



# REPRODUCTION AND THE ATTRIBUTION OF AUTHENTICITY IN THE CONSERVATION OF CONTEMPORARY PHOTOGRAPHY: THOMAS RUFF'S *PORTRAIT PIA STADBÄUMER* AT MUSEUM FÜR MODERNE KUNST, FRANKFURT

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**ABSTRACT** This paper presents a model for value attribution on contemporary art. For that, it examines reproduction as a conservation strategy for contemporary fine art photography through the lens of modern conservation concepts of value attribution and knowledge production. Based on retrospective research into the reproduction of a photograph by artist Thomas Ruff at the Museum für Moderne Kunst in Frankfurt, the paper explores the artwork's attributed authenticities as valued by the museum's conservator, curator and the artist before and after reproduction. This analysis aims to illustrate how the assessment of contemporary artworks' realms of authenticity can influence decision-making processes surrounding their conservation and presentation.

## Introduction

Cultural heritage conservation is an evolving social and cultural practice, closely linked to the ontology of the medium being conserved at a given time and location. The publication of *Standards of Practice* in 1964 and *Code of Ethics* in 1967, by the American Institute of Conservation (now *AIC Code of Ethics and Guidelines for Practice*) introduced a number of professional obligations for conservators, such as an unswerving respect for the aesthetic, historic and physical integrity of the object, following the principle of reversibility, and limiting aesthetic reintegration to avoid modifying the original.<sup>1</sup> However, contemporary art conservation challenges some of these standards and

is increasingly characterised by preservation methods that privilege the artworks' attributed values and the production of knowledge concerning these works.<sup>2</sup> Furthermore, contemporary conservation practices seem to favour a 'symmetrical' approach, which acknowledges both human and non-human actors – both people and things – in the practice of knowledge production and value attribution.<sup>3</sup>

These changes in theory and practice have been experienced in the field of fine art photography conservation since the early 2000s. The clearest example has been the introduction of reproduction<sup>4</sup> as a conservation strategy for contemporary photographs that exhibit undesirable and irreversible changes, such as fading or yellowing. Traditionally, photographic conservation focused on

two main tasks: first, the preservation of the materiality of the object through the development of preventive conservation measures that could extend the life expectancy of the photographs to the maximum; second, when interventive procedures were required, the application of reversible treatments to stabilise the original materials and allow them to endure the passage of time while respecting cumulative age value.<sup>5</sup> The introduction of reproduction as a conservation strategy for contemporary fine art photographs confronts such well-established approaches. This paper examines reproduction as a conservation approach by using the case study of a photograph by Thomas Ruff, *Portrait Pia Stadtbäumer* (1988) at the Museum für Moderne Kunst (MMK) in Frankfurt. It discusses the trajectory of the circumstances and decisions that led to the reproduction of the artwork in 2010 and presents the opinions of the conservator, curator, and artist as well as the attributed values each of them assigned to the artwork before and after reproduction. This is not a rigorous 'scientific' examination of the different attitudes of each stakeholder – rather it is a quest for a clear understanding of what individual views and values led the stakeholders to choose reproduction as the conservation strategy.

In the discussion of this case study, I present a model for value attribution and defend its use as an approach to systematic knowledge collection and production for conservation of photographic works.

### **[Tracing back] reproduction as conservation: [for] Ruff's *Portrait Pia Stadtbäumer***

In 1991, at the inaugural exhibition of the MMK in Frankfurt am Main, six large chromogenic photographs from the series *Portraits* by German photographer-artist Thomas Ruff were displayed. One of the artworks, *Portrait Pia Stadtbäumer* depicts a girl in her 20s wearing a terracotta-coloured blouse, her blonde hair tied up away from her face and her blue eyes looking straight at the camera with an emotionally neutral expression. The portrait is surrounded by a white margin that functions visually as a *passepoutout*. The whole photograph is Diasec face-mounted and displayed in a wooden frame. The artwork at MMK is the first print in an edition of three. This piece is characterised by several key features: the large size of the photograph (210 × 165 cm); the distant presence of the subject; and the hue, colours and lighting which were inspired by ID and video vigilance cameras and the attempt to bring portrait photographs to point zero.

In 2010, during the preparation for MMK's exhibition *The Lucid Evidence – Fotografie aus der Sammlung (Photography from the Collection)*, it was discovered that the original appearance of *Portrait Pia Stadtbäumer* had changed. According to the museum staff, the artwork showed prominent yellowing in the white margins and fading in the image; when compared with the other five prints in the *Portraits* series, the colour changes were

evident. In 2010, through several dialogues between the museum's conservator Ulrich Lang, the museum's curator Mario Kramer and the artist Thomas Ruff, it was collectively decided that the artwork *Portrait Pia Stadtbäumer* should be reprinted at the Grieger printing lab, the photographic studio where the original 1988 print had been made. The retrospective research carried out in 2017 and 2018 on this case study showed that those presumptions were misguided and that a perfect consensus was not reached on origin, rather a negotiation based on the artwork's most important aspects, according to each stakeholder, guided the process.

Grey literature research showed that neither the original production in 1988 nor the conservation through the reproduction of the artwork in 2010 were documented in detail by the conservator, curator, artist or printing lab. Therefore, different pieces of information were gathered from the archives of the stakeholders (Lang, Kramer and Ruff) in the form of correspondences, dialogue transcriptions and notes. The lack of detailed written or audio-visual records contributed to a loss of knowledge around the artwork's anatomy (the materials and technology used to make the 1988 print and the 2010 reproduction), conservation-related legal aspects, and the status of the prints in the museum (agreements regarding reproduction and edition number). Such information is of paramount importance when assessing and developing conservation strategies for contemporary artworks, for future conservation decision-making processes as well as for expanding knowledge on the artworks and effort should be placed on its careful documentation.<sup>6</sup>

In addition to the data collected through literature research, further information on the reproduction decision-making process, as well as on attributed values of authenticity, was obtained through meetings between the present author (acting as an analyst) and the conservator, curator and artist. In these interviews, a tailor-made questionnaire was introduced to investigate areas of interest such as the materials and processes used for the creation and reproduction of the work, and the values attributed to different realms of authenticity by different stakeholders.

During this investigation, reliance was initially placed on information provided by the artist regarding the making of the artwork in the late 1980s. As Ruff stated,

I took the photograph [*Portrait Pia Stadtbäumer*] in 1988, with a large-format camera, a 4 × 5" negative Kodak Vericolor III S. The photograph was processed on Kodak Endura paper, in a size of about 205 × 160 cm. The print was then mounted with Diasec face, a special mounting method that my lab Grieger offered to me. Then, the photograph was placed in a frame.<sup>7</sup>

The artist also introduced the causes he believed had promoted changes to his early photographs and the effect they had on the perception of his works. He then explained the

impact of material and technological obsolescence, as well as the role of new developments in the imaging industry for the creation and re-creation of his *Portraits* series, especially regarding its aesthetic aspects:

The Endura paper from the '80s is probably not as stable as today's paper. As such, some of my [early] portraits faded away, and I was sometimes asked if I could replace the portraits. Everything at that time was analogue, and until 2004 I had to tell people that I could not make reprints because in the meantime Kodak had changed the original paper and processing from EP2 to RA4, and had developed a new Endura paper which had much more contrast. The portraits then did no longer look like my former portraits, so I gave up shooting portraits. But in 2004, I realised that I could scan the Vericolor III S negative, and I could process the image with either Photoshop or another data system. That allowed me to [digitally] reduce the saturation and the contrast of the images in a way that more or less looked like a print on the 1988 paper. So, since 2004 I have been able to do this thanks to digitalisation and new scanning possibilities ... In this case [of *Pia Stadbauer*], because the analogue printing did not work, I scanned the negative and then the paper was exposed in LightJet technology.<sup>8</sup>

The statements provided by the artist regarding the making of his *Portraits* series indicate that while the selected photographic paper, photographic processing and finishing technique used for *Portrait Pia Stadbauer* was in both instances Endura chromogenic paper with Kodak processing, the chemical composition and the response of the paper to light exposure in 1988 and 2010 differed. The paper from 1988 gave a lower contrast and image stability than that offered by the paper available in 2010. He also stated that the making of the 1988 artwork involved analogue processes, while that of the 2010 print was a semi-analogue process, achieved through a combination of options offered by new imaging technology and the latest photographic materials and processes available at the Grieger printing lab. It was through the advanced understanding and strategic use of the materials and technologies in 2010 that the artist discovered a method to reproduce the aesthetics of the prints first made in 1988. Therefore, following the artist's statements, it could be argued that although the materials and technologies used to create *Portrait Pia Stadbauer* in 1988 and 2010 were different, for him, both prints were considered aesthetically equal at the time of their making.

Moreover, during the reproduction decision-making process, the artist, aware of the art market and the need to retain the artwork's edition number, asked the museum to destroy the 1988 print and replace it with the 2010 print, as the latter would have the same edition number. Conservator Ulrich Lang argued that different heritage values were still conveyed by the 1988 print and objected to destroying it. The conservator's view led to a new agreement between the museum and the artist according to which the 1988

print would remain at and be preserved by the museum.<sup>9</sup> Research of the curator's and conservator's archive on this matter did not uncover any document or written record clarifying the legal status of each of those two prints at the museum. Furthermore, during the interviews, each stakeholder acknowledged the status of those prints differently: as exhibition copy, archival document or as the artwork itself. Nonetheless, in 2018, when this research was taking place, the print used for exhibition purposes was that produced in 2010; the 1988 print was kept at the museum's storage under controlled environmental conditions. While this paper does not provide answers to the status of each print under the museum's cataloguing system, collaboration with the registrars of the museum could provide some additional information.

The following section of the paper discusses the interviews conducted with the conservator, curator and artist. This analysis explores the different values or *realms of authenticity*<sup>10</sup> each stakeholder attributed to the two prints of the *Portrait Pia Stadbauer* photograph at MMK, and how they believed reproduction serves the preservation of the work's authenticity.

### Attributing authenticity: a tool for conservation

In the conservation of contemporary art, concepts of attributed knowledge such as an artwork's authenticity or significant properties,<sup>11</sup> are influential and promote the making of the artwork's identity during conservation. Supported by literature on attributed values for conservation,<sup>12</sup> this paper argues that the authenticity of an artwork differs depending on the stakeholder evaluating the work and the moment and location in which the assessment is performed. In addition, I postulate that perceived authenticity can be assessed on the basis of a number of different realms of authenticity or values which together make the artwork 'the artwork'. Different stakeholders can see and assess the same realms differently according to their – active or passive – involvement in the biography of the piece.

In the case of the photograph *Portrait Pia Stadbauer* at MMK, the conservator, the curator and artist were considered actively involved human stakeholders in the conservation decision-making process. Information on non-human actors, such as materials and equipment, was made accessible through research carried out at the Grieger printing lab. Following the identification of relevant stakeholders,<sup>13</sup> a custom-made questionnaire regarding different realms of authenticity was presented to each stakeholder/interviewee. In this case, the questionnaires introduced 11 realms of authenticity intended to cover the whole spectrum of an artwork's authenticity: aesthetic, artistic, artist's intention, historical, sentimental, iconic, rarity, educational and research, use, associative and monetary. Other realms, such as political, could also be considered to expand the valuation groupings. The stakeholders were interviewed in 2017 and 2018 concerning the faded 1988 print and the 2010 reproduction.<sup>14</sup> It is important to mention that none

**Table 1** Valuation of the realms of authenticity for the 1988 and 2010 prints of *Pia Stadbauer*, as given by the three stakeholders.

	Conservator Ulrich Lang		Curator Dr. Mario Kramer		Artist Thomas Ruff	
	1988	2010	1988	2010	1988	2010
Print produced on year						
Realm of authenticity						
Aesthetic	Major / higher	Neutral / equal	Minor / lower	Major / higher	Minor / lower	Major / higher
Artistic	Major / higher	Minor / lower	Minor / lower	Major / higher	Major / higher	Minor / lower
Artist's intention	Neutral / equal	Neutral / equal	Neutral / equal	Neutral / equal	Neutral / equal	Neutral / equal
Historical	Major / higher	Minor / lower	Neutral / equal	Neutral / equal	Major / higher	Minor / lower
Sentimental	Major / higher	Neutral / equal	Neutral / equal	Neutral / equal	Major / higher	Minor / lower
Iconic	Major / higher	Minor / lower	Other	Other	Major / higher	Minor / lower
Rarity	Major / higher	Minor / lower	Neutral / equal	Neutral / equal	Major / higher	Minor / lower
Educational and Research	Major / higher	Neutral / equal	Neutral / equal	Neutral / equal	Neutral / equal	Neutral / equal
Use	Neutral / equal	Neutral / equal	Minor / lower	Major / higher	Other	Other
Associative	Major / higher	Minor / lower	Minor / lower	Major / higher	Neutral / equal	Neutral / equal
Monetary	Neutral / equal	Neutral / equal	Neutral / equal	Neutral / equal	Minor / lower	Major / higher

  

Valuation	
Minor / lower	Minor / lower
Major / higher	Major / higher
Neutral / equal	Neutral / equal
Other	Other
Not applicable	Not applicable

of the individuals involved in the interviews saw both prints together during the research, and all of them presented their statements based on their visual memories.

The questionnaires were tailored to elicit answers on aspects not covered by findings from the literature and archive research. They were designed to evaluate and highlight the multidisciplinary knowledge of the stakeholders (conservator, curator and artist) and the impact of their contribution on the conservation decision-making process. It was found that the type of valuation given by each stakeholder differed slightly according to their cognitive bias, their discipline and personal motivation. In some instances, the answers given were descriptive, while in others, only a straightforward hierarchical valuation was provided. Table 1 illustrates the hierarchical assessment presented by each stakeholder. Green indicates a high attribution of authenticity, while red represents a lower attribution. Blue indicates an equal attribution, and thus asserts the same level of authenticity to both prints. Sections in yellow – described as other – are secluded from this categorisation, and often involved a descriptive argumentation. Finally, the white cells represent realms stakeholders found non-applicable. The following discussion is informed by the descriptive information provided by the stakeholders during their interviews.

Within the 11 realms discussed, there was only one on which all of the stakeholders agreed: the **artist's intention**. *Artist intention analyses how much the current work represents or matches the original intention of the artist during its making*. In this case, this realm was regarded as equally authentic in the 1988 and the 2010 versions of the work by the three interviewees, as for each of them the artist's intention in relation to the artwork did not really

change over time. As Lang recalled, at the time of reproduction the artist was convinced that the new print had to be the same or identical to the first one.<sup>15</sup>

The **aesthetic realm** *evaluates the visual qualities found in an artwork by comparison to the 'believed to be' visual qualities of the same*. The aesthetic realm is, however, strongly susceptible to the impact of time, as our memories of colour, for example, are subjective. During the interviews, Lang expressed that for him the 2010 print had 'the same aesthetic value [as the 1988 print], but as an exhibition copy, and archival document'. Nonetheless, in the table, he valued the 1988 print as slightly more authentic.<sup>16</sup> For curator Mario Kramer and artist Thomas Ruff, the 2010 print had a higher degree of aesthetic authenticity because, as they argued, the faded look of the 1988 photograph distanced it from the supposed to be original visual quality, making it unsuitable for exhibition purposes.

The **artistic realm** *considers to what degree 'the item or collection exemplifies a particular style, design or artistic movement or shows artistry, creativity, technical accomplishment or originality of idea, form or function, or if it is a good example of the work of a particular artist, designer or architect'*.<sup>17</sup> Lang stated that for him the artistic realm of the 1988 print was higher – more the work itself – because he considered the 2010 print as an exhibition copy. For the curator however, the artistic realm was more authentic for the 2010 print as it better exemplified the artist's particular style. According to Kramer, this was one of the reasons why he considered the 1988 print an archival document. In this instance, Ruff concurred with the conservator: for him, the 1988 print made him vividly recall the original period of the making of the work in the 1980s.

The **historical realm** concerns the capacity of the artwork to convey, embody or stimulate a relation or reaction to the past from the heritage material's age, its association with people or events, its rarity and/or uniqueness, its technological qualities or its archival/documentary potential.<sup>18</sup> In this case, Lang found the 1988 print historically more authentic, but he also argued that the 2010 print would slowly accrue more historical value:

There will be an extra value for this one [the 2010 print] in the future. As time goes by, it will be interesting for the next generation to see how that print will also be yellowing. The amount of yellowing will match, or maybe they will change in a completely different way, but that will also be interesting.<sup>19</sup>

Kramer considered both instances of the artwork equally authentic in historical terms. It could be argued that for the curator the artwork did not fully depend on its materiality, but rather that it was the substitution of one print with the other, thus ensuring the historical continuation of the work. Ruff initially stated that he considered the 1988 print was historically more authentic than the 2010 print. However, he soon connected this assessment with the **realm of sentimentality** and argued that:

The problem is that all these are questions about sentimentality, because if an artist is working on a series, he is into it, and if he has to make a reproduction 20 years later it is no more such a deep love or attachment. So of course, the original work has the highest work value, but if it reaches the point when you don't want to look at it anymore it switches, and it goes the other way around.<sup>20</sup>

In this instance, the sentimental authenticity of the 1988 print for Ruff was higher due to his personal and emotional connection to the moment when he first created the artwork. When Lang and Kramer were asked about their perception of the prints' sentimental authenticity, the conservator reiterated that the 2010 print was considered an exhibition copy and therefore no such value was found in it, while the curator found the sentimental realm not applicable. Those statements matched the expected answers in the *realm of sentimentality in which it is argued 'value springs from an individual's direct personal experience'*.<sup>21</sup>

When considering the **iconic realm**, in which the artwork has social value as a representative symbol of a moment or a period, Lang assigned lower authenticity to the 2010 print arguing that the 1988 print is the one shown in the MMK inaugural exhibition at a time when few museums presented photography as a fine art, generating a lively discussion in the art world. For the curator, both prints were equally authentic because, as he argued, 'the iconic value has travelled from the 1988 to the 2010 [print]'.<sup>22</sup> The artist also considered the iconic authenticity of the 1988 print to be higher.

The **realm of rarity** presents the degree to which an item or collection is considered exceptional.<sup>23</sup> When speaking about rarity, Lang accorded a higher value to the 1988 print, adding that the museum 'got to own these artworks when very few other public institutions had them'.<sup>24</sup> Kramer argued that the realm of rarity was not applicable to photographic artworks: '[it] is not such a thing [rarity] with photography. We have one of an edition of three. Photography is not unique'.<sup>25</sup> For Ruff, rarity value was higher in the 1988 print than that produced in 2010.

The **educational and research realm** considers the potential to gain knowledge on the past, present and in the future, through either the artwork or the interpretation of the historical record embodied in a work.<sup>26</sup> In this case, Lang considered the 1988 print slightly more authentic. Nonetheless, he argued that the 2010 print would also be important at some point in time and that together the two prints would offer more opportunities for research and education. The curator and the artist found both prints equally authentic in this realm.

When discussing the **use realm**, related to the actual current use of the artwork,<sup>27</sup> Lang found that this was not applicable. For Kramer, the 2010 print was the authentic one because this was the only photograph that could be exhibited. Meanwhile, Ruff stated that the use of the photographs would always depend on the state of the first printed work, and would therefore be judged following an assessment of both prints.<sup>28</sup>

The **associative realm** introduces the extent to which there is a relationship between the artwork and the rest of the collection, or the relationship between the artwork and other parts from a larger installation.<sup>29</sup> In this instance, Lang again argued that the 1988 print was more authentic because the 2010 print was just an exhibition copy. Nonetheless, he also recalled that *Portrait Pia Stadbauer* is one of six *Portraits* held by MMK and that while it could be shown alone, it is often displayed alongside others in the series. Kramer stated that the 1988 print had lost its associative authenticity because 'it cannot be shown together with the others. The 1988 [print] is not part of the group any longer.' For him, the 2010 photograph is the artwork and 'is the only one which is part of the group now'.<sup>30</sup> Ruff considered both prints equally authentic with regard to the associative realm. At a later point, the three stakeholders wondered how the associative realm could be valued when considering the second and third print in this edition of three.<sup>31</sup>

Finally, when considering the **monetary realm**, both the conservator and the curator found that this did not apply to either print, because as part of the museum's collection the work was no longer considered marketable. The artist, however, believed that the monetary value of the 2010 print was higher because the print 'looked better'.<sup>32</sup> In this case, it was clear that the monetary realm should have been better defined by the researcher and presented as the extent to which the artwork generates revenue for the organisation, neighbourhood, municipality or region, or attracts additional visitors.<sup>33</sup>

The statements from the three stakeholders regarding the different realms of authenticity for *Portrait Pia Stadtbäumer* at MMK indicate that the artwork was not unanimously considered authentic in one single instance, either 1988 or 2010: rather, both prints were considered to hold different degrees of authenticity in different realms, varying between stakeholders. Lang found the main authenticity of the artwork to be connected to the 1988 print (Table 1): he considered that the 1988 print held higher authenticity in more realms which required preservation and necessitated the safeguarding of the print in the museum's storage. This position arguably reflects standard practices in conservation in which respect for the original material is imperative. Kramer's assessments are more fluid with a number of realms regarded as non-applicable, of equal value, or described as other. Nonetheless, from the four clearly defined realms it can be seen that a higher degree of authenticity was given to the 2010 print (see red vs green cells in Table 1). As Kramer mentioned numerous times during the interviews, for him the 1988 print is an archival document. Finally, Ruff's perception of authenticity is less explicit. While more realms of authenticity were considered higher for the 1988 print (4½ vs 2), there was no total harmony. Three realms were considered equal, and one and a half were thoroughly discussed. The artist seemed unwilling to attribute a higher authenticity to one print over the other. This can be seen as the representation of the artist's position, privileging the conceptuality of the artwork over its materiality and hence considering the two instances of the print as the same unique work.

## Conclusion

Conservation of fine art photography is experiencing a paradigm shift with regard to contemporary art conservation approaches and the prevalence of preserving the artwork's authenticity, which varies according to the values attributed to it by stakeholders, and across time and location. It is therefore necessary for contemporary conservation to develop and cultivate strategies that can satisfy the conservation of the multiple authenticities embedded in an artwork.

In this paper, the photograph *Portrait Pia Stadtbäumer* by Thomas Ruff at MMK was conserved through means of reproduction. This strategy allowed undesired colour changes found in the first printed work to be obliterated and to preserve the aesthetic realm as the artist originally intended.

Three stakeholders – conservator Ulrich Lang, curator Mario Kramer and artist Thomas Ruff – were flagged as indispensable for retrospectively understanding the reproduction conservation decision-making process. Their assessment on the authenticity of the 1988 and 2010 prints differed as a result of their personal and professional backgrounds, the nature of their involvement in the biography of the piece, and their perception of reproduction as an

accepted conservation process.

The responses collected in the interviews demonstrate that authenticity is not fixed but in flux. Authenticity can be found to pertain to abstract artistic entities, across different realms, and it is dependent on the stakeholders attributing value.

This paper introduced a model of value attribution, composed of a custom-made questionnaire and an illustrative table. In this case study, the model allowed the researcher (or analyst) to understand the visions of three actively involved stakeholders of a unique work and to illuminate the realms of authenticity they considered most relevant for the artwork's preservation and faithful presentation. While the questionnaire and personal interviews proved to be effective for gathering the desired data, the table's valuation system will benefit from further work. For example, the responses given by the stakeholders seem to denote two different types of judgement. Minor and major seem to relate to the relative importance of the different realms of authenticity, while higher and lower appear to relate to a comparison of the two prints.

Given the nature of chromogenic photographs it is expected that at a given moment, changes in colour will also occur to the 2010 printed *Portrait Pia Stadtbäumer*, opening new questions for conservation. In this regard, the preservation of both prints, in combination with information collected from reports and interviews, would increase knowledge production around this artwork's biography. The safekeeping of both prints will allow educational and research or associative realms to be explored and expanded further, and if the possibility arises, supplementary interviews could serve for a re-examination of attributed values.

This paper concludes that the proposed approach to an artwork's value attribution of authenticity, if applied in combination with other models for contemporary art conservation and presentation,<sup>34</sup> could be used by conservators or curators to inform their decision-making processes when undertaking new projects. By compiling values and knowledge regarding a work of art, and by reconciling them during the conservation decision-making process, reproduction can be considered a viable approach for preserving photographs' attributed authenticities for future generations.

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## Notes

1. AIC 1981.
2. Avrami et al. 2000; Clavir 2002; Muñoz Viñas 2005; Heinich 2008; Appelbaum 2012.
3. Hummelen et al. 2008.
4. In this research, the term reproduction is used when referring to the physical making of photographic surrogates from analogue, digital or hybrid photographic nature, used to substitute original photographs presenting a loss of quality. Reproduction embeds thoughtful consideration on the decision-making process prior to and during the reprinting process. In addition, the reproduced photograph will only be used as a surrogate of the original. It is important to note that in this research the term 'reproduction' essentially differs from the term 'reprinting'. Reprinting, in this research, is merely understood as a technological or industrial process that creates additional copies of something already printed, and it is often related to mass media production.
5. Appelbaum 2012: 104.
6. The Photograph Information Record (PIR) is a questionnaire used internationally to obtain essential information detailing the materials and techniques used in the creation of photographic works and their history. This document allows institutions and individuals to better catalogue, interpret and care for their photographs. It is available to download at: <https://www.culturalheritage.org/membership/groups-and-networks/photographic-materials-group/publications/photographic-information-record> (accessed 8 August 2019).
7. Thomas Ruff, personal interview, 21 November 2017.
8. Ibid.
9. Ulrich Lang, personal interview, 6 October 2017.
10. The concept of 'realms' stands as categories, or heritage value typologies, and argues that artworks can be understood concerning tangible and intangible realms, such as but not limited to material, aesthetic, artist intent, age, cultural and symbolic, historical, sentimental, social, political, iconic, spiritual or religious, rarity, educational, research, use, or associative and monetary ones (De La Torre 2002; Appelbaum 2012). *Authenticity* relates to the degree of real value or realistic experience an individual or group purports to find in an artwork. Assessing the valuation of different realms of authenticity with regard to individual artworks can support their conservation and presentation decision-making exercise (Castriota and García Celma as cited in Giebeler et al. 2019: Glossary).
11. 'Significant properties' are defined as 'the tangible and intangible characteristics of a work of art that an individual or group considers constitutive of its identity and important for the work to be maintained or recur. Those properties deemed significant, critical, essential, or work-defining may change over time and may vary among stakeholders ... A similar notion was introduced by Rebecca Gordon in her description of an artwork's "critical mass", defined as "the optimum choice and grouping of factors or attributes that demonstrate the core identity of the work of art" (2014, 97)': Castriota and García, cited in Giebeler et al. 2019: Glossary.
12. Avrami et al. 2000; Clavir 2002; Muñoz Viñas 2005; Heinich 2008; Appelbaum 2012; Hummelen et al. 2008.
13. A paper on stakeholders in conservation is expected to be published in the *Journal of the American Institute for Conservation* in a special CAN! Issue on the conservation of contemporary art featuring the proceedings from the American Institute for Conservation's 47th Annual Meeting, held in Uncasville, CT in 2019.
14. Personal interviews by the author with: Ulrich Lang, MMK Museum, Frankfurt, 6 October 2017; Thomas Ruff at his

- studio in Düsseldorf, 21 November 2017; Mario Kramer, MMK Museum, Frankfurt, 12 April 2018.
15. Ulrich Lang, personal interview, 6 October 2017.
16. Ibid.
17. Versloot 2014: 58.
18. de la Torre 2002: 11.
19. Ulrich Lang, personal interview, 6 October 2017.
20. Thomas Ruff, personal interview, 21 November 2017.
21. Appelbaum 2012: 109.
22. Mario Kramer, personal interview, 12 April 2018.
23. Versloot 2014: 59.
24. Ulrich Lang, personal interview, 6 October 2017.
25. Mario Kramer, personal interview, 12 April 2018.
26. De La Torre 2002: 11.
27. Versloot 2014: 59.
28. Thomas Ruff, personal interview, 21 November 2017.
29. Versloot 2014: 58, Ensemble value.
30. Mario Kramer, personal interview, 12 April 2018.
31. Personal interviews by the author with: Ulrich Lang, MMK Museum, Frankfurt, 6 October 2017; Thomas Ruff at his studio in Düsseldorf, 21 November 2017; Mario Kramer, MMK Museum, Frankfurt, 12 April 2018.
32. Thomas Ruff, personal interview, 21 November 2017.
33. Versloot 2014: 58, Economic value.
34. Giebeler et al. 2019.

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## Biography

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