

PROJECTION TO PIXEL:
THE ART OF DIGITAL TRANSLATIONS OF 35MM SLIDESHOWS IN CULTURAL INSTITUTIONS

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Abstract

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This research paper and associated website address the growing practice of digitization in cultural institutions. Digitization provides greater access to the objects and associated research of collections; however, digitization is a subjective process and should be understood as a cultural as well as technical practice. Current digital reproductions and documentation do not do justice to time-based artworks. 35mm slideshows, in particular, are misrepresented by their digital records and, due to their imminent material and technical obsolescence, are inaccessible unless on display. This thesis responds to the pressing question: How can institutions, primarily art galleries and museums, create digital translations of slideshows produced as artworks that maintain the integrity of the original format, both contextually and materially? It seeks to find a way to create a robust digital translation of 35mm slideshows that provides a better sense of their materiality, presentation, and context.

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Please visit www.emilymiller.ca/digitalTranslations/home.html to see more of
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Introduction

Projections exist only in light; they are a moment of time captured by a transparency. Photographs fixed on paper are complete objects, while projections require many parts to make the whole: transparencies, projector, screen, and operator. Projected photography arises from a deliberate choice on the part of the creator to present images that live occasionally in space rather than permanently on paper. From the 1950s to the 1990s, 35mm slideshows were the most accessible and affordable form of projected photography for amateurs and professionals alike. Slideshows were efficient as they presented large-scale pictures from slides that were small and easy to store, making them popular in homes, lecture halls, and businesses.

Artists were also drawn to this unique form of photography and presentation throughout the mid-to-late twentieth century. The artistic use of 35mm slideshows represents a creative and intellectual decision, usually on the part of conceptual or performance artists. 35mm slide-based artworks developed a medium specificity characterized by the duration, sequence, projection, and the physical demands of the slideshow's installation. The technical and physical specifications of slideshows required art institutions to generate distinct practices for the exhibition and preservation of these artworks. For example, duplication is essential to the vitality of a slideshow, as each slide is individually created and subjected to the effects of time. The projected exhibition of a slideshow exhausts the slides, which then require replacement. 35mm slideshows continue to rely on obsolete materials and machinery that are being

replaced and erased by digital technology. In the face of technological obsolescence, institutions must embrace digitization as a valuable tool for the continued exhibition and preservation of these artworks.

The Canadian Museums Association's ethics guidelines state that "[m]useums have two fundamental public trust responsibilities: stewardship and public service."¹ These are exceptional responsibilities: museums are entrusted to care for valuable cultural artifacts, and are obligated to create access, and provide research on their collection, to the public. Digital technology and the internet have created a networked culture, an online global community shared by millions. Institutions are under pressure to digitize their collections and create accessible records. Given the threat of technological and material obsolescence, I argue that institutions should prioritize the digitization and documentation of 35mm slideshows. This is especially important for artists who only allow the analogue slideshow to be exhibited, as the digital documents will eventually be the only surviving record of the artwork. Unless a slideshow is on display, the public's only access to it is through a selection of still, digitized slides fixed on a monitor; this is a materially and conceptually reductive representation of a complex artwork.

These digital reproductions demonstrate the continued practice of antiquated reproduction photography practices. Previously, museums were confined to analogue photography to document their artworks, thus the reproductions were always two-dimensional, still photographs. Museums continue to document artworks in this

¹ Canadian Museums Association, *Ethical Guidelines*, 5.

manner, despite new digital technologies that can better capture time-based and multi-dimensional artworks. Museums assume an authoritative role in the creation and dissemination of digital reproductions; however, their outmoded approach to documentation reveals a disregard toward robust, culturally aware digitization practices. The assumption that the institutional documentation and digitization of an artwork is a democratic, transparent, and technical process is simplistic and inaccurate. The digitized reproductions of artworks produced by institutions are meant to serve the public and can have long-term cultural ramifications. Digitization has introduced new tools for the digital reproduction of artwork; rigorous digitization practices can produce digitized slideshows that retain the analogue original's materiality and artistic intention.

The objective of this research paper and the associated applied project—a website that explores different digital documentation practices of 35mm slideshows—is to answer the question: how can institutions, primarily art galleries and museums, create digital translations of slideshows, produced as artworks, that maintain the integrity of the original format, both contextually and materially? I argue that digitization should be informed by a critical approach and that artworks developed as slideshows require a digital intervention that generates a time-based record that conveys sequence and duration, rather than static images. The digitization should produce a translation more aligned to the original format.

The website I developed in conjunction with this research paper demonstrates the advantages and disadvantages of five types of digital documentation applied to 35mm slideshows. All examples represent different types of media files that cultural

institutions could create for private use through their collections management system (such as The Museum System) or for public use through their website. I judge the adequacy of the reproductions by their ability to document the sequence of slides, the duration of each slide and the slideshow, the image content of the slides, the installation of the slideshow, and any audio or multimedia components of the artwork. Successful digital translations of 35mm slideshows can serve two functions: they can be, first, a method of exhibition and, second, a method of documentation. The website is intended to support the arguments of this research paper and demonstrate a digital translation that retains the slideshow's original context and maintains its material integrity.

The term "translation" is significant because it differs from "reproduction" or "surrogate"—terms that imply an objective exactness. "Translation," however, implies a more nuanced interpretation. In "The Translator's Task," Walter Benjamin argues that a translation "indicates that [artworks] have reached the stage of their continuing life."² Although Benjamin applies this theory to language, it can be adapted to imaging. Benjamin argues that translation is a mode and that it is the translator's responsibility to distinguish "the intended object from the mode of its intention."³ The word (the "intended object") may be translated into any language; however, the connotations associated with the word ("the mode of its intention") are what require translation. Thus, the image content of a slide may be reproduced identically on a monitor;

² Benjamin, "The Translator's Task," 153.

³ Ibid., 156.

however, the mode of that presentation—fixed, flat, and independent—varies from the intended mode of presentation—projected, fleeting, multidimensional, and sequential.

The Art Gallery of Ontario (AGO) has three 35mm slideshows in their collection: Michael Snow's *Recombinant* (1992), James Coleman's *Living and Presumed Dead* (1983-85), and Suzy Lake's *On Stage* (1972-74).⁴ A digital translation of Nan Goldin's *The Ballad of Sexual Dependency* was loaned to the AGO for exhibition in 2016 and will also be used as a point of comparison. The AGO's methods of dealing with slideshows will be used as case studies throughout the paper. Through these case studies, I will analyze the exhibition, preservation, and digitization methods applied to 35mm slideshows within institutions.

As an intern at the AGO in the Department of Photography in 2018, I have had access to the case study objects and their AGO records, which has allowed me to assess the institution's current of treatment of 35mm slideshows. I have also conducted interviews with staff at the AGO to gain further insight into the responsibility assumed by an institution when a 35mm slideshow enters its permanent collection. I have discussed the preservation treatment of *Recombinant* with the AGO's Conservator of Photography, Katharine Whitman. The AGO's Image Resources Department provided a detailed account of their standards and approaches regarding the digitization of 35mm slides. I also interviewed Danny Winchester, a member of the AGO's Media Production Department, who has digitized slideshows for exhibitions. He drew attention to the inescapable subjectivity of digitization and the challenge of preserving the artistic intent

⁴ The AGO does have other artworks that contain 35mm slides; however, the three artworks mentioned are the only ones that were conceived as durational slideshows.

of a work. In order to explore the institutional treatment of *The Ballad*, I interviewed Tasha Lutek, Senior Cataloguer in MoMA's Photography Department, and Alex Nelson, a former assistant in Goldin's New York studio and archive.

Interviews with Michael Snow and Suzy Lake reveal the artist's role in the digitization of their artworks, both as exhibition copies and reference files, and the negotiations required between artists and institutions for an artwork's continuing life within a collection. These discussions were immensely helpful, providing me with an insight into these artists' practices, and their views on digitization and the effect it has had on their work.

Digital technologies can offer a mode of translation that extends the life of the 35mm slideshow once the original analogue mode is no longer viable. Slideshows are artworks that require technological mediation in order to be experienced. The digitization of a slideshow allows it to be accessible on a monitor. The 35mm slide as an object does not satisfactorily display image content; digitization makes the image visible and accessible. And, as projectors have become an obsolete technology, digitization offers a way to renew slideshows as accessible files (though these files too will eventually make way for newer technology). A digitized slideshow offers easy access, preserves the original pieces, and deters technical obsolescence.

A detailed review of digitization practices is required to identify the challenges, the expectations, and the responsibilities institutions face when digitizing their collections. My theoretical research, paired with practical conversations with museum staff and artists, showed digitization to be a process of interpretation, alteration, and

compromise. The experiences, perspectives, and standards discussed influenced my approach to my website and the digital reproductions for 35mm slideshows I have created. This research paper and the applied project will explore the possibility of conscientious and robust digital translations, and the tenuous and subjective role of the translator. They also contribute to a larger dialogue on digitization practices in cultural institutions.

Literature Review

The purpose of this literature review is to provide a summation of the research that has influenced my thesis question and applied project. The literature—exhibition catalogues, academic essays, peer-reviewed journal articles, and practical and academic research—provides the historical background, preservation standards, and institutional context of projected photography. Exhibition catalogues address the medium specificity of slideshows, which dictates the distinctive curatorial treatment demanded by projected photography but not print photography. These texts reveal the aesthetic, experiential, and conceptual appeal of the medium from an art historical and curatorial perspective. The literature explores the responsibility of institutions to engage with digital culture and the significance of their efforts to do so.

Through these texts, I gained a better understanding of the history and materiality of slideshows, how they operate as an aesthetic and conceptual practice, and how they have been displayed in the museum and online. Current digitization practices need to be analyzed closely, as they are still young and represent conventions that were developed rapidly to keep up with evolving technologies. The works included in the literature review suggest alternative approaches to current institutional digitization practices. My project supports the scholarly argument that digitization is a subjective process and should be understood as a cultural as well as technical practice. The research has provided the framework for an investigation into the digitization of slideshows as a necessary step in providing these works with a continuing life. It has also

informed my applied project, which will highlight the burgeoning role of the critical, cultural, digital translator.

The History of Slideshows

The immersive, temporal, and spatial experience of 35mm slideshows descends from a tradition of public visual spectacle and projection. Victorian dioramas and magic lantern shows captivated and entertained audiences with large-scale illuminations. Barbara Maria Stafford and Frances Terpak's *Devices of Wonder: From the World in a Box to Images on a Screen* traces the emergence and disappearance of the technologies that supported projection. Advancements in technology lead to the decline of earlier equipment and materials: just as the 35mm slideshow replaced the magic lantern show, digital technology replaced the 35mm slideshow.

The catalogue *Slides. The History of Projected Photography*, which accompanied a 2017 exhibition at the Musée de l'Elysée, is devoted to projected photography's history. The text charts the evolution of the projected photographic image from nineteenth-century lantern slides to the contemporary public projections of Krzysztof Wodiczko, who has achieved monumental effects through digital technology. *Slides* includes essays by Anne Lacoste and Olivier Lugon. Brief texts identify artists and events that demonstrate the technological advancements of projected photography and how this influenced its cultural, social, and political impact. The catalogue emphasizes projected photography's multiple functions as a form of entertainment, an instrument of propaganda, a method of advertisement, and an artistic practice.

In 2005, the Baltimore Museum of Art's exhibition *SlideShow* focused exclusively on 35mm slideshows created as artworks. Darsie Alexander's essay, "SlideShow," in the accompanying catalogue, *SlideShow: Projected Images in Contemporary Art*, presents a historical investigation of 35mm slideshows' adoption by conceptual artists. In his essay, "Saving Pictures," Charles Harrison expands on the slideshow's conceptualist advantages as a medium that refuses easy commodification and embraces process and experience. Artists, aware that slideshows were associated with advertisements and family records, used them to expose and subvert those dominant narratives.⁵

These resources present a technical and aesthetic history of projected photography, specifically the 35mm slideshow. The research provides important context in approaching the 35mm slideshow as a centre of interest. It allows me to understand the cultural, social, and technological impact of the slideshow, which grounds my analysis of what material and contextual characteristics define the 35mm slideshow and what a digital translation should strive to achieve.

The Medium Specificity of Slideshows

The presentation of slideshows differs from that of printed photographs in many significant ways. This distinction is most clearly evident in the materiality of these photographic objects: a slideshow is a temporary, spatial, experiential, sequenced projection, while a printed photograph is an independent, still, object. Rosalind Krauss, in her essay "'...And then turn away?': An Essay on James Coleman," explores the

⁵ Alexander, "SlideShow," 4.

medium specificity (the artistic embrace of the formal, aesthetic qualities of a medium) of projected photography. Krauss initially asserts that no artist invents a medium; instead, over time, mediums “individualize their practice; they intensify the skills associated with them; and, importantly, they acquire histories.”⁶ She argues that “[i]nventing a medium is like inventing a language”⁷: it requires structure, syntax, meaningful functions, and competent use.

Krauss examines Coleman’s “projected images” (his preferred term)⁸—works achieved through the use of slides, a medium appropriated from the realm of advertising. Although Coleman did not invent slides or the slideshow, Krauss argues that his unique artistic appropriation and manipulation of the medium developed its specificity, and in turn, constitutes the closest example of “inventing a medium.”⁹ Coleman has explored and refined his use of projected images since the 1970s. Krauss posits that he has developed a medium specificity wherein his artworks share certain characteristics both materially (the images are projected, the installation is deliberate and controlled) and intellectually (the static images are meant to disrupt a linear narrative). She argues Coleman’s success is made possible by the fact that his medium, the slide, has “no aesthetic lineage and...is so singular as a support that to adopt it as a medium is immediately to put a kind of aesthetic patent on it.”¹⁰

⁶ Krauss, “...And then turn away?,” 5.

⁷ Ibid., 6.

⁸ Ibid., 8.

⁹ Ibid.

¹⁰ Ibid.

Krauss' analysis of Coleman's practice is comprehensive and effective; however, her argument that there is no aesthetic lineage preceding Coleman's use of slides is incorrect. Coleman may have created projected images that fulfill unique artistic intentions; however, the medium and its related technologies were appropriated and manipulated by other artists who were Coleman's contemporaries. The intellectual understanding of medium specificity that Krauss ascribes to Coleman's may be unique to him, but the aesthetic, formal characteristic found in Coleman's projected images are evident in the works of other artists working with 35mm slideshows. Thus, I have adopted Krauss' argument for the medium specificity of projected images, but I have broadened it to incorporate all artists who have created 35mm slideshows: artists who have individualized the practice, intensified the skill, and contributed to the medium's aesthetic lineage. I maintain that the formal qualities that constitute the medium specificity of 35mm slideshows are duration, sequence, projection, and the physical demands of the installation.

Robert Storr's essay, "Next Slide, Please..." explores the inherent materiality of the equipment associated with 35mm slideshows: the audible clicks, the sequencing of images, and the duration of projections. These technical, material qualities were often employed to enhance the intention of artists. Storr notes that "the [projector's] machinery functions like a back beat" throughout Goldin's *The Ballad of Sexual Dependency*.¹¹ Lacoste, in her essay "Photographic Projection since the 1960s: A Vast Field of Artistic Exploration," supports Storr's claim when she observes that "[t]he

¹¹ Storr, "Next Slide, Please..." 56.

apparatus itself is considered an artistic matter,” and cites *Auto Focus* (2002) by Ceal Floyer, which “consecrates the projection apparatus as an object” and the “slide itself...as an art material.”¹² In “Exhibiting/Projecting: Slides and Multiple Screens in the 1960s,” Lugon focuses on the function, multiplicity, and materiality of screens, and maintains that the size and clarity of screens efficiently disseminated visual information; they are tools for communication rather than contemplation.¹³ These material and mechanical aesthetics that are inherent to 35mm slideshows are not captured in the still images meant to represent these complex installations.

Exhibition catalogues and artists’ monographs have provided research and detailed descriptions of my four case studies—Suzy Lake’s *On Stage*, Michael Snow’s *Recombinant*, James Coleman’s *Living and Presumed Dead*, and Nan Goldin’s *The Ballad of Sexual Dependency*. *Introducing Suzy Lake*, edited by Georgiana Uhlyarik and published in conjunction with the AGO’s 2014 exhibition under the same name, is a comprehensive catalogue that provides an overview of Lake’s prolific career. In 1996, the Whitney published *Nan Goldin: I’ll Be Your Mirror*; the catalogue accompanied a major exhibition of the same title dedicated to Goldin’s growing body of work. The Aperture publication *The Ballad of Sexual Dependency* (1986, reprinted 1996) is another valuable resource, as the foreword is written by Goldin and provides the artist’s insight into her own practice. *Michael Snow Photo-Centric*, edited by Adelina Vlas, is an exhibition catalogue that examines Snow’s oeuvre and his approach to slide-based artwork; it includes the artist’s own writing on his photographic practice. *James*

¹² Lacoste, “Photographic Projection Since the 1960s,” 210.

¹³ Lugon, “Exhibiting Projecting,” 189.

Coleman, edited by George Baker, is a volume of essays discussing Coleman's work. In the essay, "The Living Dead (*Living and Presumed Dead*)," Raymond Bellour offers a detailed account of the intended presentation and the audio-visual content of Coleman's *Living and Presumed Dead*.

The critical essays included in *Slides* and *SlideShow* provide a sustained investigation of projected photography, not simply as an adjunct to photography, but as distinguished by its medium specificity. The catalogues represent a rare departure: art galleries and scholars often exhibit and discuss slideshows without making nuanced arguments or distinctions on the practice of projected images. The catalogues pertaining to my case studies provide bibliographical information that gives valuable context for understanding the artists, their intentions, and their practices. The installation and exhibition of each slide-based work is thoroughly described; these descriptions include many aesthetic and practical components that easily could have been overlooked or misunderstood. The texts provide vital documentation of the work for those who have not experienced it; this demonstrates the reliance the reader has on the textual description of slideshows, as the two-dimensional documentation of projections included in the catalogues fails to provide the materiality, content, or context of the artwork. These publications are extremely important resources for researchers, like me, who do not have the opportunity to see the artworks installed.

The Preservation of Slideshows

Institutions are responsible for providing superior care to ensure the preservation of their collection's material; therefore, it is important to understand the best practices for 35mm slideshow preservation. Henry Wilhelm's influential book, *The Permanence and Care of Color Photographs*, details the chemical components of analogue materials and the preservation techniques required to maintain fugitive photographic objects. Wilhelm deconstructs the chemical make-up of slide films and ranks their image quality and stability. Published in 1993, his approach is analogue-centric but remains relevant to institutions that house and exhibit 35mm slide collections. A brief discussion of the "digital transmission and storage" of colour slides signals the massive shift in electronic communication and digital images that was about to occur.¹⁴ This work remains a leading resource in image preservation and Wilhelm's research continues to influence the institutional treatment of analogue slides.

Tina Weidner, a time-based conservator and researcher at the Tate, released an online research project entitled "Dying Technologies: the end of 35mm slide transparencies," which was undertaken between June 2011 and December 2012. She and her team investigated "the future of artworks for which 35mm slides form an artistic medium and explore[d] the implications of the discontinuation of analogue slide film and related technologies for the preservation and display of these works of art."¹⁵ The project addresses the obsolescence of slide material and technology that Wilhelm only hinted at twenty years earlier. Weidner concludes that digitization will eventually

¹⁴ Wilhelm, *The Permanence and Care of Color Photographs*, 637.

¹⁵ Weidner, "Dying Technologies: the end of 35mm slide transparencies."

be necessary for the preservation of these artworks. Projections require an intermediary—a projector and a screen; without this equipment, a slideshow is a collection of dim transparencies. The development of digitization removes the demand for these obsolete technologies, increases access to the object, and prevents over-handling and potential damage to the original material.

Weidner's discussion of the Tate's history of slideshow acquisitions, the material and technical obsolescence of slides and their supporting equipment, the analogue and digital duplication of slides, and the digitization of slides (with a focus on colour management) is relevant to my own research. Both Weidner and I approach preservation initiatives from the perspective of professionals working in an art gallery; unlike an archive that focuses on the housing and preservation of slide collections, art galleries, such as the Tate and AGO, have the responsibility to preserve and exhibit the slideshows within their collections.

Both Weidner's and Wilhelm's recommendations fall short, as they focus on the preservation of the slide and not the *slideshow*. This approach privileges the preservation of the image content over the preservation of supporting technology, and it isolates the slide as a single object rather than part of a conceptual whole. Despite this drawback, their research provides a comprehensive overview and outlines the current best practices of 35mm slide preservation.

Digital Culture and the Cultural Institution

Given the slideshow's medium specificity, supporting technology, and complicated installations, exhibitions are usually the only opportunity for viewers to understand the slideshow's multi-dimensional, multi-sensory complexity. Often, an institution's digital record of a 35mm slideshow will have either no reproduction available or an inadequate reproduction (a digitized slide, subjectively selected and frozen on the screen). In order to understand the implications of these digital reproductions and propose alternative methods for digitizing slideshows, it is necessary to investigate the responsibility of the cultural institution in an era of digital practices and networked culture.

In "Curating the Photographic Image in Networked Culture," Andrew Dewdney examines the development of digital media over the past twenty years and explores its influence on these institutional responsibilities. Dewdney explores the position of public cultural institutions in networked culture, a phenomenon of the twenty-first century (where communication and connections are achieved through digital, online structures). Dewdney argues that institutions must engage with these communities "because as a remediation of analogue cultural forms it prefigures who the new public are, what they are doing and how they are behaving." He argues that the networked image and the ubiquity of images on screens have resulted in a new subjectivity for the viewer. Dewdney describes the current state of the museum's digital presence and approach to digitization.

Ross Parry's *Recoding the Museum: Digital Heritage and the Technologies of Change* traces the compatibilities and incompatibilities in the relationship between the museum and the computer. When cultural institutions were initially faced with the demand to digitize collections, there was anxiety: as Parry notes, "the fear was that rather than just being a temporary substitute, eventually the digital image might supplant the original."¹⁶ Parry's book is a valuable resource as it positions cultural institutions as influential authorities when producing digital content. Parry applies Terry Flew's term "'cultural technology'—culture shaped by technologies that are themselves cultural constructs" in his description of the relationship between museums and digital media, which "emerges as something more reciprocal and complex."¹⁷ Parry uses the printing press as an example of a cultural technology that did not exercise change over society but was harnessed by society to exercise change. He extends this argument to museums, exploring how they operate as cultural authorities and how they influence the dissemination and interpretation of culture through digital technologies.

The position that digital media is a cultural technology operated by institutions is applied specifically to the digital reproduction of photographs in "Photographic Materiality in the Age of Digital Reproduction" by Joanna Sassoon; the essay was first published in 1998 and updated in 2004. Sassoon observes that "under the guise of increased access and improved preservation outcomes, many custodial institutions are undertaking bulk digitization of their photograph collections."¹⁸ She argues that the

¹⁶ Parry, *Recoding the Museum*, 64–65.

¹⁷ *Ibid.*, 5.

¹⁸ Sassoon, "Photographic Materiality in the Age of Digital Reproduction," 197.

digitization of select objects is a subjective process that lacks transparency and has created digitized collections with “enhanced access to specific choices of their ‘treasures’ ... rather than promot[ing] the integrity of a complete archive through bulk and non-selective digitising.”¹⁹ The comprehensive digitization that Sassoon advocates would require an abundance of resources (technology, software, time, skilled professionals) that few cultural institutions could afford. Not only is bulk digitization impractical, but since the publication of Sassoon’s essay, research on the production of digital content suggests that this approach would create an overwhelming amount of content that would result in digitized objects becoming difficult to access or entirely lost. Cultural institutions have responded to user-based research and public feedback about what cultural heritage items are searched for online, prioritizing these objects for digitization.

Sassoon’s argument that the digital copy of a photograph removes the original’s physicality and context, rendering it just another image in a stream of images, is still a relevant concern. For Sassoon, this process of “technical transformation from the material to the digital should in fact be seen as a cultural process.”²⁰ She invokes Walter Benjamin’s argument that a translation is more than a reproduction of the original: translation should account for the work’s meaning and materiality through the progress of time and present the work’s “constantly renewed, latest and most comprehensive unfolding.”²¹ Through Sassoon, I was introduced to Benjamin’s “The Translator’s Task,”

¹⁹ Sassoon, “Photographic Materiality in the Age of Digital Reproduction,” 206.

²⁰ *Ibid.*, 197.

²¹ Benjamin, “The Translator’s Task,” 154.

which has provided me with a theoretical framework to apply to my case studies and research objectives. Benjamin argues that the task of translator is to separate the “intended object” and the “mode of intention,” and successfully translate the latter. I have adapted this concept to the digitization of 35mm slideshows: an image file derived from the digitized slides of a slideshow replicates an element of the “intended object” but fails to translate the slideshow’s presentation and materiality, or its “mode of intention.” My research seeks to determine what would constitute a robust, meaningful digital reproduction (or “translation”). It also aims to identify what the “translator” requires (in terms of artwork, equipment, and skill) to successfully complete this endeavour. Benjamin’s argument for a translation that is more rigorous, more meaningful, and more contextual than a simplified depiction of content resonates with the translation of an artwork from analogue to digital.

The History and Obsolescence of 35m Slideshows

In 1839, Henry Fox Talbot published a paper celebrating his new, stable method of making a photographic print; he referred to his success as “the art of fixing a shadow.”²² Though Talbot’s printed photograph represents what many consider “photography,” his objective to fix “[t]he most transitory of things, a shadow, the proverbial emblem of all that is fleeting and momentary”²³ was not the sole impulse behind photographic practices, then or now. Projected photography—magic lantern shows, slideshows, public projections—embraced the possibilities within this fleeting and momentary state. Projections allowed sequences of enlarged colour images that could be presented to large audiences.

The earliest recorded practice of projecting images from transparencies was in 1656 when the Dutch astronomer and mathematician Christiaan Huygens developed the magic lantern: a lantern with a conclave mirror that sits behind a candle and directs light through a painted glass slide (lantern slide) and then through a tube with a lens on either end, resulting in an enlarged projection.²⁴ The magic lantern captivated and entertained audiences. The “magic” was a powerful trick dependent on the technologies of projection; as Barbara Stafford observes, “[o]ptical devices played key role in this dialectical process of joining earthly to unearthly experiences.”²⁵

²² Talbot, “Some Account of the Art of Photogenic Drawing,” 5.

²³ Ibid.

²⁴ Terpak, *Devices of Wonder*, 297.

²⁵ Stafford, *Devices of Wonder*, 82.

The development of photography offered a new direction for the magic lantern and its slides: the ability to project magnified photographic images added a practical dimension to the magical device. In the late-nineteenth century, the technology was used to provide photographic accompaniments to lectures. Photographers such as Jacob Riis and Lewis Hine presented their photographs and advanced their social agendas through magic lantern lectures. Riis' photographs in *How the Other Half Lives: Studies Among the Tenements of New York* (1890) exposed viewers to the harsh social realities and living conditions of the poor and homeless. Richard Street, in an examination of Riis's work, notes that it is at this point that "photographic 'evidence' became a fundamental element in all publications dealing with social problems."²⁶ Although Street only references the publications, Riis's presentations would certainly have also been enhanced by the magic lantern's powerful, visual testimony. His message reached a wide audience and made an emotional impact that was fortified by music, strong rhetoric, and collective experience. The National Child Labor Committee (NCLC), recognizing the power of these presentations, commissioned photographers to document the social conditions of child labourers for print and projection. Lewis Hine photographed the immigrants at Ellis Island and poor, working rural children in the United States between 1908 and 1924.²⁷ His evocative and detailed portraits of children combined aesthetic and documentary aims; the resulting images were both emotional and evidential, and had clear social objectives.

²⁶ Street, Richard Steven. "Lange's Antecedents," 390.

²⁷ Library of Congress. "National Child Labour Committee Collection."

As photographic technologies developed, so did the magic lantern. Different models were manufactured for different purposes: there were powerful systems that could project from the back of a lecture hall and inexpensive projectors for the home. Still the process required a range of equipment (projectors, slide mounts, screens, and lamps), as well as skilled operators. Manufacturers published manuals on the safe operation of magic lanterns (the gas and heat could pose a threat to the audience and the material) and techniques for smooth transitions.²⁸ Despite the improvements to the apparatus, the glass slides themselves were heavy and prone to breaking. When Kodak introduced the 35mm slide in the 1930s, the technology adapted to suit the new, much more efficient, material; the 35mm slide projector eventually replaced the magic lantern and its slides.

Kodachrome, colour positive film, entered the market in 1935, and by 1939, Kodak manufactured a simple projector, assuming correctly that the “ease and compactness of slides would be their greatest commercial asset.”²⁹ In the 1960s, the technology advanced dramatically when Kodak released the carousel slide projector: the automated machine could hold up to 80 slides and move back and forth between slides, and the attached remote made it possible for the operator to move away from the projector. The device enabled teachers and professionals to employ slides regularly as they “found new freedom in the quickness of automated slides and in their own ability to control the order and speed of images.”³⁰

²⁸ Miyahara, “The impact of the lantern slide,” 68.

²⁹ Alexander, “SlideShow,” 6.

³⁰ Alexander, “SlideShow,” 6.

Slideshows appealed to teachers, business professionals, advertisers, and families throughout the latter half of the twentieth century. Kodak's marketing targeted families, showing happy people, sitting together, and enjoying images as "big-as-life."³¹ The collective experience of slideshows and the personal connections to the images displayed on the screen invited people to come together, share, and reminisce; as Darsie Alexander observes, "[s]lides provided something that no other photographic medium offered—a communal experience of showing and receiving large-scale pictures of private life in a color-saturated palette."³² The effect was impressive, so much so that projections broke out of commercial and domestic realms and entered the public sphere.

The public exhibition of a slideshow "is a phenomenon, an event that occurs at a specific time for a specific purpose."³³ Slideshows, created as advertisements, propaganda, or artwork, began to appear at world expos, festivals, and art institutions in the 1960s. Olivier Lugon observes that screens were not introduced as "contemplation mediums, but rather as instruments of mass communication."³⁴ Slideshows projected onto large screens were ideally suited to public events. In 1959, the United States held an American National Exhibition in Moscow, which featured the exhibition *The Family of Man* and Disney's Circarama. Along with these technical feats of entertainment, the exhibition presented *Glimpses of the USA*, using Charles and Ray Eames' "information machine" (a computer that responded to visitors' questions) and seven screens that

³¹ Ibid., 2.

³² Ibid., 3.

³³ Alexander, "Introduction," xx.

³⁴ Lugon, "Exhibiting Projecting," 189.

displayed “a multi-projection of slides transferred to film.”³⁵ The slideshow, often incorporating multiple screens and soundtracks, created “immersive spaces that plunged audiences into a cascade of images.”³⁶

35mm slideshows fell out of favour in the 1980s: amateurs moved away from slides, preferring the inexpensive colour prints made from colour negative film. By 1990, colour slides “accounted for just 5% of the approximately 16 billion colour photographs made by amateurs in the U.S.”³⁷ By the end of the 1990s, the computer had supplanted the carousel projector as a household fixture, and by the early 2000s, families, teachers, professionals and advertisers all switched to digital imaging. In 2004, Kodak stopped manufacturing slide projectors, and five years later it discontinued Kodachrome slide film and processing. Projected photography has gone through yet another technological life cycle: image files replaced slides, computer folders replaced slide libraries, and software such as PowerPoint replaced the carousel.

³⁵ Lacoste et al, *Slides*, 68.

³⁶ Ibid., 51.

³⁷ Wilhelm, *The Permanence and Care of Color Photographs*, 643.

The 35mm Slideshow in Cultural Institutions

Although projected photography was a popular means of entertainment and education well before the development of 35mm slides, it was rarely considered an art form by critics and collectors, and was not collected by galleries or institutions. Attempts to portray lantern slides as an artistic medium failed or were never fully realized. In the early 1880s, the art critic Dugland Sutherland MacColl (later the keeper of the Tate's collection) wrote to his sister encouraging her to pursue magic lantern slides as an art form: "it strikes me that it is a branch of art that has not yet been developed."³⁸ It has not been recorded whether MacColl's sister heeded this advice. Throughout the 1890s, Alfred Stieglitz, a champion of art photography, maintained that lantern slides could be "art objects in their own right."³⁹ Despite arguing his case in print, holding contests for "the most beautiful projected image," organizing projected art exhibitions, and producing slides himself, Stieglitz had little success reframing projection as an art form.

The editors of *Slides* observed that "[i]t was ultimately the visual artists of the 1960s and 1970s who turned the ordinary slide into an autonomous work of art."⁴⁰ Slideshows appeared in private and non-for-profit galleries in the early 1960s, and by the latter half of the decade, art museums and institutions also began to display slide works. MoMA is a notable example. In 1966, Alain Sabatier won first place at the

³⁸ Macoll quoted in Miyahara "The impact of the lantern slide," 67.

³⁹ Lacoste et al, *Slides*, 24.

⁴⁰ *Ibid.*, 13.

Festival de L'Insolite in the category of Slides.⁴¹ The next year, Sabatier was invited to show his work *Claustration I* (1965) at *Recent Color*, an evening event hosted by MoMA that was advertised as a “photography exhibition in slide form, considering both abstract and documentary directions in contemporary color.”⁴² Sabatier’s work relied on the slideshow format as “[e]ach slide show was constructed according to a principle of close links between images...and resonance between the rhythm of their succession and that of the [music].”⁴³ Although *Claustration I* was conceived as a slideshow, John Szarkowski (then MoMA’s Director of Photography) asked Sabatier to create prints for the collection.⁴⁴ Szarkowski’s request to collect printed material from the slideshow suggests an institutional hesitation to collect slides as photographic objects and a preference for photographs, which offer a material distillation of the slideshow and a clarification of the medium, however reductive and inadequate.

Slideshows are time-based installations; the temporary and transitory projected images deny viewers their own contemplative experience of a fixed, single image. Alexander argues that in this way, the “artist strove to move ‘beyond the frame,’ beyond everything precious and static.”⁴⁵ The artist determines the amount of time viewers have with the artwork, and, as Robert Storr notes, “[h]ow long we are permitted to look at a given image is crucial.”⁴⁶ The duration of each slide, the duration of the slideshow as a whole, and the decision whether to present the slideshow as a

⁴¹ Lacoste et al, *Slides*, 98.

⁴² Museum of Modern Art. Schedule of Exhibitions and Events.

⁴³ Lacoste et al, *Slides*, 98.

⁴⁴ Lacoste, “Photographic Projection Since the 1960s,” 203.

⁴⁵ Alexander, “SlideShow,” 10.

⁴⁶ Storr, “Next Slide, Please...,” 56.

continuous loop or to provide a conclusion are all significant aesthetic and conceptual decisions. The transitory, ephemeral, and experiential nature of the slideshow evades the trappings of a tangible object; it mutates and loops, disappears and reappears, and demonstrates the process of time, rather than a final outcome or conclusion.

Sequence is a key aesthetic element of the slideshow, which is consequently situated between film and photography. By allowing eighty sequenced slides to be projected and looped, the carousel slideshow provided “the photographic field with a new visual narrative potential.”⁴⁷ Unlike film where images are projected successively “*in time*,” the momentary, static nature of each slide represents “a past moment that was taken *out of time*, like a photograph.”⁴⁸ A film provides a fixed sequence of moving images, while the order of a 35mm slideshow is fluid, as slides can be reorganized between iterations. Sequence is not new to photography and is a powerful aesthetic and conceptual device. In his 1932 essay “A New Instrument of Vision,” László Moholy-Nagy claims that “a photographic series inspired by definite purpose can become at once the most potent weapon and tenderest lyric.”⁴⁹

The scale and colour of projection—the “enlarged luminous image”—creates an experience akin to cinema: a “collective experience of photography” that asserts the slideshow’s “immersive character.”⁵⁰ The immersive aesthetic of slideshows implicates the viewer, who is required to engage with the space and the image in order to experience it. The viewer’s form can obstruct the projection, and silhouettes can come

⁴⁷ Lacoste et al, *Slides*, 14.

⁴⁸ Alexander, “SlideShow,” 5.

⁴⁹ Moholy-Nagy, “A New Instrument of Vision,” 170.

⁵⁰ Lacoste et al, *Slides*, 14.

in and out of the image as visitors walk through the gallery. Slideshows were primarily exhibited in galleries where they were placed “in a partitioned space adapted to their immersive nature.”⁵¹ This “‘immersion’ strategy,” as Lugon observes, differed from cinema, which “promised a dive straight into the representation itself,” by “highlighting the physical, architectural, and technical reality of electric images and their apparatuses.”⁵² As 35mm slideshows progressed as an art form, the installations became increasingly elaborate: the complexity, the artistic control, and the specificity of these multi-media installations “distinguished these works from the conceptual practice of the 1960s.”⁵³

Michael Snow and James Coleman: Installing a Concept

At a time when conceptual artists were dismantling “[c]onventional ways of looking, framing, and depicting,” which were “understood as orchestrating systems of dominance and control,”⁵⁴ 35mm slideshows illustrated the disruption between image and object. Anne Lacoste observes that slideshows “stood outside the formal photographic ‘frame’ of museums” by presenting a “temporalized and sequential image.”⁵⁵ The possibilities afforded by the carousel were unique to the 35mm slideshow: its “looping succession of images” lacked a starting or ending point and could

⁵¹ Lacoste, “Photographic Projection Since the 1960s,” 208.

⁵² Lugon, “Exhibiting Projecting,” 195.

⁵³ Lacoste, “Photographic Projection Since the 1960s,” 207.

⁵⁴ Diack, Heather. “Nobody Can Commit Photography Alone,” 17.

⁵⁵ Lacoste, “Photographic Projection Since the 1960s,” 203.

construct an “anti-narrative.”⁵⁶ Both James Coleman’s and Michael Snow’s artistic practices originated in the 1960s and responded (and continue to respond) to late-modernist and conceptualist concerns about representation and the status of the image. Rather than document a subject, photography offered a means “to reveal the stages a subject undergoes in the process of becoming an image.”⁵⁷ Slide-based installations especially appealed to these artists because they allowed them to exert control over the experience of the viewer, complicate ideas of representation, and negotiate the act of looking.

Storr argues that in both film and photography “conventions of behavior are simultaneously codified and concealed by the conventions of seeing, which are based on a too-willing acceptance of what the camera records as natural or naturalistic.”⁵⁸ Coleman, whose work oscillates between the two mediums, disrupts “the conventions of seeing.” Coleman’s slideshows can be viewed as “*tableaux vivants*”: each subject “consciously plays a role” and the images “are constructed like academic figure studies.”⁵⁹ The effect Coleman ultimately achieves is the realization that in these varying forms of media—photography, film, painting—“nothing is ever unmediated.”⁶⁰ Snow has also pursued issues of representation. Writing about photography’s capacity to make a record of the material world, he observes that “[t]he most obvious transformation is the one from three-dimensions to two, but its obviousness apparently

⁵⁶ Ibid., 207.

⁵⁷ Vlas, “Michael Snow Photo-Centric,” 7.

⁵⁸ Storr, “Next Slide, Please...,” 58.

⁵⁹ Ibid., 59.

⁶⁰ Ibid.

makes it disappear from recognition.”⁶¹ Both Coleman and Snow seek to complicate that “obviousness” and heighten the viewer’s awareness of the act of looking.

Coleman’s *Living and Presumed Dead* (1983–85) is a 35mm slideshow with an accompanying soundtrack. The artwork is representative of the artist’s extensive work with projected image installations. Rosalind Krauss maintains that the photo-novel (Coleman prefers the term “*photoromanza*,” for this “comic-book-for-adults” format he first encountered in Milan) has influenced his use of projected images.⁶² She argues that both slides and the photo-novel are “commodified forms of support for the image which the work itself must attack and demystify.”⁶³ Coleman’s projected images appear “to possess an array of representational modes beyond the strictly photographic.”⁶⁴ His slide-based artwork echoes the storyboard format found in comic books and imitates cinema through the movement of slides. In the case of *Living and Presumed Dead*, the images of costumed actors posed on a stage also clearly reference the conventions of theatre.⁶⁵

Raymond Bellour describes Coleman’s practice as one that exists “between all forms of representation linked to these extremes of motion and stasis.”⁶⁶ Bellour sheds light onto *Living and Presumed Dead*’s complex imagery, chaotic soundtrack, and immersive installation. Mimicking the formal, looping qualities of the carousel projector, Coleman’s piece presents sensorial information that is “excessive, elliptical, linked to a

⁶¹ Snow, “On My Photographic Works,” 53.

⁶² Krauss, “...And then turn away?,” 9.

⁶³ Ibid., 10.

⁶⁴ Alexander, *SlideShow*, 88.

⁶⁵ Ibid.

⁶⁶ Bellour, “The Living Dead,” 57.

succession of images” and gives the viewer the impression that “something essential is constantly slipping away.”⁶⁷ Viewers experience a growing desire “to freeze it” in order to understand the chaos of images and narrative threads that bombard them, but such attempts are futile and “can only lead to a delirium of interpretation.”⁶⁸ Krauss argues that Coleman’s use of still, sequenced images is complicated by deliberate ambiguity and the refusal to allow any single narrative (audible or visual) to dominate. The effect produced is what Barthes calls a “third meaning”: a meaning that is not horizontal but vertical, allowing alternative readings from the “‘perpetuational play’ of a signifier.”⁶⁹ Krauss notes that the third meaning expressed in Coleman’s work is only achieved through its performance.

George Baker argues that Coleman is an artist who needs “to exert complete control over the manner in which their art is seen,” so as to produce an artwork “that singularizes the experience of this otherwise technological form.”⁷⁰ In order to achieve the artistic intention of *Living and Presumed Dead*, it must be seen in exhibition and it must be installed to the meticulous specifications of the artist. The specific demands made by Coleman’s projected images means that the artistic intent can only be realized within an equally specific set of physical guidelines. The viewer’s experience is structured by the artist; it is a controlled experience that can generate a multiplicity of interpretations.

⁶⁷ Bellour, “The Living Dead,” 59.

⁶⁸ Ibid., 59.

⁶⁹ Krauss, “‘...And then turn away?,”” 31.

⁷⁰ Turvey et al, “Round Table,” 80.

Snow's photographic works are "informed by his questioning of the status of the image and its relationship with reality."⁷¹ *Recombinant* (1992) is a multi-media installation, consisting of a carousel slideshow of eighty distinct images that project onto a white, low-relief plywood panel affixed to the wall. The handmade panel acts as a screen and is divided into seven sections within its frame. The images that constitute *Recombinant* are each photographed from a different angle. The projections "sometimes occupy the seven partitions in a disciplined manner, and at other times completely ignore the delineations."⁷² Snow has commented that each projection introduces "a new relationship between what is pictured and the surface on which it is seen."⁷³

The slideshow, the panel, the rounded plinth for the carousel, and the installation are all deliberate and important aspects of the work. In my interview with Snow, he discussed projection and the obviousness (thus common dismissal of) the screen: "It is sufficient that it be flat and white to forget it, because you see the image that is projected on it with an absolute conviction."⁷⁴ He was motivated to disrupt this conviction and obscure that obviousness to illustrate his belief that "one of the possible functions of art is to show something you would not normally see."⁷⁵ Snow achieves this in *Recombinant* by creating a dialogue between the panel and the projection, compelling viewers to confront both what the screen registers and what it represents.

⁷¹ Vlas, "Michael Snow Photo-Centric," 7.

⁷² Ibid.

⁷³ Snow, "On My Photographic Works," 57.

⁷⁴ Michael Snow, Interview by Emily Miller, May 2, 2018.

⁷⁵ Ibid.

Snow notes that the medium in *Recombinant* is light; projection provides “illumination,” an element he explores in his photo-works where he emphasizes that “light is essential to photography.”⁷⁶ Storr describes how the “converging beams of light and mind with a physical position... conjugate ‘looking’ as a verb of action as well as reception.”⁷⁷ Snow’s exploration of illumination and representation requires the viewer to look actively, rather than passively or contemplatively. As an artist who “focuses almost exclusively on the mechanics of the process,”⁷⁸ Snow approaches the technical aspects of projection with artistic intention: *Recombinant* requires a “slow-tempo” projector, Snow’s handmade panel, and the circular plinth for the projector, which “implies the circular idea of the entire work, as far as time goes.”⁷⁹ *Recombinant* can only be fully realized in its exhibition; in order to understand its intent, Snow observes that the “work needs to have the slides and the physical screen so that you can go up the screen like you can with a painting, because it is a painting in a way.”⁸⁰

Snow controls the experience of his work through the specificity of its components and installation. At the time of the AGO’s acquisition of *Recombinant*, the gallery collected detailed documentation from Snow pertaining to the proper installation and exhibition of the artwork. His documentation includes diagrams, notes, and suitable paint colours for the gallery walls. Snow specifies the duration of the images and the way that the images project onto the handmade panel. His detailed

⁷⁶ Snow, “On My Photographic Works,” 55-57.

⁷⁷ Storr, “Next Slide, Please...,” 67-68.

⁷⁸ Vlas, “Michael Snow Photo-Centric,” 7.

⁷⁹ Michael Snow, Interview by Emily Miller, May 2, 2018.

⁸⁰ Ibid.

textual description and hand-drawn layouts demonstrate the artist's attention to detail: the intention of the work relies on the exact execution of these instructions. Since Snow has refused to digitize the slideshow that accompanies *Recombinant*, it will eventually be impossible to show the work due to the obsolescence of necessary equipment.

Suzy Lake and Nan Goldin: Subverting the Slideshow

Unlike the singularized and deliberate installations that Coleman and Snow use to convey their artistic intentions, Suzy Lake's *On Stage* and Nan Goldin's *The Ballad of Sexual Dependency* have been realized in various formats. Lake and Goldin have created digital versions of the original slideshow in an effort to preserve the artwork and provide a digital exhibition file. Both artists have also derived photographic prints from their slideshows; although these prints are distinct from the slideshows and serve different aesthetic and conceptual functions, the creation of these prints suggest an openness to multiplicity very unlike the strictly composed visions of Coleman and Snow. Lake acknowledges this aspect of her practice and uses the term "transpose" to describe how the same concept can manifest itself in different forms. She maintains that artistic intentions can transpose themselves into different works of art like a song in the key of A replayed in the key of C: "it's the same song."⁸¹

Lake's slideshow *On Stage* (1972–1974) shows the artist mimicking mainstream images of women by posing as a fashion model or as a model of "good girl" behaviour to critique the social expectations imposed on women and the commercial exploitation of

⁸¹ Suzy Lake, Interview by Emily Miller, May 6, 2018.

conventional femininity. Lake transformed herself between photographs and assumed new roles, exposing the multitude of identities mapped onto the female body. In 1973, Lake removed some of her portraits to include slides that incorporated image and text and elucidated her intentions. Lake describes *On Stage* as “a ‘provocation’ that ‘rests in the struggle between true identity, decorum, and role-playing at a time of social and political change.’”⁸² She reconstructed the slideshow again in 1974 to include images of her carefully applying white face paint (“whiteface”) to herself, casting herself as a mime. Sophie Hackett observes that “[i]n the context of mime, whiteface represents ‘position zero’: a neutral, non-individual state, the state from which the story begins.”⁸³ Lake’s inclusion of whiteface draws attention to the mimicry performed throughout *On Stage*.

Helena Reckitt observes that Lake “treat[s] the camera as a witness to staged events.”⁸⁴ In this context, the camera, as an instrument of documentation, “fuses the performative with the photographic act, and underscores how documentary practices are often linked to photographic staging.”⁸⁵ Lacoste notes that photographs that document actions explore “the question of the referent and its representation,” and when they are sequenced, projected, and presented as slideshows, they provide “a reflexive reconstruction of the works.”⁸⁶ Lake describes the “existentialist urgency” that artists felt during the 1960s and 1970s “to have the viewer empathize with the

⁸² Lake quoted by Jacques, “Born in Detroit,” 24.

⁸³ Hackett, “A New Scene in Montreal,” 68.

⁸⁴ Reckitt, “Standing Her Ground,” 169.

⁸⁵ Diack, “Nobody Can Commit Photography Alone,” 17.

⁸⁶ Lacoste, “Photographic Projection Since the 1960s,” 204, 207.

experience, or re-experience, of the projection.”⁸⁷ The slideshow offered an opportunity to take the viewer through an artistic process or experience, rather than present the final result of that process. *On Stage* reveals how the slideshow, when utilized as a performative tool, is “a form of human discourse, promoting a dynamic interaction between people, politics, and art.”⁸⁸

The ubiquity of slides and their multiple functions “situated [them] in an array of realms,” and the carousel slideshow “represented a common ‘language’ that the general public could understand.”⁸⁹ Slideshows legitimized domestic norms and endorsed political and professional agendas; they presented a set of “particular, ingrained associations”⁹⁰ that could be adapted to suit artists’ intentions. Lake’s experience working at an advertising agency and her work as a model informed the projected presentation of *On Stage*. For Lake, the 35mm slideshow evoked and subverted the mechanized and objectifying slideshows that advertisers employed when selecting models for ad campaigns. When she presented *On Stage* as a slideshow, Lake “felt that both form and content had married.”⁹¹ The slides move at a regulated pace, each image punctuated by the loud, dismissive sound produced by the carousel. This standardized format reflected the objectifying, detached male gaze Lake was seeking to expose.

Lake’s impetus to create a digital version of *On Stage* was the loss of the original slides. Viewers had initially dismissed *On Stage*, but in the early 2000s there was a

⁸⁷ Suzy Lake, Interview by Emily Miller, May 6, 2018.

⁸⁸ Alexander, “SlideShow,” 22.

⁸⁹ *Ibid.*, 14.

⁹⁰ *Ibid.*, 4.

⁹¹ Suzy Lake, Interview by Emily Miller, May 6, 2018.

revival of interest in her early work. By this point, Lake had lost the slides in her move from Montreal to Toronto in 1978. The original negatives remained, and she was prompted to create a digital version for exhibition. To retain the mechanical aesthetics associated with 35mm slideshows, Lake incorporated the sound of a carousel click. The AGO exhibited this digital slideshow in the exhibition *Introducing Suzy Lake* (November 5, 2014—March 22, 2015). For the exhibition, the AGO installed a large, reflective, industrial screen that was constructed for projection. The screen evoked the traditional materiality of screens from the 1970s and filled the capacious gallery space.

Goldin's *The Ballad of Sexual Dependency* (1979–1996) also subverts the original aims of the 35mm slideshow. In 1965, Goldin's older sister committed suicide at eighteen; this event made Goldin recognize her own repressed upbringing. At fourteen she ran away from home and found her "family of friends," where "[r]oles aren't so defined."⁹² Her slideshow includes pictures of her friends and chosen family in various contexts: celebration and distress, queer relationships, confrontations with domestic abuse, intimate struggles with HIV, romantic moments between lovers, and, generally, ways of living that stray from the heteronormative status quo, undermine the traditional (and often superficial) family slideshow, and expose the undocumented realities of human relationships. Elisabeth Sussman argues that Goldin's artistic objective is "to replace the abstraction and distance of the document with an emphatic and frank confrontation of personal experience and emotions."⁹³ Goldin achieves this through her fleeting and ephemeral slides whose sequence is varied to tell new or

⁹² Goldin, "Foreword," 6, 8–9.

⁹³ Sussman, "In/Of Her Time," 37.

different stories. Luc Sante, a member of Goldin's circle and a subject of *The Ballad*, notes that her slideshow "made [her friends] aware...of the fragility of our eggshell bodies, the transience of our fun, the vulnerability of our bonds."⁹⁴

Goldin embraced the fluidity of slideshows: she added slides, removed slides, rearranged slides, and included music and her own narrative. Sussman notes that *The Ballad's* "meaning emerges through the editing and sequencing of individual images."⁹⁵ The slideshow allows for the easy manipulation of the order and selection of images, thus Goldin had the opportunity to formulate different stories, either spontaneously when she performed *The Ballad* at nightclubs in the 1980s or formally when the work was acquired by institutions. When audiences have complained that some of the slides move too quickly, Goldin has responded, "It's not about the quality of the photograph, it's about the narrative thread."⁹⁶ During my interview with Alex Nelson, who worked at Goldin's New York studio for a number of years, she explained that Goldin wants her work to be experienced as a whole, from the beginning to the end.⁹⁷ In order to properly view and understand this work, it is important to see all the slides in sequence; the experience of viewing this work is similar to Goldin's experience of creating it: "These pictures come out of relationships, not observation."⁹⁸

While some slideshows were conceived with the museum space in mind, many slideshows had more modest roots. *The Ballad*, first shown in nightclubs in New York,

⁹⁴ Sante, "All Yesterday's Parties," 102.

⁹⁵ Sussman, "In/Of Her Time," 26.

⁹⁶ Goldin, "My Number One Medium," 141.

⁹⁷ Alex Nelson, Interview by Emily Miller, June 4, 2018.

⁹⁸ Goldin, "Foreword," 6.

needed to be formalized for exhibition at the Whitney in 1985. Goldin “started to freeze the hitherto progressive corpus of her live performance in order to create an esthetic museum work.”⁹⁹ Alexander describes the experience of slideshows in museums’ galleries—“dark chambers, where visitors enter, sit in silence, and leave”—as a major departure from the “rowdy behavior at live club shows.”¹⁰⁰ She observes that “[t]he gap between the slide show of the art museum and its modest, accessible origins continue to widen.”¹⁰¹ This gap grows larger in the face of the technological obsolescence of 35mm slideshow’s material and equipment. The inexpensive and user-friendly technology of 35mm slideshows is now extremely rare and costly. It requires increasingly archaic technical knowledge and time-consuming installation and supervision procedures.¹⁰²

Contemporary Challenges: Exhibiting the 35mm Slideshow

MoMA’s 2017 exhibition of *The Ballad of Sexual Dependency* sheds light on the strategies used to overcome the difficulties of exhibiting analogue 35mm slideshows in galleries today. *The Ballad* is part of MoMA’s permanent collection; it includes dedicated legacy equipment and back-up equipment for the slideshow (projectors, carousels, light bulbs), and duplicated sets of the slides (an analogue master set and multiple exhibition sets). In my interview with Tasha Lutek, a Senior Cataloguer at MoMA, she describes how preservation measures—the creation and preservation of slide duplicates—are an

⁹⁹ Lacoste et al, *Slides*, 112.

¹⁰⁰ Alexander, “SlideShow,” 30–31.

¹⁰¹ Ibid., 31.

¹⁰² Danny Winchester, Interview by Emily Miller, April 4, 2018.

integral part of the exhibition of a 35mm slideshow. The “master set” of slides is the set that is created and authorized by the artist; the “exhibition set” of slides is the set that has been duplicated from the “master set” for exhibition purposes. Exhibition slides eventually become exhausted from projection; therefore, MoMA’s ideal is to create a new set every for every exhibition.¹⁰³

MoMA’s Media Conservation department was heavily involved in the exhibition, as it is responsible for the weekly cleaning of the slides throughout the exhibition and for rebuilding the projectors. The most challenging project for the Media Conservation team was to create an updated program that synced the projectors and soundtrack. MoMA had a staff member supervising the slideshow at all times because slides are apt to get stuck in the projector, slip from their mounts, accumulate dust, or be displayed in reverse. To ensure that visitors could not interfere with the work, which is a risk when carousel projectors are exposed and unattended, a projection room was built to contain the apparatus and software required for the installation. Lutek notes that the separation of equipment also allowed visitors to focus on the slideshow itself, rather than the complex machinery.¹⁰⁴

The AGO considered borrowing MoMA’s analogue iteration of *The Ballad* for the 2016 exhibition *Outsiders: American Photography and Film, 1950s—1980s*; however, the loan agreement required that the borrowing institution make new analogue exhibition sets, an impractical expense for an object not in the permanent collection. Instead, the AGO exhibited a digital version of *The Ballad* loaned by Matthew Marks

¹⁰³ Tasha Lutek, Interview by Emily Miller, April 8, 2018.

¹⁰⁴ Tasha Lutek, Interview by Emily Miller, April 8, 2018.

Gallery, which represents Goldin. This version uses the same images and sequence as MoMA's iteration and includes the work's dedicated soundtrack.

The Preservation of 35mm Slideshows

Institutions are faced with the challenges associated with the long-term care of these time-based, multi-media, technology-dependent slide-based cultural artifacts. 35mm slideshows require extremely specific treatment for their preservation as well as their exhibition. Unlike discrete art objects, 35mm slideshows comprise many parts that create a whole when installed. They require material protection from the effects of light exposure, temperature fluctuations, and human interaction. Moreover, preservation initiatives must extend beyond the material component (the 35mm slides) and encompass duplicated sets of slides, the requisite technology, and the instructions for installation and operation. Thus the preservation practices must include not only proper handling and storage but also thorough documentation of the artwork (sequence, duration, installation) and the expertise of skilled technicians who are familiar with the increasingly outdated machinery.

The Storage and Projection of 35mm Slides

Henry Wilhelm's recommendations regarding projector-caused fading, storage environments, and slide mounts are widely practiced by institutions with 35mm slide collections. The term "projector-caused fading" is used by Wilhelm "to distinguish the deterioration of images caused by slide projection from other types of light-fading."¹⁰⁵ Wilhelm provides the total accumulated projection time for a variety of film brands that

¹⁰⁵ Wilhelm, *The Permanence and Care of Color Photographs*, 211.

are housed in institutions' collections; this is necessary information for conservators preparing the exhibition schedule of analogue slide materials.¹⁰⁶ Wilhelm advises that before museums exhibit slides, they measure the original colour densities. He provides an "image-life criteria" for slides exhibited in a museum environment: a slide "will be considered to have faded an objectionable amount when the first limit (end point) has been reached."¹⁰⁷ The first limit is a shift in colour density determined by measurements following the initial measurement, described in percentages. The "first limit" of colour density loss or imbalance ranges from between 8% to 20% depending on the dye (Figure 1).¹⁰⁸

"Dark fading stability" refers to the deterioration of slide film that is not exposed to projection; again, this information is useful for conservators responsible for the housing and storage environments of 35mm slide collections. Wilhelm encourages institutions to keep slides in dark storage, away from daylight and indoor lighting, to "avoid potentially serious, irregular image fading."¹⁰⁹ For institutions, "where the goal must be the indefinite preservation" of slides, he recommends that "refrigerated storage is mandatory for all present and past slide films."¹¹⁰ Relative humidity should not exceed 65 to 70% in order to avoid the development of fungus on the slide's emulsion.¹¹¹

¹⁰⁶ Wilhelm, *The Permanence and Care of Color Photographs*, 629.

¹⁰⁷ Ibid., 224.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid., 630.

¹¹⁰ Ibid., 625.

¹¹¹ Ibid.

For general commercial and amateur applications, projected color slides will be considered to have faded an objectionable amount when the *first* limit (end point) has been reached in any of the following image-life criteria, as determined from changes measured in gray-scale densities of 0.6 and 1.0:

Loss of cyan dye (red density)	25%
Loss of magenta dye (green density)	20%
Loss of yellow dye (blue density)	35%
Color imbalance between cyan dye (red density) and [minus] magenta dye (green density)	12%
Color imbalance between magenta dye (green density) and [minus] cyan dye (red density)	15%
Color imbalance between cyan dye (red density) and [plus or minus] yellow dye (blue density)	18%
Color imbalance between magenta dye (green density) and [plus or minus] yellow dye (blue density)	18%

Figure 1: 35mm Slide Image Life Criteria. Henry Wilhelm and Carol Brower, *The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides, and Motion Pictures* (Grinnell, Iowa: Preservation Publishing Company, 1993), 224.

Slide mounts can impact slides' longevity. The four most common slide mounts are cardboard mounts, open-frame plastic mounts, glass mounts, and glass mounts with tape binding.¹¹² Both cardboard and plastic mounts appear to have no negative impact on slides; however, they leave the slide exposed and therefore susceptible to damage from handling. Glass mounts protect the slide's surface area from scratches and fingerprints and, when sealed with tape, can prevent the entry of dust, minimize moisture caused by humidity, and inhibit the growth of fungus on the slide. If the glass mount breaks, however, it can seriously damage the slide, and if the slides are kept in cold storage, the glass may become brittle. Glass does not offer protection from

¹¹² Wilhelm, *The Permanence and Care of Color Photographs*, 645.

projector-caused light fading and causes the slide to increase in temperature when projected, although this only becomes a concern with long exposure times. If the glass mount is not sealed, the heat caused during projection can cause moisture to evaporate from the film base and condense on the glass cover, which results in “a disconcerting amoeba-like ‘steam cloud’ that is superimposed over the projected image on the screen.”¹¹³

35mm Slide Duplication

An unusual characteristic of 35mm slides is that each slide is a completely unique photographic object unless duplicated; inevitably, slides are damaged during display. Duplicate slides are, therefore, absolutely essential for the exhibition and preservation of these artworks. Tina Weidner, a conservator at the Tate, examines the process of collecting 35mm slide works:

It is rare that unique in-camera originals are included in...the acquisition as these works are usually sold as editions and the artist will typically retain the master slides. A common scenario is that a museum will obtain a number of sets of slides that are first-generation duplicates from the in-camera original, with an additional clause in the artist’s certificate that future copies should be requested from the artist.¹¹⁴

In some cases, artists do not provide duplicated sets of exhibition slides to the acquiring institution, and even when they do, the duplicates will eventually become exhausted from exhibition and new duplicates will be required. The institution may be able to request new copies from the artist; however, this is not a tenable long-term solution.

¹¹³ Wilhelm, *The Permanence and Care of Color Photographs*, 645.

¹¹⁴ Weidner, “Dying Technologies: Collecting slide-based works.”

Not only will the technologies and materials become obsolete but the artists will pass away. It is, therefore, the institution's responsibility to create duplicate sets of slides that match the quality and intention of the artist's master set and that are approved by the artist or artist's estate. Institutions are not allowed to replicate paintings, photographs, or other artworks for exhibition unless they are presented as facsimiles; to be entrusted with the material reproduction of an original work of art is a heavy responsibility.

Wilhelm recommends duplication, remarking that "[w]orking duplicates are essential...if an image is likely to receive extensive projection or handling."¹¹⁵ Wilhelm advises on brands of slide film for the creation and duplication of slides (Kodachrome for original slides, and Fujichrome duplicating film for duplicate slides). Unfortunately, most of the analogue materials researched by Wilhelm are no longer manufactured; therefore, conservators must find alternative materials for duplication.

Weidner picks up where Wilhelm left off, exploring alternative materials and methods for slide duplication. Weidner's focus is much more specific than Wilhelm's as she responds to the needs of an art institution; she observes that within "the contemporary art museum, successful custodianship must respond to the imperative for display," a demand that is not true for archives that only house and preserve slides.¹¹⁶ When Weidner began her project, she explored the advantages of slide duplication film,

¹¹⁵ Wilhelm, *The Permanence and Care of Color Photographs*, 625.

¹¹⁶ Weidner, "Dying Technologies: the end of 35mm slide transparencies."

but in March 2012, Kodak discontinued all slide duplication film due to the company's bankruptcy.¹¹⁷

While the disappearance of slide duplication film was a disappointment, it gave Weidner the incentive to use state-of-the-art equipment to develop alternative materials and methods for slide duplication. Weidner examined the creation of analogue slide duplicates using three film recorders—the light valve technology (LVT) film recorder, the cathode ray tube (CRT) film recorder, and the laser film recorder—and five film materials—sheet film, microfilm, in-camera stock, motion picture reversal stock, and 35mm motion picture print stock. The film recorders transfer digital images onto the analogue film; therefore, all these methods require the digitization of the slide as a high-resolution image file.

The LVT film recorder transfers images very well onto sheet film but requires extremely skilled technicians, such as the team at Chicago Albumen Works (to whom both the Guggenheim and MoMA outsource their slide duplication). CRT film recorders are an older technology, yet “if properly maintained and calibrated they can achieve equally good results.”¹¹⁸ Laser, CRT, and LVT film recorders “depend upon the expertise of those able to maintain and calibrate them; an expert knowledge that is increasingly rare.”¹¹⁹ All the analogue materials required for these processes are under the threat of technical obsolescence. The tenuous nature of analogue materials has resulted in the urgent need to duplicate slides while the material is still available. The demand for

¹¹⁷ Weidner, “Dying Technologies: Analogue slide duplication.”

¹¹⁸ Weidner, “Dying Technologies: Alternative materials for printing transparencies.”

¹¹⁹ Ibid.

digitized files reinforces the crucial role digital technologies play in the preservation of 35mm slideshows.

35mm Slide Digitization

Digitization is necessary for alternative methods of analogue slide duplication. Not only do digitized slides provide a high-quality image that can be transferred onto analogue material but the digital image file provides a visual reference for the slide, without which it is a small and obscured transparency that requires projection in order to be properly viewed. 35mm analogue slides provide images rich in detail, like negatives, and generate dense digital images; this is a benefit of slide digitization as it avoids photographing the slide's projection, which adds generational noise and the texture of the screen to the image, and records any dust on the lens or projector.¹²⁰

Weidner explores the current practice of slide digitization with a focus on the technology used and the subsequent colour management of the image file.

Digital camera backs attach to the back of the camera and allow the operator to photograph a 35mm slide to create a rich, digital reproduction. The light source is “a lightbox consisting of a photographic flash with a uniform colour temperature.” This is an advantage during slide duplication as it allows more control over the light and

¹²⁰ Generational noise is the degradation that builds up on media records that have been processed and reprocessed through different technologies (a photograph rephotographed, the reproduction scanned, etc.). This is a challenge Danny Winchester faces with other materials that do not provide original negatives and/or positives. Danny Winchester, Interview by Emily Miller, April 4, 2018.

generates more balanced images.¹²¹ The digital camera's superior optical lens system provides detailed accuracy, minimizes distortion, and produces a high-quality image file.¹²² Weidner argues that digital camera backs have surpassed previous methods, such as flatbed or drum scanners.¹²³ The AGO's Image Resources Department has digital camera backs that could be used to duplicate slides; however, they use the Nikon Super COOLSCAN 5000. It is a scanner developed explicitly for 35mm film and prevents the entry of dust. The device is connected to a calibrated laptop that captures the scan.

Colour management is a difficult and subjective aspect of slide duplication, both in analogue and digital processes. Weidner stresses that "it is wrong to assume that digitization makes it possible to leave the inaccurate world of analogue duplication and achieve objective precision."¹²⁴ The technical precision of digitization can lead to the assumption that the process is scientifically objective, but it is not. This is especially true when it comes to colour management, which Weidner describes as "a very young science," adding that "the task of translating between the analogue and digital colour spaces is extremely complex."¹²⁵ She outlines protocols and colour profiles that have been established by the International Colour Consortium (ICC) and colour input targets that address the necessary colour correction between a digital file and its analogue original.

¹²¹ Weidner, "Dying Technologies: Digitisation."

¹²² Ibid.

¹²³ Ibid.

¹²⁴ Ibid.

¹²⁵ Ibid.

Despite the active research and development in this field, digital colour management requires some subjective analysis and editing by eye. Both colour management and device calibration “are key in the communication of colour information between different devices and their human operator.”¹²⁶ The AGO’s Image Resources Department maintains that the most important factor during digitization is the calibration of devices; these technologies are carefully and regularly monitored by staff.¹²⁷ Colour management software is included with the Nikon Super COOLSCAN 5000; however, the Image Resources Department will make small adjustments by eye, correcting the colour and removing any renegade dust. Capture One is the image proofing software used by the AGO, and any final corrections are made using this program. Subjective decisions arise at various points; for example, when cropping slides that have been digitized: Should there be black borders around the image? Are such borders functional or creative? Such questions are best answered by the artist, their estate or studio, or the artwork’s documentation.¹²⁸

MoMA did not acquire a digital version of *The Ballad of Sexual Dependency* when the analogue version was accessioned in 2004. Lutek says that in cases where a 35mm slideshow is acquired without a digital version, the creation of a digital master would require the artist’s permission.¹²⁹ Artists are aware that the viability of slide-works is waning and some are making preparations and compromises in advance. Lutek notes that when MoMA acquired a slideshow by Jonathon Monk, the work included a

¹²⁶ Weidner, “Dying Technologies: Digitisation.”

¹²⁷ Sean Weaver, Interview by Emily Miller, March 6, 2018.

¹²⁸ Danny Winchester, Interview by Emily Miller, April 4, 2018.

¹²⁹ Tasha Lutek, Interview by Emily Miller, April 8, 2018.

statement by the artist acknowledging the imminent obsolescence of analogue technologies and permitting MoMA to create a digital translation if and when necessary. Similarly, MoMA's acquisition of a 35mm slide-work by Phil Collins included high-resolution TIFF files that could be used to create a digital master. The benefit of receiving an artist's digital files is that the creator has approved the colour management and cropping of the images.¹³⁰

In my interview with Nelson, we discussed Goldin's current response to the obsolescence of 35mm slideshows and to the digital versions of *The Ballad*. Nelson explained that Goldin has a digital archivist, Laurent Langlois, who digitizes her slides to the artist's standards. Langlois creates digital masters of each slide and from these constructs a digital version of *The Ballad*. Although institutions such as MoMA and the Whitney acquired *The Ballad* before the demand of digital versions, the more recent acquisition of the work by the Tate included both the analogue slide duplicates and a digital master of the slideshow. Goldin creates a unique iteration of *The Ballad* for each acquiring institution; she removes and adds slides, and alters the sequence and the duration to pair with the soundtrack and specific lyrics. These changes are communicated to Langlois who then edits the digital version to produce a unique digital master.¹³¹ This process allows Goldin to retain artistic control over the digital master and prevents the need for the institution to intervene and create its own digital master in house.

¹³⁰ Tasha Lutek, Interview by Emily Miller, April 8, 2018.

¹³¹ Alex Nelson, Interview by Emily Miller, June 4, 2018.

The Artist's Involvement in Preservation

Conversations with artists help acquiring institutions to understand the artist's intentions for the artwork's exhibition and preservation. These discussions are especially significant when the work is an installation that the institution is responsible for assembling or a technology-dependent work that the institution is responsible for maintaining and updating. 35mm slideshows belong to both these categories.

Winchester, who has experience digitizing slideshows, has expressed the need for the development of a best practice that addresses conservation issues that arise during the digitization of 35mm slideshows. Winchester is not alone. MoMA has a large collection of slide-based installations and is in the process of developing a document that outlines the practices at the institution and the preferences of the artist.

MoMA's document is still being refined, but it represents crucial documentation for the exhibition and preservation of slideshows.¹³² It describes the procedures of acquisition, preservation, and exhibition. There is an overview of the museum's cataloguing system, handling protocols, and housing and storage options for 35mm slide-based artwork. It includes pertinent questions that need to be answered at the time of acquisition regarding practical issues such as preferred methods of duplication and digitization, and the institution's anticipated role in these practices. The document approaches digitization and duplication with the understanding that analogue materials are becoming increasingly obsolete and that digitization is a vital conservation measure.

¹³² Tasha Lutek, Interview by Emily Miller, April 8, 2018.

MoMA's work on this document signals an important step toward the development of a best practice for the preservation and digitization of 35mm slide-based artwork.

The AGO relies on consultations with artists to determine the proper way to care for and exhibit 35mm slideshows. When it acquired Snow's *Recombinant* in 2001, Snow told the AGO that he did not want to digitize the 35mm slideshow component for exhibition purposes. His intention is for *Recombinant* to be exhibited as an analogue piece with the supporting technology until this is no longer possible and the work is unexhibitable. When Snow envisages *Recombinant* as a digitized slideshow, he insists it would "not be the work, it would be a representation of the work," and therefore not a suitable substitute for exhibition.¹³³ In order to preserve Snow's piece, the AGO duplicated the slides—an expensive process that cannot be done in house (unlike digitization which can be completed by the Image Resources Department). Katharine Whitman, the Conservator of Photography, outsourced the work to Toronto Image Works, which had the appropriate film stock and equipment for analogue duplication. Although *Recombinant* included a projector at the time of acquisition, the AGO invested in two projectors as dedicated backups for the work, given the precarious future of the equipment. The artist also relayed specific directions for installation as part of the acquisition process. This information is contained in a document and it outlines the positioning of the equipment, the requirements for the gallery space, and the duration and situation of each slide image.

¹³³ Michael Snow, Interview by Emily Miller, May 2, 2018.

The AGO acquired exhibition slides of Coleman's *Living and Presumed Dead* in 2010 as part of a larger acquisition from a private collector. In order for the AGO to duplicate Coleman's slides for exhibition, it requires his permission and, very likely, his approval of the slides' material and colour quality. It would also require his permission (and once again his approval) to digitize the slides for exhibition, a less expensive process and an essential long-term investment. The AGO has access to Coleman and his studio, which will provide clarification of the artist's intentions for the exhibition and preservation of his work. The AGO is currently working with the studio to collect this information in order to move forward with the duplication or digitization initiatives determined by the artist.

Lake's *On Stage* presents completely different preservation and exhibition challenges, as it will be acquired by the AGO as a DVD (the work is still a "Promised Gift"). The DVD contains a rich digital master file that delivers the images, sequence, duration, and sounds of the original installation—the disparate, analogue parts have come together as a digital whole. The AGO will have to migrate the file onto more stable technology through a "lossless" file transfer (i.e., the high-resolution images and file quality will not be compromised during the movement between devices). The file can be duplicated to create a backup file, which is an attribute of a digital master. Matthew Marks Gallery's digital reproduction of MoMA's version is only an exhibition file and was loaned to the AGO for the exhibition, *Outsiders: American Photography and Film, 1950s—1980s*. The file is suitable for display; however, as an archived digital file that

can be harvested for exhibition copies, it is not satisfactory. MoMA would require a more intensive digitization process of the slideshow in order to create a digital master.

The Show Must Go On

Wilhelm's and Weidner's works on the preservation of slides confine their focus to only one of the many elements that need to be preserved for the exhibition of analogue 35mm slideshows. When Weidner discusses the artists who use slides, she cites artists that have produced slideshows (Nan Goldin, James Coleman, Robert Smithson). She acknowledges that "a carousel slide projector creates a unique soundscape,"¹³⁴ and that the "experience of the apparatus of slide technology...is tightly interwoven with our experience of these works."¹³⁵ Despite this, her research does not include the maintenance of supporting technologies; she only briefly observes that "stockpiling slide film and slide projector lamps is recommended."¹³⁶ Nor does she explore a time-based approach to the digitization of an entire slideshow. Weidner is primarily concerned with preserving the material's image content; in this respect, her work is of the highest professional standard and informs other institutions' digital practices. However, this level of digitization is not extensive enough to preserve the integrity of slideshows as materially temporal and experiential.

Weidner acknowledges that the transition from analogue to digital is still being negotiated by the institution and the artist: "In this emerging territory the conservator's

¹³⁴ Weidner, "Dying Technologies: the end of 35mm slide transparencies."

¹³⁵ Weidner, "Dying Technologies: 35mm slide medium."

¹³⁶ Weidner, "Dying Technologies: The way forward."

role is to function as a diplomat; mediating between the museum, the artwork, the artist and a distributed network of experts. The most important aspect of this role is to help build understanding and trust.”¹³⁷ The document and guidelines that MoMA are developing encourage a deeper understanding between artist and institution, and inspire trust in the institution’s objective to be a thoughtful custodian and remain faithful to the work’s intended exhibition.

Moving forward, digitization will be the only method that allows 35mm slideshows to be available—either as a form of documentation or a presentation. The technology and materials continue to disappear, and in the short time (six years) between Weidner’s research and my own, a number of her recommendations are no longer viable options. Digitization can and must develop from being a method to preserve only a part of the slideshow (the slide’s image content) to become a method to preserve the whole (the sequence, duration, soundscape, and materiality), as this record may serve as the only evidence of the original’s existence in the future. The pursuit of a digital translation of a 35mm slideshow that maintains its original format, both materially and contextually, begs the question: is this an institutional responsibility, an artistic practice, or a compromise between the two?

¹³⁷ Weidner, “Dying Technologies: The project’s point of departure.”

Digitization in Cultural Institutions

Institutions must commit to creating robust, thorough, and descriptive translations of artworks as these digital records are accessed, researched, and interpreted by the public online. As mentioned in the Introduction, museums have two key responsibilities to the public: stewardship, which includes preservation, and public service, which includes access and research.¹³⁸ Digital technologies have altered the conception of the “public,” which is no longer a group of people connected by geographic or political dominion but billions of people connected through the internet. Andrew Dewdney argues that viewer subjectivity has shifted radically due to digital technology and the screen interface: “[t]he established and normative notion of spectatorship entailed in aesthetic modernism”¹³⁹ is unsustainable in the wake of digital culture where “[t]he foundational subject and his/her gaze is at the heart of what the screen and network is busily undoing, creating a highly populated, yet unnamed space for viewing and being viewed.”¹⁴⁰ His description of the computer screen is reminiscent of Lugon’s earlier description of the projector’s screen: screens are not intended to be “contemplation mediums, but rather as instruments of mass communication.”¹⁴¹

Digital technologies provide a means for museums to create access to images and information regarding their collection. Ross Parry argues that digital technology is a form of cultural technology. Digital technology itself does not determine its influence

¹³⁸ Canadian Museums Association, *Ethical Guidelines*, 5.

¹³⁹ Dewdney, “Curating the Photographic Image,” 108.

¹⁴⁰ *Ibid.*, 109.

¹⁴¹ Lugon, “Exhibiting Projecting,” 189.

over culture, it is objective and inactive without an operator; instead, authorities, such as cultural institutions, that operate digital technology influence what and how culture is perceived through digital media.¹⁴² This is very similar to John Tagg's description of photography: it is a technology that "[v]aries with the power relations which invest in it. Its nature as a practice depends on institutions and agents which define it and set it to work."¹⁴³ Digitization is an expensive and resource-heavy investment, but it also is an effective strategy in providing access to cultural heritage. If rigorous practices are not enforced, however, digitization can become "an insidiously repressive technology enabling institutional control over what is made accessible."¹⁴⁴

Parry suggests that museums' initial reluctance to engage with digital media and networked culture arose from the fear that they "would witness the death of the object and the visit."¹⁴⁵ Instead, the development of networked culture and digital technology has produced a new demographic of museum visitors with a more active (or interactive) subject position. Cultural institutions respond to this demographic on site, creating exhibitions with interactive features, digital enhancements, and participatory social media campaigns. Many institutions are in the process of digitizing their collection to be accessible online; however, their approach has come under scrutiny from scholars. Joanna Sassoon asserts that "[i]nstitutions are not only framing understandings of the

¹⁴² Dewdney explores the digital screen's role in networked culture. Users have become accustomed to interactive, digital encounters through the manipulation of digital screens that retrieve and display content determined by the user. The screen performs as a cultural technology: the operator of the screen's technology controls the content they create and consume, participating in a cultural, subjective process.

¹⁴³ Tagg quoted by Sassoon, "Photographic Materiality in the Age of Digital Reproduction," 198.

¹⁴⁴ Sassoon, "Photographic Materiality in the Age of Digital Reproduction," 198.

¹⁴⁵ Parry, *Recoding the Museum*, 61.

past through the selection of images, but by framing the very way we understand historical source materials through shifting the styles of documentation from contextual to content.”¹⁴⁶

Sassoon argues that digitization methods privilege image content over photographic context, that the materiality of the original is dismissed, that the institutional selection process is not transparent and entirely subjective, and that the compromises required for the digital file to be on a monitor prevent material-based photographic research. Sassoon’s views reinforce a broader anxiety that was prominent at the turn of the twenty-first century: a general apprehension was felt regarding the institution’s emerging role in the creation and dissemination of digital content. Since then, institutions have responded to these concerns in critical and thoughtful ways, such as engaging in user-based research that informs what objects are selected for digitization. Despite these initiatives, the treatment of 35mm slideshows supports Sassoon’s view that the photograph’s image content dictates its digital existence: slideshows are reduced to a selection of still images, effectively losing their materiality, function, and contextual associations.

Digitization is “by necessity of the technology, a standardising process during which a variety of physical distinctions between different types and forms of photographs are eliminated.”¹⁴⁷ Sassoon argues that the fundamental difference between a photograph and its digital reproduction is that the material, three-dimensional photographic object is reduced to an immaterial, one-dimensional image.

¹⁴⁶ Sassoon, “Photographic Materiality in the Age of Digital Reproduction,” 212.

¹⁴⁷ *Ibid.*, 201.

The concern is that the transition from the physically real to the digitally ethereal has become so obvious that it is unrecognizable; this could be seen as a further refinement of Snow's criticism of the "obviousness" of the transition from the real to its photographic representation. Combating obviousness is not a new struggle for artists. Lake used various measures to disrupt the obviousness of photographic representation in a 1974 catalogue that reproduced *On Stage*. The slides are printed as images with the rounded edges of a slide mount, they are sequenced in a row, and the final image is cut off by the edge of the page (as Lake points out, "the cropping anticipates a continuum"¹⁴⁸). The rows, falling off the page and resuming on the next, achieve a sense of the original's duration and sequence. She recreated this effect again in the Steidl catalogue *Suzy Lake*, published in 2016 (Figure 2). Like catalogues that reproduce artworks on the page, digital reproductions are accessed and viewed on a monitor, which exerts a homogenizing influence on photographic objects that can distort the artist's original intention.

The digital documentation and preservation challenges associated with 35mm slideshows—the public's disappearing visual literacy of the 35mm slideshow medium, the rapid obsolescence of analogue technologies and material, and the dwindling access to the artists who created these works—should prioritize these works for digitization. Digital translations will provide not only important internal documentation but also public access and an understanding of the slideshow's medium specificity. The digital

¹⁴⁸ Suzy Lake, Interview by Emily Miller, May 6, 2018.



Figure 2: Suzy Lake's *On Stage* in print, selection of two spreads. Suzy Lake, *Suzy Lake* (Göttingen, Germany: Steidl, 2016), 38–41.

representations of 35mm slideshows that remove the duration, sequence, and presentation of the original, demonstrate how digitization can obscure the object's original function, context, and meaning, by creating "content-based digital orphans."¹⁴⁹

The Digital Records of 35mm Slideshows

For a new generation of viewers who are unfamiliar with 35mm slideshows, the equivalency of digital images and the "viewing of images through an intermediate and universalising technology"¹⁵⁰ (i.e., the computer monitor) make the orphaned slide appear to be just another image. Proper documentation is important not only for public access but also for an institution's internal use. Extensive documentation is necessary for technology-dependent and installation works: it provides a visual reference for the work when it is not installed and a guide for installation. Institutions assume responsibility for the work's installation and operation, and require thorough, internal documentation and staff familiar with outmoded technologies. If the sequence, duration, installation, or audio component of a 35mm slideshow is incorrect, the intention of the artwork is not realized. The internal standards of documentation are, however, much higher than the standards of publicly accessible digital reproductions.

Goldin's *The Ballad of Sexual Dependency* provides an interesting case study of the digital records created by different institutions for a slideshow. The Whitney, Museum of Modern Art, and The Art Institute of Chicago (AIC) have all acquired an analogue iteration of *The Ballad* (there are ten editions of the work, all with slight

¹⁴⁹ Sassoon, "Photographic Materiality in the Age of Digital Reproduction," 212.

¹⁵⁰ Ibid., 202.

variations in slides and sequence). The Whitney's website exemplifies the reductive effects of digitization: six small image files are arranged as diptychs in three rows (Figure 3). The images could easily be reproductions of chromogenic prints, colour negatives, or digital-born photographs. The arrangement of the six images does not convey the sequence of a slideshow, but rather an intentional arrangement of a series of photographs. AIC's online record depicts one image—an installation view of people sitting in the museum, watching the slideshow. Necessarily, the photograph freezes only one image of the slideshow. Unlike the Whitney's six images, the AIC's image can be enlarged (Figure 4).¹⁵¹

MoMA has acquired both the slideshow and a selection of silver dye bleach prints of *The Ballad*. The slideshow itself does not currently have an object record on the MoMA website, unlike the silver dye bleach prints, which have records that include digital reproductions of the prints. MoMA's website provides a record of the recent exhibition of *The Ballad* (June 11, 2016—April 16, 2017) as a slideshow; this record includes one image from the slideshow as the header image (Figure 5).¹⁵² MoMA's public online documentation of the work falls short; however, rigorous documentation for *The Ballad* is kept internally at the MoMA. In my interview with Lutek, we discussed the documentation required to install and exhibit the slideshow. The slideshow contains almost seven hundred slides; MoMA relied on a PDF document that illustrated the sequence that the artist had intended. Lutek notes that MoMA does not "hesitate to

¹⁵¹ Art Institute of Chicago. "About This Artwork: *The Ballad of Sexual Dependency*."

¹⁵² Museum of Modern Art. "Nan Goldin: *The Ballad of Sexual Dependency*."

Nan Goldin

THE BALLAD OF SEXUAL DEPENDENCY 1979-96

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Image Related exhibitions online



Artist
Nan Goldin (1953-)

Title
The Ballad of
Sexual
Dependency

Date
1979-96

Medium
Slide installation
with 690 35mm
color slides,
sound, 45 min.
looped

**Edition
information**
1/10

Credit line
Whitney Museum of
American Art, New
York; Purchase, with
funds from The
Charles Engelhard
Foundation, the Mrs.
Percy Uris Bequest,
the Painting and
Sculpture Committee
and the Photography
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Object Label

Nan Goldin has described *The Ballad of Sexual Dependency*, a photographic narrative depicting her extended family of friends, as "the diary I let people read." Using the amateur format of the slide show on a monumental scale, she created a chronicle of East Village punk bohemia through an always-changing compilation of nearly seven hundred images accompanied by a synchronized soundtrack. The progression of snapshots reveals the visual vocabulary of her friends' styles and behavior, as well as the squalid charm of bohemian addiction, with candor and intimacy. She tenderly records drag queens, women looking into mirrors, girls in bathrooms and barrooms, and empty beds, along with various forms of sex and sexuality. In her words, the project shows "exactly what my world looks like, without glamorization, without glorification." Goldin began showing this work as early as 1978 in downtown New York clubs and bars, and she continued to add to and adjust the selection of images and music until 1992.

Figure 3: Online record of Nan Goldin's *The Ballad of Sexual Dependency*, screen shot from the Whitney Museum of American Art's website. Whitney Museum of American Art, "Nan Goldin: The Ballad of Sexual Dependency, 1979–96," *Whitney Museum of American Art, Art & Artists*, 2018, accessed May 15, 2018, <http://collection.whitney.org/object/8274>.

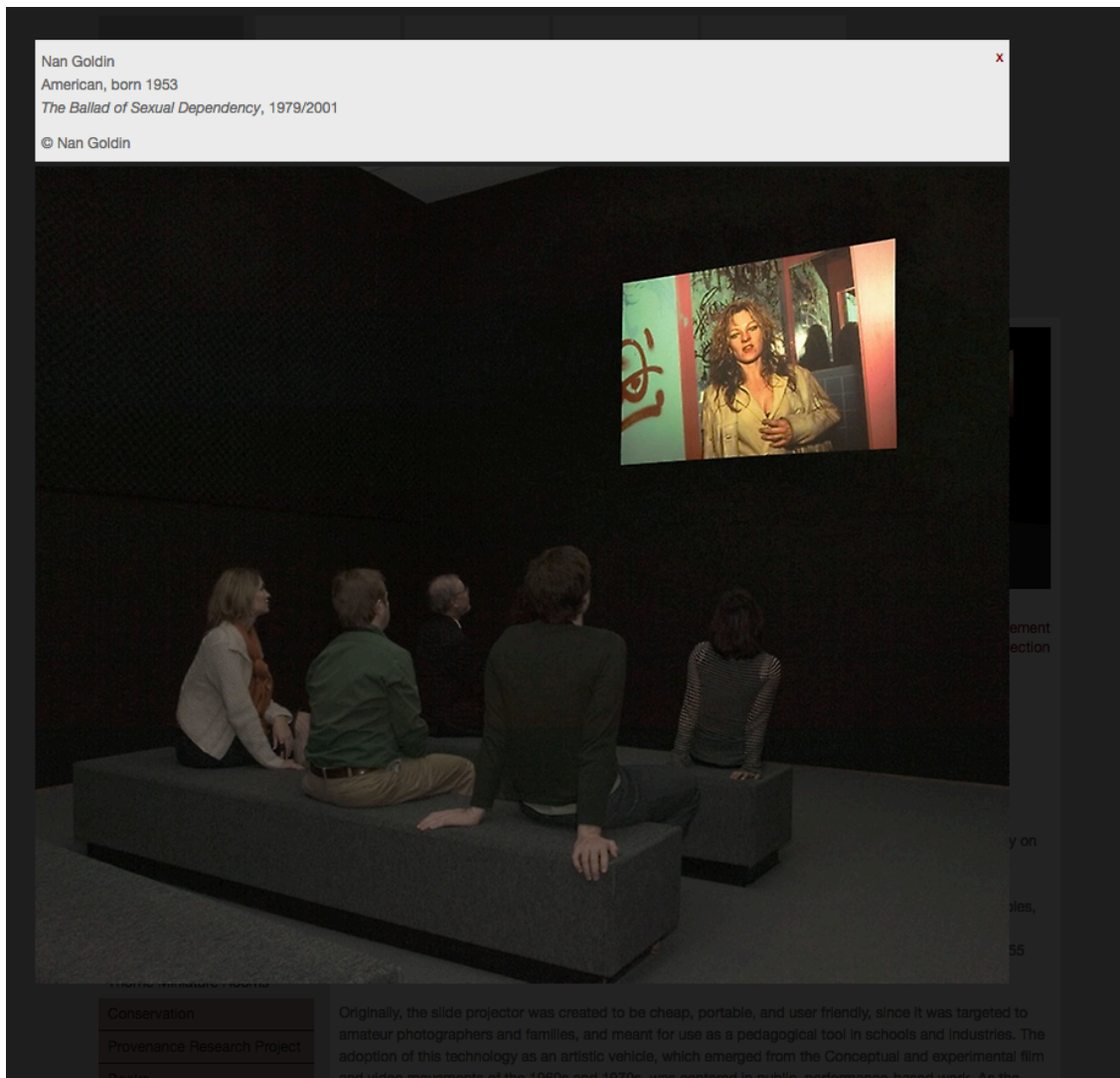


Figure 4: Online record of Nan Goldin's *The Ballad of Sexual Dependency*, screen shot from the Art Institute of Chicago's website. Art Institute of Chicago, "About This Artwork: *The Ballad of Sexual Dependency*," *Art Institute of Chicago, Collections*, 2018, accessed May 15, 2018, <http://www.artic.edu/aic/collections/artwork/187155>.

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Nan Goldin: The Ballad of Sexual Dependency

June 11, 2016–April 16, 2017

The Museum of Modern Art

Figure 5: Exhibition record of Nan Goldin's *The Ballad of Sexual Dependency*, screen shot from Museum of Modern Art's website. Museum of Modern Art, "Nan Goldin: The Ballad of Sexual Dependency," *MoMA Exhibitions and Events*, 2018, accessed May 15, 2018, <https://www.moma.org/calendar/exhibitions/1651>.

make [their] documentation as complex as required in order to understand the work”: video files, installation images, and image files for each slide constitute the intensive documentation created for *The Ballad*, allowing the work to be exhibited and preserved effectively.¹⁵³

Coleman’s *Living and Presumed Dead* has been acquired by the AGO, but it is also part of the Tate’s collection and the Marian Goodman Gallery’s collection, which represents the artist. The Tate and the AGO do not provide any digital reproductions of the work online; in fact, the AGO does not have a record for the work online. Marian Goodman Gallery’s record of *Living and Presumed Dead* contains one image, a reproduction of one of the slides (Figure 7). This image appears to be consistently selected as the sole visual record of the work: it is the only media file for the work in the AGO’s internal catalogue and the image used in both Krauss’s and Bellour’s essay. Most likely, Coleman selected this image to represent the work and enforces its continued reproduction.¹⁵⁴

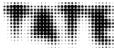
While the Tate does not present an image, it does include the medium: “Slide, 35 mm, 167 slides, 3 projections, colour and sound” (Figure 6).¹⁵⁵ Marian Goodman Gallery’s record also includes a description of the medium: “Projected images with synchronized audio narration.”¹⁵⁶ The term “projected images” does not clearly identify

¹⁵³ Tasha Lutek, Interview by Emily Miller, April 8, 2018.

¹⁵⁴ Bellour’s essay contains this still image and another still image from *Living and Presumed Dead*, which I have not seen reproduced elsewhere.

¹⁵⁵ Tate. “James Coleman: *Living and Presumed Dead* 1983-85.”

¹⁵⁶ Marian Goodman Gallery. “James Coleman: Selected Works.”



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James Coleman

Living and Presumed Dead

1983–5

SORRY, NO IMAGE AVAILABLE



NOT ON DISPLAY

ARTIST	James Coleman born 1941
MEDIUM	Slide, 35 mm, 167 slides, 3 projections, colour and sound
DIMENSIONS	None
COLLECTION	Tate
ACQUISITION	Purchased 1996
REFERENCE	T07076

Figure 6: Online record of James Coleman’s *Living and Presumed Dead*, screen shot from the Tate’s website. Tate, “James Coleman: *Living and Presumed Dead* 1983–85,” *Tate, Art & Artists*, 2018, accessed May 15, 2018, <http://www.tate.org.uk/art/artworks/coleman-living-and-presumed-dead-t07076>.



CAPTION -
Living and Presumed Dead, 1983-1985
Projected images with synchronized audio narration
(4989)
5 of 18



Figure 7: Online record of James Coleman's *Living and Presumed Dead*, screen shot from the Marian Goodman Gallery's website. Marian Goodman Gallery, "James Coleman: Selected Works," *Marian Goodman Gallery*, 2018, accessed May 15, 2018, <https://www.mariangoodman.com/artists/james-coleman>.

the materiality of the work: it could be digital or analogue. The Tate specifies that the work consists of slides and provides the number of slides and projections, giving a sense of the work's scope. Its use of the term "sound" is not as informative as Marian Goodman's "synchronized audio narration."

Unfortunately, the AGO's website does not currently have records for Snow's *Recombinant* or Lake's *On Stage* (the latter is still a "Promised Gift," and therefore not yet part of the permanent collection). Still, the slide-based artworks acquired by the AGO—Coleman's *Living and Presumed Dead*, Snow's *Recombinant*, and Lake's *On Stage*—have object records in the AGO's internal collections database accessed through The Museum System (TMS). The AGO acquired the digital translation of *On Stage* on a DVD, a technology that is also threatened by technical obsolescence. The TMS record of *On Stage* gives the object name as a "video" and the medium as a "DVD." Both of these identifiers are technically correct, but a more complex description will be required when the object is accessioned and the record is completed.

The TMS record for Coleman's *Living and Presumed Dead* includes the single image that appears to represent the work in all reproductions. Red text at the top right corner of the record reads "Needs Photography," indicating that the AGO would like to add more media files for documentation purposes. As this object was acquired through a private collector and not the artist or artist's gallery, there should be a discussion with the artist before proceeding with digitization and/or exhibition (the two usual catalysts for documentation photography). *Living and Presumed Dead* is described as an

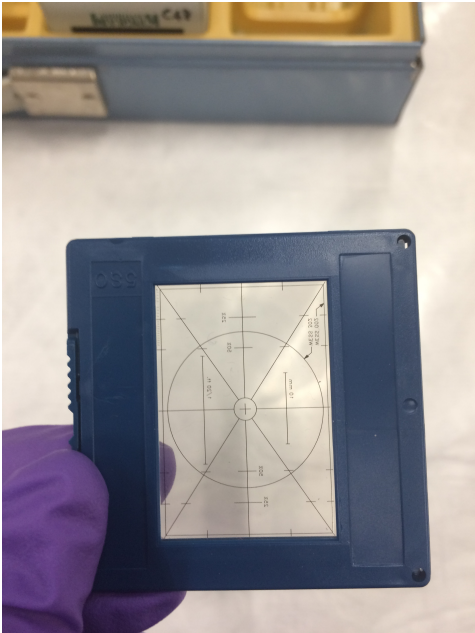


Figure 8: Storage and slides of James Coleman's *Living and Presumed Dead* at the Art Gallery of Ontario. Emily Miller, *Storage of 35mm slideshow at AGO*, March 2018, Art Gallery of Ontario, Toronto, Canada.

“installation” and the medium is identified as a “multiple slide projection with sync sound tape.” The description includes all the components of the piece (audio cassettes and sets of slides; see Figure 8). Snow’s *Recombinant* has the most thorough documentation because the work was installed and photographed. There are eleven media files on TMS that demonstrate the image content, installation, and multi-media elements of the artwork (Figure 9). Although the installation photographs do not provide a complete review of every slide, they offer the most thorough documentation of the installation and convey the materiality and context of the piece.

Overall, the accessible public records found online, as well as the institutions’ internal records, are inconsistent and inadequate. The selection of still images used to represent a slideshow appear to be subjectively and arbitrarily chosen; the still image files convey an object permanence that is more akin to a print than a projection; and, barring the installation shots, there are no visual indications that these works are 35mm slideshows. The terms used in the accompanying documentation can be confusing. The difference between “projected images” and “Slides, 35mm” is obviously problematic. A more descriptive record (e.g., “167 35mm slides projected onto a [wall or screen] by 3 projectors, synchronized audio narration, duration of 45 minutes”) would definitely be an improvement.

Duration and sequence are vitally important and are not conveyed by still images. A time-based file would be appropriate for these works. Reproduction photography needs to evolve with new technology: institutions continue to document



Figure 9: Michael Snow. *Recombinant*, 1992. Paint, wood, Plexiglas, projector, 35mm colour transparencies, overall (pedestal): 104.1 x 74 x 3.2 cm (41 x 29 1/8 x 1 1/4 in.). Art Gallery of Ontario. Purchase with funds from an anonymous donor, 2001 © Michael Snow, Photos © Art Gallery of Ontario.

art objects with flat, frozen photographs, a relic of the analogue era. Sculpture, installations, multi-media works, and time-based works would all be better served by video or by VR (virtual reality) photography, which provides an interactive 360° photograph of an object. Museums' websites and internal catalogues can support a variety of media file formats, including video and audio (TMS supports mp4s and can hyperlink to files online or on internal servers). When provided with accessible, digital translations with diverse and appropriate file formats, the user can engage with the file format (click to play, scroll to zoom, and so on), which temporarily disrupts the flow of digital content and encourages a closer investigation of the reproduction and its accompanying documentation.

A New Mode: Digital Translations

35mm slideshows are extremely specific works in terms of their installation and presentation, and this specificity must be reflected in the digitization of slide-based artworks. Digitization practices are often standardized because they are assumed to be objective and technical processes. Digitization encourages “[t]he search for a single set of properties of a photograph,” which “belies the diversity of the medium.”¹⁵⁷ However, digitization also has the capacity to indicate, and convey, a physical object’s formal and cultural properties; the question is, how can institutions respond to these concerns and create culturally informed digitization practices?

Walter Benjamin’s essay provides a constructive framework that can be applied to the shift from analogue to digital, with the objective of creating robust, cultural digital translations that conserve the context of the original. Translation is not a product, “[t]ranslation is a mode,” according to Benjamin.¹⁵⁸ In the case of 35mm slideshows, the analogue version is the original mode. The technology and materials that support this mode have largely disappeared; thus, it has reached the stage of its afterlife. Digital technology, however, provides a new mode and successful digital translations can bring these slideshows into their continuing life.

The success of a translation manifests itself not by “making itself resemble the meaning of the original,” but by “lovingly, and in detail, fashion[ing] in its own language

¹⁵⁷ Sassoon, “Photographic Materiality in the Age of Digital Reproduction,” 200.

¹⁵⁸ Benjamin, “The Translator’s Task,” 152.

a counterpart to the original's mode of intention."¹⁵⁹ The 35mm slideshow must escape technical translations that prioritize image content over context. If the 35mm slideshow's original mode of intention was produced by sequence, duration, projected images, and certain mechanical aesthetics or multi-media elements, this must be realized through digital translations that resonate with its medium specificity.

Benjamin sees translation as a cultural act: "there is no muse of translation. They [translations] are not, however, philistine."¹⁶⁰ For Benjamin, the original and the translation have a "vital connection": the translation's existence depends on the original, it is derived from the original's "'afterlife' or 'survival.'"¹⁶¹ Translations occur when originals "have reached the stage of their continuing life."¹⁶² The inception, context, interpretation, and history are significant and defining aspects of an original artwork; they are the motivating force behind the original's "continuing life." A successful translation, then, would present the original's continuing life in "its constantly renewed, latest and most comprehensive unfolding."¹⁶³ The translation must contain and convey the original's history and meaning, but present it in a contemporary form. Translation demands modernization: if an original is to enter the phase of its "continuing life," it must fundamentally change.

The digital translations of 35mm slideshows can be a method of exhibition and a method of documentation. Having reached their "afterlife," 35mm slideshows require

¹⁵⁹ Benjamin, "The Translator's Task," 161.

¹⁶⁰ Ibid., 160.

¹⁶¹ Ibid., 153.

¹⁶² Ibid.

¹⁶³ Ibid., 154.

an intervention in order to enter their “continuing life.” Artists such as Lake and Goldin have embraced digital translations in an effort to maintain their slideshows as exhibitable artworks; while artists such as Snow require that the slideshow remain analogue during exhibition despite the 35mm slides’ and carousels’ eventual obsolescence. All 35mm slideshows require some sort of digital translation, if not in the form an exhibition copy, then as a record of what the work once was, as it will eventually be “the only way we can continue to display these works.”¹⁶⁴ If the documentation is selective and reductive, nothing will serve to correct it.

Digitization is remarkably well suited to translating 35mm slideshows. In fact, Sassoon’s representation of the relationship between the analogue original and the digital reproduction as a “dissonant relationship between the ethereal and liminal digital representations of its tangible material sources”¹⁶⁵ does not ring true for projected images in the same way it does for print photography. The “mutable, fugitive, fleeting, and restless”¹⁶⁶ digital photographs described by Dewdney closely correspond to the materiality and aesthetic intention found in projected photography. Projections are meant to be ethereal and transient, and this immateriality is mimicked in digital media. Lugon argues that the intention realized in “an analogue ‘audiovisual’ form was...a not-insignificant element of the archaeology of digital culture.”¹⁶⁷ He suggests that 35mm slideshows and similar analogue formats influenced the development of digital media. The slideshow format had a definite impact on digital presentation formats, as

¹⁶⁴ Weidner, “Dying Technologies: The project’s point of departure.”

¹⁶⁵ Sassoon, “Photographic Materiality in the Age of Digital Reproduction,” 199.

¹⁶⁶ Dewdney, “Curating the Photographic Image,” 101.

¹⁶⁷ Lugon, “Exhibiting Projecting,” 200.

evidenced by the adaptation of analogue terminology to the digital sphere. Microsoft's PowerPoint software (released in 1987) produces computerized slideshows from digital slides of images and text created through the program. The analogue terminology is so persistent that when Google released Google Slides in 2012, they not only adopted the language but also used a silhouette of a 35mm slide as the software's logo. 35mm slideshows have a continued metaphorical existence in digital technology.

Developing Digital Translations

Robust, thorough, time-based digital translations of 35mm slideshows do exist, often in the form of high-quality exhibition copies, such as the digitized version of *The Ballad of Sexual Dependency* loaned to the AGO, or rich, dense digital masters, like the AGO's Promised Gift of *On Stage*; rarely do these files exist as accessible, public documents.¹⁶⁸ The impetus to digitize 35mm slideshows is often the prospect of an exhibition, as the exhibition of a 35mm slideshow in its analogue form is a cost-prohibitive venture. The impetus should not be the occasion of exhibition, but the threat of extinction. It is imperative for institutions to intervene in their collection of 35mm slide-based artworks and offer them a continuing life, even if this life is as a visual record and not an exhibitable artwork.

After interviews with artists, conservators, and other experts, I have developed a website that demonstrates five forms of digital translation techniques that can be

¹⁶⁸ Accessibility refers to public access through online publication but also to accessible file types. High-resolution, heavy digital files (digital masters or exhibition files) require a lot of bandwidth; therefore, low-resolution files are important for digital accessibility.

applied to 35mm slideshows (www.emilymiller.ca/digitalTranslations/home.html; see also, Appendix 1). I determined that a website would be the most appropriate environment to display the digital translations as it reveals the possibilities of accessible, public documentation. Each digital translation is followed by an analysis that describes what is documented by the media file—the documentation of sequence (all the slides in order), duration of each slide, the image content of each slide, the installation of the slideshow, and the audio and multimedia components. I have included recommendations under the heading “Suggested file types.” The analysis concludes by examining whether the media file can stand in as an adequate digital translation for documentation or exhibition, and by identifying the advantages and disadvantages of the media files.

I created a 35mm slideshow from found slides. I performed and recorded the 35mm slideshow in its analogue form, and I have also scanned the slides as digital master files (high-resolution TIFF files). I calibrated the colour of the digital master files on Photoshop and removed dust from the images. From the digital masters, I created high-resolution exhibition files (JPEGs) and low-resolution reference files (JPEGs). I used movie-editing software to create a digital translation of the 35mm slideshow (mp4s) that could be digitally projected and produces a similar effect to the analogue original. This process demonstrated the work-intensive practices involved in digitization; it also made me aware of the numerous subjective decisions I made in regards to the cropping and colour correction of the images, and the duration and sequence of the slideshow. As I am both the creator and the translator of this slideshow, these negotiations were

easily resolved; however, in most cases access to the artist, their studio, or documentation would be crucial.

I have included translations that I find “inadequate,” as they fail to represent the intention of the artwork; translations that provide useful documentation but are not suitable for exhibition; and translations that meet the requirements for exhibition and/or documentation. “Installation Photographs” and “Installation Videos” involve the installation of the 35mm slideshow; these digital translations require the presence of technology and a specific set-up in order to convey the intention. Since these translations depend on analogue material and equipment, there would be pressure on institutions to perform these documentation initiatives before the technology is obsolete. Institutions that pursue these translations will have rigorous documentation of the original work that will simplify future analogue exhibitions by depicting sequence, duration, and installation; they may eventually be the only lasting record of the work.

Moving forward, artist conversations that occur before acquisition should include a discussion of preferences with regard to digital reproduction both for the museum’s internal purposes and for public access. If the artworks require supporting technology or are time-based works, then a discussion of technical obsolescence, even in the case of technologies that are not currently threatened (such as USBs), should be documented. Ideally, digital translations would be completed as a digital master, which could be archived; exhibition copies and reference files could be derived from the master file.

Digital Translations for Documentation

The only digital translation on the website that I consider completely inadequate is the “Single Digitized Slide” (Appendix: Single Slide Digitized); it is a technical translation of the “intended object” and exemplifies the subjective, selective, and reductive tendencies of poor digitization practices. “All Slides Digitized” (Appendix: All Slides Digitized) and “Installation Photographs” (Appendix: Installation Photographs) are both inadequate digital translations when judged in isolation; however, they provide valuable documentation when supported by supplemental information (such as textual descriptions of duration, audio and multimedia components, and installation instructions). I recommend that all slides are digitized and sequenced in their original order. “All Slides Digitized” is a collection of individual files for every image in the slideshow in sequence, providing image detail and documentation of sequence. The image files can be viewed and shared individually. “Installation Photographs” is a collection of photographs of the 35mm slideshow installed, conveying the materiality of projection and the physical requirements of the installation.

Together, “All Slides Digitized” and “Installation Photographs” provide useful information regarding the materiality, content, and context of the artwork. They do not represent adequate digital translations; however, they are adequate documents. These files can inform conservators, curators, and researchers of the sequence, image detail, installation, or other media components; however, they do not adequately convey the artistic intention of the work. I argue that these documentation practices (“All Slides Digitized” and “Installation Photographs”) should be implemented as they contribute to

a richer, more descriptive and complex, profile of the artwork. Lutek observes that “complicated works require complicated documentation.”¹⁶⁹ Such documentation practices can alleviate some of the confusion and curb the subjective decision-making of a translator who does not have access to the artist.

In order to be adequate translations, media files should be time-based files as opposed to image files as the former conveys the duration and movement of images, a crucial distinction between 35mm slideshow and other forms of photography. However, static image files may be adequate digital translations for artists who did not have an aesthetic or conceptual reason for using 35mm slideshows. Helen Levitt (American photographer, 1913–2009), for example, who used 35mm slideshows only because they were inexpensive and efficient, may have preferred the digital translation of her work to be in the form of static images, more akin to photographic prints.¹⁷⁰ Such considerations underscore the view that institutions must familiarize themselves with the artist’s intention.

35mm slideshows that cannot be digitally translated for exhibition should be digitally translated for documentation. In such cases, a successful digital translation would be “Installation Videos” (Appendix: Installation Videos), which includes two

¹⁶⁹ Tasha Lutek, Interview by Emily Miller, April 8, 2018.

¹⁷⁰ Levitt, whose projected colour images were lauded in a 1974 month-long *Projects* exhibition at MoMA, maintained that the slideshow “was simply a means to keep the format consistent between production and display phases.” Levitt, an early adapter to colour photography, was producing work in the 1970s when making colour prints was an expensive process. She would only print her photographs when an “explicit need,” such as an exhibition or sale, arose. Although Alexander argues that Levitt’s use of “projection delivers pictures on a more public level, a feature that reinforces the communal nature of Levitt’s many street photographs,” it is clear that her aim was to make colour photographs and that the slideshow was simply a convenient mode of presentation. (Alexander, *SlideShow*, 119-120.)

views: a recording of the installation (which provides materiality and context) and a recording the screen (which provides image content). The time-based media files provide a robust record for artists who intend that their work be experienced through the analogue original. Snow does not want an exhibitable digital translation of the 35mm slideshow that is major component of *Recombinant*, even though he acknowledges that the slides and supporting technology will eventually disappear. In our interview, I discussed with Snow the current practices of digitization and the threat that inadequate digitization practices pose to the artistic intention and material integrity of *Recombinant*. Snow agreed that the documentation of the work should demonstrate the projector on its plinth, projecting images onto the screen, and that the “best documentation would include the piece moving,” but quickly added that “it’s still only documentation and it cannot stand in for the work.”¹⁷¹

Currently, the AGO has eleven installation views of *Recombinant* and detailed instructions provided by the artist on the installation and intention of the artwork in the gallery space. The slides for *Recombinant* are ordered in trays and numbered individually. The artist’s documentation was not retrieved through TMS but was found in a physical file. The sequence of the 80 slides was determined by looking at the slide trays in the vault. Both of these actions depended on finding and handling physical objects. Digital documentation secures this information and provides efficient internal access to it. *Recombinant* is clearly an artwork in which every part is of equal value and conceived with specific intent. The documentation for every part should be digitized and

¹⁷¹ Michael Snow, Interview by Emily Miller, May 2, 2018.

maintained in one place. An ideal object record would include installation videos, a digital copy of the artist’s instructions, a file that contained all the digitized slides in proper sequence, diagrams of the installation, installation views, photographs of the handmade screen as an object, reference to the availability of supporting technology at the AGO, and manufacturer information regarding that technology. The preservation aim for 35mm slide-based installations is to maintain the parts that create the whole—each part requires the same level of documentation, preservation, and digitization.

Digital Translation for Exhibition

The 35mm slideshow has defining functional and mechanical characteristics that are often crucial to the intention of the artwork—such as looping or narrative sequence, prolonged or fleeting duration, scale of projection, associated sounds, or sculptural elements of the technology. Digital translations can incorporate these elements, not in a way that is identical to the original but in a way that can complement the original’s intention. Sequence, duration, and audio components can be easily achieved in the digital translation, assuming that there is precise documentation of these elements. In exhibition, digital translations can be projected and make the same spatial and physical demands as the original. Although the three-dimensional aspects of the projection and installation cannot be virtually recreated, the physicality of the space and technology can be visually represented.

“Exhibition Translation” (Appendix: Exhibition Translation) is a digital slideshow with the intended sequence, duration, and audio components (dedicated soundtrack or

associated soundscape of the technology) of the original. It can replace the analogue original in exhibition and can serve as useful documentation with supplemental information. Goldin's *The Ballad of Sexual Dependency* and Lake's *On Stage* exemplify these types of translations. In my interview with Lake, she explained that John Massier, the Visual Arts Curator at Hallwalls Contemporary Center in Buffalo, New York, proposed the digital version of *On Stage*. Massier's team performed the technical work under Lake's supervision. Lake had the original black-and-white negatives, which were used as the analogue masters and provided rich, digital files for the translation. She specified her intentions for the slideshow: the sequence of images and the regulated duration of each image. A key element of the analogue slideshow was the click of the carousel, so an audio file was digitally incorporated to reproduce the machine's associated soundscape. When *On Stage* is exhibited, Lake prefers the work to be projected onto a reflective screen manufactured specifically for projection, such as the large, industrial screen employed at the AGO. The carousel clicks and reflective screen emphasize the original materiality of the piece and make it "as authentic as possible."¹⁷² Fulfillment of these requirements, both on the part of the artist and the exhibiting institution, ensure that Lake's original artistic intention is conveyed.

Digital translations expose the negotiation that is necessary between artists and institutions regarding preservation and exhibition practices. The decisions surrounding the digital translation of a 35mm slideshow for exhibition would vary according to the artist and would require either access to the artist or proper documentation of the

¹⁷² Suzy Lake, Interview by Emily Miller, May 6, 2018.

original's concept, execution, and intention. The AGO was loaned the digital version of *The Ballad* and acquired the digital version of *On Stage*; however, the gallery has had recent experience digitally translating 35mm slideshows for exhibition. Danny Winchester, a member of the AGO's Media Production Department, created digital translations for the AGO exhibition *Toronto: Tributes + Tributaries, 1971–1989* (September 29, 2016–May 22, 2017). The exhibition contained multi-media installations that included two digital translations of 35mm slideshows produced by Winchester: Vera Frenkel's *The Business of Frightened Desires: Or, the Making of a Pornographer* (1984) and Jayce Salloum's *The Ascent of Man/Acts of Consumption* (1985–1987).¹⁷³

In my interview with Winchester, he described the challenges of creating digital translations not only for 35mm slideshows but for artworks on pneumatic tapes, beta tapes, VHS tapes, films reels, and other time-based media. He and his team investigate how they can “update those works to a digital presentation and still be true to the intent of the artwork,”¹⁷⁴ intention being at the heart of translation. Winchester observed that access to the artist is an important part of the process. In his experience, artists have “an express preference” for the digital translation of their artwork, but that the preference varies between artists, noting that some take the opportunity of digitization to update the artwork, while others want to retain the 35mm slideshow aesthetic.¹⁷⁵

¹⁷³ Both artworks were loaned to the AGO and are not part of the permanent collection.

¹⁷⁴ Danny Winchester, Interview by Emily Miller, April 4, 2018.

¹⁷⁵ Ibid.

Vera Frenkel played an active role in the translation of her slideshow.

Winchester recalls it as a creative and collaborative experience where “it didn’t feel like [they] were just digitizing it and assembling it, [they] were rebuilding it and modernizing it.”¹⁷⁶ The presence of the artist allowed for greater accuracy during translation. In the case of Frenkel’s slideshow, a slide that appeared to have duplicate copies was scanned as only one digital file, but the image actually appeared multiple times in the slideshow’s sequence. The error could easily have been missed without Frenkel’s participation or without proper documentation. Frenkel took the opportunity to make minor adjustments to the duration of some images, resulting in a digital translation that reveals the work’s most comprehensive and up-to-date unfolding.

Winchester’s translation of Salloum’s work was a different experience. Salloum’s objective was to project a sequence of large-scale images in a technically unobtrusive way. His original work incorporated a 35mm slideshow, but the analogue technology was a product of the time and not necessary to the artist’s intention. Therefore, he was not interested in incorporating the aesthetic or mechanical aspects of the 35mm slideshow into the digital translation, as it would draw attention to the antiquated machinery without contributing to his conception of the artwork. Winchester translated the slideshow from analogue to digital with the crossfades and duration suggested by the artist. Salloum reviewed the digital version, adjusted the duration of some of the images, and approved the translation for exhibition.

¹⁷⁶ Danny Winchester, Interview by Emily Miller, April 4, 2018.

Winchester maintains that this updated, digital translation creates a viewing experience for today's audience that is equivalent to the experience of the 35mm slideshow for the original audience. Forty years ago visitors were accustomed to the mechanical aesthetics of the slideshow, which were simply part of the experience. Today these effects are noticeably deliberate or nostalgic. Contemporary slideshows are silent and have clean cuts or fades between images; these aspects are inherent to the contemporary viewing experience of a slideshow and may be appreciated by artists who do not want to draw attention to the mechanical nature of the image's projection.

My website includes two types of "Exhibition Translations": version one demonstrates a translation that mimics the aesthetic and mechanical characteristics of a 35mm slideshow, and version two demonstrates a translation that reflects the aesthetic of a contemporary digital slideshow. In order to convey the original's mode of intention in version one, I included two audio files that I purchased online: the sound of a slide changing in a projector, and the sound of a projector's fan. The audio of the fan plays for the duration of the clip, while the sound of the slide changing is edited to correspond to the movement of images. The images fade out and fade in to resemble the carousel's transition between slides and the auto-focus of the projector. The duration of the transition between each image has been measured to take the same amount of time as it takes a projector to change its slide. The duration of each slide is 4 seconds in the installation videos and the exhibition translations (version one and version two). The installation videos and version one of the exhibition translation have the same time-lapse between slides and therefore the slideshow lasts 48 seconds. However, version

two of the exhibition translation only lasts 36 seconds, as the updated translation allowed me to remove the time-lapse between images. Version two is silent and has clean cuts between images.

The digital translations of *The Ballad of Sexual Dependency*, *On Stage*, *The Business of Frightened Desires: Or, the Making of a Pornographer*, and *The Ascent of Man/Acts of Consumption* were created for exhibitions and approved by the artists as an effective contemporary mode of exhibition that delivers the original's intention. In these examples, the intention is bound to a concept that can mutate between forms (analogue and digital) without losing the artistic intention. The artistic and institutional embrace of digital technology as a mode to create updated exhibition copies demonstrates that the intent of these slideshows are not always contingent on their analogue originals but on a concepts that can be digitally translated. Digital translations create an opportunity to update a 35mm slideshow into a digital file that is exhibitable and can reproduce the materiality of projection and incorporate aesthetic or mechanical characteristics of the slideshow.

Digital Environments

Benjamin argues that artworks have various levels of “translatability”—various degrees to which a work can be translated.¹⁷⁷ I have argued that 35mm slideshows can be translated from the analogue to the digital: the modes are complementary and, when effectively executed, the digital translation can impart the original intention.

¹⁷⁷ Benjamin, “The Translator’s Task,” 152.

“Exhibition Translations” can emulate 35mm slideshows, as they can be installed and projected in lieu of the original. “Installation Videos” provide a translation of the physical characteristics of a 35mm slideshow, demonstrating the installation, projection, and duration of the original.

All conscientious digital translations should be supported by an equally considered digital environment. The current digital environments for digital records are internal collections database interfaces (TMS) or accompanying webpages. Collections databases are less challenging, as the users are professionals who are familiar with the software. However, these collections databases should emphasize the scope of artworks—all media should be listed, installations should be described, and all documentation should be digitized and traceable from the record. Websites are accessed by a much broader audience. In these public digital environments, documentation is key to the “rebuilding of prior relationships between the structures that have served to create, authenticate, and preserve an image.”¹⁷⁸ Documentation of the digital object can provide the context and meaning central to the object’s translatability.

Metadata and hyperlinks can foster a digital environment that is linked to a larger, richer digital landscape; they offer “the opportunity to explore new associations freely because of relationships being recreated within the ethereal sphere,” and in this environment, “pre-existing photographic meanings are retrievable and new ones built

¹⁷⁸ Sassoon, “Photographic Materiality in the Age of Digital Reproduction,” 206.

from within the ephemeral electronic network.”¹⁷⁹ Descriptive metadata creates richer search results; allows relationships to be built between institutions and online collections; and reveals contextual, material, and functional relationships that may have been obscured by analogue data systems. Digital translations of 35mm slideshows would benefit enormously from hyperlinks connecting viewers to contemporaneous artists, art movements, and socio-political events, and would encourage viewers to engage with the museum’s collection in a sustained way.

¹⁷⁹ Ibid., 209.

Conclusion: The Translators

Benjamin focuses on the nuances of successful translation: he sees translation not as a simple practice but as a “task,” dependent on the rigour and sensitivity of the translator. The translator plays an emerging role in the context of time-based, technology-driven media, though questions remain as to the translator’s subjectivity, responsibility, and best practices. These concerns and uncertainties are not new. *October* published a round table discussion in 2003 entitled “The Projected Image in Contemporary Art,” where critics and artists discussed their growing anxiety about the custodians of time-based art. Artist Anthony McCall wondered who will be the “stakeholders in the future of a work of time-based art?”¹⁸⁰ I argue that the stakeholders will be the translators; whether they are scholars, conservators, artists, or collective initiatives, the translator’s task is being embraced by conscientious and cultural thinkers who want to revitalize analogue forms in the digital mode.

I have accepted the translator’s task in the development of my website and the (re)construction of a 35mm slideshow. Throughout the process, I was faced with the aesthetic and practical decisions attending digitization (colour correction, cropping, resolution) and the choice of media files, storage devices, and platforms for presentation. I realized that a successful translation depends on a complete understanding of the artist’s original intention, requiring either access to the artist or

¹⁸⁰ Turvey et al., “Round Table,” 95.

extremely detailed documentation of the artwork. The success of the digital translation also relies on the practitioner's technical skill and equipment.

Weidner argues that during the transition from analogue to digital, "conservators need to understand both the analogue processes and those associated with the digital, and [their] challenge is not simply learning a new language but in translating between the two."¹⁸¹ Weidner suggests that conscientious conservators will be the ones to assume the translator's task. Conservators have the requisite skills and state-of-the-art equipment, making them strong candidates for translators; however, access to artists and the documentation of the artwork fluctuates between institutions and works of art. Winchester provides an ideal example of the intervention Weidner proposes: his technical knowledge, software, and collaboration with artists represent a best-case scenario for institutional digital translations. Langlois, Goldin's digital archivist, fulfills a similar role but within an artist's studio. The digital translations of Winchester and Langlois revive the 35mm slideshows, allowing them to be exhibitable, viewable, and accessible.

The 35mm slideshow is a medium that is nearly obsolete and generally neglected by institutional digitization practices; at the same time, it is a medium where digitization provides a sufficient mode for contemporary translation. 35mm slideshows are a pertinent case study in the examination of a larger issue facing institutions and artists: the issue of technological obsolescence and the demand for adequate translations for media works that are time-based or otherwise dependent on technology. Ben Fino-

¹⁸¹ Weidner, "Dying Technologies: Project conclusion."

Radin is a self-described “media archaeologist, archivist, and conservator of born-digital and computer based works of contemporary art.”¹⁸² In 2016 he collaborated with MoMA to rescue *Lovers* (1994), a significant work in Japanese media art that relies on obsolete software and technology. Fino-Radin acknowledges that in museums “the work of the conservator is often dictated by what is scheduled for exhibition.”¹⁸³ *Lovers* had not been exhibited since 1998 and there were no plans for upcoming exhibition; therefore, its rescue was an exceptional undertaking made possible by MoMA’s directive to perform small, in-depth research projects in collaboration with students, scholars, and researchers. Fino-Radin and his team successfully translated *Lovers* into a contemporary form; yet he acknowledges the temporality of their solution, which is also susceptible to obsolescence. He argues that this is why proper documentation is crucially important: “[t]hat way *Lovers* can live on under the stewardship of another generation of curators and conservators, who will leave their own trace.”¹⁸⁴

The translations addressed in this research paper focus on specific 35mm slide-based artworks. The goals of these translations are to deliver the artist’s intention and to provide documentation. However Benjamin’s concept of translation can be expanded to include more creative, less prescriptive practices. Curators and artists play an active role in the translation of analogue forms and the contextualization of photography. Lyle Ashton Harris exemplifies the way artists can provide analogue photography with a continuing life. Harris developed *The Ektachrome Archives*, a personal archive of

¹⁸² Fino-Radin. “Ben Fino-Radin Homepage.”

¹⁸³ Fino-Radin, “Art in the Age of Obsolescence.”

¹⁸⁴ Ibid.

thousands of photographs that he took and collected throughout the 1980s and 90s, and that serves as a rich visual resource for him.¹⁸⁵ *Once (Now) Again* (2017) is a multimedia installation by Harris that includes projections from his archive.¹⁸⁶ These projections are immersive, powerful, and nostalgic in their presentation. The title—*Once (Now) Again*—evokes the practice of translation, (re)presenting the past in the present, bringing it from then to now. *Once (Now) Again* was created as a contemporary and digital project; however, Harris's intervention provides his personal archive, *The Ektachrome Archive*, with a continuing life, a sense of contemporary unfolding.

This creative conception of the translation from analogue to digital has been realized in exhibitions; curators have responded to this technological shift and addressed the artistic negotiations between the materiality of photographs and immateriality of the digital image. In 2016–17, *A Matter of Memory: Photography as Object in the Digital Age*, curated by Lisa Hostetler, was exhibited at the George Eastman Museum. In her introductory essay, Hostetler notes that “[as] astute and consistent observers of visual language, artists are often the first to recognize its structural and operational changes.”¹⁸⁷ The exhibition includes contemporary artists who realize the urgency of understanding the fundamental visual and material shift occurring in photography and translating that shift for a new generation embedded in a digital culture. Hostetler observes that “[t]he trick is not to become so beguiled by future possibility that we forget the necessity of preserving a tactile space for memory

¹⁸⁵ Aperture. “Lyle ashton harris.”

¹⁸⁶ Whitney Museum of American Art. “Lyle Ashton Harris.”

¹⁸⁷ Hostetler, “Introduction,” 11.

in order to make sense of our present.”¹⁸⁸ Her fear is that the dematerialization of photography within digital technology will erode the material memories ingrained in photographic prints. Hostetler’s need to convey the memory and intention of analogue photography, and her desire to contextualize the past and resurrect it in the present inform her task as a cultural translator.

These works of translation, whether they are procedures for a single work of art or approaches to a broader conceptual project, are fed by the same anxiety: the pervasiveness of digital technology and the loss of analogue practices. Academics, conservators, artists, and curators understand the cultural impact of this loss and work hard to retain the original intention of affected objects, and maintain their material and contextual integrity. Their endeavour, however, must be taken up outside the walls of institutions and become a part of the digital networked culture, the space where the public consumes and interprets digital reproductions. This can be accomplished by the introduction of thorough, cultural, robust, and accessible digital translations. Institutions must assume a conscientious role in the dissemination, circulation, and interpretation of digital reproductions. From this tenuous negotiation between the technical and the creative, the objective and the subjective, and the institution and the artist emerges the digital translator, who breathes life into an artwork’s obsolete material, frames the forgotten contexts, and revives the intention of the artist.

¹⁸⁸ Hostetler, “Introduction,” 23.

Appendix: Digital Translations

Single Digitized Slide



Documentation of Sequence:	No	Documentation of Installation:	No
Documentation of Duration:	No	Documentation of Audio:	No
Documentation of Image Content:	Yes	Documentation of Multimedia:	No

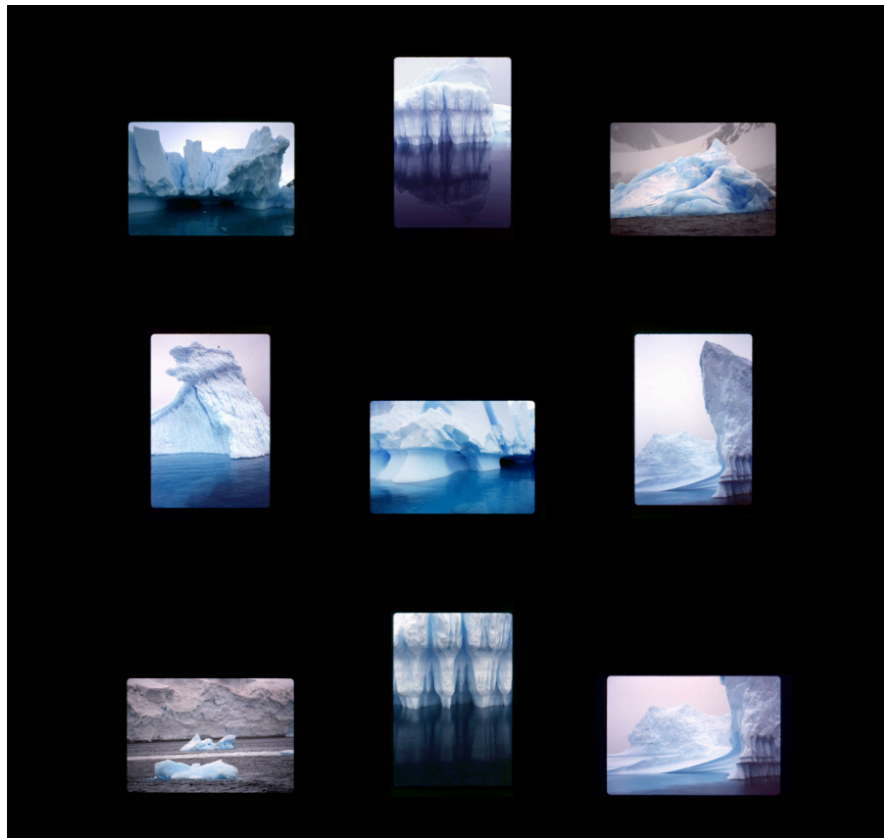
Suggested File Types: Digital Master (TIFF) and Digital Reference (JPEG)

Adequate Translation for Documentation:	No
Adequate Translation for Exhibition:	No

Analysis: Advantages: The digital file provides image content and demonstrates colour profile.

Analysis: Disadvantages: A single, digitized slide demonstrates the selective and reductive concerns associated with digitizing photographic objects. The digital representation does not convey the materiality, context, or content of the 35mm slideshow.

All Slides Digitized



Documentation of Sequence:	Yes	Documentation of Installation:	No
Documentation of Duration:	No	Documentation of Audio:	No
Documentation of Image Content:	Yes	Documentation of Multimedia:	No

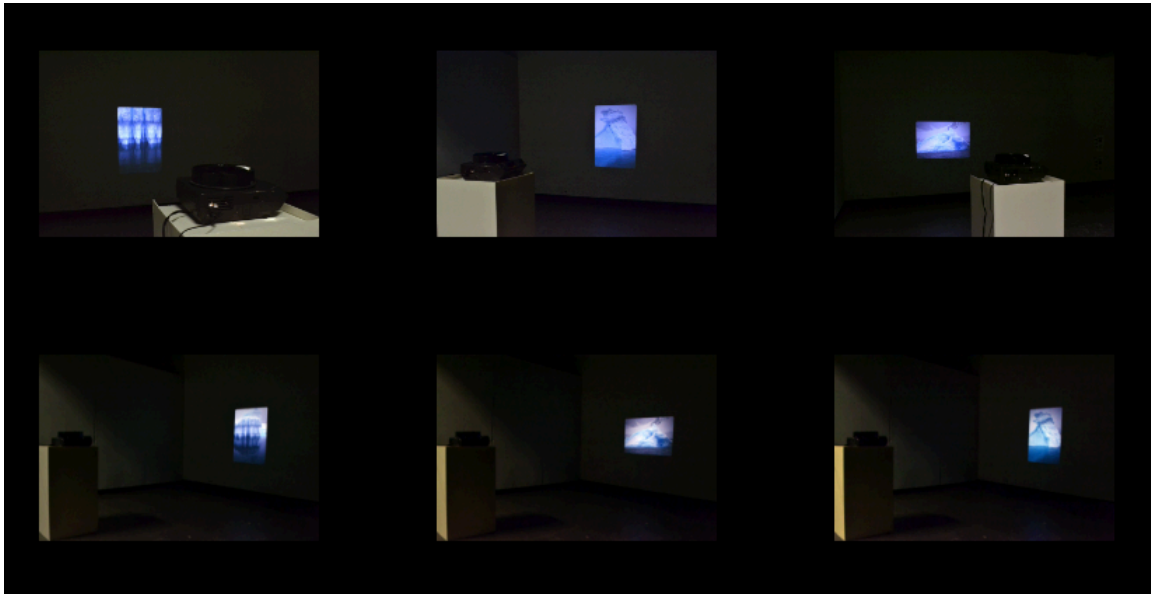
Suggested File Types: Digital Master (TIFF), Digital Exhibition (JPEG), and Digital Reference (JPEG)

Adequate Translation for Documentation:	Partial. Requires supplemental documentation.
Adequate Translation for Exhibition:	No

Analysis: Advantages: Digital master files of each slide allows for future digital translations. The images, documented in sequence, are important for internal documentation. All slides are digitized, avoiding the subjective process of selection.

Analysis: Disadvantages: All slides digitized and sequenced require supplemental documentation for internal purposes (duration of slides, audio and multimedia components, installation). The digital images do not convey the materiality or context of the 35mm slideshow.

Installation Photographs



Documentation of Sequence:	Yes/No	Documentation of Installation:	Yes
Documentation of Duration:	No	Documentation of Audio:	No
Documentation of Image Content:	No	Documentation of Multimedia:	Yes/No*

*Yes (physical components)/No (time-based or audio components)

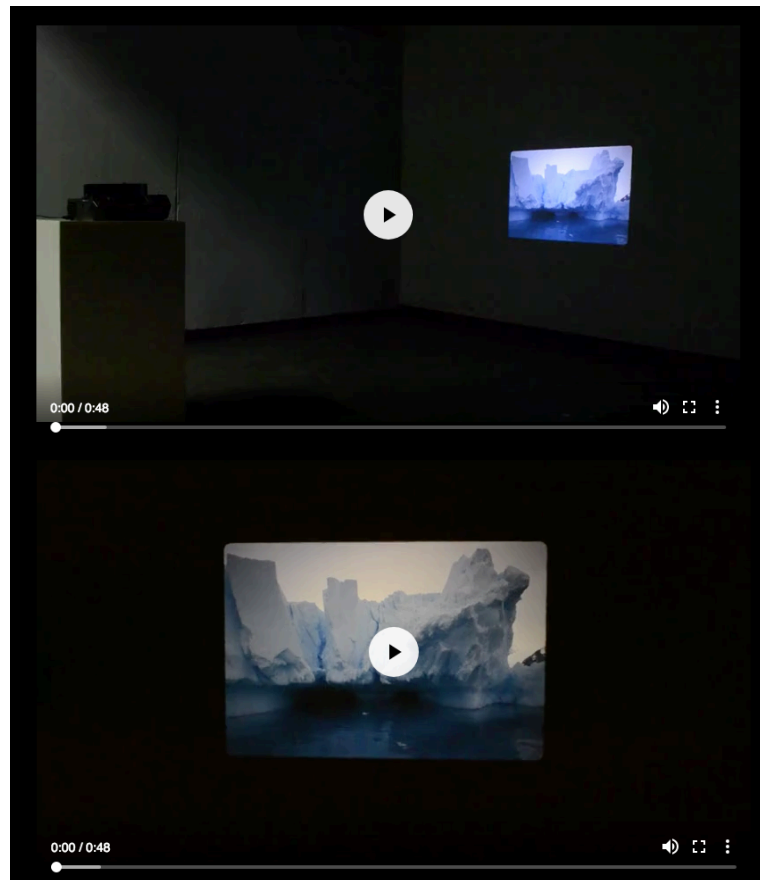
Suggested File Types: Digital Reference (JPEG)

Adequate Translation for Documentation:	Partial. Requires supplemental documentation.
Adequate Translation for Exhibition:	No

Analysis: Advantages: Installation photographs are important documents for the installation of the 35mm slideshow. The images also provide the environmental context of the 35mm slideshow and convey an element of the materiality (the images are projected).

Analysis: Disadvantages: Installation photographs require supplemental documentation. Although these photographs can record the sequence of images, their priority is to document the installation, not the image content and sequence. The rephotographed slides demonstrate generational noise from being projected and photographed. Installation photographs do not adequately convey the materiality (duration, sequence, audio and multimedia components) or content of the 35mm slideshow.

Installation Videos



Documentation of Sequence:	Yes	Documentation of Installation:	Yes
Documentation of Duration:	Yes	Documentation of Audio:	Yes
Documentation of Image Content:	Yes	Documentation of Multimedia:	Yes

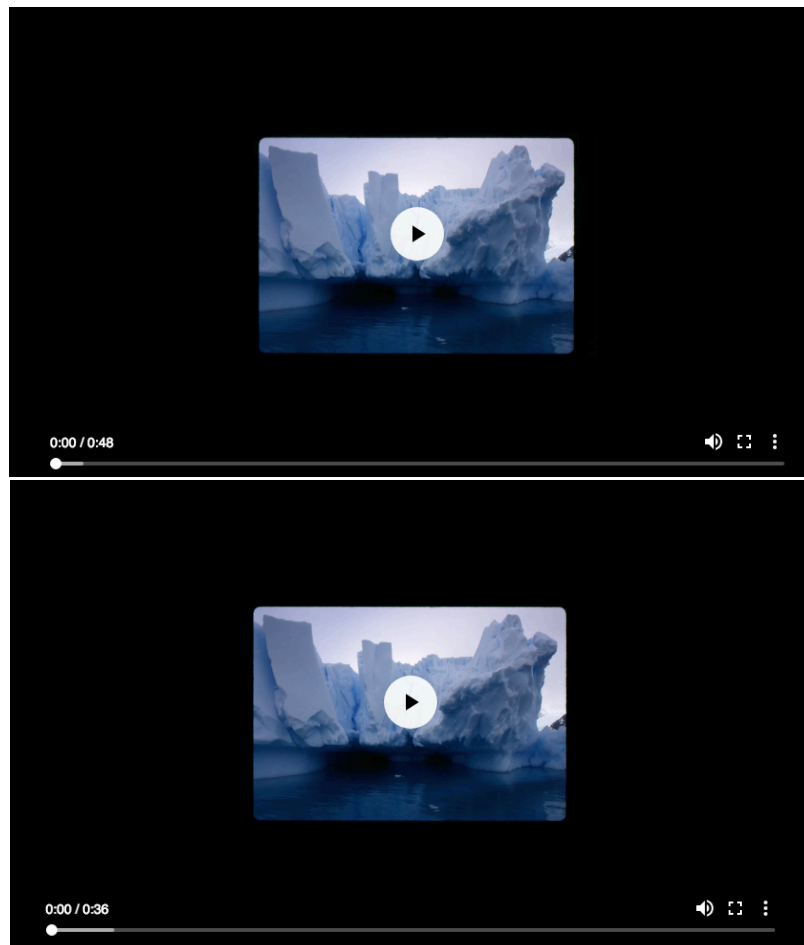
Suggested File Types: Digital Master (mp4) and Digital Reference (mp4)

Adequate Translation for Documentation:	Yes
Adequate Translation for Exhibition:	No

Analysis: Advantages: The installation videos include two views and adequately convey the materiality, context, and content of the 35mm slideshow. Excellent as a public reference file.

Analysis: Disadvantages: The recorded slides demonstrate generational noise from being projected and photographed. The installation videos must be viewed on a computer monitor and cannot be projected to mimic the original artwork. The digital translation acts as a record of the 35mm slideshow and is not an adequate translation for exhibition.

Exhibition Translation



Documentation of Sequence:	Yes	Documentation of Installation:	No
Documentation of Duration:	Yes	Documentation of Audio:	Yes
Documentation of Image Content:	Yes	Documentation of Multimedia:	Yes/No

Suggested File Types: Digital Master (mp4), Digital Exhibition (mp4), and Digital Reference (mp4)

Adequate Translation for Documentation:	Partial. Requires supplemental documentation.
Adequate Translation for Exhibition:	Yes

Analysis: Advantages: The digital translation adequately conveys the materiality, context, and content of the 35mm slideshow when installed and projected. Installation documentation is necessary. Excellent as an internal exhibition file.

Analysis: Disadvantages: The digital translation does not convey the materiality or context of the 35mm slideshow when it is viewed on a computer monitor. The digital translation requires projection to be fully realized, which is not an adequate translation for public reference (unless the user can project the file).

Glossary

Digital Translation: A digital translation is a digital representation of a physical object. Digitization presents a new mode of representing and disseminating objects and information. The term “translation” refers to Walter Benjamin’s “The Translator’s Task.” Benjamin maintains that the objective of the translator is to distinguish “the intended object from the mode of its intention.” The word (the “intended object”) may be translated into any language; however, the connotations associated with the word are what require translation (“the mode of its intention”). I have adapted this theoretical framework to the digitization of artworks, specifically 35mm slideshows. The image content of a slide may be reproduced identically on a monitor; however, the mode of that presentation—fixed, flat, and singular—varies from the intended mode of presentation—projected, fleeting, multidimensional, and sequential.

Inadequate Translation: The digital translation fails to represent the materiality, context, or content of the artwork. The digital translation is reductive and/or subjective.

Adequate Translation: The digital translation successfully represents the materiality, context, and content of the artwork. The digital translation is comprehensive and contextualized.

Digital Master File: A rich media file (TIFF or mp4 developed from TIFFs) that is authorized by the artist and archived by the institution, and can be used to create exhibition and reference files.

Digital Exhibition File: A high-quality media file (high-resolution JPEG or an mp4 developed from high-resolution JPEGs) that is created for exhibition in lieu of the analogue original.

Digital Reference File: A medium- to-low-resolution media file (JPEG or an mp4 developed from JPEGs) that is created as an accessible reference file for public and internal use.

Documentation of Sequence: The successful documentation of a 35mm slideshow’s sequence of slides; all the slides are accounted for and arranged in the proper order.

Documentation of Duration: The successful documentation of a 35mm slideshow’s duration; this should include the duration of each slide, the duration of crossfades or cuts between slides, and the duration of the slideshow as a whole.

Documentation of Image Content: The successful documentation of a slide’s image content; the image should be colour corrected to match the slide and include correct borders (black border, rounded edges, or cropped).

Documentation of Audio: The successful documentation of a 35mm slideshow's soundtrack, narration, and/or soundscape; this could include a soundtrack provided by the artist or the sound produced by a carousel when changing slides.

Documentation of Multimedia: The successful documentation of any media components (not audio) that are included in the installation of the 35mm slideshow; this could include sculptural elements and video.

Internal Use: A digital translation that is created as an internal institutional record.

Public Use: A digital translation that is created as an accessible public record.

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