

# Documenting ignorance – keeping track of what we know we don't know

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## ABSTRACT

*Today, documenting what we know has become a relatively straight-forward task. Our information systems allow us to record a wealth of information about our collections, the actors, places and events that relate to them. What we don't yet know is also easy to deal with – when we know nothing at all, there is nothing to record. However, cultural heritage is a field of ongoing research: we have to deal with areas of partial or limited knowledge, uncertainty and doubt. Sometimes we are sure only of what cannot be the case, of what we have failed to find. The information systems most commonly in use today are ill-suited to recording and managing this type of “negative” knowledge. This paper reviews existing proposals for documenting negative knowledge and, using examples taken from The Olympic Museum Collection, suggests some possible avenues for future development.*

## Introduction

Documenting ignorance is about dealing with less-than-perfect information – cases where we are uncertain about a given topic, our knowledge is incomplete, available data is approximate or imprecise and a “best guess” is all that we can hope for. This type of situation will be familiar to many working in the field of cultural heritage, and particularly in museum documentation. In itself this is no bad thing; the detective work needed to resolve such cases is what makes field so interesting – life would be very dull if our documentation consisted entirely of comprehensive and clearly established facts.

Yet the documentation of vague or missing information is a topic seldom addressed by museum literature and which features only occasionally in documentation standards. This is perhaps because our ignorance is something we prefer not to highlight: the lack of an extensive research plan, gaps in provenance documentation, lack of consistency or shifts in documentation policy might be seen as too revealing of institutional weaknesses. It is much more comforting to simply reiterate the goal that our documentation should be exhaustive, up-to-date and accurate.

However, our contention is that we need to address these questions more directly. Despite the central role of research and discovery and the level of uncertainty that this implies, the information systems and documentation practices we commonly employ are not well adapted to dealing with missing information gaps, approximations and doubt. Few systems make it easy to express a lack of confidence in the data being recorded, and some even force data to be invented in order to respect validation rules. This can lead to situations where uncertainty, incompleteness and approximation are concealed – data take on the appearance of well-grounded facts, masking the underlying guesswork and assumptions.

In this paper we examine the different types and levels of uncertainty that commonly arise in museum documentation, highlight some of the difficulties posed by typical documentation systems, and look at existing recommendations and standards for dealing with uncertainty in a systematic manner. Our aim is to highlight the need for discussion and debate about this issue leading, we hope, to a development of an approach to “documenting ignorance” that provides adequate support for the process of research and discovery.

### Some Olympian cases

In order to better understand the problems raised by incomplete and imprecise information, it is worth a detailed look at some concrete examples. These are taken from the documentation of The Olympic Museum Collection and the related Reference Data repository. These examples are intended illustrate typical cases that will be common to many museum collections.

### Got the blank space?

The Olympic Museum Collection held by the Olympic Foundation for Culture and Heritage represents a great diversity of types, origins and periods.<sup>1</sup> Posters, medals, sports gear, ceremony costumes and pageantry elements compose the major part of the collection which cover, with few exceptions, the second half of the 19th century to the present day.<sup>2</sup> Their interest is not limited to the simple narration of the Olympic events but also lies in the complex questions they raise about aspects of contemporary society. Sports gear used at the Games, for example, reflects not only the constraints imposed by the quest for performance, safety requirements, moral codes and hygiene but must also be considered in the context of marketing, brand strategy and national branding.<sup>3</sup>

For historical reasons and due to the peculiarities of this collection of more than 70'000 objects, the documentation presents some challenges for the three registrars who care for it. First of all, it is a truism that the Olympic events are international – Internationalism lies at the heart of their development.<sup>4</sup> As a result, the collection includes artefacts from all over the world, bearing inscriptions written in languages that the staff do not necessarily master. Some items are relics of historical periods, such as the Soviet era items from the 1980 Olympic Games in Moscow. Others represent national heroes, symbols and monuments that registrars may not be familiar with.

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<sup>1</sup> On the variety of Olympic memorabilia, see for instance CHRISTIANSON, Robert J. “Olympic Memorabilia Collection” In *Citius, Altius, Fortius (became Journal of Olympic History in 1997)*, Vol. 3 No., Spring 1995, 2 pp. 27-37.

<sup>2</sup> There is also a small collection of Antiquities in relation to the ancient Olympic and Pan-hellenic Games.

<sup>3</sup> TERRET, Thierry. “Beyond Sports Heroes’ Celebration”. In PHILLIPS, Murray G. *Representing the Sporting Past in Museums and Halls of Fame*. New York, London: Routledge, 2012, pp. 53-55.

<sup>4</sup> “Since the first edition of the Modern Olympic Games celebrated in Athens in 1896, the great festivals, both summer and winter, have travelled the world, staged on different continents, in various countries, and cities and winter resort areas. Such an “ambulatory” status has undoubtedly given the Olympic Festival an international dimension that has contributed significantly to greater mass participation by both male and female athletes from every part of the world, facilitated its appeal to a mass media audience, and transformed it into the greatest cultural event on this planet.” ALBANIDIS, Evangelos Albanidis. BARNEY, Robert K. CHOUTAS, Nicolaos. “An Olympian Sanctuary” In *Journal of Olympic History*, Vol. 15 No. 2, July 2007, p. 28.

N° d'inventaire 78603 Ancien N° [ ]  
 Type de notice Collection des objets Langue singhalais?  
 Dénomination Affiches, affiche de promotion  
 Titre d'usage Helsinki 1952, affiche de bienvenue affichée dans les villages olympiques.  
 Assigned title Helsinki 1952, small welcome poster displayed at the Olympic villages.  
 Auteur / Intervenant Suomalaisen Kirjallisuuden Seuran Kirjapainon Osakeyhtiö (\*1849), I Aukusti TUHKA, Dessinateur, Créé  
 De 1952 À 1952 Période 1952

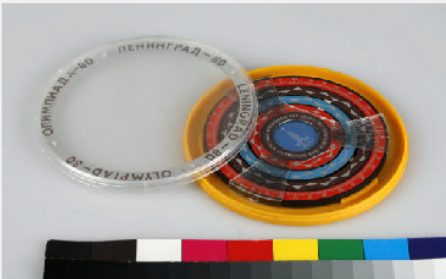


Données de base | Données supplémentaires | Données historiques | Description / Etat de l'artefact | Légendes | Préconisations

<b>Descriptif</b>	Photographie du château Olavinlinna à Savonlinna (?) avec les drapeaux olympique et national de la Finlande au dessus. Texte en singhalais (?).	<b>Physical description</b>	Photograph of the Olavinlinna castle in Savonlinna (?) with the Olympic flag and the national Finnish flag over. Text in Sinhalese (?).
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*Games posters of the first half of the 20<sup>th</sup> century were often issued in several linguistic versions, chosen among the languages practised by competitors.*

N° d'inventaire 231584 Ancien N° [ ]  
 Type de notice Collection des objets Langue russe  
 Dénomination Souvenirs  
 Titre d'usage Moscou 1980, appareil pour mesurer le biorythme avec l'emblème des Jeux.  
 Assigned title Moscow 1980, biorhythm measure disk with the Games' emblem.  
 Auteur / Intervenant [ ]  
 De 1980 À 1980 Période Circa 1980

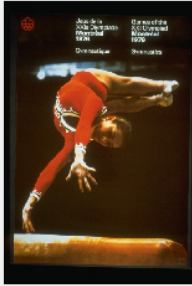


Données de base | Données supplémentaires | Données historiques | Description / Etat de l'artefact | Légendes | Préconisations

<b>Descriptif</b>		<b>Physical description</b>	
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*This Biorhythmic calculator brings us back to the USSR in the 1980s.*

N° d'inventaire 22116 Ancien N° O AFF 351  
 Type de notice Collection des objets Langue anglais, français  
 Dénomination Affiches, affiche des sports  
 Titre d'usage Montréal 1976, affiche des sports, gymnastique.  
 Assigned title Montreal 1976, sports poster, gymnastics.  
 Auteur / Intervenant Bibliothèque des Sports olympiques, Fabricant, Créé Albrecht GAEBELE, Photographe, Créé  
 De 1972 À 1973 Période 1972 - 1973



Données de base | Données supplémentaires | Données historiques | Description / Etat de l'artefact | Légendes | Préconisations

<b>Descriptif</b>	Athlète (Ludmila Turischeva?). Légende : "Jeux de la XXI Olympiade Montréal 1976 Gymnastique - Games of the XXI Olympiad Montreal 1976 Gymnastics".	<b>Physical description</b>	Athlete (Ludmila Turischeva?). Caption: "Jeux de la XXI Olympiade Montréal 1976 Gymnastique - Games of the XXI Olympiad Montreal 1976 Gymnastics".
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*The identification of the gymnast was made after researching photographs of the most promising athletes from the beginning of the 1970s. The 1976 sports posters reused several photographs taken at the Munich 1972 Olympic Games.*

The Olympic Games are mega-events requiring complex organisation. Documenting Olympic-related objects, particularly technical artefacts such as the Olympic torches, innovative sports gear or time-keeping devices, is a collaborative effort involving many experts from different disciplines. Primary source documentation from the games is not always readily available – archives usually remain in the host country – so the registrars often have to rely on secondary sources. But thanks to the large audience and the international reach of the Olympic Games, a huge mass of information, publications issued by the organizers, articles and media reports, is at our disposal. This profusion enables us to discuss the actual use and reception of the objects, but many sources are anecdotal, coloured by emotion or contain simplified information that needs to be questioned and challenged.

N° d'inventaire  Ancien N°  ... ≡

Type de notice  Langue


Dénomination

Titre d'usage

Assigned title

Auteur / Intervenant

De  À  Période



Données de base | Données supplémentaires | Données historiques | Description / Etat de l'artefact | Légendes | Préconisations

Auteur / Intervenant

Tri	Auteur/intervenant: nom et prénom	Type de lien	Fonction	Vérification	Remarque
1	Blue Sky Design	Créé	Designer		
2	FCT Combustion Pty Ltd	Créé	Fabricant		Combustible
3	GA & L Harrington	Créé	Fabricant		

*Olympic torches are the best examples of fruitful collaboration between engineers and designers.*

N° d'inventaire  Ancien N°  ... ≡

Type de notice  Langue


Dénomination

Titre d'usage

Assigned title

Auteur / Intervenant

De  À  Période



Données de base | Données supplémentaires | Données historiques | Description / Etat de l'artefact | Légendes | Préconisations

Descriptif	Masque avec grillage en tôle perforée. <b>Pays de fabrication incertain</b> (le fabricant avait des ateliers à Liège et Saint-Etienne).	Physical description	Mask with mesh of perforated sheet. Country of manufacturing uncertain (the manufacturer had workshops in Liege and Saint-Etienne).
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*Sports manufacturers may have several plants and it is not always possible to know the country of manufacture with certainty.*

Many objects have been collected by IOC representatives and members during Olympic events. They thus have a 'double' provenance: the history of their creation and use within a sport or Olympic-themed context along with

the story of their acquisition and transfer to the museum. The history of the collection itself can be retraced with heterogeneous sources: photographs, references in correspondence, announcements in the Olympic Review, etc.<sup>5</sup> In many cases, evidence of this double provenance comes from multiple sources, such as the paintings by Charles de Coubertin, father of Pierre de Coubertin, the second IOC president and reviver of the modern Olympic Games.<sup>6</sup>

From 1901 to 1914, Pierre de Coubertin used a reproduction of his father's painting as the cover for the Olympic Review, a few years before the opening of the first Olympic Museum.

Données de base	Données supplémentaires	Données historiques	Description / Etat de l'artefact	Légendes	Préconisations
<b>Descriptif</b>	Couronne d'olivier entourée de ficelle remise par le roi de Grèce Georges Ier pour ses victoires dans les 100 et 200m à Athènes, Alexandrie et Smyrne, lors de compétitions panhelléniques (?).			<b>Physical description</b>	Olive crown circled with a length of string by King Georges I for his 100m and 200m victories in Athens, Alexandria and Smyrna at Panhellenic (?)

In 1953, IOC member Angelo Bolanaki donated several objects related to his sporting career to the Olympic Museum but, in absence of accessible sources, little is known about the events he participated in at the beginning of the 20<sup>th</sup> century.

### A Wikipedia-like way of documenting

Current collections managements systems like Museum Plus, which is in use in our institution, are well-suited to record information on objects, actors, places, and events, along with the digital and biographical resources that

<sup>5</sup>Although the first Olympic museum opened in 1923 in Lausanne, the first professional inventory was not carried out until the early 1970s. Maria Morawinska, Director of the Warsaw Museum of Physical Culture and Tourism, spent 3 months in Lausanne drawing up the inventory of the Olympic Museum. MORAWINSKA-BRZEZICKA, Maria. "For the Olympic Museum". In *Olympic Review*, No. 30-31, March-April 1970, pp. 177-178.

<sup>6</sup> We miss first-hand information on the artist's sources of inspiration, and transmission to his son. See CAMPS Y WILANT, Natalia. "Art Works as Sources for Sport History Research: The Example of 'Sports Allegory/The Crowning of the Athletes' by Charles Louis Frédy de Coubertin". In: *The International Journal of the History of Sport*, 2016, Vo. 33, N° 10, pp. 1028-1045.

relate to them, using a collaborative interface available to all members of the team. Furthermore, Museum Plus offers several possibilities to add comments to records using free-text fields and controlled-vocabulary fields. In the customized version of Museum Plus classic, currently in use, the registrars can add qualifiers to the base data using terms chosen from a controlled vocabulary lists:

Artefact: Tous les artefacts


N° d'inventaire: 34951 Ancien N°: Langue: Type de notice: Collection des objets

Dénomination: Equipements sportifs, bateau

Titre d'usage: Paris 1924, deux sans barreur de l'équipe des Pays-Bas, championne olympique.

Assigned title: Paris 1924, coxless-pair boat of the Dutch team, Olympic champion.

Auteur / Intervenant: Wilhelm RÖSINGH, Athlète, Utilisé; Antonie Christiaan BEIJNEN, Athlète, Utilisé, Résistant pendant la g



Datation (collection)

Tri	Genre	Depuis	Jusqu'à	Datation	Vérification	Remarque
1		1920	1924	1920 - 1924 (A confirmer)		Utilisé (?) par J. A. Van der V
6	Période en anglais	1920	1924	1920 - 1924 (to be confirmed)		

The period field is coupled with a comment that helps to explain how the registrar dated the boat.


N° d'inventaire: 233802 Ancien N°: Type de notice: Collection des objets

Dénomination: Oeuvres d'art, dessin

Titre d'usage: Beijing 2008, dessin pour le costume de Confucius.

Assigned title: Beijing 2008, drawing for a Confucius costume.

Auteur / Intervenant: Eiko ISHIOKA, Dessinateur, Créé, sous la direction de




Liens d'objet (collection)

Relation	Objet	Preuve	Remarque
Voir aussi	201125, Beijing Baorong Baoyi Garments & Accessories C		
Voir aussi	232956, ISHIOKA, Beijing 2008, prototype de costume arg		
Voir aussi	233926, ISHIOKA, Beijing 2008, série de projets pour le cc		

Sketches, worn costume and prototype may all be linked together.

'créé' (created, designed or manufactured), 'utilisé' (used, worn or awarded) 'représenté visuellement' (featured) and 'représenté symboliquement' (related to). In addition to the qualifying links, it is possible to add comments in the free-text fields. The registrars can be more specific by adding a precision or an indication of uncertainty. As a matter of fact, the collection includes several sets and costumes from different makers and we need to clarify the role played by the different contributors. This is also helpful if the role of the actors changes over time. Many Olympians represented in the collections, for instance, participated initially as competitors then later served as referees, coaches or officials before eventually becoming IOC members or even President.

N° d'inventaire 234583 Ancien N° [ ]  
 Type de notice Collection des objets Langue [ ]  
 Dénomination Souvenirs, cadre  
 Titre d'usage Athènes 1896, cadre contenant la couronne de laurier et la médaille de vainqueur Tilemachos KARAKALOS (GRE), médaillé d'argent, ainsi  
 Assigned title Athens 1896, frame containing the laurel wreath and the winner medal of Tilemachos KARAKALOS (GRE), silver medallist, as well as a letter  
 Auteur / Intervenant Tilemachos KARAKALOS, Athlète, Utilisé  
 Jules Clément CHAPLAIN, Graveur, Créé, Médaille  
 De 1890 À 1896 Période Circa 1896




Données de base Données supplémentaires Données historiques Description / Etat de l'artefact Légendes Préconisations

**Descriptif** Cadre contenant la couronne de laurier avec son ruban nominatif offert par le roi Georges 1er, et la médaille (dorée par l'athlète) de vainqueur Tilemachos KARAKALOS (GRE), ainsi qu'une lettre et une photographie de l'athlète en tenue

**Physical description** Frame containing the laurel wreath with nomi ribbon awarded by King George I and the win medal (gilted by the athlete) of Tilemachos


*The artists and makers of the framed objects are all listed.*

N° d'inventaire 4023-001 Ancien N° O EQU 6  
 Type de notice Collection des objets Langue [ ]  
 Dénomination Equipements sportifs, matériel de protection, masque (escrime)  
 Titre d'usage Masque d'escrime ayant appartenu à Pierre de Coubertin.  
 Assigned title Fencing mask used by Pierre de Coubertin.  
 Auteur / Intervenant Pierre de COUBERTIN, Président du CIO, Utilisé  
 De 1900 À 1900 Période Circa 1900



*Pierre de Coubertin was a keen sportsman himself and used this fencing gear during his youth...*

N° d'inventaire 203359 Ancien N° [ ]  
 Type de notice Collection des objets Langue [ ]  
 Dénomination Oeuvres d'art, Sculpture, statue  
 Titre d'usage Mannequin en cire, grandeur nature, de Pierre de Coubertin.  
 Assigned title Life-size wax figure of Pierre de Coubertin.  
 Auteur / Intervenant Pierre de COUBERTIN, Président du CIO, Représenté visuellement  
 Musée Grévin, Fabricant, Créé  
 De 1993 À 1993 Période 1993




*... While there are many others objects – medals, paintings, etc. – that feature him as a mature IOC president*

Moreover, the system provides an effective tool to make assumptions explicit. Even if the assumption is expressed by the use of question marks, the objective is to draw the reader's attention to it and explain more in details in free-text fields. The link 'représenté symboliquement' allow us to enrich the indexation that helps users to retrieve the objects connected with an event, an actor or a place, even if the relation is not direct. This is important for artefacts that were created for the Olympic Games but which were not in fact used, or for art works by artists who

took part in the Olympic art competitions (1912-1948)<sup>7</sup> but whose competition entries are not present in the collection.


N° d'inventaire	231748	Ancien N°	
Type de notice	Collection des objets	Langue	
Dénomination	Equipements sportifs, infrastructure		
Titre d'usage	Mexico 1968, chaise semblable à celles utilisée dans les installations olympiques.		
Assigned title	Mexico 1968, chair similar at those used in the Olympic venues.		
Auteur / Intervenant	Robin DAY, Designer, Créé		
	Hille (*1906), Fabricant, Créé		
De	1963	À	1970
	Période 1963 - 1970		



Données de base	Données supplémentaires	Données historiques	Description / Etat de l'artefact	Légendes	Préconisations
Dimensions	74 x 45.5 x 49.5 cm		Hauteur x Largeur x Profon	Matériaux / technique / couleur	Matériaux: métal Matériaux: polypropylène Couleur: orange Couleur: noir
Mot-clé	Jeux: Jeux Olympiques, Mexico 1968. Représente symboliquement				

*Polypropylene Chairs were used at Olympic venues in Mexico in 1968, though this one was marketed and used in Switzerland.*

N° d'inventaire	36925	Ancien N°	O ART 343
Type de notice	Collection des objets	Langue	
Dénomination	Oeuvres d'art, Sculpture		
Titre d'usage	ELDH, Carl. Les Coureurs Olympiques, réplique de taille réduite du groupe de sculptures se trouvant au Stade Olympique de Stockholm		
Assigned title	ELDH, Carl. The Olympic Runners, small-sized replica of the sculpture group on display at the Stockholm Olympic Stadium (1937).		
Auteur / Intervenant	Carl ELDH, Sculpteur, Créé		
	Petterssons Konstgjuteri (*1943), Fondeur, Créé		
De	1988	À	1988
	Période Circa 1988		



Données de base	Données supplémentaires	Données historiques	Description / Etat de l'artefact	Légendes	Préconisations
Dimensions	67 x 42 x 50.3 cm		Hauteur x Largeur x Profon	Matériaux / technique / couleur	Matériaux: bronze Couleur: bronze
	29.6 kg		Poids		
Mot-clé	Thématique: Comité National Olympique (CNO), Représente symboliquement			Localisation actuelle	OU MO 1 99 Tunnel de liaison (1)
	Lieu: Suède, Représente symboliquement				
	Sport: Athlétisme, Représente visuellement				
	Lieu: Stade olympique de Stockholm, Représente symboliquement				
	Activités: [concours d'art], Représente symboliquement				
	Jeux: Jeux Olympiques, Stockholm 1912, Représente symboliquement			Local. perm.	OU MO 2 39 D01 Armoires mob. OA 1 21

*The original sculpture was installed in the Stockholm Olympic stadium for the opening of the 1912 Olympic Games.*

<sup>7</sup> The Olympic Art competitions were held at the occasion of the Olympic Games between 1912 and 1948. Artists and athletes received the same awards. See STANTON, Richard. *The Forgotten Olympic Art Competitions*. Victoria: Trafford Publishing, 2001.



The sources of knowledge are varied: first-hand sources, publications, interviews and images. Various types of documents are supported by the system. In Museum Plus, there are different options to refer to sources. The links can be either direct, by attaching multimedia documents to the records, or indirect, by adding bibliographical references. The registrars make considerable use of the opportunity to attach documentation and references to quote the information contained in the free-text fields. When the reference doesn't apply to the object itself, but opens the door to further research on the topic, it is possible to add a comment to the reference. In order to avoid ambiguity, the application's bibliography module is not used to record sources that have returned no result. Instead, they are listed in a free-text field, as are the oral sources and the references to objects from other collections used for comparison.

N° d'inventaire 33347 Ancien N° Type de notice Collection des objets Langue


Dénomination Oeuvres d'art, Sculpture

Titre d'usage SAINT-PHALLE, Niki de. Les footballeurs.

Assigned title SAINT-PHALLE, Niki de. The footballers.

Auteur / Intervenant Niki de SAINT-PHALLE, Sculpteur, Créé Résines d'Art et Polychromies G. Haligon, Fabricant, Créé

De 1993 À 1993 Période 1993



Liens à la littérature (collection)

Littérature	Mention à la p illustration	N° catalogue	Remarque (litt.)	Responsable
Déc. 1993, "Niki de Saint-Phalle entre au musée" (226)				Artefacts du Musée
DROUSSENT, Claude 2010, Visite au coeur des Jeux (1164)	p. 17			Artefacts du Musée
SERAY, Jacques 2015, De l'art et du sport : Un regard de quatre milléna	p. 188	p. 188		Artefacts du Musée
VERMONT, S. Mai 2004, "Niki de Saint-phalle: Two Cousins for Her Nand				Artefacts du Musée

Museum Plus allows every publication mentioning/illustrating an object to be listed.

N° d'inventaire 233874 Ancien N° 453/1962 Type de notice Collection des objets Langue espagnol; castillan;


Dénomination Affiches, affiche de promotion

Titre d'usage Barcelone 1955, affiche des 2e Jeux Méditerranéens.

Assigned title Barcelona 1955, poster of the 2nd Mediterranean Games.

Auteur / Intervenant I.G. Viladot S.L., Fabricant, Créé José BORT GUTIÉRREZ, Artiste, Créé

De 1955 À 1955 Période Circa 1955



Liens à la littérature (collection)

Littérature	Mention à la p illustration	N° catalogue	Remarque (litt.)	Responsable
"Les Iles Jeux Méditerranéens". In: Bulletin du Comité International Olym	21-22		Sur les compétiti	Artefacts du Musée

The comment field enables us to inform the user when the publication concerns the event but not the object itself.

The screenshot shows a museum database entry for an artifact. The main record includes the following fields:

- Artefact:** Tous les artefacts
- N° d'inventaire:** 9382
- Type de notice:** Collection des objets
- Dénomination:** Equipements sportifs, maillot
- Titre d'usage:** Moscou 1980, maillot de Martina BOESLER (GDR), championne olympique d'aviron 8 avec barreur.
- Assigned title:** Moscow 1980, shirt of Martina BOESLER (GDR), eight with coxswain rowing Olympic champion.
- Auteur / Intervenant:** Kotaura, Fabricant, Créé; Martina BOESLER, Athlète, Utilisé

A zoomed-in text field contains the following text:

Le fonds Images montre des rameurs est-allemands portant des maillots similaires mais avec des manches. Par contre, le Stadtgeschichtliches Museum Leipzig possède un maillot similaire du champion Andreas Decker. Source : <http://www.europeana.eu/portal/record/08547/215A5FB81A5DE75E362321D20DDAC6F1A9F99389.html>

To the right, a photograph shows a white rowing shirt with a German flag (black, red, and gold horizontal stripes) on the front, displayed on a mannequin.

Comparative research in photographic sources and other museum's databases are recorded in the text field "History of the artefact (Historique de l'artefact)".

### Mind the documentation gaps

The system does have some limitations. Length limitations on free-text fields often force the registrars to abbreviate their comments. More detailed remarks have to be stored outside the system as external files, referenced in comments. Furthermore, this expressive depth and richness offered by Museum Plus is focused primarily on object records. The system does not offer the same possibilities to qualify and comment on information related to exhibitions, for example, or an item's provenance and location history. An item's date of acquisition, for example, has to be precisely fixed, artificially if necessary, within a temporal interval, and the free-text field available to explain any compromise is regrettably short. These limitations to documenting vague or uncertain information are particularly apparent when dealing with exhibitions from the last century that have not usually been recorded to the level of detail we expect today. Data about the location history is particularly complex and difficult to disentangle. The institution has undergone several moves between 1923 and 1993. Many of the original locations no longer exist and remaining records are often incomplete and need to be error checked.<sup>8</sup> Unfortunately, the inevitable imprecisions and gaps in the sequence of dates and places mean that the application's automated calculation of movement and location history often fails to work correctly. Errors in the resulting record of an object's movement history, from accession to arrival at its present location, are not uncommon remain frustratingly difficult to detect.

<sup>8</sup> There is no comprehensive publication of the Olympic Museum's history but several articles mark the different reorganizations and location changes of the institution. See for instance: BERLIOUX, Monique. "Re-organization of the Olympic Museum". In *Newsletter (Olympic Review)*, No. 18, March 1969, pp. 129-133. GAFNER, Raymond. "The IOC Museum opens the doors of its provisional premises." In *Olympic Review*, No. 177, July 1982, pp. 394-396. NAVARRO ARISA, J. J. "Everything's ready: the Museum opens its doors! (News)". In *Olympic Review*, No. 279, June 1993, pp. 236-239.

<b>Artefact</b>	Tous les artefacts	Artefacts du Musée	mprd - Ecrire
N° d'inventaire	37292	Ancien N°	O REC 11
Type de notice	Collection des objets	Langue	
Dénomination	Souvenirs, Vase		
Titre d'usage	Paris 1924, grand vase décoré de feuilles de laurier avec des médaillons représentant divers sports.		
Assigned title	Paris 1924, big vase decorated with laurel leaves and medallions representing various sports.		
Auteur / Intervenant	Octave GUILLONNET, Dessinateur, Créé, Projet Charles PIHAN, Peintre, Créé, Décorateur		
De	1923	À	1924 Période 1923 - 1924
Données de base   Données supplémentaires   Données historiques   Description / Etat de l'artefact   Légendes   Préconisations			
Historique de l'artefact	Le projet a été accepté par le Comité artistique de la Manufacture en 1923 et porte le N° 101-23. Il a été terminé en mars 1924 et son prix fut fixé à 22'500		Notes du chercheur
Acquisition	Donation: 01.11.1925 Nbre:1 Tiers: Gouvernement Français (Date exacte inconnue. Donation remise par le ministre de l'Instruction Publique et des		Des répliques réduites de ce vase ont été remises aux vainqueurs des Jeux de Paris comme souvenirs et non comme prix supplémentaires.




De	01.11.1925	À	
Genre	Entrée		
Déplacement de	Acquisition		
Déplacement à	OU MO 2 39 D31 Arm. mob. 31		
Motif	Donation		
Nbre	1		
Précisions	Date exacte inconnue. Donation remise par le ministre c		
Lien à l'adresse	Gouvernement Français	France	
Réf. de transp.			
Modifié par	mprd	Dernière modif.	12.09.2017
<input type="button" value="OK"/> <input type="button" value="Annuler"/>			

*Because object tracking starts with the migration to Museum Plus, there are cases of confusion between the initial accession and the first recorded movement in the current building... an abrupt 70-years jump in the object's history!*

It is important to note that that the possibilities offered by Museum Plus are used not only to identify gaps in the documentation, but also in the collection, as they enable us to 'reconnect' objects to specific Olympic Games editions that would otherwise be are under-represented. But there are some negative effects as well. The system itself offers few means to highlight and detect problems and weaknesses in the documentation and tends to give the impression that the data is all well-grounded and complete. Background assumptions and guesswork tend to be concealed. While it is possible to search for empty fields using the Boolean search tools, but it is much more complicated to detect partially incomplete information. The registrars would like to be able to search all the records without a given keyword, or for records having only one or two keywords, which would indicate that the documentation is incomplete.

N° d'inventaire	201204	...	Ancien N°	
Type de notice	Collection des objets		Langue	
Dénomination	Vêtements et Accessoires, costume			
Titre d'usage	Athènes 2004, costume porté par la porte-drapeau de la délégation afghane Neema Soratger à la cérémonie d'ouverture.			
Assigned title	Athens 2004, costume worn by Afghan delegation's flag bearer Neema Soeratger at the opening ceremony.			
Auteur / Intervenant	Neema SORATGER, Entraîneur, Utilisé			
De	2004	À	2004	Période Circa 2004



Données de base	Données supplémentaires	Données historiques	Description / Etat de l'artefact	Légendes	Préconisations
Dimensions				Matériaux / technique / couleur	<ul style="list-style-type: none"> <li>Matériaux: Textile</li> <li>Matériaux: soie</li> <li>Couleur: polychrome</li> <li>Couleur: jaune</li> <li>Couleur: vert (Couleur dominant)</li> </ul>
Mot-clé	<ul style="list-style-type: none"> <li>Lieu: Afghanistan, Représente symboliquement</li> <li>Activités: Cérémonie d'ouverture, Utilisé</li> <li>Fonction: porte-drapeau, Utilisé</li> <li>Thématique: Histoire, Représente symboliquement</li> <li>Jeux: Jeux Olympiques, Athènes 2004, Utilisé</li> <li>Thématique: Guerre, Représente symboliquement</li> </ul>			Localisation actuelle	OU MO 2 43 15 Arm. Mob. 15 (1)
				Local. perm.	OU MO 2 43 15 Arm. Mob. 15
				Détails local.	

*Apart from a few keywords relating to the historical background and the choice of a woman as flag-bearer during the ceremony, there is little information about the costume itself and the person who sewed it.*

#### **A long distance run... with no finishing line**

Between 2005 and 2015, several cataloguing and backlog documentation projects were launched at the Olympic Foundation for Culture and Heritage. The reconciliation of the actual objects with the past records and their completion was not an easy task. As the operations involved temporary staff, particular attention had to be paid to the importance of documenting, as uniformly as possible, the level of confidence accorded to the information. Our main objectives were to avoid or limit confusion for the end-users in charge of exhibitions and help the staff to appreciate the extent to which research had been conducted before recording partial or incomplete data. When we started to review the cataloguing guide, our ambition was to set clear rules. In the absence of research, the field should be left blank; if extensive research had shown that no information was available, the value to enter was "unknown".

Very quickly however, the rule proved to be ineffective as the value "unknown" tended to become quickly outdated. With the increasing number and availability of new publications and new digital resources, research becomes a never-ending activity. The four-year cycle of the Olympiad, combined with commemorations and anniversaries of past editions, ensures regular periodic bursts of Olympic and sports-related research, publicity and publication. More generally, because many actors – athletes or creators – are still active, there is a constant need to maintain and update information. Elite sportsmen or women who have taken part in new Olympic Games continue to win new medals and set new records, while sports federations and the IOC introduce new sports, change competition formats and add new types of events to the Olympic programme. In this changing environment, we can never consider our research as entirely finished.

## Master data repository

The Museum's documentation system uses reference data stored in a central repository. This 'master data' is shared by all the applications used to document all the IOC's heritage collections, including photographs, videos, sound recordings and archive documents in addition to museum artefacts. It is obviously of great importance that this shared reference data should be as accurate and reliable as possible. Maintaining, correcting and updating this master data is another ongoing and never-ending task.

The types of problems encountered with the reference data stem in part from the long history of the Olympic Games. As one would expect, records of past events, stretching back to the end of the 19th century and compiled by many different people in a variety of formats, are often incomplete and difficult to interpret. The level of detail is inconsistent and recording methods have evolved over time. This leaves us with many gaps and unknowns in the historic record. Human error contributes an additional layer of uncertainty.

Common quality control tasks include matching up duplicate records (not always easy to spot as participants may change their name, nationality and sport), disentangling confusions (often resulting from participants with similar names), and identifying unreliable data (e.g. partial dates, which may have been 'completed' with default day/month values, or for which the day/month order has been inverted). In addition we are constantly on the lookout for datasets containing complementary information that can be used to enhance and complete existing records.

The tool used to manage the repository<sup>9</sup> provides some "semantic" features that are useful for managing data quality, tracking missing items and detecting potentially unreliable data. Each element of information is stored as a triple (subject, predicate, object) that provides a very fine level of granularity for information management. Not just every record, but every assertion can be individually identified.

Multiple assertions can be recorded if needed, with contradictory data that needs to be resolved. An athlete, for example, may have two or more dates of birth, depending on which source is used. All the available values are recorded until research allows us to determine which, if any, is correct. And there is no need to create 'empty' assertions: the absence of a triple means that no information is available on a given topic.

[HTTP://WWW.CIO-PAM.ORG/PAM#PARTICIPANT131288](http://www.cio-pam.org/pam#PARTICIPANT131288)

### PROPERTIES

date of birth	1983-01-29
	1983-05-09
	1983-09-29
height	168
weight	58
history note	en DOB is unclear. IAAF gives 9.5.1983. JORES has 29.9.1983. Other sources give 29.1.1983 - cnic 30.9.2016
Alternative URI	► <a href="http://www.cio-pam.org/pam#Participant149211">http://www.cio-pam.org/pam#Participant149211</a>

*Part of a master data record for an athlete with birth date in need of clarification*

<sup>9</sup> Mondeca, Intelligent Topic Manager (ITM) <http://www.mondeca.com/>

But, the full potential of the fine-grained data management offered by a semantic approach has yet to be reached. Additional metadata such as the level of confidence, the degree of precision or the source used, could in principle be attached to each and any assertion. This would provide a systematic and detailed approach to managing what we don't know as well as what we do.

### Review of existing recommendations

Taken together, the preceding examples reveal three different classes of problem relating to what we don't know:

1. *Missing data*: information may be entirely missing or partially missing. Gaps in data need to be easily identifiable and easy to locate.
2. *Imprecision*: available data may imprecise or approximate. This type of problem particularly concerns quantifiable data such as measurements and dates. The level of precision needs to be clearly identified and the system should not impose a degree of precision greater than the available data.
3. *Doubt*: confidence may be limited as to the reliability of the available information. This may depend, for example, on the source or the method used to acquire the information. The system should allow the level of confidence to be recorded, along with the reason why the data is suspect. Ideally it should also be possible to identify and locate any data that is in some way unreliable.

Different methods may be required to deal with these issues. The general aim should be to ensure that gaps, imprecision and doubtful data are clearly identified and easy to locate. This would enable the system to be used as a tool for checking and improving the quality of the documentation.

Given the importance of dealing with these issues and their endemic character in the field of cultural heritage information, it is interesting to review some existing documentation standards to see what recommendations they offer.<sup>10</sup>

### Null points

Edgar Frank "Ted" Codd, the man behind the relational model that underlies many database applications in use today, took the issue of missing information very seriously. To allow missing or inapplicable information to be clearly identified, he introduced a three-valued logic (3VL) based on *true*, *false* or *undefined*.<sup>11</sup> In SQL, undefined data is represented by the word "null". This three-valued logic affects both stored values and logical operations.

Codd's approach allows missing data to be clearly differentiated from blank data, such as an empty string, or a numerical zero. Null indicates that no data is available, so operations involving nulls always produce null as a result: the value of null \* 3, for example is null, rather than zero.

In his 1990 book *The Relational Model for Database Management, Version 2*, Codd went a step further, suggesting that the semantics of a single null indicator were inadequate as the distinction between data that was missing because it was inapplicable, rather than simply unknown, was not explicit. He suggested replacing null with two indicators: *Missing But Applicable* and *Missing But Inapplicable*. This approach would be used, for example, to indicate that an 'Author' value is *missing but inapplicable* for a mineral specimen, while the 'Name' of an

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<sup>10</sup> This is by no means an exhaustive review of existing documentation standards, but it is intended to be representative.

<sup>11</sup> Codd, Edgar F. "Extending the database relational model to capture more meaning." In *ACM Transactions on Database Systems*. 1979, **4** (4): 397

anonymous artist would *missing but applicable*. However, this extension of null semantics does not seem to have caught on.

The three-valued logic of SQL appears to offer a convenient way of representing missing data, exactly what would be needed for documenting incomplete or partially known information. However, while Codd's 3VL is implemented by any RDBMS that uses SQL, it is not always exploited by the applications that are built to use them. The programme logic and design of the user interface often makes it impossible for the end-user to enter or manipulate null columns, and the subtleties of Codd's 3VL are effectively lost or hidden from view.

## Spectrum

*Spectrum - The UK Museum Documentation Standard*, was first published in 1994 by the *Museum Documentation Association* and is widely used in the UK. It has since been through a number of revisions and is now available from *Collections Trust*.<sup>12</sup>

Surprisingly perhaps, given its long history and widespread use, *Spectrum* contains no *general* recommendations on how to deal with missing, vague or doubtful information. The 'cataloguing' procedure, which describes the general principles to be applied when creating detailed records, appears to be based on the assumption that all only complete and reliable information should be included: "All new information should be substantiated before being added to a catalogue record with an authority for the attribution"<sup>13</sup>. This recommendation could be understood to mean that an institution's documentation system should simply exclude any information that is tentative or speculative in nature, reducing its usefulness as a research tool.

There are however, some *sui generis* indications on how to deal with uncertainty and missing data in relation to specific types of information. Dates are given a particularly detailed treatment; the *Date information group* is composed of the following nine data elements:

1. *Date association* (how a Date relates to an event in an object's history);
2. *Date - earliest/single* (earliest probable or exact date at which an event in an object's history is thought to have occurred);
3. *Date - earliest/single certainty* (a term describing the extent to which the Date - earliest/single recorded is thought to be correct);
4. *Date - earliest/single qualifier* (qualification of the earliest probable or exact date at which an event in an object's history is thought to have occurred);
5. *Date - latest*;
6. *Date - latest certainty*;
7. *Date - latest qualifier*;
8. *Date - period* (textual expression of the period when an event in an object's history is thought to have occurred);
9. *Date text* (the textual expression of the date or date span when an event in an object's history is thought to have occurred).

Essentially, the approach consists of three things:

- i. allowing a date to be defined by a machine-readable date *range* (earliest/latest),
- ii. providing room for *qualification* to express the level of confidence, and

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<sup>12</sup> <http://collectionstrust.org.uk/spectrum/>

<sup>13</sup> *Spectrum: Cataloguing - Sources of information from outside the organisation.*

- iii. providing text fields to allow the information to be recorded in a human-friendly *presentation format*.

This breakdown allows both levels of uncertainty and degrees of imprecision to be expressed without compromising automated processing since presentation and qualifying terms are separated from the machine-readable data. It is worth noting, though, that the examples given as possible data contents are confusing – suggested values for “certainty” qualifiers include *probably* and *possibly*, but also *circa*, *before* and *after*. While “circa” might conceivably be seen as an expression of doubt rather than imprecision, “before” and “after” clearly refer to a temporal relationship rather than any lack of confidence in the reliability of the data. Despite these shortcomings, the Spectrum recommendation is undoubtedly one of the more sophisticated attempts to deal with chronological approximation and uncertainty.

Curiously, this detailed treatment of dates does not appear to be a systematic recommendation for *all* date information. Spectrum treats most dates, e.g. Exhibition begin date, Acquisition date, Exit date, etc., as unproblematic; merely encouraging the user to “be as specific as possible and indicate if the date is not known”, though without specifying exactly how this should be done.

Apart from this detailed treatment of uncertainty and approximation in relation to dates, Spectrum recommends using the term ‘unknown’ as a possible data value in three cases: *Sex*, *Copy number* and *Other number type*, and the term ‘approximately’ or ‘approximate’ in six cases: *Age qualifier*, *Date - earliest/single qualifier*, *Date - latest qualifier*, *Dimension value qualifier*, *Inscription description* and *Place coordinates qualifier*. Neither of these suggestions is extended to cover other data items.

The general impression is that the authors of the Spectrum standard regard uncertainty, missing data and approximations as problems that apply only to certain specific types of data and not as something endemic to the entire range of cultural heritage information. This assumption is perhaps a reflection of the underlying assumption that only information that has been thoroughly checked and verified is worth recording.

### CIDOC Guidelines

*The International Guidelines for Museum Object Information: The CIDOC Information Categories*,<sup>14</sup> published in 1995, is one of CIDOC’s founding documents. Elaborated by a group of experts after extensive consultation, the document has been translated into French, Spanish and Portuguese. It was used as a starting point for the development for the CIDOC CRM and is still used today as a reference text by many institutions.

Like the Spectrum standard, the CIDOC Guidelines provide no general recommendations about how to deal with gaps, uncertainty and imprecision.

The document is structured as a series of information groups, each of which contains a number of information categories. The *Recorder information group* deals with record-level metadata and might be seen as an appropriate place for information about levels of confidence, missing or incomplete data, etc. The group consists of three information categories (Recorder, Recorder date and Authority) and recommends that the information should be repeated for each information group. The stated purpose of the Recorder Information Group touches on the question of the accuracy and reliability of the information being recorded: “Without this information it is not possible to establish when object information was created or establish the accuracy of the information...”, but it suggests no mechanism to record levels of confidence or approximations. However, two of the information categories in other information groups *do* suggest ways of dealing with estimated and incomplete data.

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<sup>14</sup> [http://network.icom.museum/fileadmin/user\\_upload/minisites/cidoc/DocStandards/guidelines1995.pdf](http://network.icom.museum/fileadmin/user_upload/minisites/cidoc/DocStandards/guidelines1995.pdf)



The notes to *Description of parts and components* propose that “When describing a lot, i.e., an aggregate of specimens in a life sciences or earth sciences collection, provide the approximate number of specimens in the lot...”. “50 specimens (approximately), 4 species” as given as an example. In other words, a human-readable comment between brackets is inserted in the data. In order to follow this suggestion, the data field used to record the number of specimens has to be typed to allow free-text to be entered. This would normally make it difficult to perform automatic calculations using the numerical element. A lack of constraints on a free-text field would also limit the effectiveness of searches to identify and isolate approximate and estimated data.

The *Production data*<sup>15</sup> information category contains similar examples, using qualifiers such as the prefix “c.” to indicate circa as well as “BC” for dates before the Common Era. The examples given also include incomplete dates, with no day or month, and a date range. The notes contain the following recommendation: “Be as precise as possible when recording dates. It may be necessary to record ranges of dates or to otherwise qualify the date recorded in some way. If so, always use the same method of indicating any qualification.” These suggestions raise similar problems concerning limitations on the technical functionality of date-typed fields. Inserting qualifiers directly into the data would entail the use of free-text fields and would thus preclude any date-related operations (before, after, etc.). The suggestion that date ranges might be used raises both technical and semantic issues. By itself, the meaning of a date range is unclear: it can be interpreted as a period of duration, or as an approximation: “1200-1400” could mean either *lasting from 1200 to 1400* or at *some point between 1200 and 1400*. From a technical perspective, the logic needed to run queries on date ranges is not native to most DBMS software and would have to be specially developed.

As with the Spectrum standard, the overall impression is that the issues of vague, missing and doubtful information are treated as an afterthought rather than a central concern.

### Société des musées du Québec

In contrast to the two preceding standards, the Société des Musées du Québec (SMQ) published, in 2004 as part of a series on Documentation Tips, a short set of recommendations specifically aimed at the question of *Documenting Missing and Uncertain Information*.<sup>16</sup> The stated aims were to “make it easy for you to find uncertain or missing information with your collection management software and set priorities for future documentary research. In addition, it will make it easier to consult data internally and with common tools such as the Info-Muse database and Artefacts Canada”. These guidelines are unusual in that they attempt to provide a general approach to the question, rather than simply dealing with specific types of information. However, they depend to some extent on technical aspects of the *Info-Muse* and *Artefacts Canada* database systems.

The document begins by making an interesting distinction between situations where no research has yet been carried out to find missing information and cases where research has been unsuccessful. In the former case the recommendation is to leave the data field blank, while using the term ‘unknown’ in the latter. This suggestion has the merit of conforming naturally to common practice, as witnessed by the Olympic Museum. Its implementation does depend, however, on the possibility of leaving data fields *empty* - business rules applied by some applications

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<sup>15</sup> Interestingly, no other date categories in the document are subject to the same treatment. The authors appear to have assumed that in all other cases, including acquisition, exhibition, loans, etc., complete date information will always be available.

<sup>16</sup> “Documenting Missing and Uncertain Information.” In *Documentation Tips*, No 7, Société des musées québécois June 2004 [http://www.musees.qc.ca/fr/professionnel/pdf/2004\\_capsule7en.pdf](http://www.musees.qc.ca/fr/professionnel/pdf/2004_capsule7en.pdf).

This article was intended as a complement to Desmarais, France et Simard, Françoise (réédition), *Comment documenter vos collections? Le guide de documentation du Réseau Info-Muse*, collection « Attention aux collections », Montréal, Société des musées du Québec, 2000.

make this impossible. The document addresses this problem with respect to two mandatory fields present in the Info-Muse documentation system, suggesting the terms “unidentified object” for the Object Name field and “unknown” for the Specimen Nature field. While this suggestion solves the technical issue, it does so at the expense of the semantic distinction between researched and unresearched gaps in the data. Using an additional term such as “blank”, or “unverified” would allow the distinction to be maintained for mandatory fields.

The guidelines go on to suggest that in cases of doubt about the reliability of the information being entered, a question mark should be appended to the data and an explanatory remark recorded as a comment. As noted above, adding characters within the data is problematic for strongly typed data fields. The use of comments poses no such difficulty but unstructured data is not easily used for automated processing and retrieval.

For cases where fields may contain a series of terms, the recommendation is to use make judicious use of question marks, or the term ‘unknown’, in ways that do not interfere with the system’s search functions. Achieving this balancing act would depend on the precise technical implementation of the documentation system, so this recommendation might be difficult to apply in some cases.

Finally, the recommendations deal with the transcription of illegible text such as inscriptions, suggesting the use of square brackets to indicate interpolations and ellipses. This convention will be familiar from MLA style guidelines on quotations.<sup>17</sup>

*Documenting Missing and Uncertain Information* undoubtedly raises some important issues and attempts to provide some practical suggestions about how best to deal with them. However, the treatment proposed is not fully worked-out. References to specific software used by Canadian museums could be an obstacle to the general adoption of these proposals.

## Conclusion

In the field of museum documentation, what we don’t know can be just as important as what we do know, so it is vital to be able to keep track of gaps, approximations and doubts about our documentation. Knowing what has and has not been thoroughly researched allows us to evaluate the reliability of the information we find, and can help avoid wasting time re-running a fruitless wild goose chase. Unfortunately, the standards and tools that we currently have at our disposal do not provide the level of support that we need. The subject of missing, uncertain or approximate information either goes unmentioned, or is treated as a side issue. The few guidelines that do exist are mutually inconsistent and pose technical problems. Commonly used software applications often make it difficult to pinpoint problematic data, and in the worst cases, may even force us to fill-in gaps with assumptions, going beyond the available evidence.

This situation needs to change. While it may sometimes be embarrassing to admit that our documentation is imperfect, hiding the problems will do nothing to improve matters. We need methods and tools that help us to deal with the issues effectively. We therefore suggest that a systematic approach to documenting ignorance needs to be developed: clear and practical guidelines that can be implemented by different disciplines at an international level. CIDOC would be a good place to start this conversation.

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<sup>17</sup> MLA Handbook for writers of research papers (7th edition) ISBN-13: 978-1603290241