

Researching Spanish Dance in Time and Space: A GIS for La Argentina's Ballets Espagnols

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Abstract

This study presents the results of the research project on the Ballets Espagnols de Antonia Mercé La Argentina, a dance company active between 1927 and 1929 that adapted the model of Diaghilev's Ballets Russes to a repertoire based on the construction of a national identity through the modern and avant-garde aesthetics of interwar Europe. The systematisation of the preserved sources and their visualisation in interactive maps permits research to be carried out on one of the most brilliant episodes in the history of Spanish dance and to collaborate in the recovery of a forgotten dance heritage.

1. Introduction

One of the difficulties encountered in research on Dance Studies, and especially in dance history, is the ephemeral condition of the object of study. Due to the impossibility of direct access to the primary source, which is the original performance of the dance work, it is necessary to trace its origin through the artistic, written, musical or audiovisual materials that have been preserved. The study of sketches of sets, costumes, scores, choreographic notation, films, sound recordings, librettos, newspaper reviews and documents, among others, will show the contribution made by each dance work when it was premiered. This information is the primary basis on which to establish the subsequent interpretive analysis. The frequent dispersion of these materials, as well as their poor preservation or loss, together with a short academic tradition and scarce research in certain contexts, mean that large gaps still exist in dance history. This is even more evident in the Spanish academic context in relation to dance research. Despite artistic manifestations such as flamenco, which was awarded UNESCO's World Heritage status in 2010, and other dance jewels, such as the bolero — a dance form legacy from the eighteenth century — Dance Studies are not established in the university system. Besides, research in dance history is still limited and depends on other humanistic and artistic disciplines. Therefore, the advance in the application of new methods in Digital Humanities and their open access offers great potential for research into the history of Spanish dance, increasing the level of interpretation of the preserved sources, and the possibilities of integration and impact on international art history narratives, from which it has traditionally been excluded.

This article presents the case study of the research project *Ballets Españoles (1927-1929): A Dance Company for the Internationalisation of Modern Art* (ref. ERC2018-092829), aimed at analysing the impact of transnational modern and avant-garde art and interdisciplinary creation that was disseminated through the Ballets Espagnols, the dance company founded by Antonia Mercé, aka La Argentina (Buenos Aires, 1890-Bordeaux, 1936). This group, which was active between 1927 and 1929, was the first to produce a “Spanish-style” version of the model of Sergei Diaghilev's successful Ballets Russes, which had dazzled Western audiences and critics since 1909 with its repertoire of ballets by the most outstanding creators and intellectuals, such as Igor Stravinsky, Pablo Picasso, Natalia Goncharova, Manuel de Falla, Vaslav and Bronislava Nijinska, among many others.



Figure 1. Postcard of Antonia Mercé la Argentina, Teatro Barcelona. Private collection.

Diaghilev's previous success encouraged the foundation of other groups that examined their respective roots and national identities in order to propose modern pieces, which include the Ballets Suédois, Ballets Romantiques Russes, Ballets Russes de Monte Carlo and, in this case, the Ballets Espagnols. In these works, La Argentina surrounded herself with outstanding Spanish musicians, painters and writers in the creation of a repertoire based on Spanish cultural legacies. Some of her most outstanding works were *El amor brujo*, *El fandango de candil*, *Au coeur de Seville* (*Cuadro flamenco*), *Juerga*, *Sonatina* and *Triana*. Over the years she had the support of writers such as Cipriano de Rivas Cherif, Federico García Lorca and Tomás Borrás; musicians such as Manuel de Falla, Ernesto Halffter, Julián Bautista, Joaquín Turina and Enrique Fernández-Arbós; stage designers such as Néstor, Gustavo Bacarissas, Manuel Fontanals and Mariano Andreu; and dancers such as Vicente Escudero, Carmita García, Pastora Imperio and Miguel de Molina. The transcendence of these names in their respective areas highlights the impact of the Russian model. Considering a ballet as a "total work of art" — derived from Richard Wagner's *gesamtkunswerk* — different elements were entrusted to outstanding personalities of their field with a certain innovative and modern outlook. Moreover, the company united examples of the most outstanding contributions of the arts and literature of the time, in what Spanish historiography considers the so-called Generations of 1898, 1914 and 1927. These protagonists of the movement of cultural renewal would constitute the period know as the Silver Age, interrupted by the military uprising that started the Spanish Civil War on 18 July, 1936, the same day on which Antonia Mercé La Argentina died suddenly of a heart attack.

The Ballets Espagnols were conceived mainly for a foreign audience and the ensemble never performed in Spain, making internationalisation a key element in understanding the acceptance of Spanish dance and its legacy in the memory of Western dance from then on. Despite the repercussion that both Antonia Mercé and her company had on Spanish dance, no monographic study of the Ballets Espagnols existed to date. Only some studies examine her biography and trajectory, and some articles and books propose readings of her context.^[1] Therefore, this research

sought to locate, analyse and interpret the Ballets Espagnols repertoire in order to assess its impact on the definition of Spanish imaginaries through the modern interpretation of interwar Europe.

It was therefore essential to have a tool that would enable the systematic examination of the preserved sources of diverse typology located in different countries. Besides, it was also possible to analyse the presence of this company in very specific sections using spatiotemporal coordinates. The research project was carried out between 2018 and 2020 within the framework of the State Programme for the Promotion of Scientific and Technical Research of Excellence, under Europe Excellence Dynamization Actions of the Spanish Ministry of Science and Innovation, at the Department of Art History and Heritage of the Institute of History of the Spanish National Research Council (CSIC), in collaboration with the Unit of Geographic Information Systems and Digital Humanities at the Centre for Human and Social Sciences. Part of this work has also been continued in a new research project, entitled *Dance Studies and Digital Humanities* (ref. 202010E150), undertaken by the CSIC, which seeks to extend the development and application of these tools to research into Spanish dance history, and which is running from 2020 to 2023. The main aim is to share the results of this study in the application of Digital Humanities in dance, and specifically, for future research in the rich field of Spanish dance and its various aspects including flamenco, bolero, folk dances and stylised dance.

2. Dance Studies and Digital Humanities: a growing relationship

The application of Digital Humanities to dance has become a fertile field for the advancement of knowledge in a discipline traditionally very attached to physical, oral and face-to-face transmission through body language techniques. Paradoxically, the context of extended reality is offering new advantages for areas of historical research, such as the recovery and reconstruction of dance heritage.

Many initiatives along these lines are currently being carried out, such as the projects developed at Florida State University with the ViFlow augmented reality platform for dance [VVAA 2016] or the completed *WhoLoDance (Whole-body Interaction Learning for Dance Education)* [VVAA 2018], as well as various international conferences specialised in the relationship between the performing arts and technology: *International Conference on Movement and Computing* (MOCO) and *Conference for Research in Choreographic Interfaces* (CRCI). It is important to highlight the specialised spaces that host these interdisciplinary works, such as the Google Arts & Culture Lab, New Frontier Artist Residency Programme (Sundance) or Advanced Computing Centre for the Arts and Design (ACCAD, The Ohio State University).^[2] In Spain, these spaces include the *Aula de las Artes* Art and Science Platform of the Universidad Carlos III de Madrid and the Dance and New Media Lab (DANM) of the Etopia Art and Technology Centre in the city of Zaragoza.

Regarding exploration of new software for performing arts research along the lines of “theatre analytics” [Bardiot 2020] and its assessment of the complexity of the associated data, different projects are exploring the relationships and exchanges that link the ephemeral with the permanent, the physical with the virtual. Some current initiatives are based on the development of digital archives, such as *Siobhan Davies Replay: The Archive of Siobhan Davies Dance* ^[3] or the Carmen Beuchat Archive.^[4]

Furthermore, Digital Humanities have provided fundamental tools for the assessment of the spatiotemporal coordinates in dance history research, focusing on the evidence preserved through interactive mapping. Of particular importance are the contributions of Harmony Bench (Ohio University) and Kate Elswit (Royal Central School of Speech and Drama) whose application of new digital research methodologies in conjunction with traditional tools have made it possible to manage, analyse and compare on a large scale the vast amount of data obtained on the different tours of dance companies in the twentieth century, giving rise to what has become known as “dynamic spatial histories of movement” [Bench y Elswit 2016]. *Moving Bodies, Moving Culture* ^[5] follows the American Ballet Caravan company on its tours of Latin America during the 1940s; *Mapping Touring* ^[6] presents a database accessible through a map viewer containing the performances of various dancers, choreographers and companies from the turn of the century, such as Ruth Saint Denis, Ted Shawn, Erick Hawkins, Ballet Russe de Monte Carlo or Original Ballet Russe. Finally, the tours made by the African-American dancer and choreographer Katherine Dunham between the 1930s and 1960s illustrate the recent project *Dance in Transit and Dunham's Data: Katherine Dunham and Digital Methods for Dance Historical Inquiry*.^[7]

3. Materials and methods

The implementation of a Digital Humanities project of this nature requires addressing the systematisation of information by designing and creating “data models.” This is what is known, generically, as the description of the “universe of discourse” or the part of the real world we wish to study and represent [Flanders & Jannidis, 2015]. The data modelling process involves identifying the most relevant entities or classes in our project and describing their main features and the connections between them.

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Data modelling is a current topic of discussion in Digital Humanities. Its definition, within this spectrum, is not very different from the one usually used in computer sciences. There are authors who believe that data modelling should be one of the main tasks of research projects in humanities [Jannidis & Flanders, 2013]. Nevertheless, neither a theory nor extensive scientific literature on the subject is apparent, perhaps because it is believed that there is already enough in the field of computer technologies. Data modelling, in Humanities, is understood as an “interpretation” of an object, both in the real and virtual world; a constructive and creative process in which the functions of digital technology determine which aspects should be modelled [Flanders & Jannidis, 2015, 14]. Nowadays, data modelling is applied more and more frequently and is a prior and indispensable step in systematising information in Digital Humanities projects. This is well summarised in the work of Ciula & Marras (2016), which highlights the upward trajectory of works that incorporate these technologies to develop their research. Two phases must be distinguished in data modelling: on the one hand, design modelling, which describes the entities from the universe of discourse with which we are going to work; and on the other hand, logical modelling, which is the implementation of the former in a database environment.

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Within the framework of our research project, we have undertaken a joint work process between the mentioned research group and the technology unit of Geographic Information Systems and Digital Humanities CCHS-CSIC, the latter having extensive experience in the modelling of scientific data [Fernández Freire et al. 2013].

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Data systematisation involved designing a model containing the classes, possible relationships and properties of our information. The extensive collection was extracted from diverse sources, from national and international institutions, and will provide support for future consultations, studies, spatiotemporal analyses and visualisations to understand the contributions of the repertoire and the performances of the Ballets Espagnols and the individual recitals of Antonia Mercé La Argentina.

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The data modelling of our project has been carried out according to the UML (Unified Modelling Language) standard. Being an internationally used language, it enables our work to be understandable, scalable and reusable by any other researcher working on a related topic. Despite the potential of UML, its extension within the humanities is relatively limited. For several years, XML has been used for work in the field of text editing and analysis. There are therefore several examples of transformation of literary works to XML format [Kimber, 2000]; [Hayashi & Hatton, 2001] and their storage in TEI format [Teehan & Keating, 2010]; [Portela & Rito Silva, 2015]. These works have approached this technology from the perspective of text analysis, semantic web and ontologies, as well as extraction of annotations from ancient documents through a UML schema [Luzzi, 2012]. More recently, there has been an updated volume [Schraibman, Siemens & Unsworth, 2016] dedicated exclusively to Digital Humanities that explores through authors, pioneers in research in this field, the infrastructures, creation, analysis, dissemination and future of Digital Humanities itself.

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The class diagram that describes our universe of discourse, within the framework of this art and dance history project, takes into account the georeferenced nature of the data and has been implemented in a database through an Entity-Relationship model using a free software management system, PostgreSQL and the PostGIS spatial extension. This “spatial” database structure offers not only the power of SQL queries, but also the possibility of integration in Geographic Information Systems (GIS) for subsequent spatiotemporal analysis and the generation of maps and dynamic visualisations.

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This potential also extends to the development of different forms of access, for example through a map viewer, and the reuse of the information generated by other researchers or a more general public. Thanks to the georeferenced nature of the data, web map services have been implemented that comply with the regulations and standardisation of spatial

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data (in particular with the specifications of the Open Geospatial Consortium), as well as other types of access to the data, still to be determined, always in an open science context [Del Bosque González, 2020, 36], protecting their authorship as recommended for scientific research. Since 2017, and with the aim of enhancing and developing this philosophy, the European Commission has stipulated that all publicly funded projects guarantee free access to research data under the FAIR Principles (acronym for Findable, Accessible, Interoperable and Reusable). For data generated in scientific research [Wilkinson et al, 2016], the FAIR Principles are already an institutional mandate in some organisations such as the CSIC and a framework by which we intend to abide in this project.

In order to fulfil those principles, the dataset^[8] generated within this project has been metadated according to ISO 19119 and incorporated into a public metadata catalogue, making data “findable” through web searches. Data are also “accessible” in an open spatial format such as GeoJSON and interoperable thanks to the above-mentioned Web Map Service, described in a standard language that enables linkage to other projects regardless of protocols, software or operating systems. The creative commons (by-nc-sa) licencing grants reuse to other researchers as long as terms such as attribution are observed.

3.1. Data model

The data model of “Los Ballets Españols y los recitales individuales de Antonia Mercé, la Argentina” solves the integration of very diverse data, ranging from the georeferencing of theatres to the elements related to the scenography or the different recordings, including the authors and performers of the works. The whole set of data revolves around the primary information obtained through the programmes of the different performances, the central node that structures all the information that has been collected ^[9]:

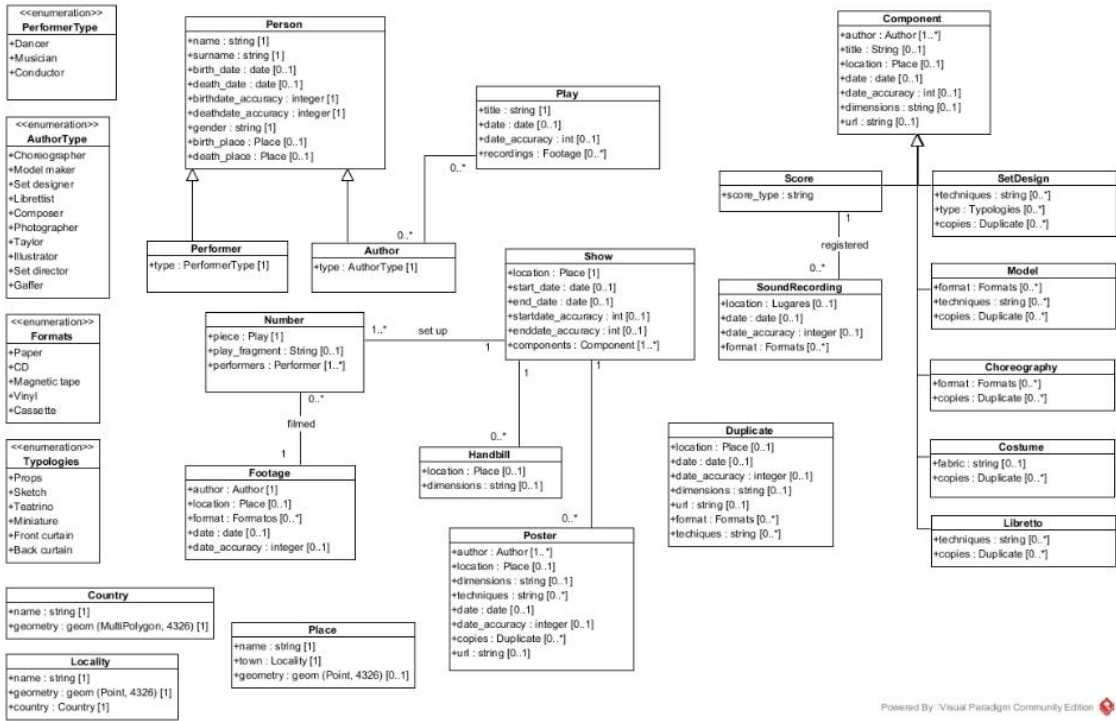


Figure 2. Data model.

As has been stated, the main sources are the shows’ handbills preserved from various locations. The information they contain has been broken down into many items to enable atomized database storage that ensures the implementation of complex queries and their versatility.

The logic of the model starts from a show that takes place in a specific location and on specific dates. A show is made up of musical numbers in which a fragment of a play is enacted by a series of performers (dancers, musicians and

conductor). Musical numbers may have been filmed by an author, and that footage may be kept in a private or public collection. Handbills and posters made for each show are also registered, along with their physical description, and location of known copies. The class “Play” registers all information regarding the original play: title, authors, and date. Each piece of information related to the show’s development is detailed as a specialization of the class “Component.” There are many components in a show: set design, models, choreographies, costumes, librettos and scores. Their authors, title (if applicable), current location, date and dimensions (if applicable) are registered, along with information about formats, techniques (if applicable) and, for scores, recordings if any.

The following two aspects of the components of each show should be highlighted: whether it is possible to specify their current location (for example, in a museum or collection) and the existence of copies. 21

The data model acknowledges two types of people: authors and performers. Basic biodata on both is registered, plus their specialty. The whole project is geographically pinned whenever the information can be spatialized: current location of the show’s components, handbills, posters, recordings, footage and most significantly, the location of theatres where the shows took place. Locations of all kinds are managed through the class “Place”, where a point is stored in geographic WGS84 coordinates. All places are attached to the worldwide locations layer downloaded from Natural Earth’s (<https://www.naturalearthdata.com/>) populated places and subsequently to a country. This way the spatial component enables future queries to be aggregated by country or locality. 22

Despite the fact that many theatres no longer exist, thorough research has yielded an accurate position for almost all of them. In that case the generic locality’s coordinates taken from the Natural Earth layer are displayed in the map. Although this is a data model designed for this project, we believe that the development of sufficiently generic classes and the introspection carried out on the nature of the information make it an easily reusable model for any other project in the same field. 23

The implementation of the model has consisted of the direct development of an Entity-Relationship model adjusted to the definition of classes. Given the need for a geographic data manager and the potential use of the database in online projects, it was decided to host the model in a PostgreSQL Database Management System (DBMS) with its PostGIS spatial extension. All coordinates have been defined in geographical WGS84. Access to basic Create, Read, Update and Delete (CRUD) operations has been enabled through the development of a web interface in PHP. This allows the project researchers to maintain and extend the database. 24

Compañía	Números	Nombre Teatro	Fecha Inicio	Fecha Fin		
Compañía Ballets Españoles	Valenciana; Córdoba; Lagarterana; Chacona; La corrida; El fandango de candil; Panaderos; El fandango de candil; Zorongo (parte I); El fandango de candil; Zorongo (parte II); El fandango de candil; Bolero; Danza V. Jota (Aragón); Danza gitana; Malagueñas; Boceros sinfónicos; La canción del farolero; Pepita Jiménez; Interludio; Madrilén; En el corazón de Sevilla (Cuadro flamenco); Granadina; En el corazón de Sevilla (Cuadro flamenco); Fandangullo; En el corazón de Sevilla (Cuadro flamenco); Tango; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Alegrías; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Sevillanas	Alberí Theater	25 de noviembre de 1927	27 de noviembre de 1927		
Compañía Ballets Españoles	Córdoba; Malagueñas; El amor brujo; Danza del Miedo; Danza del Fuego; Canción del Fuego Fatuo; Danza del Juego del Amor; En el corazón de Sevilla (Cuadro flamenco); Fandangullo; En el corazón de Sevilla (Cuadro flamenco); Tango; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Panaderos; El fandango de candil; Zorongo (parte I); El fandango de candil; Zorongo (parte II); El fandango de candil; Bolero; El fandango de candil; Granadina; En el corazón de Sevilla (Cuadro flamenco); Alegrías; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Sevillanas; Danza V. Jota (Aragón); Danza gitana; La corrida; Lagarterana; Pepita Jiménez; Interludio	Berliner Theater	29 de noviembre de 1927	30 de noviembre de 1927		
Compañía Ballets Españoles	El fandango de candil; Panaderos; El fandango de candil; Zorongo (parte I); El fandango de candil; Zorongo (parte II); El fandango de candil; Bolero; En el corazón de Sevilla (Cuadro flamenco); Granadina; En el corazón de Sevilla (Cuadro flamenco); Fandangullo; En el corazón de Sevilla (Cuadro flamenco); Tango; En el corazón de Sevilla (Cuadro flamenco); Alegrías; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Farruca; En el corazón de Sevilla (Cuadro flamenco); Sevillanas; Valenciana; Córdoba; Lagarterana; Danza V. Chacona; Danza gitana; Malagueñas; Jota (Aragón); La corrida; Pepita Jiménez; Interludio; Madrilén	Krystalpalast Varieté-Theater	1 de diciembre de 1927	3 de diciembre de 1927		

Figure 3. Interface snapshot

3.2. Workflow

The database has been completed with the help of the developed tools, adding plays, authors, performers, 25

programmes, etc. The location of the theatres was first carried out using a geocoding service, but has finally required an exhaustive revision through searches on Google Maps and in some cases more specific revisions when the theatre has disappeared or its name has been altered. In any case, all theatre locations refer to a GIS layer of places, so that in cases where it has been impossible to obtain the exact location of a venue, the coordinates of the centroid of the place in which it is located are used (this is the case of 3 theatres out of a total of 115).

The developed system (database + user interface) has been the tool to systematise the large amount of dispersed materials and documentation currently held in different international institutions, such as libraries, archives, museums and documentation centres. The collections held in the institutions listed below were consulted during the development of the project:

Archives and documentation centres	
Archivo Carlos Manso (Buenos Aires, Argentina)	A private collection by this relevant former dancer and researcher, author of <i>La Argentina, fue Antonia Mercé</i> (Buenos Aires, Devenir, 1993). It includes written and graphic sources.
American Foundation for the Blind, Helen Keller Archive (New York, USA)	The collection of this feminist, suffragist, social activist and pacifist author contains some written sources related to La Argentina.
Archives de La Monnaie (Brussels, Belgium)	It contains some materials related to the Ballets Espagnols tours in the Théâtre de La Monnaie in 1928.
Archivo Fundación Zuloaga (Zumaia, Spain)	One of the family archives related to the painter Ignacio Zuloaga contains several written sources.
Archivo Histórico Nacional (Madrid, Spain)	This state archive gathers written sources linked to Antonia Mercé and some creators of her time.
Archivo Manuel de Falla (Granada, Spain)	Focused on the collection of the musician, it conserves written, graphic and musical sources, including letters, librettos, scores, photographs and other documents.
Archivo Pablo Suero (Buenos Aires, Argentina)	It conserves the private archive of this Spanish-born writer and journalist established in Argentina, which contains several letters and articles linked to Antonia Mercé.
Archivo Regional de la Comunidad de Madrid (Madrid, Spain)	This archive conserves several written and graphic sources, including programs, posters, photographs and scores, some of which are part of the Juan María Martínez de Bourio collection.
Archivo Sáenz de Tejada (Laguardia, Spain):	The private collection of the family of the painter Carlos Sáenz de Tejada, a painter and scenographer of Antonia Mercé. Some of the consulted works during the research were recently incorporated into the collections of the Museo Nacional Centro de Arte Reina Sofía.
Centre de Documentació i Museu de les Arts	One of the main research centres for performing arts in Spain, it contains one of the principal collections about Antonia Mercé, including written and graphic sources, original costumes and personal items.

Escèniques, Institut del Teatre (Barcelona, Spain)	
Centro de Documentación de las Artes Escénicas y de la Música, INAEM (Madrid, Spain)	This state archive includes a significant number of publications and some original written sources.
Libraries	
Biblioteca Fundación Juan March (Madrid, Spain)	One of the main institutions that conserves the largest collection donated by Antonia Mercé's niece, Carlota Mercé de Pavloff, "Fondo Antonia Mercé la Argentina". It contains the original scrapbooks by the choreographer, as well as photographs, letters, musical recordings, documents, and a wide range of publications.
Biblioteca Nacional de Catalunya (Barcelona, Spain)	It holds some written sources, mainly correspondence from Antonia Mercé and her manager, Arnold Meckel.
Biblioteca Nacional de España (Madrid, Spain)	It conserves original sketches, scores, librettos, footage, letters, press clippings, and the most important bibliography about the choreographer.
Biblioteca Tomás Navarro Tomás, Centro de Ciencias Humanas y Sociales, CSIC (Madrid, Spain)	It contains a wide range of publications about performing arts, related to dance research currently being undertaken at the History of Art and Heritage Department at the History Institute.
Bibliothèque Nationale de France (Paris, France)	The "Fonds Argentina" at the Bibliothèque-Musée de l'Opéra contain the most important collection of materials about the choreographer, including: manuscripts, programs, photographs, posters, costumes, other objects, paintings, and press clippings. Besides, there are more materials conserved at the Département des Arts du Spectacle, mainly costumes, personal souvenirs, portraits, sound recordings, and other graphic sources. They were donations by the dancer's family, the Association des Amis d'Argentina, Auguste Rondel and others.
Filipinas Heritage Library (Manila, Philippines)	Bibliography related to Spanish colonial dances in the Philippines and the context that Antonia Mercé experienced during her stay in Manila in 1929.
New York Public Library (New York, USA)	It contains a wide range of materials, including letters, programs, press clippings, drawings of her dances by different artists, scores, and other documents.
Museums and cultural institutions	
Institut Mémoires de l'Édition Contemporaine, Abbaye d'Ardenne (Saint-Germain- la-Blanche- Herbe, France)	It conserves some letters by Antonia Mercé addressed to writers.

Musée de l'Opéra de Vichy (Vichy, France)	This archive contains essential graphic and written sources related to Antonia Mercé's performances at the Opéra, such as programs, posters and press clippings.
Museo Mariemma (Íscar, Valladolid, Spain)	This museum conserves the personal collection of the dancer Mariemma, who received the donation of some of the costumes and castanets of the dancer from her brother, and conserves some programs and written documents.
Museo Nacional Centro de Arte Reina Sofía (Madrid, Spain)	The most important contemporary art museum in Spain, it contains graphic materials by painters who collaborated with Antonia Mercé, such as Carlos Sáenz de Tejada, some of which were recently incorporated from the painter's private collection.
Museo Nacional del Teatro (Almagro, Ciudad Real, Spain)	The state museum of theatre conserves different art works linked to Antonia Mercé, such as sketches and costumes, as well as written documents, photographs and other objects such as castanets and one of the plaster copies of her mortuary mask.
Museo Néstor (Las Palmas de Gran Canarias, Spain)	This museum conserves the private collection of painter Nestor Martínez de la Torre, one of the main artists who collaborated with Antonia Mercé. It contains a wide variety of materials, such as costume and set designs, programs, letters, etc., and specifically, the book <i>Néstor y el mundo del teatro</i> (1995) by Pedro Juan Almeida Cabrera, the first publication dedicated to Néstor's work on stage.
Residencia de Estudiantes (Madrid, Spain)	This collection is focused on the so-called Spanish Silver Age, that is to say, the flourishing culture of the first third of the 20th century. It comprises several written sources, such as manuscripts, letters, musical scores, recordings, a wide bibliography, and the donated collection of photographs of Antonia Mercé that belonged to the former dancer and gallerist Elvira González.

Table 1.

Among the large number of primary sources conserved in these institutions, programs, posters, press clippings and correspondence were essential as they provided the vital space-time information. Furthermore, it was necessary to contrast the data with other sources such as photographs, costume and set designs, wardrobe and video recordings. Other studies about Antonia Mercé and her Ballets Espagnols were equally important.

At the same time, and in line with the *gesamtkunstwerk* and the theoretical framework of the period, the project members considered it a priority to equate the importance of authorship in the different disciplines involved in Spanish dance work, and to highlight not only those responsible for choreography and music, as so often happens, but also to focus on the role of set and costume design — framed as a whole phenomenon of the time [Murga Castro 2012]; [Murga Castro 2017b] — , to reveal the authorship of the plays [Coello Hernández 2019]; [Coello Hernández 2020a] and to vindicate the contributions of the performers.

Likewise, given the enormous number of performances that Antonia Mercé gave both with the Ballets Espagnols and in individual recitals, it was necessary to clarify the layout of her itineraries, separating both types of programmes, but offering an overall reading that would facilitate the comprehension the context of the collective and the individual pieces — both the newly created solos and those numbers taken from the ballets that ended up working better as solo performances by the choreographer [Gómez Cifuentes 2022].

3.3. Web implementation: webmapping and WMS services

The atomisation of the information collected allows it to be used in many ways, including analysis or visualisation. The development of a “made-to-measure” web map^[10] such as the one made for this project is a valuable tool as it offers an interactive interface to access all information on the project, thanks to the geographical nature of the central element of the model: the programmes. In this sense, it adds to the traditional thematic maps, which provide a concise and elegant

representation of the data that led them to be a common resource for the illustration of scientific articles and books [Del Bosque González et al., 2012, 106].

The logic followed from the data model considers that the succession of programmes ordered by date generates a line that describes what could be called a “tour.” Lines have been generated by linking the performances of the Ballets Espagnols and Antonia Mercé for each of the years considered in the project: 1927, 1928 and 1929. The points of each theatre allow access to the rest of the information collected by the research group: performances, performers, authors of the works and elements. In addition, there is also the possibility of filtering all the content shown according to the start and end dates of the performances, using a time bar.

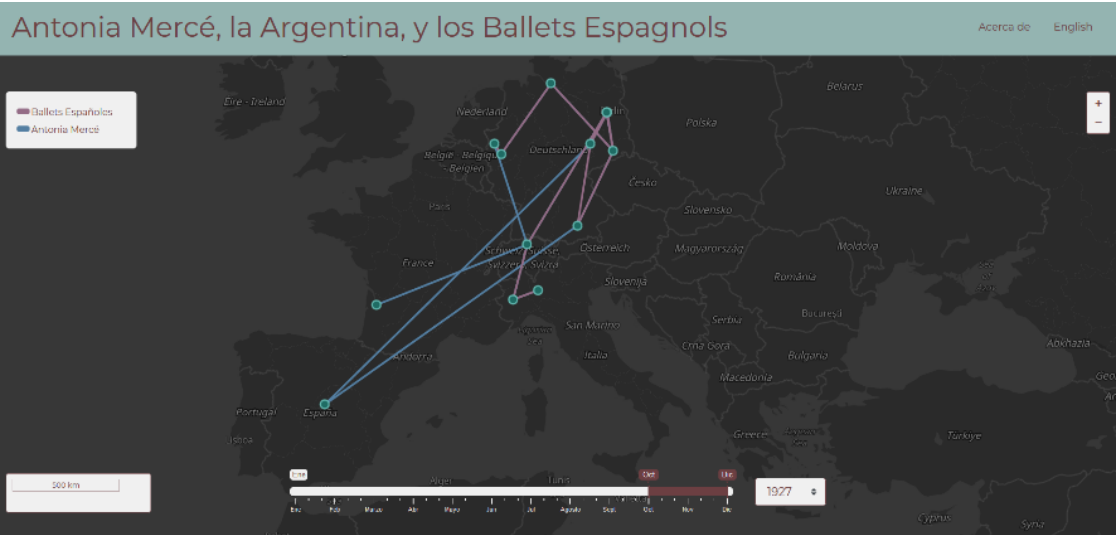


Figure 4. Webmap snapshots



Figure 5. Webmap snapshots

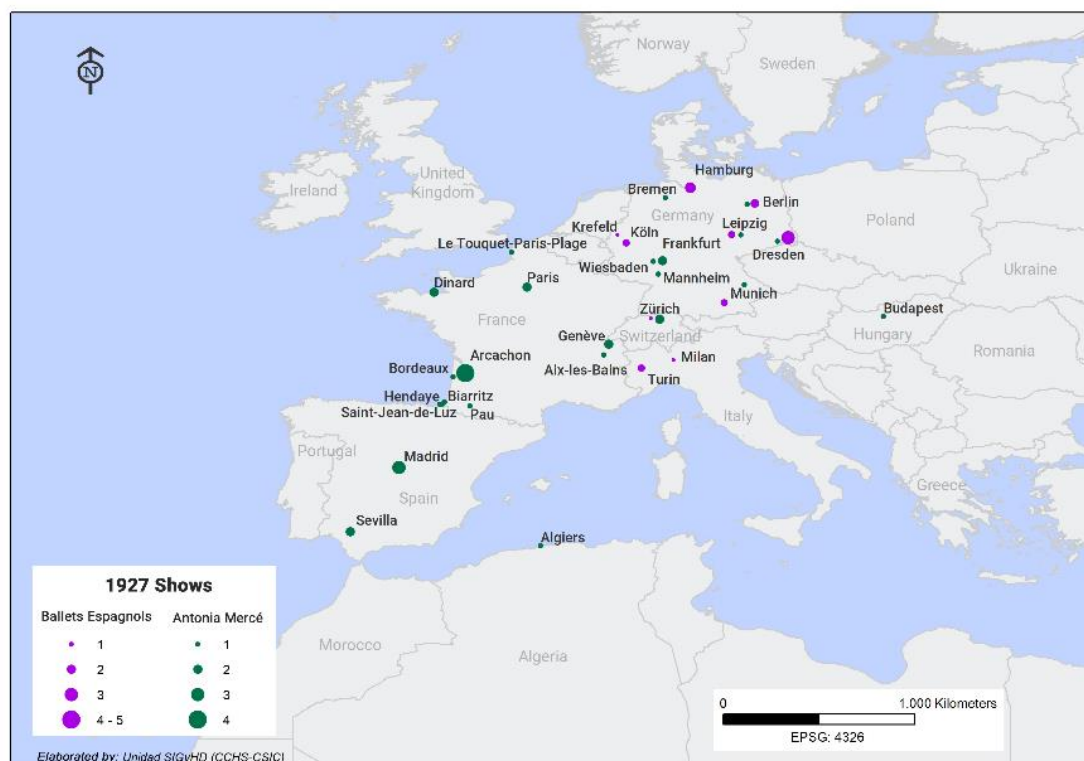
Interoperable services and metadata have also been generated for the project to adhere to the FAIR Principles mentioned above, following the specifications of the Open Geospatial Consortium (OGC) and the ISO standard for geographic data and data services (ISO 19100 series). Consequently, the Web Map Service (WMS) of "investigacionendanza" allows any user to consult the project data using desktop GIS software or to upload it to their online project.^[11] This service offers a GIS layer for each year, with information on the performance at each theatre.



Figure 7. Performance locations in Paris (1927, 1928 and 1929)

However, research into the period between 1929 and 1936 points to successive attempts to revive the company by touring other countries in America and Europe, including Spain. In this respect, it is also relevant to analyse the global dimension of the individual recitals of Antonia Mercé, who, in her tours outside Europe, set a precedent for the scope of Spanish dance in places such as Japan, Vietnam, the Philippines and the United States, with diverse connotations.

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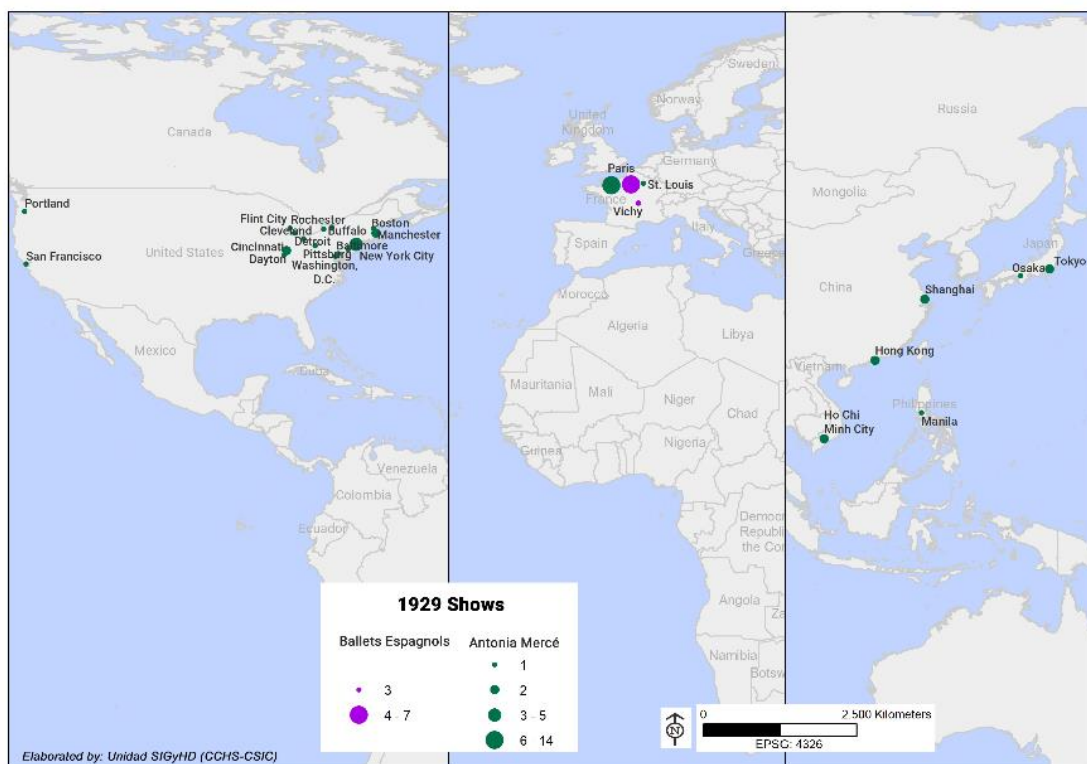
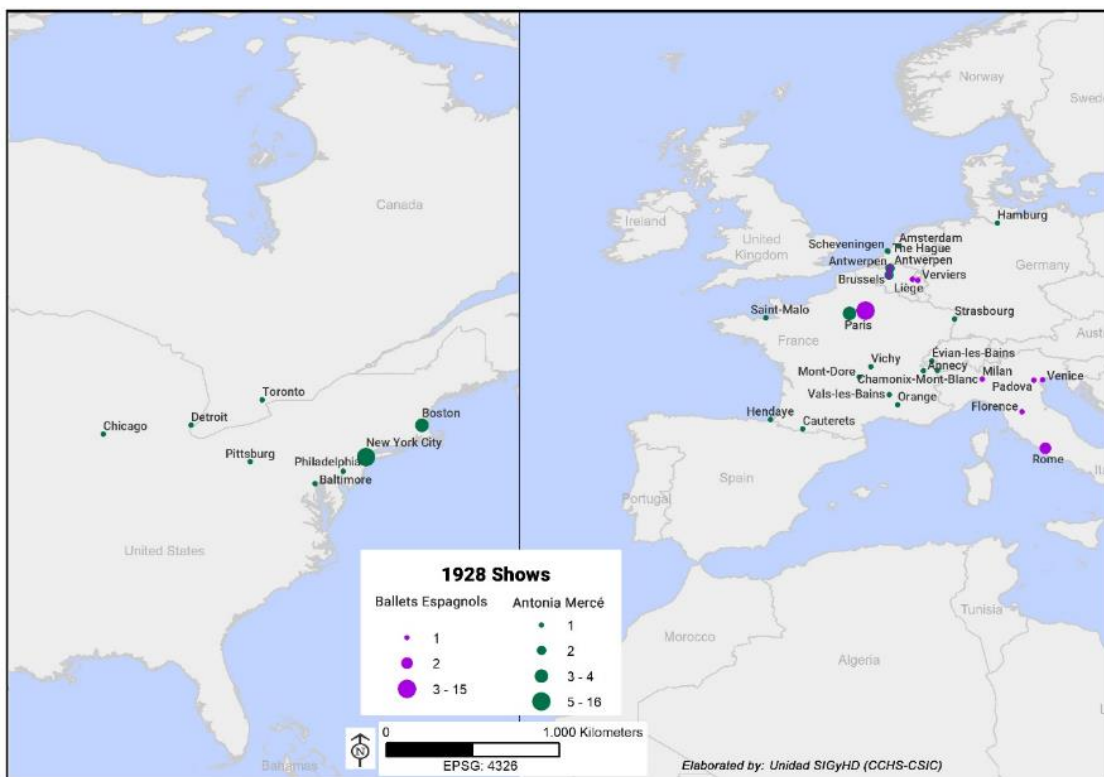


Figure 8. Spatial evolution of Ballets Espagnols and Antonia Mercé's tours in 1927, 1928 and 1929.

Another of the analysed issues was the internal development of the company, in particular its components. Although in-depth research into the composition of the corps de ballet of the Ballets Espagnols in its different seasons is still lacking, this qualitative approach yields some interesting indicators. Between 1927 and 1929, the group had a total of 91 dancers in its various performances, which varied each season. In 1927, there were 31, the following year 54 and the last season 43. Antonia Mercé starred in a total of 151 performances, accompanied mainly by the three most recurrent

dancers: Irene Ibáñez (50 performances), Carmen Joselito (49 performances) and Carmen Juárez (46 performances). In a second group, other performers stand out, such as Mercedes Dalmau (39), Juan Relámpago (38), Otilio López (35), Lolita Mas (29), Blanca Minondo (28), Carmen Mora (27), and Pepita López (27). We must also point out the absolute prominence of Carmencita Pérez as piano accompanist (with 63 performances).

In short, the possibility of visualising all these trajectories reconstructed step by step on the interactive map motivates new interpretations to be made of exchanges in European circuits, in the relationship with the Americas, and in East-West relations. Besides it proposes renewed interpretations of the role of dance as a vehicle for the construction and dissemination of cultural identities. Looking at Spanish dance from a Digital Humanities point of view helps to obtain a broader and deeper understanding of historical heritage and strengthen the dialogues between the virtual and the physical, the permanent and the ephemeral, the past and the future. The case study of the Ballets Espagnols can open the door to new ways of understanding the role of dance in the mapping of identities, aesthetics and ideologies from transnational and transcultural perspectives in the early 20th century.

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Notes

[1] Some of the studies that recuperated the legacy of Antonia Mercé and mentioned the Ballets Espanols are: [Rodrigo 1990]; [Manso 1993]; [Bennahum 2000]; [Murga Castro 2017a]; [Murga Castro 2019]; [Murga Castro 2021]; [Alberdi 2018].

[2] <https://accad.osu.edu/>

[3] <http://www.siobhandaviesreplay.com>

[4] <http://carmenbeuchat.org>

[5] <https://movingbodiesmovingculture.wordpress.com>

[6] <https://movementonthemove.osu.edu/project-mapping-touring>

[7] <https://www.dunhamsdata.org>

[8] <http://sigyhd.cchs.csic.es/investigacionendanza-map/datos.php?ln=en>

[9] A detailed description of the data model accesible at: <https://digital.csic.es/handle/10261/261756>

[10] Webmap at: <http://sigyhd.cchs.csic.es/investigacionendanza-map/>

[11] Access to data and services from: <http://sigyhd.cchs.csic.es/investigacionendanza-map/datos.php?ln=en>

[12] Imago Orbis is the *Spatial Data Infrastructure (SDI)* of the CCHS-CSIC. *Imago Orbis SDI* makes georeferenced datasets generated in the various multidisciplinary Digital Humanities projects discoverable, accessible, combinable and shareable. In this framework, CCHS research groups can incorporate their georeferenced scientific data and be easily viewed with a single interface, according to open science standards and protocols, allowing users to combine, compare and reuse different information generated in different projects: <http://imagorbis.csic.es/>

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