

The New Media Backup:
Changing Perceptions of Physical Artifacts in the Age of Digital Surrogacy
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Introduction

The age of digital ubiquity is nigh. With the rising use of digital technology in the practices of cultural heritage institutions, digital surrogacy has gained critical prominence in the preservation of physical archival objects and has become a de facto mode of access to their contents. In its wake is a significant evolution of the role and perceived value of original, physical objects within these institutions, and a shift in the ways in which users expect to interact with and experience material culture. The consequences of this shift are often a bit enigmatic. Still, exploring the effects of digital surrogacy on the nature of physical objects sheds light on potential challenges that will confront archivists and institutions in years to come, from general conservation and preservation, to physical storage capacity and discussions with funders. However speculative some of these contentions may be, it seems clear that the ways in which physical objects are valued in cultural institutions has been altered as a consequence of current digitization practices. In that respect, this essay will argue that contemporary digitization and digital preservation practices have relegated original, physical objects to backup status for their digital surrogates in archival thought and practice, drawing from philosophies of materiality, literature from the information and archival sciences, and institutional policies to illustrate its points.

Traditional Notions of Physical Value

Traditionally, cultural institutions have placed significant emphasis on conservation—direct actions or interventions carried out on the physical object to clean, repair, stabilize, or

otherwise ensure its long-term survival and accessibility. Though use of reformatting techniques for content salvage—namely microforms—can be dated back to the early 20th century, and though libraries and archives past have indeed been involved in the business of disposing original objects following microfilming (newspaper being a prominent example), the prominence of digital technology has spurred new ways of conceptualizing these practices, as well as the role and value of the original object after reformatting.¹ With this in mind, a distinction must be drawn between two of the differing motivations behind reformatting practices: as conservation action, which has historically prevailed; and as preservation action or outright replacement, which, as mentioned, has existed to some degree in the past but which has gained prominence anew in tandem with the increased use and reliability of digital technology in archives and libraries. The former has been and continues to be an important facet of preserving original artifacts. In his article on the importance of physical preservation in the digital age, Robert Bee notes of this view that “Conservation may involve creating a reproduction to increase access by users or to ease wear and tear on the original, but conservation also assumes that the original cannot be replaced by the reproduction.”² In this way, both past and present conservation practices imbue in original artifacts the ultimate value and privilege in the collecting institution, regarding it as a unique and irreplaceable artifact whose very singularity and authenticity preclude any possibility of reproduction, no matter how sophisticated the means.

Despite differences in the ways in which libraries and archives operate, regard their collections, and serve their patrons, the value of original, physical objects has been consistent across both. Libraries, which function traditionally as keepers of cultural content with a mandate

¹ "Brief History of Microfilm." Heritage Archives. <http://www.heritagearchives.org/history.html>.

² Robert Bee. "The Importance of Preserving Paper-Based Artifacts in a Digital Age." *Library Quarterly* 78, no. 2 (2008): 180.

of optimal public access, and which privilege the end-user in the maintenance of institutional integrity, are more likely to regard original artifacts as the truest, most authentic manifestation of their content, promoting its user value to the highest rank. Archives, which function around preservation of the intrinsic and evidential value of objects, are more likely to regard the original, physical object as the most authentic historical record, one that, for legal reasons among others, cannot be replicated. Consistent in both cases historically is a stance that reproduction and reformatting of objects does not and cannot (re)produce the authentic original.

The underlying motivations and philosophies of these views within cultural institutions are myriad. In the broadest sense, it proves fruitful to consider philosophies of materiality in examining the ways in which keepers and users of cultural heritage artifacts regard and interact with their material history. Walter Benjamin's oft-cited "The Work of Art in the Age of Mechanical Reproduction" offers a solid foundation in this respect. Seminal in Benjamin's essay is what he terms the *aura* of original, physical works: some intangible quality possessed by original objects which stems from the fact of their unique existence, a mystical ambience invoked by our distance to said objects and heightened through our interactions with them, qualities which are diluted—or lost outright—when a plurality of copies, immediately available and removed from the original object's context, are introduced into the realm of its existence, whether through preservation reformatting or mass-market reproduction. In his own words: "that which withers in the age of mechanical reproduction is the aura of the work of art," a process which "lead[s] to a tremendous shattering of tradition" and the "liquidation of the traditional value of the cultural heritage."³ Though Benjamin's discussion is perhaps a bit esoteric and centers largely on the abstract ways in which humans experience and interact with cultural

³ Walter Benjamin. "The Work of Art in the Age of Mechanical Reproduction." *Marxists Internet Archive*, 1936. <https://www.marxists.org/reference/subject/philosophy/works/ge/benjamin.htm>.

heritage objects (not to mention that it predates digital technology), it provides a useful parallel to the ways in which cultural institutions have traditionally regarded the value of their original artifacts, and insight into the effect of mechanical reproduction on that value.

Contemporary discussions of the sort in archives and libraries—perhaps most prominently in paper archives—tend to revolve not around Benjamin’s concept of aura, but rather the issue of authenticity. Peter B. Hirtle, in his report *Archival Authenticity in a Digital Age*, notes that an archive functions as a “contextually based organic body of evidence,” its filtering of materials through an administrative body with the express purpose of preserving object integrity being an essential source of its power to authenticate.⁴ Though not without caveats, and though archives have long been involved in making “authentic” copies, Hirtle notes that original archival objects are considered more reliable as evidence because they have the “maximum degree of completeness,” and because “creating a copy always introduces the possibility for variation or change from the original.”⁵ Up until recent years—and in many ways continuing into the present—questions surrounding the ability of a reproduction technique to accurately reproduce and represent a physical object, and issues regarding whether or not the resulting surrogate can stand in as authentic evidence, have been key considerations in archives and libraries’ decisions on reformatting.

Added to this, a rather widespread lack of clear legislation regarding the general use of digital surrogates—from both evidential and access bases—renders digital reformatting practices rather problematic in many institutions. For instance, in his examination of the role of the research library in the digital age, Paul N. Courant notes a prominent issue faced by libraries that

⁴ Peter B. Hirtle. "Archival Authenticity in a Digital Age." In *Authenticity in a Digital Environment*, 10. Council on Library and Information Research, 2000.

⁵ *Ibid.* 15.

strive to digitize their book collections for preservation and access, namely that digitized copies of books, even if owned in physical form for lending, cannot be made accessible to patrons of the library.⁶ This fact is largely due to discrepancies in first-sale copyright law between physical and digital objects. Harald von Hielmerone, in his article on digital libraries and Danish copyright law, offers an applicable explanation: “Even in cases when the library owns the copy of the digital file, e.g. if the library has digitized the work from the printed original, the communication to the public right still resides with the author.” This, he explains, subjects online access to digitized books to authorization by the rights holder until the work enters the public domain.⁷ Even as libraries legally digitize their collections for preservation purposes, without changes to digital copyright law, the physical object remains the sole point of access to content for the user, a fact which bolsters the ultimate value and privilege of original, physical objects in library and archival settings.

Evolving Perceptions: Original as Backup

Many of the policies, ethics, and philosophies underlying the original artifact’s highest stature in archives and libraries remain true in the present day. However, a number of small, yet important, changes that have occurred as a consequence of contemporary digitization and digital preservation technologies have begun to evolve the ways in which original, physical artifacts are treated and regarded in cultural institutions and other archival environments. Reviewing literature on the subject, along with institutional policies, hints at these changes, revealing

⁶ Paul N. Courant. "The Place of Research Libraries in the Digital Age." *I/S: A Journal of Law & Policy for the Information Society* 13, no. 1 (Fall 2016): 250.

⁷ Harald von Hielmerone. "The Digital Library and the Law—Legal Issues Regarding the Acquisition, Preservation and Dissemination of Digital Cultural Heritage." *Microform and Digitization Review* 41 (December 2012): 160.

paradigmatic shifts in the perceived roles and value of original artifacts in the context of contemporary digital reformatting practice.

Examining administrative and government records archives offers a unique and interesting case in that respect. Though not strictly speaking cultural institutions, archives of the sort are charged with preserving governmental and institutional records essential not only to their internal operations, but also for documenting institutional and governmental history and holding individuals and governing bodies accountable through the evidential value of their collections. What is consistent across many of these archives is a critical lack of space and resources to hold and preserve the immense volume of paper records created by their institutions on a daily basis. The response to this ever-prominent issue—a response which has been in use for many years—is records retention and disposition schedules. Policies of the sort delineate requirements for minimum duration of time for which certain records must be kept for administrative and legal reasons, after which they can be deaccessioned and disposed of. The purposes of these policies are numerous; generating legal standards of the sort allows archives to alleviate spatial and financial pressures by granting them the ability to remove from their collections records that are considered obsolete at the end of their lifecycle.⁸ These policies rarely apply to all records deposited in paper records archives. The New York State government records retention schedule, for instance, notes certain types of records which are excluded from disposition allowances, including records unique to a specific agency; records generated by service or control agencies that are used in government-wide approval, control, audit, and oversight responsibilities; records being used for audit or other legal actions; and others.⁹

⁸ For example, see: New York State Archives Government Records Services. The University of the State of New York and The State Education Department. *General Retention and Disposition Schedule for New York State Government Records*. NY, 2016. v.

⁹ *Ibid.* vii-viii.

Though certainly necessary to curb the persistent spatial pressures faced by institutional records archives, these policies more often seem insufficient in abating the problem completely. For instance, a recent analysis of California State's government records archives projects that even with a decreasing number of physical paper records produced and deposited in the digital age, and even with retention and disposition schedules, the archives' physical storage capacity will be exhausted within the next 15 years without major funding for renovations or a change in retention policy.¹⁰ Based on this projection, the report suggests two potential solutions, both of which will undoubtedly require substantial financial resources but which are nonetheless necessary for maintaining the archives. One option is to expand the physical storage capacity of the archives, either by constructing a new building or leasing an existing building.¹¹ The other option—the option pertinent to the central discussion of this essay—is to invest in digital storage and preservation technologies, digitize both incoming and existing paper records, and subsequently dispose of those paper records in favor of preserving their digital surrogates.¹²

This latter option points to a trend that has developed in recent years in response to vastly improved technology for digitization and digital preservation. Examining retention and disposition policies for a number of institutional archives reveals an increasing prominence of policies allowing for disposition of physical source records following digitization, favoring preservation of digital surrogates as a method of reducing physical holdings space and alleviating spatial pressures prior to exhaustion of retention schedules. Policies of the sort from institutions such as National Archives Australia, Archives New Zealand, the University of Southern Queensland, the New York Department of Records and Information Services, The Government

¹⁰ California Legislative Analyst's Office. *State Archives: Limited Space for a Growing Collection*. By Mac Taylor. CA, 2018. 11.

¹¹ *Ibid.* 11-12.

¹² *Ibid.* 14-15.

of Canada, and the University of Newcastle, to name only a few, are mostly similar in approach. For one, most of these policies address the benefit of increased access and reduced spatial needs resulting from digitization and disposition of source records, and some even acknowledge the risks associated with such practices in the process.¹³ Additionally, most of these policies are limited to those records which have enduring content value but whose physical media is thought to have no archival value; these allowances tend to exclude records which are deemed to have “intrinsic value:” generally objects considered to be made of rare materials, objects with particularly special and medium-specific aesthetic qualities, and documents of value specific to a particular cultural identity, to name some common examples.¹⁴

Again, entities such as these present a unique case in the world of archives. The types of records held in these entities’ archival collections are in many ways distinct from those that would likely be found in cultural institutions. Consisting primarily of valuable content printed arbitrarily on paper, many governmental and institutional records would undoubtedly be considered by most to contain no intrinsic material value. Given that these policies also state rather clear exclusions for objects which *do* possess intrinsic material qualities, one might not be inclined to find these practices entirely suspect. Still, these policies mark a clear departure from traditional archival practice and a shift in the ways in which value and authenticity of original archival objects are conceptualized. That an acknowledgement of the inability to predict the future value of an object’s material qualities and content has driven significant collection management practices in archives and libraries makes this case especially interesting (again, one

¹³ For example, see: Disposal of Records in the Archives’ Custody Following Digitisation, National Archives Australia (2016). <http://www.naa.gov.au/about-us/organisation/accountability/operations-and-preservation/records-disposal-in-archives-custody-following-digitisation-policy.aspx#section10>.

¹⁴ For example, see: Destruction of Source Information After Digitization, Archives New Zealand (2017). 7-8. <https://records.archives.govt.nz/assets/Guidance-new-standard/17-G13-Destruction-of-source-information-after-digitisation.pdf>.

example being what some consider to be the miscalculation of the disposing of newspapers by archives and libraries following microfilming, under the assumption that the only research value they possessed was in their written content¹⁵).

Whether or not the entities involved in disposition of records following digitization are markedly distinct in the broader archival world, these cases provide a useful point of entry and comparison in examining the ways in which cultural institutions have addressed similar issues. In general, cultural institutions have avoided practices as drastic as those of the archival entities mentioned above. The reasons for this are diverse, and extend beyond the more esoteric philosophies of materiality posed by Walter Benjamin and those he influenced. Concerns surrounding the limitations of digital technology in terms of reproducing and representing physical objects seem to have been present since the inception of digital imaging. The earliest advocates of positioning digital surrogates as preservation masters advocated more on a stated commitment to digital preservation than on a perceived capability of the technology to accurately render physical objects in digital form; many acknowledged that digital reformatting could not capture all inherent information (material and content alike) in a physical object, and would certainly not have endorsed digital surrogates as a total replacement of the original.¹⁶ Even with vast improvements in digital imaging technology, many of these issues have carried into the present day, especially as they pertain to objects which are much more complex and contentious to digitize, notably analog audiovisual materials (see below).

What has appeared to shift, however, is the ways in which original objects are conceptualized in the wake of large-scale digitization practices in cultural institutions. Original,

¹⁵ Bee. "The Importance of Preserving Paper-Based Artifacts in a Digital Age." 190.

¹⁶ Oya Y. Rieger. *Preservation in the Age of Large-Scale Digitization*. Publication no. 141. Council on Library and Information Resources. Washington, D.C., 2008. 11.

physical objects, once digitized by high-fidelity contemporary standards, are often no longer the primary point of reference and contact for researchers and general users of archival content. In fact, some have argued that digitization has become so ubiquitous that user demands and expectations have shifted almost entirely away from physical objects. As Paul Conway notes in his article on digital surrogacy in the archive: "When demand migrates to digital resources, users will rarely, if ever, return to the original source," and contemporary digitization practices have generated the expectation by users that all archival content be digitized and made accessible online.¹⁷ The result of this shift is that many digitized objects have seen their original, physical manifestations relegated to the status of archival backup. In a separate article, Conway speculated on this shift as it would result from mass digitization projects such as Google's ongoing book digitization project, stating that "Perhaps for decades to come, material culture artifacts will serve as the ultimate backups for their digital surrogates."¹⁸ Indeed, this shift has already been acknowledged explicitly in the field. In a 2010 conference bulletin from the Visual Resources Association, it is noted that Claire Dienes, a Metropolitan Museum of Art librarian, spoke of digitization projects at her institution as follows: "Analog materials are not discarded once digitized, but are regarded as backup for their digitized versions, and as sources for even higher resolution scanning as technology develops."¹⁹

Responses to this shift have been divided within the cultural heritage community and in the broader literature on the subject. Much has already been said about the limitations of digital technology in faithfully representing the intrinsic material and aesthetic qualities of a physical

¹⁷ Paul Conway. "Digital Transformations and the Archival Nature of Surrogates." *Archival Science* 15 (2015): 55.

¹⁸ Paul Conway. "Preservation in the Age of Google: Digitization, Digital Preservation, and Dilemmas." *Library Quarterly* 80, no. 1 (2010): 75.

¹⁹ Lesley F. Chapman. "Session 5: After the Transition: Planning for Collections Storage and Workspace Changes in the Digital Environment." 82. Proceedings of Visual Resources Association, New York.

object, but arguments from lamenters are far more multifaceted. Some have noted, for instance, the risks associated with the fact that digitization captures and represents only one moment in a physical object's material history; through digitization, the object is essentially frozen in an arbitrary moment in its life, even as it continues to accumulate signs of wear and tear thereafter. The danger of this, it is argued, is that "the past experiences of the unique object are compressed into a single layer of the object's history and viewed as a whole. It is no longer *a* moment, but rather the definitive, albeit arbitrary, moment in which the manuscript will be viewed from the point of digitization onward."²⁰ Others have posed that the only way to comprehensively and accurately recreate in digital form the experience of a physical, archival book would have to somehow represent sensory factors such as the feeling of leather binding or the smell of old paper, an ideal nearly impossible with present digital technology.²¹ These points are rather widely accepted and uncontroversial, and as the cultural institutions in question are not so far in the business of disposing of physical objects following digitization, one might question why digitization has generated such fuss. Yet the consequences of increased digital access are of significant concern. For instance, the decreased necessity for access to original, physical objects after they have been digitized has the potential to perpetuate a consequentially diminished access to those original objects as their surrogates become preferable to institutions and users alike.²² The result of this is an increasingly drastic chasm between users and their understanding of the intrinsic material qualities so essential to the study of archival objects.

²⁰ Jasmine Elizabeth Burns. "Digital Facsimiles and the Modern Viewer: Medieval Manuscripts and Archival Practice in the Age of New Media." *Art Documentation: Journal of the Art Libraries Society of North America* 33, no. 2 (September 2014): 159.

²¹ N. Katherine Hayles. "Translating Media: Why We Should Rethink Textuality." *The Yale Journal of Criticism* 16, no. 2 (2003): 269.

²² Burns. "Digital Facsimiles and the Modern Viewer." 167.

However, the benefits of digital surrogacy and the shifting role of physical objects to backup status are, for many, undeniable. Despite the potential for more restricted physical access, many involved in preservation at cultural institutions regard the decreased need for interaction with original objects resulting from digitization as a positive consequence. Especially considering items of particular rarity and with delicate physical condition, digitization becomes an essential tool for limiting the wear of use and fostering more effective long-term preservation of the physical object, ensuring those objects will be available for re-digitization in the event of improved technology or digital failure. Some have argued that preservation action should nearly always be taken with reference to use rather than mere intrinsic value.²³ In that respect, digitization vastly increases access to the content of archival objects, making them available to broader audiences via channels that no longer necessitate physical presence in the archive. Some have even gone back to Walter Benjamin's assertions about the aura lost in reproduction to argue that reproduction actually *increases* the value of the original by constantly pointing back to its very uniqueness, that that which is lost in digitization is not so much an object's materiality, but its mere physical substance.²⁴ Thus, through processes of digital surrogacy, "Benjamin's 'aura' is not only retained [...] but it is preserved and amplified to an extent that the singularity and originality of the physical archival [object] depends almost entirely upon the existence of its digital copies."²⁵

No matter the outlook, worry and discussion over the state of the original archival artifact make clear that a change in its nature is occurring—that it is perhaps no longer the one true point

²³ Conway. "Preservation in the Age of Google." 64.

²⁴ Jasmine E. Burns. "The Aura of Materiality: Digital Surrogacy and the Preservation of Photographic Archives." *Art Documentation: Journal of the Art Libraries Society of North America* 36 (Spring 2017): 6-7.

²⁵ *Ibid.* 8.

of reference with regards to its content, that it has perhaps been relegated to serve a more modest role as use of and access to its digital surrogate prevails.

The Case of Audiovisual Objects

Much of the central discussion of this essay stems from literature on archives and libraries' book, paper, and photographic collections. Using the previous discussion as a frame from which to examine audiovisual archival materials presents an interesting case. Due to many of the digitization and digital preservation concerns noted above—along with the sheer complexity of digitizing analog audiovisual forms and the higher risk of error in those processes—discussions of the sort amongst audiovisual archivists appear to be few; those which do exist are, as of this writing, undeniably controversial.

Motion picture film is perhaps the most clear-cut of these discussions. The near impossibility of determining a comparable digital resolution for celluloid film is widely acknowledged, and advancements in technology allowing for more optimal image capture have not yet peaked. Added to this, the ethics of film digitization—a process which requires a higher degree of subjective decision-making on the part of the technician—remain contentious. For these reasons, among others, the value of the original film artifact is unlikely to subside anytime in the near future. Still, it is possible to examine changes in its nature similar to those of the discussion above. For instance, considering that digital surrogates have become the preferred mode of access for motion picture film, and that the transition to near digital totality in terms of cinemas has changed both the ways in which films are exhibited and the expectations held by contemporary movie-goers (i.e. favoring the pristine image of the digital projection over the often-gritty image of celluloid), that film has, in a way, been relegated to the same backup status

as the previously-mentioned archival objects.²⁶ Sabine Lenk notes that a consequence of this—especially as it pertains to films which are rarely accessed, non-canonical, and not slated for digital transfer—is that when faced with spatial and financial pressures, archivists may soon have to answer the question of why the analog prints are being kept at all.²⁷

Perhaps more interesting to consider, however, is the case of analog videotape formats. Composed of rapidly-degrading materials and facing widespread playback obsolescence, digitization has become an imminent and de facto best practice in videotape preservation. Additionally, compared to the case of film, videotape content can much more confidently be captured in digital form using current digital technology. This is not to say that video digitization is entirely without risk of error and necessity of subjective human decisions. However, the fact that its image resolution is far below what contemporary digital imaging technology is capable of capturing makes its case distinct. Yet many of the concerns mentioned throughout this essay hold true here as well. It appears to be a near total consensus in the world of audiovisual archives that original videotapes should not be disposed of following digitization. Especially in the case of mass-digitization operations, in which quality control processes might not be as granular and digital transfer errors are more likely to go unnoticed for longer periods of time, retaining the original tape can be seen as a currently-indispensable archival practice.

Still, this hasn't kept perceptions of physical videotapes from shifting. In the Canadian Conservation Institute's technical bulletin on digitization of VHS tapes, for instance, it is noted that although best practice is to retain originals indefinitely, they should, at minimum, "not be thrown out immediately after the digital conversion, and should be kept for a few years longer in

²⁶ Sabine Lenk. "Archives and Their Film Collection in a Digital World; Or, What Futures for the Analog Print?" *The Moving Image* 14, no. 2 (2014): 104.

²⁷ *Ibid.* 106.

order to verify that the process has been properly executed.”²⁸ Whether currently put into practice or not, this statement implies two important shifts: one, that the primary motivation for retaining physical videotapes is as a backup in case its digital surrogate is later found to be inadequate; and two, that digital surrogacy does indeed provide a suitable preservation master for analog video. In a conversation with Mike Casey—Director of Technical Operations for Indiana University’s Media Digitization and Preservation Initiative—he noted that those involved in his video digitization endeavors tend not to be concerned about potential improvements in digitization technology, and is confident in their ability to generate official preservation masters through digital surrogacy. Though Indiana University does indeed retain the tapes it digitizes, Casey notes that this is motivated more by archival best practices—as well as archives’ historically miscalculated tendency to reformat and toss originals (see, again, microfilming and newspapers)—than by a lack of faith in digital technology to adequately preserve analog video.²⁹ Examples of the sort appear to reveal a definite shift in the ways in which analog videotapes are perceived and valued in audiovisual archives. Though by no means entirely *devalued*, their nature and purpose are undoubtedly changed, relegated to backups for their digital surrogates. As Lenk posited with regards to film archives, with increased confidence in the digital preservation of analog videotape, its rapid degradation and obsolescence, and continued spatial and financial pressures facing cultural institutions in general, archivists may very well soon have to answer questions of why the physical tapes are being kept at all.

²⁸ Canadian Conservation Institute. *The Digitization of VHS Video Tapes—Technical Bulletin 31*. By Joe Iraci. 2017.

²⁹ Mike Casey. Telephone interview by author. April 4, 2018. (All opinions expressed herein are those of Casey as an individual, not Indiana University as an institution).

Conclusion

No matter the paradigm shifts occurring with regards to the role and perceived value of physical objects in cultural institutions, it is unlikely that the near future will see total replacement of the physical through digital surrogacy. The practical limitations of current digitization and digital preservation technologies are still being navigated and push large-scale initiatives of the sort beyond feasibility for many institutions. In the words of Mike Kastlelec: “For the foreseeable future, the amount of digital information that *could* possibly be preserved far outstrips the amount that feasibly *can* be preserved” (emphasis mine).³⁰ Until the uncertainty of digital transfer, storage, authenticity, and preservation is remedied to a far greater extent than present, these issues will not likely subside. Still, the relegation of physical objects to backup status for their digital surrogates marks an important shift in the philosophies and practices of cultural institutions. This shift—along with the broader transition to digital ubiquity—will undoubtedly require the keepers of material culture to consider the changing role and value of its physical collections in discussions with funders, and to continuously develop new arguments in the fight for their collections’ survival.

³⁰ Mike Kastlelec. "Practical Limits to the Scope of Digital Preservation." *Information Technology & Libraries* 31, no. 2 (June 2012): 70.

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