in the shortcut icon.	More depth is added. Icons are more detailed and more profoundly shaded. In Windows version the grid is dispensed with.
CS	No more references to practices outside of the program. Perspective disappears, making the splash screen flatter.	„
CS 2	„	„
CS 3	Return to rigid box – blue color coding is introduced. Design is still self-referential.	The grid overlaying the toolbar in the Mac version disappeared, making the toolbar flatter.
CS 4	„	Toolbar gets a darker color. Splash screen detail disappears.
CS 5	Boundaries of the box are broken again. Polygon form. Slight drop shadow.	Icons are darker colored.
CS 6	Square shape (explicitly quoting the shortcut icon), both self-referential and playful allusion to painting/photography practice in a pastiche like way.	Toolbar is colored a dark grey, emits less light. Icons are inverted, leading to less detail.

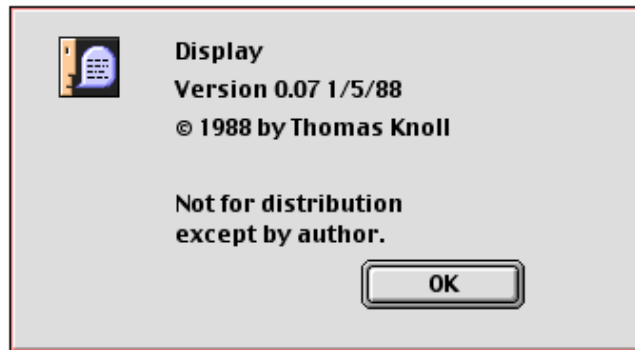
Conclusion

Over the years, Photoshop's interface underwent some remarkable changes. From rigidly ordered, simple black and white interface elements to transparency, playfulness and a dark toolbar. This development, however, was a gradual one. At first, the program emphasized the

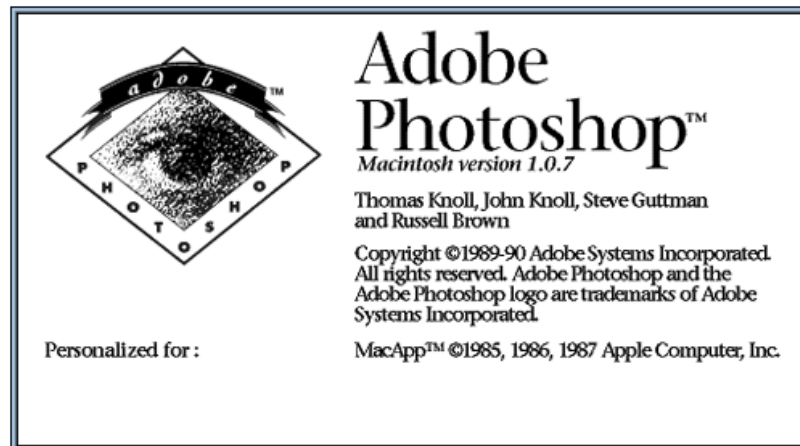
relation to external practices in its splash screen, for example, and tried to simulate depth by adding more and more elaborate shading to the interface elements. Nevertheless, a trend can be discerned in the development of the interface. While early versions of Photoshop relied strongly on their relation to artistic practices outside of the interface, such as photography or painting, the CS versions became increasingly self-referential and emphasized medium-specific aspects of the program, such as layering, gradients, light emission of the computer screen, the program's embeddedness in an operating system, layer masks and so forth.

By growing more self-referential and medium-specific, Photoshop grows more self-confident. The program stops depending on external artistic practices for its legitimization. Instead, it starts to show more of its own unique characteristics. It becomes, then, more modernist. Photoshop shows that in CS 6 it is just as good as painting or photography by playfully mimicking paint splatters and bokêh, by using procedures native to the program.

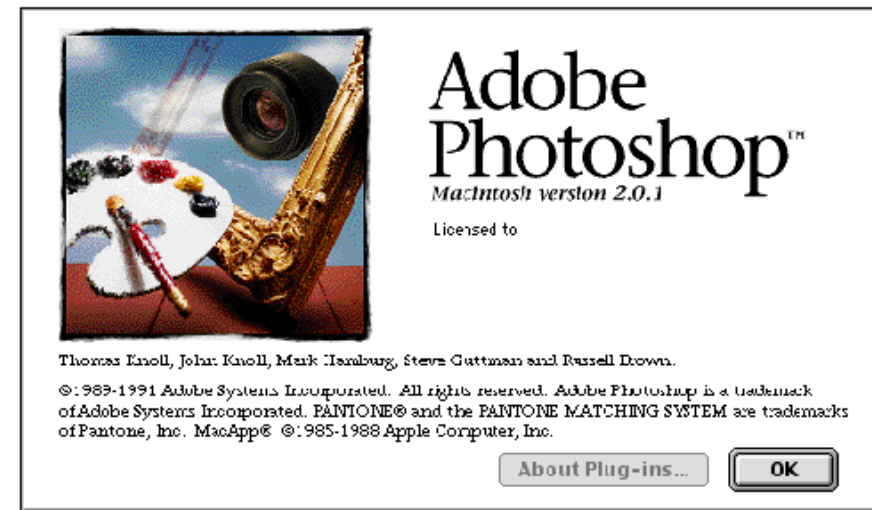
8.2.1. Attachment I: Splash screens



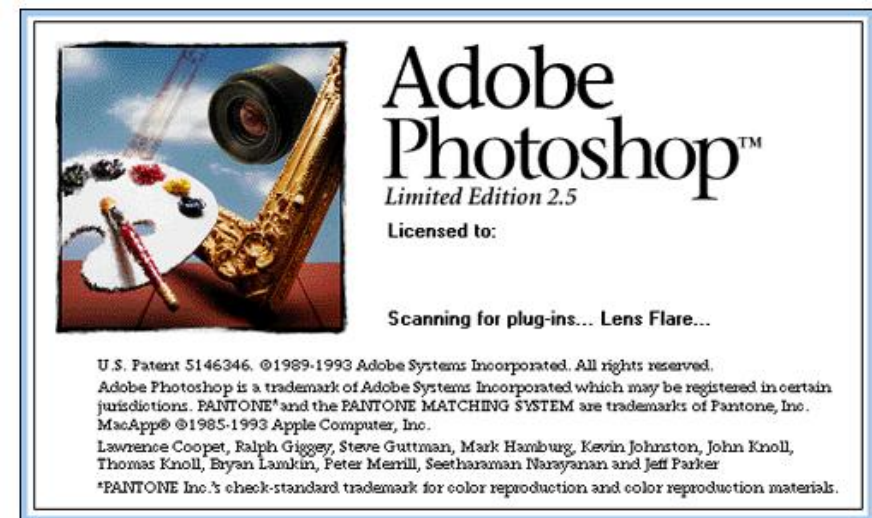
Splash screen Photoshop .07 (Agonistica 2013)



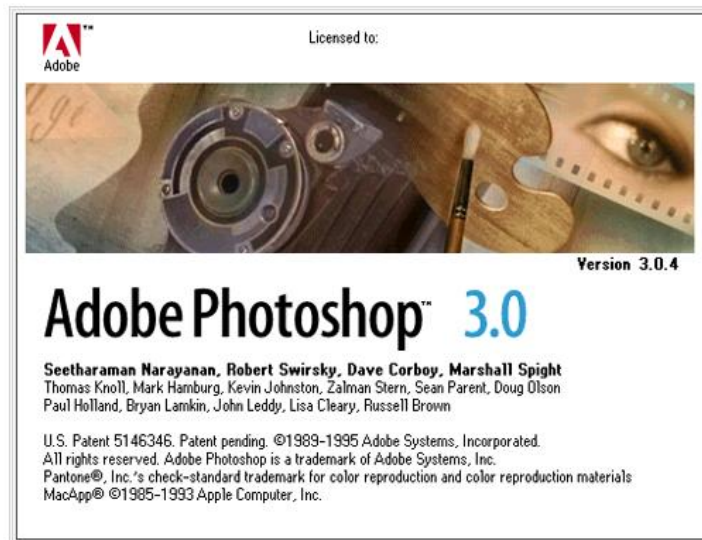
Splash Screen Photoshop 1.0(.7) (Agonistica 2013)



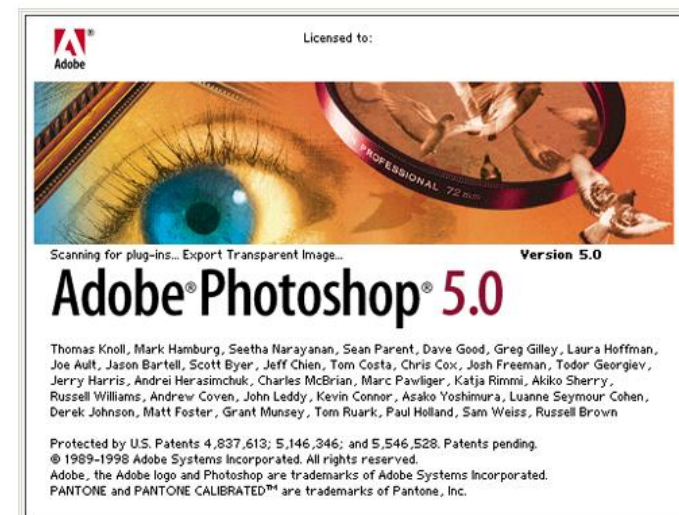
Splash screen Photoshop 2.0 (Agonistica 2013)



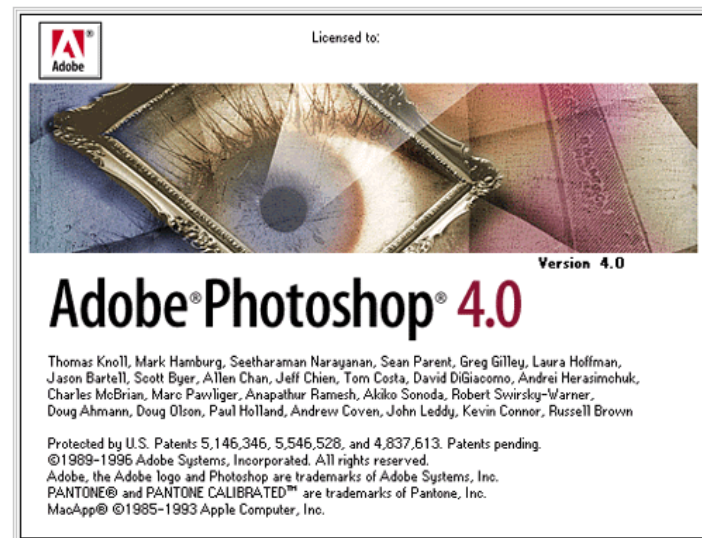
Splash Screen Photoshop 2.5 (Agonistica 2013)



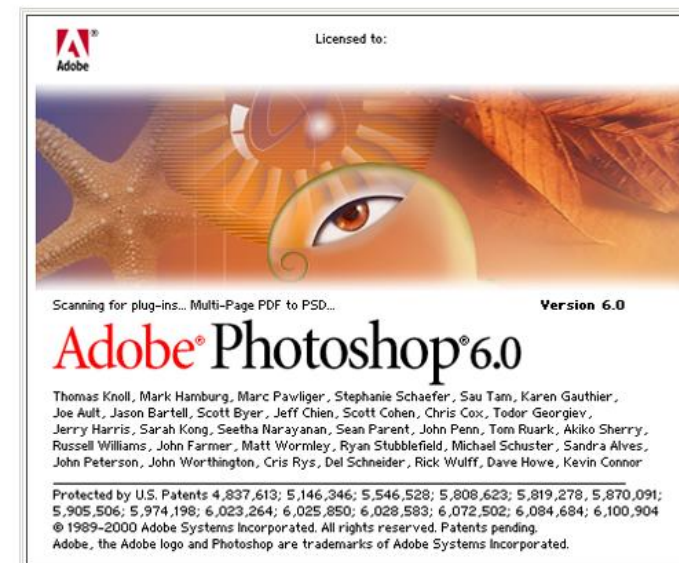
Splash Screen Photoshop 3.0 (Agonistica 2013)



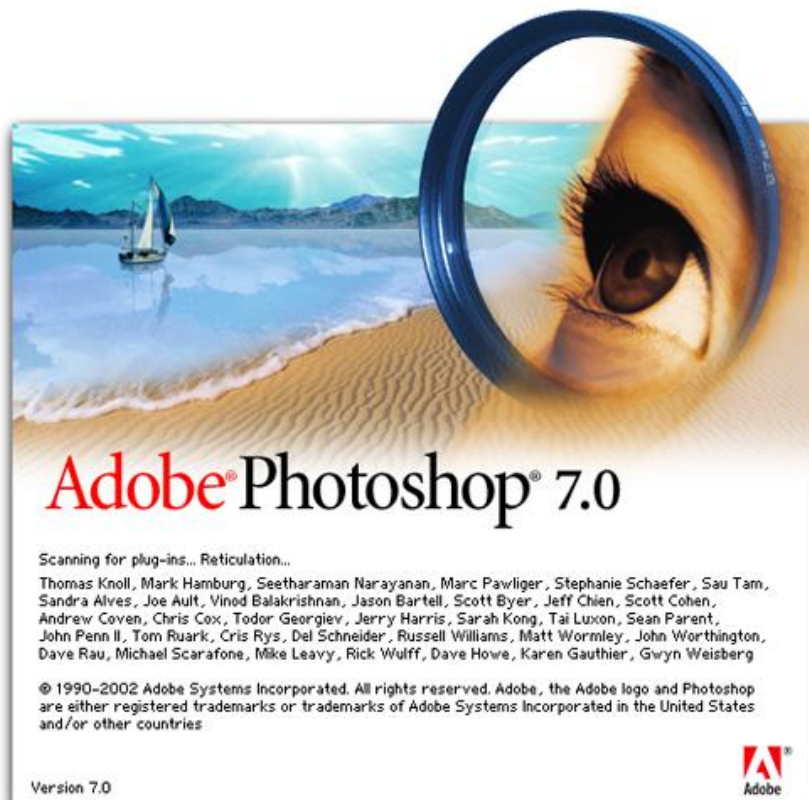
Splash Screen Photoshop 5.0 (Agonistica 2013)



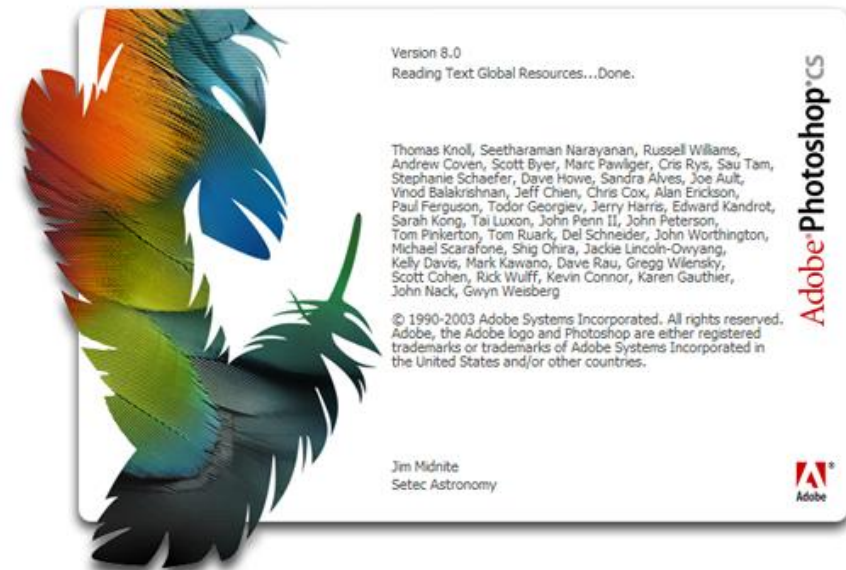
Splash Screen Photoshop 4.0 (Agonistica 2013)



Splash Screen Photoshop 6.0 (Agonistica 2013)



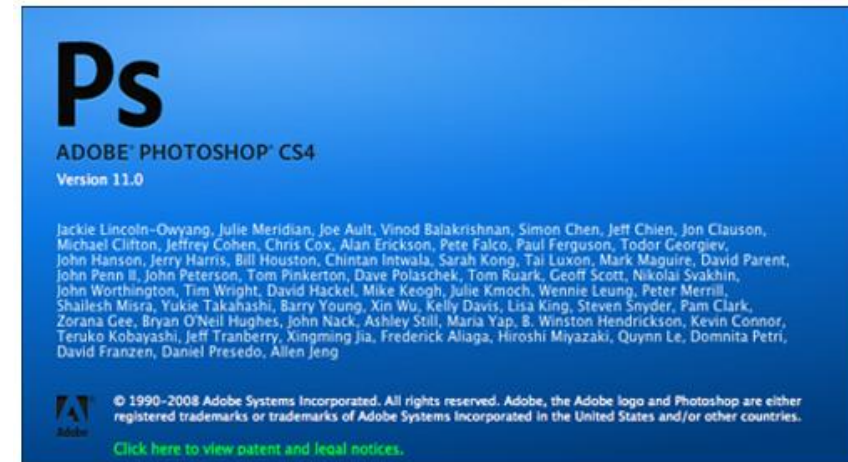
Splash Screen Photoshop 7.0 (Agonistica 2013)



Splash Screen Photoshop CS 1 (Agonistica 2013)



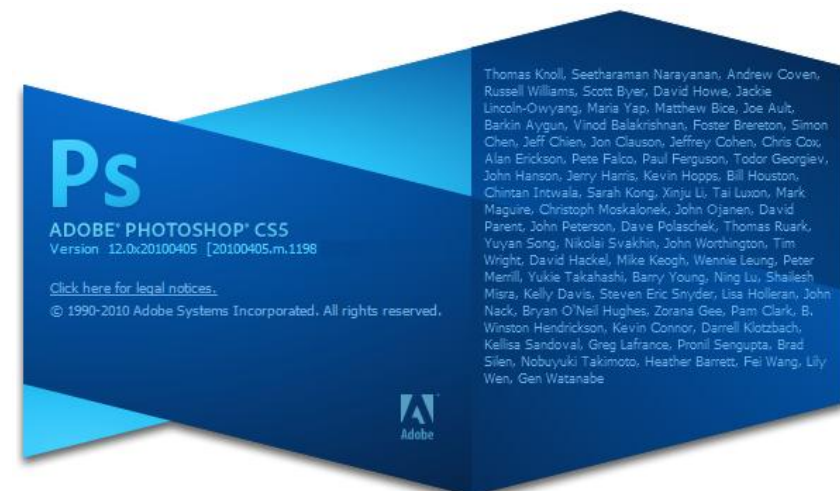
Splash screen Photoshop CS 2 (Agonistica 2013)



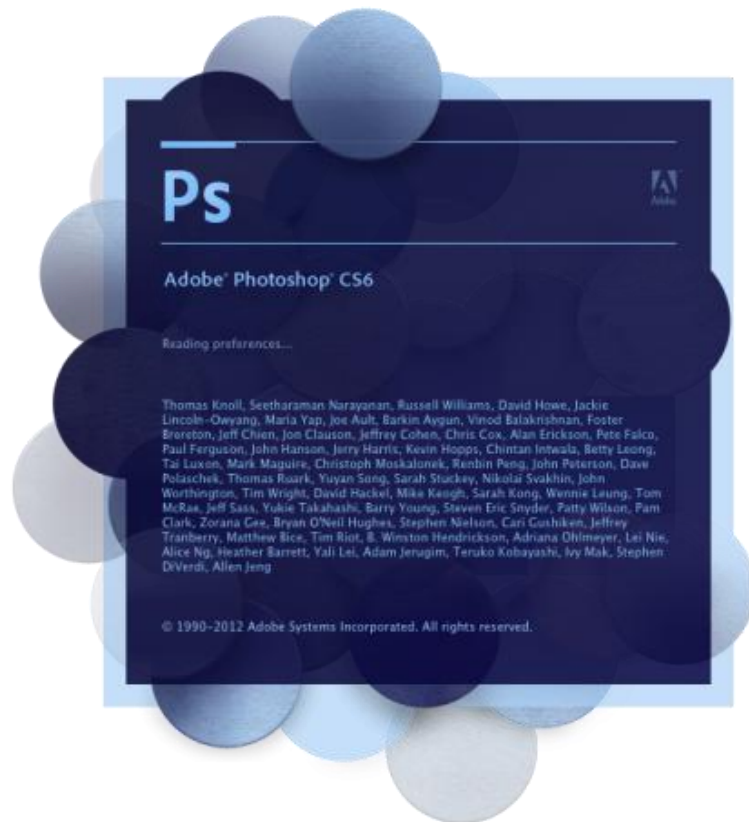
Splash screen Photoshop CS 4 (Agonistica, 2013)



Splash Screen Photoshop CS 3 (Agonistica 2013)



Splash screen Photoshop CS 5 (Bozgounov, 2010)

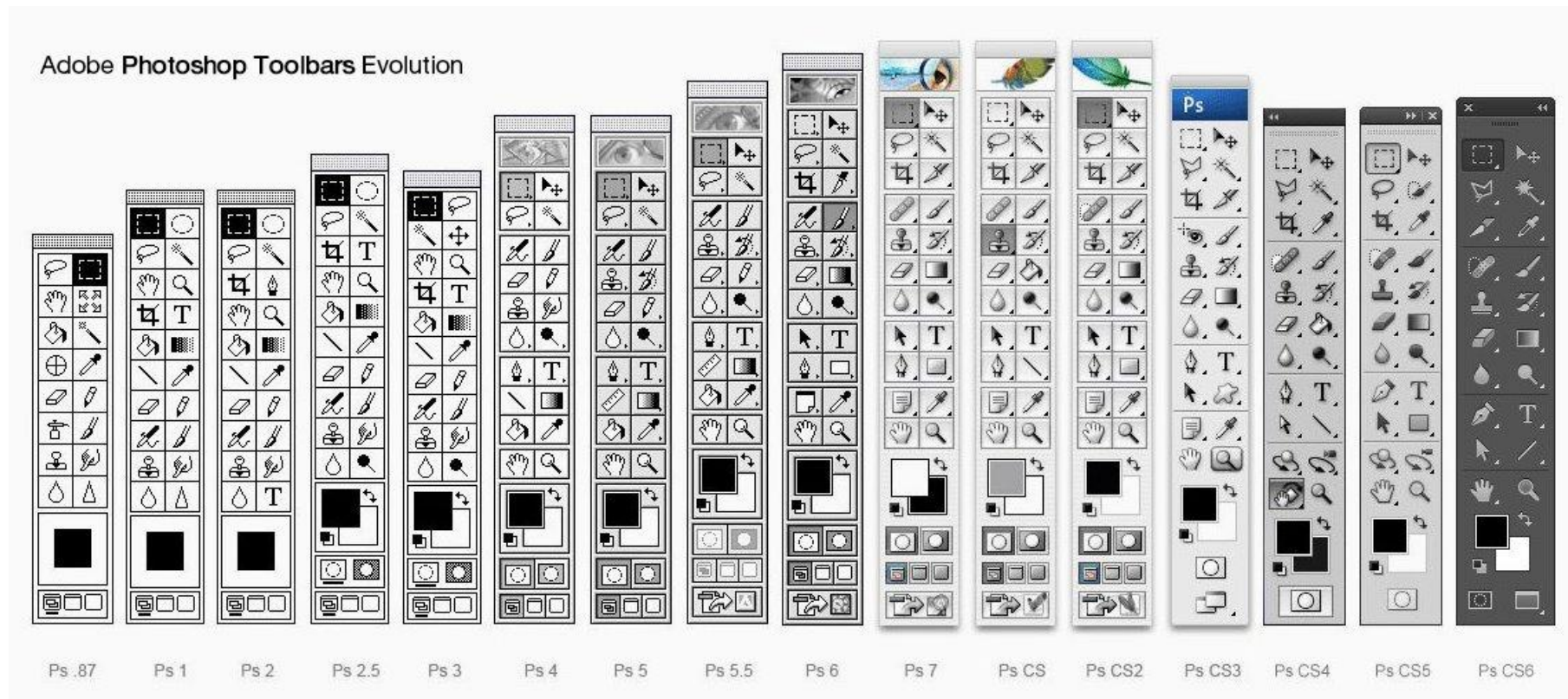


Splash Screen Photoshop CS 6 (Techinch, 2012)



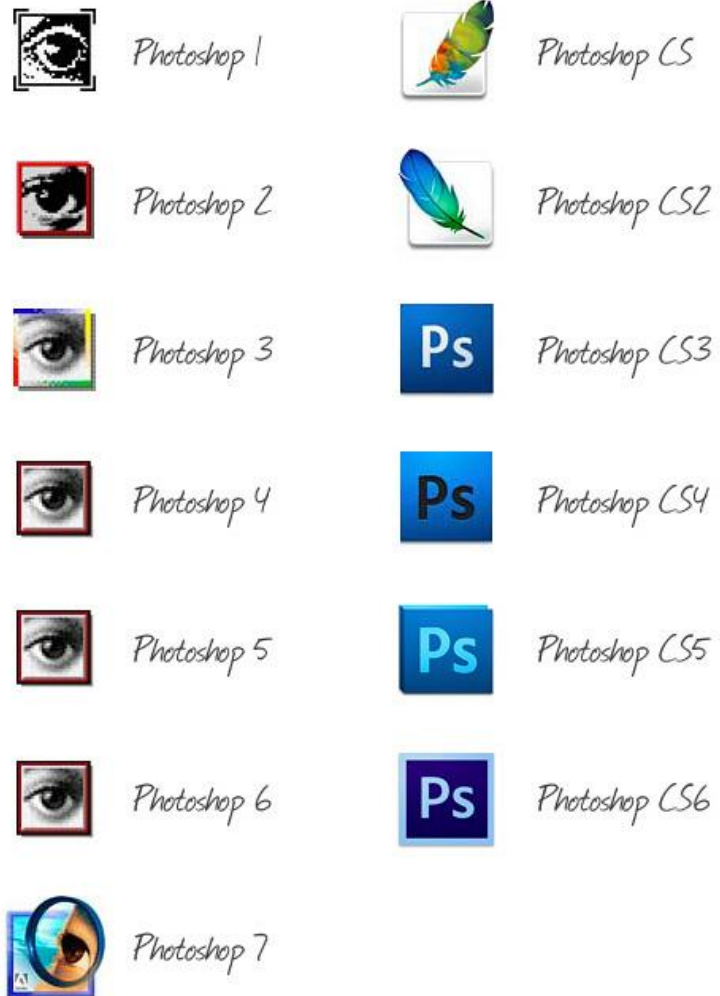
Splash Screen Photoshop CS 6 Extended (Bolen, 2013)

8.2.2. Attachment II: Toolbars



Evolution of Photoshop toolbar (Agonistica 2013)

8.2.3. Attachment III: Taskbar/shortcut icons



Evolution of Photoshop's icons (Hellwig, 2012)

8.3. Honours program essay – The dynamic interface

Visual screen media interfaces are quite unlike other media in the way they appear to us. We are used to static images, for example in paintings, or to moving images, as we see in cinema, theatre and television. With the dawn of graphical user interfaces, however, we see images that respond to our input. What interfaces display are not merely moving images, they are interactive images. This implies that, while methods for analysis of moving and static images can be useful to some measure, they do not cover all aspects of the nature of these interactive images.

Interfaces are built to communicate their possibilities to their users and to show them the results of the actions that they took. Because of this interactive, communicative nature of interfaces, they exist only in a state of flux. Their content is never fixed and cannot be replayed. It is precisely this ‘unfinished’ aspect of the interface that is crucial to understanding it: it always allows for change, yet is also a partially static appearance, for otherwise the user would not be able to learn the rules of the program.

Though there has been research that deals with the aesthetics of interaction (Kwastek, 2013), little has been written about the interactivity of GUIs (graphical user interfaces) specifically. The only aesthetic analysis for GUIs is that of Ngo. Ngo formulated thirteen measures that contribute to the aesthetic of the screen: balance, equilibrium, symmetry, sequence, cohesion, unity, proportion, simplicity, density, regularity, economy, homogeneity and rhythm (Ngo 2001, p. 74). While this method is useful to explicate user acceptance, it does not take into account the possibility space for user agency that these interfaces present (Bogost, 2008, p. 121). Or, in Kwastek’s terms it does not emphasize the potential for interaction and the actual interactivity, and neither does it emphasize the decisions and selection procedure of the user (Kwastek, 2013, p. 63). It does, in other words, not tell us anything about the communicative and interactive nature of the interface, even though it does give us tools to measure the way in which the screen content changes. Ngo offers us

exhaustive tools for describing aesthetic changes, but he does not give us the tools to assess *why* these changes take place or what their implications are.

What is lacking in the debate thus far is a medium specific terminology for analyzing interfaces in a visual way, that takes in account the medium specific interactivity, communication and fleetingness. In the following essay I formulate the appearance concept for precisely this kind of analysis of interfaces, using Adobe Photoshop CS 5 Extended as a case-study. This concept takes in account both the (relatively) static - mise-en-scene like - and dynamic aspects of the interface and acknowledges the ephemeral nature of the interface, as well as the underlying fictional world and its possibility space. An analysis that takes in account these factors is valuable as it exposes underlying assumptions or manipulative aspects in interfaces. These assumptions or steering aspects might favor one group of user and exclude others.

Appearances

To cover both the content of the frame and its organization, as well as the changes within that frame over time and the various ways in which its organization may be altered, I propose the conceptual model of ‘appearance’. The term ‘appearance’ etymologically envelops both the idea of a ‘visible state’ of things, yet also alludes to the action of ‘coming into view’ (Harper, 2014). Appearance is thus an ambiguous term, as the boundaries between the ‘static’ and ‘dynamic’ aspects are vague in themselves. Aspects of the interface that may seem static, can often be customized by the user. For instance, the positioning of the various tabs in Photoshop may be altered by the user, yet will remain static until it is again altered by the user. The two aspects - static and dynamic -, thus, do not function as binary oppositions. They function more like both ends of a gradual scale. The various interface elements can move along this scale over time and are not just either/or, they can be both static and dynamic. The difference between static form and the coming into view is then a

theoretical one, one that is meant to clarify the way in which interfaces continuously oscillate between these states.

An interface consists both of static elements (e.g. the 'proscenium' of the tabs, toolbox and tool menu in Photoshop) and dynamic elements (e.g. the different content of the tool menu upon selecting a different tool). Neither of these can do without the other, they are inextricably intertwined. Only through static elements (e.g. a tool icon) can dynamic elements (e.g. clicking the tool icon to reveal information in the tool menu relevant to that particular tool) be communicated to the user. Likewise, if everything were dynamic and everything could potentially change, then it would be quite hard to learn using the interface. Instead, the interface offers its user a (semi-)rigid framework of static elements, which allows for sensible dynamic elements.

The mise-en-scene of possibility spaces

The way in which the interface's appearance is shaped is then crucial. The appearance of the interface is responsible for the communication of interaction possibilities. These interaction possibilities envelop all of the user's possible actions: everything that he or she could potentially do within the program, which is what Bogost termed the possibility space (2008, p. 121). Through its appearance of the interface – and by extension its possibility space –, a particular world is created. The world that is thus created is fictional, because it deviates from the user's (and our own) lived, actual world (Ryan, 1991, p. 15). Each fictional world has its own set of consistencies, rules or 'propositions' (Walton, 1990, p. 66). Furthermore, the 'fictional world' cannot precede its representation or its 'poiesis', its creation through the act of representation (Doležel, 1988, p. 789; Walton, 1990, p. 64). The fictional world that Photoshop constitutes through its appearance is a world that has rules, that has a certain logic, look and feel to it. This world is constructed through the way it appears to its users: through the way that the designers constructed it. The static elements and the actions that are observed, grant the user an

understanding of the world. If there were no things in the world of which you can be (relatively) sure – for instance, that pushing the same button with the same settings will produce a similar result every time – there would be no way for the user to learn how the world or that particular tool within it functions. Thus, there are underlying rules within software worlds, like there are on our own actual world as well. It is a world that knows consistencies, but also allows its user to 'customize' and thus help shape the appearance of the world. In this the interface-world radically differs from television worlds or the fictional world of a painting. The interface-world grants the user agency, meaning that his/her decisions affect the world and the representation of that world on the computer screen.

Because Photoshop grants the user a measure of control over the interface, the user essentially decides what will and what will not be displayed within the frame of the program. 'Mise-en-scene' is used in film theory to describe "the contents of the frame and the way that they are organized" (Gibbs 2002, p. 5). Similar to the conceptual model of appearance, static and dynamic forms do not 'clash', but complement another. As such I propose it is a first, useful term to be used in the context of interfaces as well. The content of the software's frame is not static: when the user interacts with the program the mise-en-scene will and must change. The mise-en-scene is in a constant state of flux due to the action-reaction nature of the relationship between user and software. In this respect the concept of the mise-en-scene is a more fleeting one than its regular usage in film theory. While film is temporal as well, we are able to rewind and revisit the images. In software the mise-en-scene's whole essence is fleeting: it is meant to be responded to by the user.

The control over the cinematic mise-en-scene lies in the hands of the director, and his/her crew. The locus of control is more ambiguous when we apply the term to interfaces. While the designers designate the visual appearance of individual aspects of the program and the way they will work, the user can rearrange the organization of these aspects –

though he or she cannot alter the functionality of the interface-aspects. The user has a measure of control over which parts of the interface are revealed and which elements will remain hidden, and he/she can drag and drop a number of interface elements (Gibbs 2002, p. 26), yet, the program itself plays a major role in what is and what is not possible with regards to user customization.

For example, the tabs and the toolbox can be detached from their positions on the side of the screen and can be dragged around, made smaller or –in the case of the tabs – be closed. The interface communicates these affordances to the user in several different ways. Upon detaching the tabs from their position, for example, the silhouette of the tabs remains in place till the user finishes dragging the temporarily opaque tabs to their new position. When reattaching the tabs a similar thing happens. The tabs turn transparent when they are dragged to the side and a small bar appears over the length of the side – indicating that the tabs can be attached there. This leads to a relative freedom for the user to arrange the interface to his or her liking. The user can manipulate the relatively static elements of the screen content.

Another example is the manipulation of the canvas' position. The user can work on the canvas when it is neatly located within the proscenium of tools, tabs and menus, alternatively, he or she can dislodge the canvas from this position so it turns into a floating window, which can be placed outside of the program's bounds. When the user drags the canvas window to the bottom of the tool menu bar, the workspace menu is highlighted by a blue border, indicating that the window can be attached there.

But other things of this 'mise-en-scene' cannot be changed. The user cannot remove tools from the toolbox or change the size or shape of these tools. The toolbox can be stretched to a single row toolbox or minimalized to two-row one, it can be dragged around by the user, it can be snapped to or dislodged from the sides, but it cannot otherwise be manipulated. Thus, the user always needs to operate within the possibility

space that Photoshop allows him/her (Bogost, 2008, p. 121). To do this, the user needs to read the affordances that are communicated to him/her and decide how to act upon them. Thus, not only the action that is eventually taken by the user is of interest here, but all the possible actions that he or she could have taken (Kwastek, 2013, p. 63).

The possibility space of the interface as a whole is constituted of a series of different spatial processes, similar to Lefebvre's trialectics. The interface is not constituted just by its designer, but comes into being through conceived, lived and perceived spatial processes (Lefebvre, 2000). Though I do not have the time nor space to discuss this in depth, I will briefly elaborate. The conceived space is the way in which the designers, with a particular purpose in mind, initially formulated the space. It is thus an abstract, ordered space: a blueprint or a layout. Lived space is the space of everyday life. It "has no need to obey rules of consistency or cohesiveness because it is, as Lefebvre (1991, p. 42) says, alive" (Merrifield, 2008, p. 523). The perceived space consists of spatial practices: everyday interactions which naturalize the space around us, "in so doing, [they] ensure societal cohesion, continuity and a specific spatial competence" (Merrifield, 2008, p. 524). In short, the possibility space, then, is a conceived space – designed by programmers – and allows the user a particular amount of freedom to move about, to interact with the program. The user is free to rebel against this intentional design through the lived space of the possibility space. Yet, they also perceive the space to be used in a particular way, through the perceived space.

The customization of assumptions

The organization of Photoshop's appearance steers its users towards a particular way of using it. The program constitutes an implied model user and bases itself on certain assumptions by doing so (Fuller 2003, p. 46). This implied user is western, an assumption that is explicated, for example, through the automatic left aligning of text and the automatic selection of font type featuring western characters, upon using the program for the first time. There are Korean, Japanese and Chinese

versions of the program, but these explicitly deviate from this Western norm.

Furthermore, Photoshop makes use of shortcuts. These are indicated in the program in the dropdown menus on the right side, or can be discovered upon hovering over a specific tool. These shortcuts are relatively easy to type in with the left hand, (buttons like Ctrl + C/Esc/ or Shift + W) when holding your mouse or tablet pen in your right hand. For 'lefties' these shortcuts are often problematic and frustrating, when they are using their left hand for moving the mouse pointer or drawing, or it might even mean sitting cross armed. It seems then, that in its predefined shortcuts, Adobe seems to favor right-handed people over left-handed ones (Diodeus, 2011; Limizuki, 2014; Miewts, 2011).

In situations like these, Photoshop exposes its constructedness (Bardzell 2009, p. 2360). When we as users take a step back and regard the program we can see various premises throughout the entire program. Why is the text automatically aligned on the left and not centered? Decisions like these rest on assumptions about the user: the majority of the population is right-handed, therefore it is either a conscious or unconscious decision to orient the settings to this public.

Of course it seems possible to subvert these assumptions by changing the settings. It is, however, not possible to avoid the assumptions. The user is able to subvert them, but always does so from this very first starting point. When the user, for example, tries to create a new workspace – which can be seen as an attempt to create a new constellation of tabs and panels – the program presents the user with the exact same environment as the last selected workspace. It copies the workspace that was selected before the user opted to create a new work environment, as a starting point for the user. Similar with the canvas dimensions that a user is presented with upon creating a new file. Its settings are either the last settings that were manually entered, or the dimensions from images on the clipboard. Again, with the gradient settings, the user cannot start from scratch. If the user clicks on 'new' in

the gradient menu then the current settings for the gradient are saved as a gradient in the gradient menu. Thus, the gradient menu requires the user to work from gradient that are already there – even if he or she deletes all the settings and works 'from scratch'.

This is not only the case for the gradient menu, but also for the font settings, text alignment, shortcuts and a myriad of other settings. The user always starts from a given, relatively static assumption that remains the same unless altered by the user. Seen in the light of appearances, the Photoshop user always starts from static assumptions that afford being changed, but do not require it. The assumptions with which the program starts out favors the users who conform to the implied user, yet excludes those who deviate from this ideal.

The 'new canvas' window, for example, uses the last given settings as a proposition for creating a new canvas. Thus, if I last worked on a small 45x45 pixel canvas, with a resolution of 72 dpi in RGB, it will propose those dimensions to me again if I want to create a new canvas. Adobe could have given the user a blank form to specify the desired canvas, but has chosen not to do so. Thus, the program assumes something about the user. It assumes that if we did x before, we want to do x again. By doing so, it limits the user. Bardzell (2007, p. 26) notes, for example, that amateurs have a hard time mixing new gradients, which is perfectly possible and in fact requires only a few clicks. Instead they limit themselves to the presets proposed to them by the interface. These propositions thus actively disallow creation: for the user is merely altering presets than actually 'creating' a canvas from scratch.

These developments have implications for the implied user-subject. Photoshop assumes the user to be a fluid subject: a subject who changes over time and does not remain static. Just because the user prefers a certain positioning of a tab at one point in time, does not mean that he/she will always favor that particular position. Because Adobe allows the user to change certain default settings/assumptions, they further

acknowledge this fluidity. Yet at the same time Adobe Photoshop assumes a relatively static user subject, by continuously making assumptions about the working process of the user-subject by offering him/her preset assumptions based on past user-activity. Photoshop then constitutes an user-subject that is simultaneously fluid as well as rigid. Like the interface itself, the user-subject is assumed to oscillate between static and fluid form.

The user-subject is also assumed to be fragmented. Adobe Photoshop presents its user with various types of workspaces such as a 'design', 'painting', 'motion' or 'photography' workspace. What is interesting here is that while the tools which the user can employ in the software world are completely democratized, the user is assumed to need a workspace specially orientated on one kind of artistic discipline. The user is, then, assumed not to be a unified whole that can work with all of these disciplines, but a fragmented being that needs separate workspaces for the various types of work.

Conclusion

Interfaces require a different method of aesthetic analysis than the various models that already exist for other media, because these models fail to take into account the interactive, fleeting and communicative nature of the interface. I have therefore formulated the 'appearance' concept, which is based on the concepts of 'mise-en-scene' and 'fictional worlds' and consists of static ('visible states') and dynamic ('the action of coming into view') elements. These elements are not positioned as binaries, but on a gradual scale on which they can take different positions at different points in time. In the preceding essay I took Adobe Photoshop CS 5 Extended as a case-study and highlighted several of the assumptions that relatively static interface elements make about the user and his/her working process. This in turn influences that user, as he/she either conforms to the implied user ideal or deviates from it (i.e. being left-handed deviates from the right-handed implied user ideal/being non-western deviates from the implied western user).

The interface, thus, makes a plethora of assumptions about the user and the working process. These assumptions disallow the user to start creating anything in the program from scratch. Whether the user wants to create a new canvas, workspace or gradient, he or she is always confronted with preset assumptions. One cannot *create* a new gradient/workspace/canvas, only *modify* the settings of a previously created or preset one. These presets can be changed by the user, but they always originate in earlier user-activity. Thus, Adobe Photoshop constitutes a user-subject that – like the interface itself – oscillates between a static and a fluid form. The user-subject is at once understood as a being that may change over time and as a subject that remains the same. The settings the program offers to him/her are always rooted in that subject's earlier actions, thereby assuming the subject to remain the same. Yet by allowing the user to change the preset assumptions, Photoshop also assumes him/her to be a fluid subject, which is capable of change.

Furthermore, Adobe Photoshop assumes the user-subject to be fragmented. Whereas the Photoshop-tools have become democratized and are thus limited to affecting only the materials that are associated with the traditional artistic practices they are metaphorically allude to, the user is assumed to be a fragmented being. The workspaces Adobe Photoshop offers to its user create specific environments dedicated to a particular kind of artistic practice. The user, then, is not assumed to be a unified whole, capable of navigating a democratized environment, but is understood as a fragmented being which needs the segregated artistic environments, each of which is dedicated to a particular kind of artistic practice.