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Data Article

# Data set of catholic parish churches of Barcelona. Relevance of their architectural characterization as singular buildings

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### ABSTRACT

These data focus on 132 Catholic parish churches in Barcelona, showcasing their architectural characteristics through the first-ever comparison of their floor plans (Arboix-Alió, 2016) [Fig. 1]. These structures are distinctive in all towns with a Western Catholic tradition, exemplified by landmarks like Milan's Duomo, Paris's Notre Dame, and the same Barcelona's La Sagrada Família (Busquets, 2019).

The method used is through archival research and on-site visits to all 132 churches aided in drawing floor plans using AutoCAD 2016 20.1 (compatible with the latest Version 2023, for MAC and OS) and Photoshop CC 2017 (also compatible with newest versions), allowing for subsequent classifications.

The churches are categorized by their architectural traits here [Fig. 2]: (1) those with directional spatial structures, ranging from single nave to five, including basilica and Latin cross floor plans; (2) expansive structures, including Greek cross and rectangular layouts; and 3) radial structures.

These data reveal a prevalence of directional designs (96 out of 132) [Fig. 3], varying from single-nave to multi-nave configurations, with side chapels in some. The dominant type is the single-nave, mostly from the 20th century, except Sant Pacià (1876-81). There are also numerous singlenave churches with side chapels -among which only one is a recent construction, Sant Cristòfol (2000)- and three-nave churches -where only one appears, Santa Cecília (1963), from the post-conciliar period-. Notably, the unfinished Sagrada

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Família with five naves and Sant Llorenç (1954-1963) with two naves stand out.

Expansive churches comprise older Greek cross layouts and newer rectangular designs. The latter offer diverse section arrangements, despite being fewer in number [Fig. 4].

Fourteen parishes follow a radial scheme drawing ellipses, hexagonal, triangular, and conical forms [Fig. 4].

The collected data holds significance for architecture and sacred heritage research, providing floor plans for churches, some previously lacking them (Martí, 2012). The data collection methodology is transferable to other urban investigations, extending beyond religious structures (Arboix-Alió, 2016).

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### Specifications Table

Subject Specific subject area	Engineering: Architecture; Municipal Engineering and Urban Design Architectural characterization of Catholic parish churches of Barcelona (Spain).
Type of data	Figures (Floor Plan Drawings). These plans have been drawn first by hand and afterwards in the computer using AutoCAD 2016 20.1 (compatible with the latest Version 2023, for MAC and OS), it is a .DWG format exportable in .PDF, and Photoshop CC 2017 (also compatible with newest versions), it is a .PSD format exportable in .JPG
How the data were acquired	<ul> <li>Archive research, on-site visits, and drawings.</li> <li>Data was collected through observation, laser measurement (Bosch, model PLR 40 C), and hand drawing over plans obtained from archives and catalogues. These croquis were made moving to each of the 132 churches on Saturdays and Sundays in 2015, during the opening hours of the buildings and were post produced using 2 computer programs:</li> <li>AutoCAD (v. 2016 20.1 which is compatible with the latest version 2023, for MAC and OS) to get the correct scale and to generate a .DWG format file exportable to .PDF</li> <li>Photoshop (v. CC 2017, also compatible with newest versions) to have the transmission of the state of the st</li></ul>
Data format	sketch clean and to generate a .PSD format file exportable to .JPG Raw (CAD = .DWG) Analyzed Filtered
Description of data collection	The sample consists of 132 churches, all of which currently hold the designation of Catholic parish church within the municipal boundaries of Barcelona, regardless of their initial category (monastic, conventual, etc.).
Data source location	Primary data from: · City: Barcelona · Country: Spain
Data accessibility	Repository name: Mendeley Data Data identification number: Arboix-Alió, Alba (2023), "Data collection of Catholic parish churches of Barcelona", Mendeley Data, V3, doi: 10.17632/2jvhcg972t.3 [1]. Direct URL to data: https://data.mendeley.com/datasets/2jvhcg972t/3

#### 1. Value of the Data

- To the best of our knowledge, this dataset is the first containing all the floor plans of all Catholic parish churches of the city of Barcelona, it is a significant number of samples of sacred buildings from more than 2000 years of history of the Catalan capital [2–4].
- These data are useful for better understanding the history of the sacred architecture of the city of Barcelona, specifically Catholic parish architecture as well as for highlighting the architectural richness of the city's sacred heritage [5].
- These data constitute a vast corpus from which further study can be conducted on any individual case among the 132 collected. Additionally, these data serve as an example of how the method can be applied to analyze other unique buildings, both sacred and non-sacred. Finally, these data can be expanded by adding more sacred buildings from other cities [6].
- Researchers in the fields of Architecture, Design, and Urban Planning will benefit greatly from this data, as well as researchers in the field of History and Religion. It is, the dataset could be usable for the inventory, study, analysis, and restoration in the areas of religion, history, architecture and building conservation respectively.
- In addition to academic researchers, professionals in these fields and public and private institutions that work in these areas could benefit from these data. This is, first, the Archbishopric of Barcelona, who has already been interested and has requested access to these floor plans to have an architectural inventory of their assets. Specifically, the Department of Real Estate of the Archbishop of Barcelona. In the same way, the Heritage Service of the Barcelona City Council and the Heritage Service of the Generalitat de Catalunya are entities that make up the potential audience to have access to this data. Finally, all the individuals who entrust them with works to reform sacred buildings are the direct audience of these data.
- In addition, anyone working on identifying and classifying sacral buildings can append this set to their data and refine the classification of the objects [7].

#### 2. Objective

The aim is to compile, gather, and place side by side at the same scale these data from the 132 Catholic parish churches of Barcelona while classifying them according to their spatial structure.

The data set of Catholic parish churches in Barcelona provides valuable insights into the architectural characterization of these unique buildings. By analyzing their architectural characteristics, researchers can gain a deeper understanding of the evolution of sacred architecture, construction techniques, and design trends over time. The study of their architectural features, such as spatial layout, structural elements, decorative styles, and historical context, allows for a comprehensive examination of the city's religious and architectural history [8].

#### 3. Data Description

This dataset is available on Mendeley [1]. There are three versions, all of them uploaded in purpose of this article in Data in Brief. In the first version, the data was divided into 12 figures, while in the second and third ones they have been synthesized in 2.

The first one is the same Fig. 1 of this manuscript and gathers the floor plans of the 132 Catholic Parish Churches in Barcelona, Spain. Here, also the names of all these churches are included.

The second one is the Fig. 2 of this manuscript and displays the data set of Catholic Parish Churches of Barcelona sorted according to their Architectural Characterization as Singular Build-



Fig. 1. Architectural Types of the 132 Catholic Parish Churches in Barcelona, Spain. The names of all the represented churches with their respective alphanumeric codes are as follows.

1. Directional Spatial Structure						2. Expansive Spatial Structure			<ol> <li>Radial Spatial Structure</li> </ol>	
1.1 Town	1.2 2 news	1.3 1 nave + chapels	1.4 J raves	1.5 3 raves + chapels 1	1.6 Snaves	2.1 Greek cross	2.2 1 nave	2.3 3 naves		
	Looper Lo					8 + = 0 0 A 1 1				

Fig. 2. Data set of Catholic Parish Churches of Barcelona according to the relevance of their Architectural Characterization as Singular Buildings.

ings. In this figure, the data have been ordered according to whether they have a directional, expansive of radial spatial structure.

Figs. 3 and 4 of this manuscript are zooms of the Fig. 2.

- 1. Catholic parish churches with a Directional Spatial Structure: 1.1.- Directional Spatial Structure with one nave; 1.2.- Directional Spatial Structure with two naves; 1.3.- Directional Spatial Structure with one nave with lateral chapels; 1.4.- Directional Spatial Structure with three naves; 1.5.- Directional Spatial Structure with three naves with lateral chapels; 1.6.- Directional Spatial Structure with five naves.
- Catholic parish churches with an Expansive Spatial Structure: 2.1.- Expansive Spatial Structure with a Greek cross floor plan; 2.2.- Expansive Spatial Structure with one nave; 2.3.-Expansive Spatial Structure with three naves.
- 3. Catholic parish churches with a Radial Spatial Structure.

The names of the churches appear in the same figure.

1. Directional Spatial Structure

1 nave	2 naves	1 nave + chapels	3 naves	3 naves + chapels	5 naves
	2 rayon 				

Fig. 3. Catholic parish churches with a directional spatial structure.



Fig. 4. Catholic parish churches with a non-directional spatial structure: expansive and radial spatial structures.

#### 4. Experimental Design, Materials and Methods

Methodologically, we conducted an exhaustive inventory of the 132 existing parishes within the city's municipal limits [9]. We meticulously analyzed architectural elements, plans, and urban contexts of each church by utilizing both on-site visits (including hand-drawn sketches and current photographs) and extensive research in various archives of Barcelona. Thus, this collection of scientific and unpublished data could become the core corpus of many future studies. The consulted archives and catalogs include the Diocesan Archive of the Archdiocese of Barcelona, Barcelona Municipal Archives, Historical Archive of Barcelona, Archive of the Provincial Council of Barcelona, Historical Archive of the Association of Architects of Catalonia, Photo Archive of Barcelona, Archive of the Excursionist Center of Catalonia, Archive of the Gaudi Chair, Archive of the Cartographic Institute of Catalonia, Archive of the National Art Museum of Catalonia, Archive of the Museum History of Barcelona, several parish archives, and JM Gavín's inventory of Churches [10]. Precise floorplans drawings of the 132 Catholic parish churches were created using AutoCAD software and Photoshop software, based on the hand-written notes and sketches from on-site visits, as well as plans obtained from different sources such as archives and catalogs aforementioned.

Although we analyzed the historical evolution of these parish churches in Barcelona, we focus on the 132 current buildings [11]. It is worth noting that the location and positioning of buildings play a crucial role in a city's urban growth. While we observe modern or contemporary structures today, many of them are second, third, or even fourth iterations of churches built on the same site, with the original structures dating back centuries [12]. Factors such as forced expropriations by the ecclesiastical government and wars have led to the rebuilding of these sacred spaces. However, for the purpose of our analysis, we adopt a present-day perspective in understanding the city's history, drawing inspiration from Italo Calvino's approach [13]. So, when gathering data to create our collection, we consider the year of the current building while acknowledging the year of the first structure on the site.

Overall, our methodological approach combines both deductive and inductive reasoning, ensuring its applicability extends beyond the city of Barcelona itself [14]. The architectural characterization of these churches provides a basis for comparative analysis with other similar buildings [15], it offers insights into the broader context of religious architecture and contributes to the understanding of regional and international architectural trends [16].

#### **Ethics Statements**

Our work does not involve human subjects, animal experiments nor data collected from social media platforms.

#### **Data Availability**

Data collection of Catholic parish churches of Barcelona (Original data) (Mendeley Data).

#### **CRediT Author Statement**

**Alba Arboix-Alió:** Investigation, Writing – original draft, Methodology, Conceptualization, Writing – review & editing.

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#### **Declaration of Competing Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Supplementary Materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dib.2023.109630.

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