

STREET-FORMING | RE-FORMING

TRANSFORMING THE 21st CENTURY CITY STREETS

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T8 STREETS AND URBAN PLACES: URBAN TRANSFORMATIONS

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DESCRIPTION

This track discusses the street as a physical interface for urban transformations. The latter will be explored through interdisciplinary perspectives and through paradigmatic shifts, spatial manifestations in the context of design and planning. Castells once defined urban design as the symbolic attempt to express an accepted urban meaning in certain urban forms. Following this line, the track will explore the local street, a traditional and familiar urban form, which presents a highly visible face of local identity. As a multidimensional space of everyday diversity and incubator of cultural heritage, streets have embodied the recent shaping of the city through drastic transformation of de-industrialization, globalization, gentrification, and immigration, as well as the rise of the symbolic economy based on cultural production and consumption. What is the accepted meaning of such urban transformation in local streets? Can the value of local streets be sustained in the 21st century? What we can learn from cross-national cases?

KEYWORDS

Urban transformations, metamorphosis, appropriation, alienation, planned/ unplanned.



MORPHOLOGICAL AND MORPHOGENETIC DIVERSITY OF LISBON STREETS. AN INTERPRETATIVE METHODOLOGY

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ABSTRACT

Streets have always played an essential role in the formation of cities, configuring both common and exceptional elements of the urban layout. The seminal role of the street in the creation of the urban artefact is such that some authors claim that without them there would be no city. Although different situations can be integrated in this category of space, resulting the toponymic designations from the morphological richness of the variety of public spaces in Lisbon, we define the street as a linear and continuous morphological element of the public space of the city, at the same time pathway and address, route and place.

It is understood, like many authors who have addressed the subject of urban morphology, that the city can be studied from its shape, thus from the shape of the elements that compose it. It is considered, as a starting point, that the morphological diversity of existing streets in the consolidated and legible fabric of Lisbon that formed over time allows composing a broad and representative corpus of the predominant element in the constitution of the urban fabric of the city, the street.

The dissertation that is the base for this paper defines types of streets representative of the existing morphological and morphogenetic diversity and orders them in a typological framework according to Origin (Topographic situation; Initiative and purpose; Conception; Production) and Form (Urban layout, Cross Section, Partition).

This paper presents the methodology that was used to decompose and interpret the morphological complexity of the Lisbon streets.

KEYWORDS

Street; Lisbon; Typo-morphology

INTRODUCTORY FRAMING

The dissertation that is the base for this paper is named “The diversity of the street in the city of Lisbon. Morphology and Morphogenesis.” This title reflects the theme, the study object and the approach that was chosen for this research work.

Thus, stemming from the diversity of streets that exist in the consolidated and legible urban fabric of Lisbon, the goal was to create an analytical typo-morphological framework, both descriptive and interpretative of the existing morphological (Form) and morphogenetic (Origin of form) diversity of the predominant element in the constitution of the Lisbon public space - the street.

The usefulness of this typological framework of the Lisbon streets according to Origin (Topographic situation; Initiative and purpose; Conception; Production) and Form (Urban layout, Cross Section, Partition) is to contribute for the theory and methods of Urban Morphology and also to the edification of the city.

The main question

In the scientific domain of Architecture and Urbanism, both studies and disciplinary answers focus on the composition and edification of space. Therefore, the main questions placed regard on how to design the space with the qualities that are acknowledged in the “city” and are not recognized in the “urban” (Choay, 1994); how to transform the “urban” into “city”; or on how to produce the public space of the city in a way it is legible to both habitants and visitors, i.e., how to design a legible city.

In the present case, the main question to be placed was: What is the lesson Lisbon has to teach us, from the most common element of the public space, for the edification of a legible city?

The Lisbon streets

From the reading of Aristotle (Aristóteles, 1998) we can infer that, in its essence, two parts compose the city: the private part and the public part.

The public part is the one that we all recognize and share. In the case of the city of Lisbon, the public space allows guiding ourselves and structures the city; its recognizable shape for habitants and visitors allows the legibility of the city (Lynch, 1960) and our identification with its spaces.

The urban layout is understood as a bi-dimensional, black on white, representation of the public space of the city and this abstraction of the public space allows extracting its shape for analytic and comparative purposes. (Figure 1)



Figure 1:
Urban layout
of the city of
Lisbon.

The public space is composed by different elements, but in our culture the street is its predominant element, the one that most recurrently is used in the composition of the urban layout, defining the majority of its common elements and yet also configures exceptional and structuring elements of the image of the city.

Although distinct situations may be integrated in this spatial category, we define the street as any element of the public space of the city that constitutes a channel or corridor, linear and continuous, which cumulatively serves the functions of passage and support of buildings. I.e. we understand the street as linear and continuous morphological element of the public space of the city, a cultural product of the society that conforms and appropriates it, and both fulfils the functions of path and address, at the same time an itinerary and a place.

Hypothesis and method

“The city as a didactic instrument. It is not a question as to whether it should be so. It is rather a matter that it cannot be otherwise.” (Rowe and Koetter, 1978)

The agreement with this statement from *Collage City* allows us to formulate the hypothesis that there are principles for the creation of the streets of a city that sedimented over time and is formally diverse, such as Lisbon, and that these principles may be inferred from the very elements that they gave origin.

The city may be studied from its form and the streets of Lisbon are the very study objects that allow us to discover the composition principles of their type¹, and these may be synthesized on a typological framework of the morphology and morphogenesis of Lisbon streets. As Anne Vernez Moudon tells us, the development of a typo-morphology is an economical mean to show the diversity that we wish to study and explain, while building an operative instrument. (Moudon, 1994)

¹ Argan considers the type “the interior structure of a form or... a principle which contains the possibility of infinite formal variations and further modification of the type itself” (Argan, 1963).

The role of the analytical and interpretative drawing in the understanding and decoding of the form of the street was essential, regarding both its relation with the classification themes and the typological classification, and lastly for its intelligible transmission. Thus, drawing consists in part of the argumentation and was used as an essential part of the methodology, enabling for instance the strata decomposition that allows to place in evidence formal configurations and relations that not always are perceived in the complexity of the reality.

For example the overlapping of the urban layout and the topography strata allows to identify the limits for the application of the straight lines on preconceived urban compositions, such as in the Pombalina Baixa (Figure 2), or the generative role of some topographical features, such as the valley line that generates the layout of Rua de São Bento. (Figure 3)

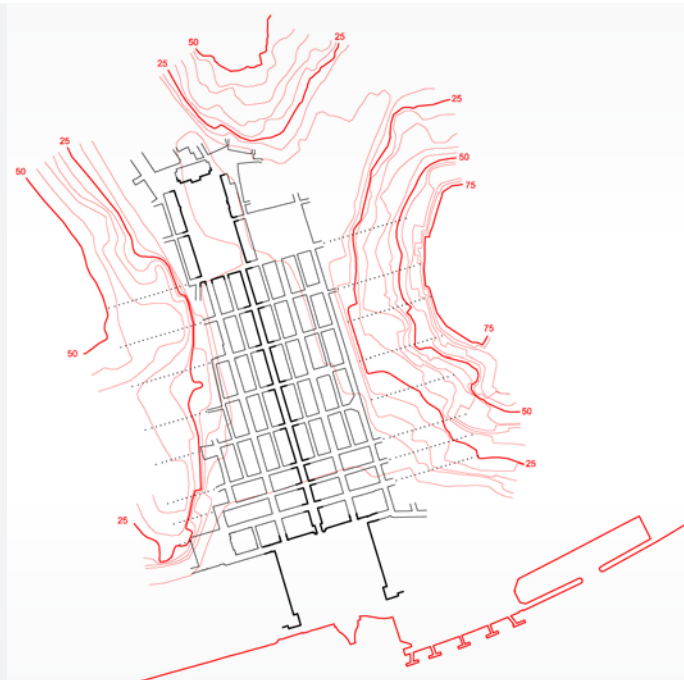


Figure 2:
Urban layout and
topography of Baixa
Pombalina



Figure 3:
Topography of São
Bento valley and
urban layout of Rua
de São Bento and
Avenida D. Carlos I

The isolation of the urban layout and the plot structure allows to infer the composition matrix that existed originally in urban fabrics where nowadays it is not as clear, for instance in Madragoa, (Figure 4) or in singular morphological elements such as Calçada do Marquês de Abrantes, (Figure 5) deducing the composition principles that regulated its formation.

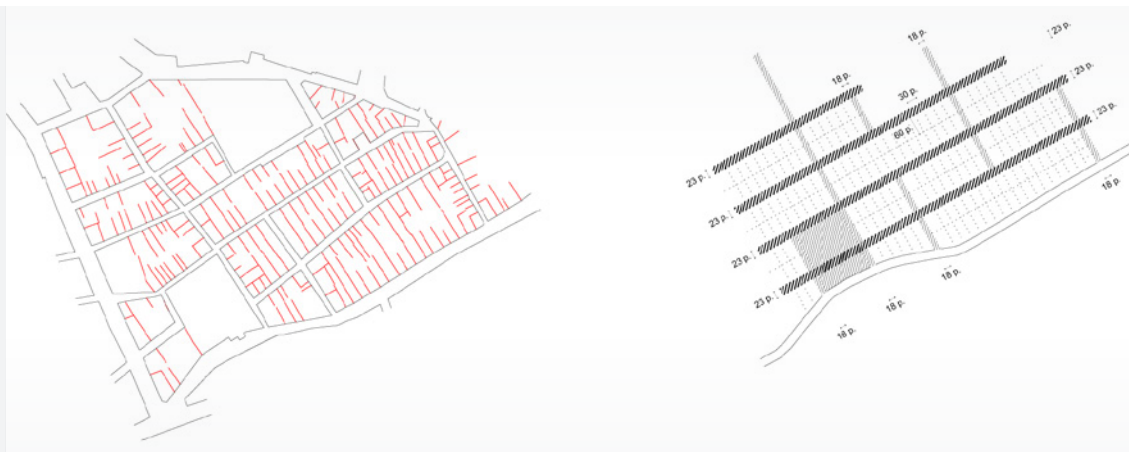


Figure 4:
Urban layout and plot structure vs. Composition matrix of Madragoa

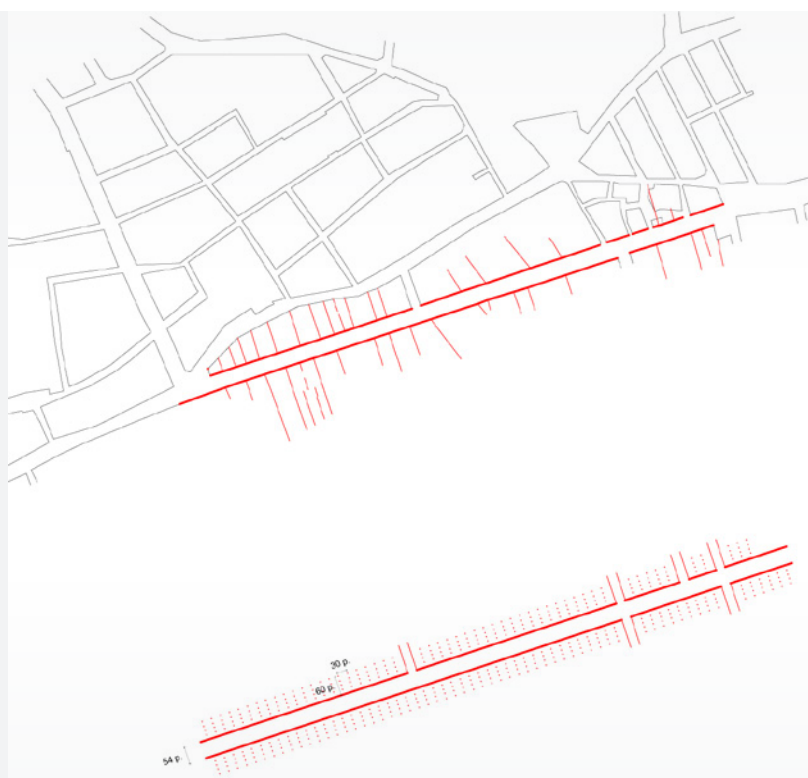


Figure 5:
Urban layout and plot structure vs. Composition matrix of Calçada do Marquês de Abrantes

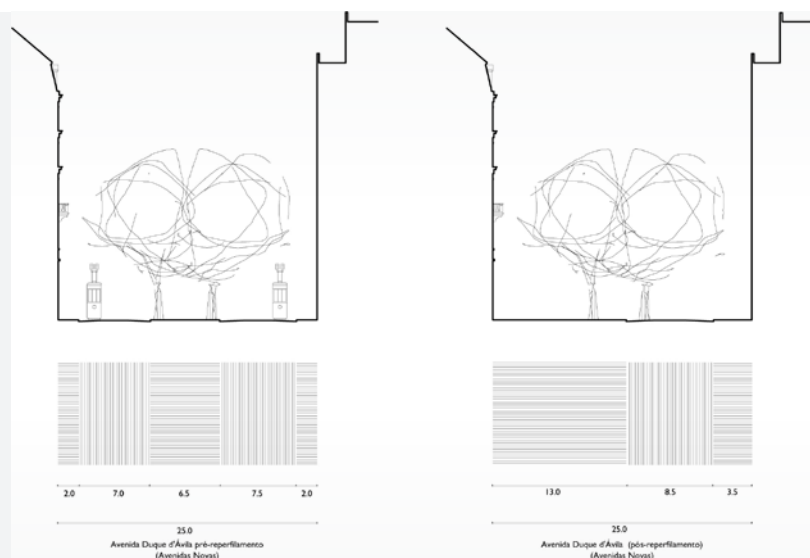


Figure 6:
Cross-section
and partition
diagram of
Avenida Duque
d'Ávila.

Drawing was also used when comparing transversal cross-sections of streets and partition diagrams were drawn to put in evidence continuity and changes between elements or comparing the same element in different moments, such as the case of Avenida Duque d'Ávila before and after the removal of the tram line. (Figure 6)

Although the form of the streets is studied in the present moment, the dynamic of the urban object makes that this moment is understood as the result of an urban sedimentation process in the long duration of the city. Therefore, the urban development of the city and the formation of its streets was an essential theme for its initial understanding.

Dissertation structure - a methodology mirror

The dissertation is structured in three parts that roughly follow the methodological steps of typological analysis, as it is described in *Analyse urbaine* (Panerai, Demorgon and Depaule, 1999), which are preceded by the introduction and the first chapter (Background) where the thematic and methodological universe of the thesis is approached.

Thus the First Part, on The city and its streets, corresponds to the definition and description of the corpus of study. More than an inventory, it consists on a previous classification of these elements regarding two specific themes of Lisbon streets: the cultural and urban development periods that frame their formation and the etymology of their toponymical designation.

The Second and Third Parts constitute the typo-morphological framework with the description of types of streets classified according to seven themes: four regarding the Origin of the street (Topographic situation; Initiative and purpose; Conception; Production) and three regarding the Form of the street (Urban layout, Cross Section, Partition).

In each of these chapters the morphological component of the street was questioned regarding a specific theme, thus underlining its role in the formation and conformation of the street. There is a relative autonomy of each thematic chapter; each one of them has a specific initial thematic and conceptual framing and a final synthesis. Therefore the thesis constitutes itself from chapters with autonomy for the typifying of Lisbon streets but they are articulated in the global structure of the thesis, composing the full typo-morphological framework - an interpretation key for the understanding of the Origin and the Form of Lisbon streets.

The choice of the themes for the typological classification of the streets stemmed directly from an understanding of the decomposition of the Origin and of the Form.

The Origin of the form of the street may be explained from different themes or factors or a combination of a number of them, the choice of four of them considered essential for that explanation are ordered according to the very process of formation and conformation of a street.

Therefore, if the Topographical Situation pre-exists and has an essential role in the generation of the form of the street and the coherence of the urban layout; the difference between the public or private Initiative in the creation of a street is relatively indifferent when compared to the Purpose or the cultural period that frames its creation and edification. In the chapter dedicated to Conception, types of streets are distinguished by the formal idea that pre-exists the street itself (a line, a corridor or an equipped space) and the instruments used to control that conception (layout, plot structure and buildings).

Finally, the typifying of the Production stems from the relation between the new street and the pre-existing urban fabric of the city in the moment of its formation and conformation, defining the production processes of addition, overlapping or sedimentation.

Regarding the Form, considering that the city might be studied from its form, and that a segmented and decomposed approach of the space of the city allows reducing its complexity for analytical and interpretative purposes, the thesis approaches the Form of the street by decomposing it in three components: Layout; Cross-Section; and Partition.

This decomposition of the Form of the street allowed to acknowledge predominant affinities between the Layout and the place that supports it; between the Cross-section and the cultural period that frames the creation or reconfiguration of the street; and between the Partition and the uses or the role determined for the street by the society in each period, being this the most volatile of the three components.

Last, the Final Considerations consist on a reflection on the essential question placed by the thesis that is deeply rooted on the knowledge provided by the development of the typo-morphological framework of the streets of Lisbon.

EXAMPLES OF THE APPLICATION OF THE METHODOLOGY

Considering the limits of this paper and presentation, two themes that place in evidence the specificities of Lisbon streets were chosen to exemplify the used methodology.

The first was developed in the chapter dedicated to the names of the forms of the streets, being one of the starting points for the previous classification and also because the toponymical designation is a cultural expression of the city habitants essential for the spatial recognition of places.

The second consists in an interpretation of the formal regulations that in each moment of the urban evolution conditioned the production of the cross-section of the streets, read through the proportion between the height and the width of the channel that was defined, therefore conditioning the form of the space that was built and appropriated by the society.

The names of the forms of the streets

Regarding the names of the streets, the focus was on the toponymical designation and not on the toponymical attribute, i.e. on the part of the toponyms that reflect the type of space, the part that accuses the specific and shared characteristics among the diverse elements that share the same designation and from which types of streets may be inferred and aggregated in families or categories. For example on the toponymic plaques of Figure 7 the toponymical designations are: Beco; Travessa; Escadinhas and Arco.



Figure 7: Toponymic plaques

Toponymical diversity and proportion

In Lisbon, the morphological richness of the street translates in the very diversity of existing toponymical designations: there are 27 different official toponymical designations, if we disregard the colloquial, non official, designations that are so common in Lisbon, such as Subida (ascent) which is used to designate an inclined street that has its focus on the higher part.

This diversity is not based on any legislation or official regulation, as opposed to cities like Paris where toponymical designations are less varied and dependent of characteristics such as dimension, section and afforest. In Lisbon these designations are a cultural expression inherited through generations and that allows the acknowledgment of the street identity.

Regarding the quantitative distribution of the toponymical designations in Lisbon, there is a wide majority of Ruas (Streets), over 2000 occurrences in a universe of about 3500 existent toponyms, followed by Travessa (Bystreet), about 360 cases. There are 150 Avenidas (Avenues) and 150 Becos (Alleys), and cases with only one occurrence such as Caracol (Snail) or Costa (Coast).

The predominance in Lisbon of public spaces with the designation Rua underlines its importance and the morphological diversity of the spaces where we find this designation illustrates how wide is its use.

According to Raphael Bluteau (Bluteau, 1712-28) the word Rua derives from the Greek ruo with the same meaning of the Latin fluo and the Portuguese corro, "because through the streets runs the rain water, that falls from the roofs (...) also the one from the wells, and the fountains (...) Also the people run the streets, and each one of them is a stream of the people that goes about their business (...)", finally Bluteau refers that some etymologists also state that the word Rua has the same root as the Latin word ruga (wrinkle). Thus the Portuguese word Rua congregates the notions of motion and linear space, lato sensu and etymologically, we might state that any linear public space is a street: a groove caused by time and motion.

Type ordination

Methodologically, each toponymical designation was identified and its etymology and meaning for the polis in each period was researched in order to infer a definition from the name of each specific type of street.

This approach according to the origin of the names led to the definition of three large families of toponymical designations: 1.) Topographical Position; 2.) Urban Role or Function; 3.) Form, where the toponyms that reflect the layout may be distinguished from the toponyms that reflect the composition elements.

Of the 27 toponymical designations, four of them might exemplify the characterization done for each one of them, also enabling the description of the used methodology.

Topography plays an essential part on the definition of the urban form of Lisbon and also gives coherence and legibility to the very diversity of the urban layout, which reproduces the hierarchy of the topographical configuration. Perhaps for that reason it is easy to find streets whose designation stems directly from the topographical position.

Costa do Castelo (Figure 8) is a unique toponymical designation in Lisboa. The Portuguese word Costa has its origin on the Latin *costa*, with the meaning of rib, side. By extension it might have the meaning of the side of a hill, a slope.

On a hill, the most efficient path between two points is not a straight line, but a curved and sinuous one that roughly follows the same altimetry points. Therefore the curved layout of the Costa is the mimesis of a contour line of the topography that is dotted by important features such as old gates of the castle wall and widens in the proximity of exceptional buildings or belvederes in specific points where one of the sides opens wide over the landscape.

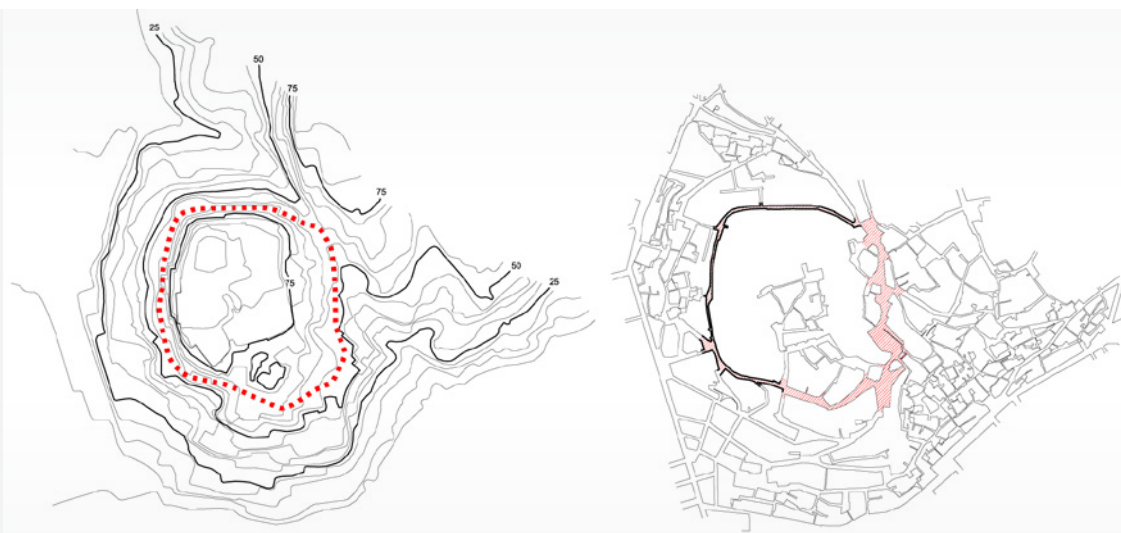


Figure 8: Costa do Castelo. Topography vs. Urban layout.

The role or function of an urban element is sometimes so important for the habitants that it transfers to the name of the element itself; this is also the case of the Vila. Vila has origin in the Latin *villa*, which probably contracted from a diminutive form of *vicus* that has the meaning of row of houses, street or neighbourhood. The villa is a country house associated to agricultural production buildings. Nowadays, the Portuguese “vila”

is an urban settlement with a category above “aldeia” (village) and under “cidade” (city), but it may also designate a country house composed both by residential and productive buildings, a meaning that is closer to its etymology.

In the city of Lisbon, Vila designates a specific type of street that has origins on housing operations structured linearly along an open but private axis and promoted by private owners, usually dating from the end of the XIX century and early XX century, created to answer the needs of workers housing and exceptionally dedicated to house the lower bourgeoisie. As time passed by, these initially private streets became part of the public domain although keeping a secondary role on the urban structure.

The third category or family of toponymical types of streets, the names related to the Form, comprehends 16 of the 27 toponymical designations, 6 regarding the form of the layout and 10 regarding the composition elements of the space of the street.

Caracol (snail) is also a synonym of spiral and when it's associated to a street it has the meaning of a street with a zigzag layout.

The Caracol is a very specific case of street that is composed by a succession of linear elements, both ramps and stairs, embedded in the slope of the topography, which inflect one over the other with the goal to link places that are close but with very different altimetry. This is the case of the Caracol da Graça, the single survivor example of the, at least, three cases that existed in Lisbon.

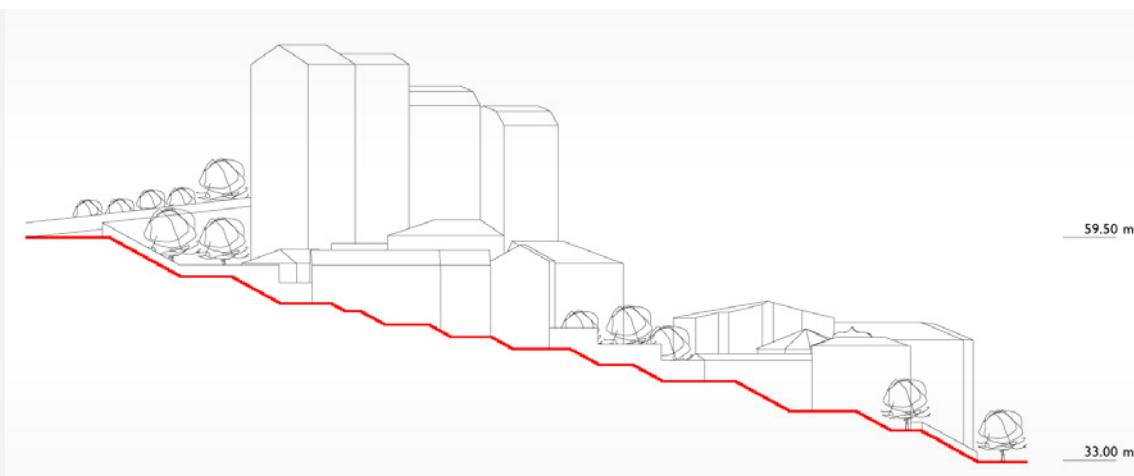


Figure 9: Logitudinal section of Escadinhas de São Crispim.

A stair is a series of steps that one may use to climb up or down. Escadinha (small stair) is literally a transposition of the configuration of the ground of the street for its toponymical designation. (Figure 9)

Although in the city of Lisbon there are much more spaces with steps that configure the ground, only 33 Escadinhas exist on the toponymy. Diverging in dimension, layout, urban role and topographical position, the common characteristic is the existence of steps on the ground level of the street. This feature gives the Escadinhas a segregated and secondary role in the urban hierarchy. Their limits are commonly built with housing buildings or closed walls; on the other hand, their space is usually appropriated as a domestical extension of the houses that open up to it, as a consequence of their spatial segregation.

The importance of toponymical designations

More important than the number and diversity of toponymical designations is the coherence between the designation and the characteristics of the morphological element that is designated. This coherence depends on the urban cultural context in which the binomial element-designation exists and keeping the primordial importance is essential. This is the case of the Avenida da Liberdade, the first with this designation in Lisbon because a new urban configuration needed a new name, an expression of the urban transformation of the city in the second half of the XIX century.

The proportion of the street cross-section

Regarding the approach to the normative regulations that controlled the proportion of the cross-section of the street, the starting point was the translation of the written regulations in drawings, which allowed an easier interpretation and comparative reading of the 10 essential known sets of regulations between the XVI and the XX century.

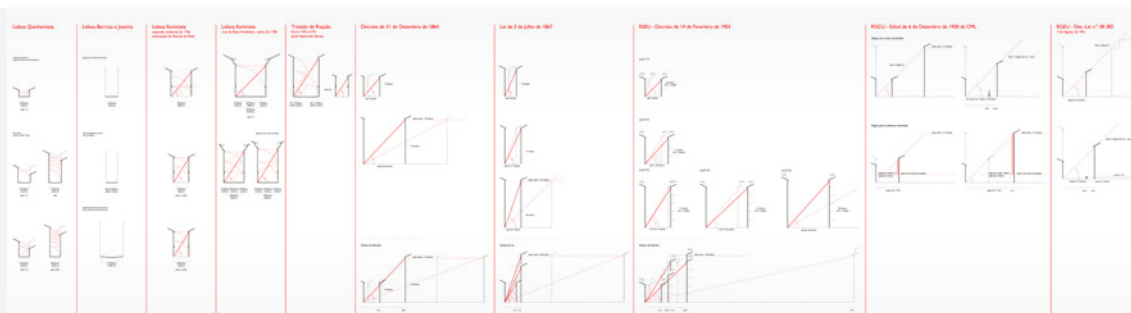


Figure 10: Street cross-section proportion comparative table.

The regulations that shaped the cross-section of the street

Some of these regulations were inferred from specific operations, such as the ones which informed the XVI century urban operations of Vila Nova de Andrade and the Bairro Alto, although the sedimentation process of these urban fabrics led to its densification and consequent change of the street cross-section as we know it.

Other regulations were only theoretical exercises never applied as intended by their authors, such as the one present in the XVIII century *Tratado de Ruação* by José Figueiredo de Seixas. Nevertheless it was informed by the normative created by the Casa do Risco for both the western expansion of Lisbon and the rebuilt of the Baixa, namely the proportion of the Travessas (bystreets).

From the XIX century onwards, the normative regarding the conformation of the cross-section of the streets apply to the whole city. The urban hygienist principles prescribed the need for wider streets in pursue of fresh air and sunlight. Progressively this led to the definition of wider cross-sections. Nevertheless, in more than one moment the spatial definition of the street as a channel or a corridor was considered a value that must be kept. The more or less conscious maintenance of the spatial definition of the street space as a corridor used different instruments, which may be exemplified using two distinct cases: the first framed by the 1903 *Regulamento da Salubridade das Edificações Urbanas* (Urban Buildings Salubrity Regulation); the second framed by the 1930 *Regulamento Geral da Construção Urbana* (Urban Building General Regulation).

The Regulamento da Salubridade das Edificações Urbanas, with explicitly hygienist goals, proposed the control of the street cross-section proportion with a set of maximum heights for the surrounding buildings that were framed by the width of the street. This regulation defined intervals in which the angle formed by the plan of the street and the plan that passes on the lower edge of the public space and the maximum height of the opposite building varies between 45° and 60° . Nevertheless, because the maximum allowed height for the buildings was 20 meters, on the streets that were wider than 20 meters, that angle would decrease considerably, thus giving origin to wider street cross-sections.

This regulation framed the following three decades, coincident with the first decades of the occupation of the urban expansion area of Lisbon that was defined in the 1903 Plano Geral de Melhoramentos da Capital (General Improvements Plan of the Capital). Although the widths of the proposed and built avenues were wider than 20 meters, the avenues kept a channel like spatial definition due both to the continuity of the margins alignment and to the essential role of trees in the conformation of spatial channels or corridors with proportions than are similar to the pre-existent nearby streets. This fact may be confirmed when comparing the cross-sections of Avenida da Liberdade and Rua de São José. (Figure 11)

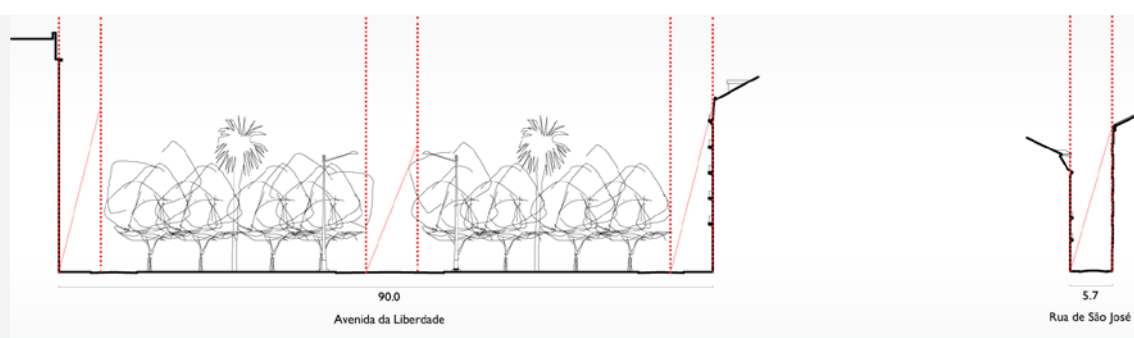


Figure 10: Street cross-sections of Avenida da Liberdade and Rua de São José.

After the 1930 approval of the Regulamento Geral da Construção Urbana, the building height was conditioned to a 45° line drawn from the intersection of the plan of the floor of the street with the limit of the opposite private space, and a maximum of 21 meters of height, with the exception of the corners that could reach 25 meters of height. Therefore a maximum “ceiling” for the city was defined and the conformation of the corner of the streets as exceptional spaces was underlined. The same regulation defined rules for the façade overhangings, using a similar process to the Parisian regulations that existed from the beginning of the XX century. (Sabaté, 1999)

On the other hand, nevertheless the limitation imposed by salubrity reasons, the chapter regarding the “aesthetical conditions of buildings” recommended the built capacity should be fulfilled to the maximum allowed height of the façades of the contiguous buildings.

This recommendation reflects an association of the spatial definition of the cross-section of the street with the notion of the beauty of the city, namely the ones that are composed from a square matrix. The use of the square as the matrix for the composition of the cross-section of the streets of Lisbon eventually became the most common from that period onward.

DIVERSITY, MORPHOLOGY AND MORPHOGENESIS

The typological framework that was defined on the thesis allowed acknowledging timeless composition principles present on the streets of Lisbon.

The inherited city always constituted a reference for the city that was built, thus the morphological analysis and the typological classification consists in a methodology that inserts in the design process a cultural density on the created elements.

The morphological diversity is an identity value of the streets of Lisbon that stems from an urban sedimentation process where each individual action contributed for the edification of a collective whole. The agreement of this whole is not based on a single project or design but stems from the effect of Time, understood as the set of varied actions, processes and instruments that configured the space, as a true creator process.

AN AGREEMENT OF FORM, FUNCTION, PLACE AND TIME.

When the form of the street reflects the place that welcomes it, that form inherits a pre-existent order of the place it occupies and unique on the specific context.

The genetic relation between the place and the form of the street doesn't limit the needed creativity to articulate it with a programed function on a given moment, it stimulates the agreement between an abstract model and a concrete reality. It is this agreement between the spirit of time and the spirit of place that seems to be at the origin of the diverse and ordered, legible complexity of Lisbon streets.

The natural and artificial pre-existences were understood not as constraints but as generative composition elements that allow the evidence of the memory of the place in the form of the street.

The migration of the existent principles and rules that were inferred for each type of street may be useful for the edification of new streets or the redefinition of the existent in continuity with the inherited city of Lisbon, in continuity with the spirit of the place. Nevertheless, only by assuming in each proposal the contemporary moment, the spirit of time, we may introduce the needed rupture for the creation of significant elements on the cultural context of its time. This is the base of the typological process and critic.

If the "true urbanism work consists in distinguishing the permanent and ephemeral, the superficial and the artificial" (Panerai and Mangin, 1999), then the elaboration of a typological framework of the streets of Lisbon is just a beginning for the eternal edification of the most complex and noteworthy architectural building, the City.

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