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Syntactic Analysis of Scenic Spaces

The case of Praça do Comércio in Lisbon

PEDRO AFONSO FERNANDES & MOHAMMED BOUBEZARI

Universidade Católica Portuguesa, Católica Lisbon School of Business & Economics, Católica Lisbon Research Unit in Business & Economics (CUBE), Portugal & Universidade Lusófona, Portugal

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ABSTRACT

Space syntax is a set of theories and techniques for analysing urban settlements and buildings. Focused on the study of the configuration of convex spaces, spatial syntax may have some difficulty in incorporating qualitative or sensory aspects of urban space. In particular, the scenic dimension associated with certain urban morphologies, such as squares or plazas, may coexist in less integrated spaces, though some association with high visibility areas is foreseeable. In this article, a two-step strategy was adopted in order to identify the typical syntactic characteristics of scenic spaces supported by the case study of Praça do Comércio, located in Lisbon's historic centre, Portugal. Starting from the premise that scenic spaces are usually gifted with *landmarks* or *edges*, as defined by Lynch, we begin by recalling the relationship between syntactic elements and legible elements, following the seminal work of Dalton and Bafna. Then, an assessment of the scenic features of the legible elements of Praça do Comércio is carried out, suggesting some association between scenic spaces, visual connectivity and axial integration. The validity of control's reciprocal as a possible syntactic measure of the scenic features of space is also tested, noting that the relationship between stage and audience is inverse to that established between the guard and prisoners in the *Panopticon*, a type of building where control is maximized.

KEYWORDS

Space Syntax, Scenic Spaces, Baroque Squares, Historic Centres, Legibility.

1 INTRODUCTION

Space syntax is a set of techniques for analysing urban settlements and buildings, as well of theories linking space and society, developed originally by Bill Hillier, Julienne Hanson and colleagues at the Bartlett School of Architecture and Planning, University College of London (UCL), since the 1970's. Their innovative approach was condensed in three landmark books: *The Social Logic of Space* (Hillier and Hanson 1984), *Decoding Homes and Houses* (Hanson 1998) and *Space is the machine: a configurational theory of architecture* (Hillier 2007).

An important contribution of space syntax is the study of urban form using *discrete systems*, that is, computer-aided recursive techniques based on *elementary generators* such a pair of open and closed cells. Another key contribution is the concept of depth in urban systems and its relationship with social phenomena like pedestrian movements or crime incidence (Hillier 2007, pp. 146-152). Typically, deepest spaces are segregated, while (convex) spaces close to all other spaces are well integrated within social and economic networks. Thus, space syntax is mainly concerned with the structural configuration of space following the tradition of Social Anthropology (Hillier 2007, pp. 190-193), rather than with the sensory, symbolic or scenic dimensions of it.

The limits of space syntax in dealing with those spatial qualities is well illustrated by the case of Praça do Areeiro, the 'regulator square' of the urban development of Lisbon during the 1940's and 1950's (Becker et al. 1997, pp. 188-189). Related with traditional values and historical symbols of Portugal, this square with the form of a shield is equipped with several landmarks (one skyscraper and two turrets) and a *scena per angolo*, that is, a double perspective scene typical from the Baroque's staging (Garcia 2016, p. 90). Nevertheless, Praça do Areeiro is a moderated integrated space with a real relative asymmetry (RRA) of 0.675 and it is not included even in the 25% integration core of its neighbourhood, as found by a previous research (Fernandes 2022).

Though the concern with the social logic of space, space syntax may fail in capture the scenic dimension of it as the previous case suggests. In fact, public space may be the «stage» where «performers» and «spectators» in permanent change, but framed by durable sceneries, develop an urban show, a mix of illusion and reality that merges with society itself (Garcia 2016, pp. 26-29). In contrast with the transient and illusory nature of sceneries in a theatre stage, urban scenes are perennial and real. Thus, the urban show is an illusion based on the reality given by architecture rather than by a simulated and temporary staging scenery. In that sense, architecture might contribute to collective dreams, that is, to *myths* as outcomes of a kind of aesthetic play (Lévi-Strauss 1963, p. 207) because the construction of myths requires the repetition and permanence that architecture can provide.

Regardless of the representation, the imagination or even the construction of myths that result from architecture, the hypothesis here is that, despite from all this, there are devices that encourage and promote attention and contemplation and end up creating a scenic effect. Thus, the aim of the current research is to fix the legible elements and syntactic rules that may explain and regulate the scenic dimension of the urban space from the observer sensory point of view.

As said, every city may be equipped with visual or scenic elements, namely, *landmarks* or *edges* following the framework introduced by Kevin Lynch (1960), typically connected by axes of movement or *paths*. This treatment of the urban space as a scene was particularly fruitful during the Baroque period, namely, at royal squares, *places*, *piazzas*, *plazas* or *praças*. Here, the architecture was mobilised to glorify the monarchy represented by a statue of the king placed at the middle of the square like in Place Vendôme, Paris, projected by Jules Hardouin Mansard for Louis XIV in 1689 (Garcia 2016, p. 90). Thus, squares are public spaces of representation of some social and political system. They have a high symbolic and artistic value and typically play a key role in the urban settlements where they are inserted, structuring the historic urban fabric as well as the social encounters and even some rituals (Lamas 1992, pp. 174-176).

The square's typical structure suggests that convexity and high visibility may be syntactically qualities of urban scenic spaces. In fact, the contemplation of an urban scene requires some (convex) space and a certain distance between the observer and the object contemplated, namely, a facade or a monument.

Here, we adopt a research strategy in two steps to perform a systematic analysis of these spaces as described in methodological chapter 2. After a brief description of the case study of Praça do Comércio in Lisbon, Portugal (sub chapter 3.1), we start by recalling how can syntactic methods track legible elements such as landmarks or edges (sub chapter 3.2). Then, we test if these elements are object of contemplation, that is, if they have a true scenic or sensory value from the 'spectator' point of view (sub chapter 3.3). Finally, we make an essay towards a scenic effect typology based on the findings from Praça do Comércio (sub chapter 3.4).

We also discuss the appropriateness of certain syntactic measures to capture the scenic dimension of space, namely, of control's reciprocal, noting that the relationship between stage and audience is inverse to that established between the guard and prisoners in the *Panopticon*, a type of building where control is maximized (chapter 4). Some conclusions and future developments are pointed out in chapter 5.

2 METHODS OF INVESTIGATION

According to Kevin Lynch (1960, pp. 2-3), *legibility* is the ease with which the parts of a city can be recognised and can be organised into a coherent pattern. It may be called also *imageability* which is "that quality in a physical object which gives it a high probability of evoking a strong image in any given observer" (Lynch 1960, p. 9). Thus, legibility is related with common representations of urban objects among citizens: "the first order of business will be what might be called the «public images», the common mental pictures carried by large numbers of a city's inhabitants: areas of agreement which might be expected to appear in the interaction of a single physical reality, a common culture" (Lynch 1960, p. 7).

A *scenic element* should provide this kind of well-being in the observers, that is, it might be visually suggestive in order to capture the attention of every citizen, it must be contemplated by them and it would generate some common or shared representation. Thus, the legible or scenic quality of an urban object is the outcome of some *structure* because its "image must include the

spatial or pattern relation of the object to the observer and to other objects" (Lynch, 1960, p. 8). Therefore, legibility can be related with space syntax methods that describe the structure of urban configurations.

The demonstration of the relationship between legible elements and a selection of spatial notions, namely, axial line and isovist was derived firstly by Dalton and Bafna (2003). The most obvious correspondence exists between *paths* and *axial lines*. The former are channels of potential movement, namely, streets, walkways, transit lines, canals or railroads (Lynch 1960, p. 47), while the latter are the longest and fewest lines that cover the street grid (Hillier and Hanson 1984, pp. 91-92). As stressed by Dalton and Bafna (2003, p. 59.10): "At the most basic level, Lynch's paths can be seen to be analogous to axial lines in space syntax terms. An axial line also combines the dual notion of movement and vision, representing both a strategic line of sight and often potential for movement".

Similarly, the intersections of the most integrated axial lines may coincide with Lynch's *nodes*, that is, with strategic points or spots in the street grid into which an observer can enter, guiding its movement: "The concept of node is related to the concept of path, since junctions are typically the convergence of paths, events on the journey" (Lynch 1960, pp. 47-48). As we shall see, nodes can be important scenic places, namely, the locus of Baroque's *scena per angolo* in urban staging.

Nevertheless, paths and nodes are spatial legible elements, thus their scenic content may be limited in general. In contrast, visual elements such *landmarks* or *edges* can be far more interesting from the scenic and contemplative points of view.

Landmarks are points of reference like nodes, but in this case they are external to the observer and typically defined by a physical object such a building (isolated tower, dome, arc), a sign (monument, store front, remarkable tree, doorknobs and other urban details) or a hill or mountain (Lynch 1960, p. 48). Landmarks may be visible from the most significant streets, so they shall be in a region with high visual connectivity. Nevertheless, Dalton and Bafna (2003, p. 59.18) did not found any clear relationship between landmarks and axial maps. They only noted that "inhabitants' *consensus-landmarks* are those whose visual catchment regions can be accessed from spatially integrated lines of movement and have a distinctive (or idiosyncratic) isovist shape", following the findings of Peponis et al. (1998).

Similarly, *edges* may be difficult to identify from axial analysis. They are the linear elements not used or considered as paths by the observer, the boundaries or linear breaks in continuity such shores, railroad cuts, development limits or walls (Lynch 1960, p. 47). Edges can be related with isovist's description, namely, where occurs a smooth or uniform increase or decrease in its radial length (Dalton and Bafna 2003, p. 59.16), but this kind of graphic is difficult or even impossible to compute, namely, using Depthmap (Turner 2004). Fortunately, edges can be detected roughly in visibility graphs as linear regions with homogeneous high-visual connectivity.

In the following table, we summarize the relationship between Lynch's legible elements and the spatial elements, namely, axial lines, visual connectivity and isovists.

Table 1: Relationship between legible and syntactic spatial elements. Adapted from (Lynch 1960) and (Dalton and Bafna 2003).

Legible elements	Type	Description	Spatial elements
Paths	Spatial	Channels of potential movement	Axial lines
Nodes	Spatial	Strategic points in the street grid	Intersections of the most integrated axial lines
Landmarks	Visual	External points of reference, visible over long distances	High visual connectivity; Integrated axial lines; Idiosyncratic isovists
Edges	Visual	Other linear elements than paths, boundaries or linear breaks in continuity	Regions with a smooth or uniform variation in isovists' radial length; Linear regions with homogeneous high-visual connectivity

In a first step (sub chapter 3.2), this framework was mobilized to find the landmarks, edges and nodes located in Praça do Comércio (case study introduced in sub chapter 3.1). In a second step, we performed a field work from July to November of 2021 in order to check how far the legible elements previously identified are contemplated as scenes by inhabitants or tourists (sub chapter 3.3). With this aim in mind, we adopted the method of *static snapshots* described by Al_Sayed et al. (2014, p. 44) in order to identify places of standing, sitting or moving.

In this scope, we focused our attention on the most photographed sights in the square to find the key scenic elements. Then we checked if these elements are also legible or imageable from our preliminary analysis. With this research strategy in two steps, it was possible to link spatial syntaxes and isovists with urban scenes, as well as to propose a typology of scenic effects.

Being confronted with the singular conditions of each *in-situ* situation, our aim was to pass from a geometric quantification of isovists using, namely, a Visual Graph Analysis (VGA), to a qualification based on their function or particularity from the users' point of view. This was the premise of a typology of urban scenic devices proposed in sub chapter 3.4 that were developed based on the principle of qualification using geometric quantification, with the previous computation of syntactic measures like visual connectivity.

3 RESULTS

3.1 Case study description

This article studies the case of Praça do Comércio, the royal square of Lisbon, Portugal. Located at downtown ('Baixa') in front of the Tagus River, this *praça* is equipped with a statue of the King Joseph I of Portugal [1714-1777] from the sculptor Machado de Castro, installed in 1775. Placed at the middle of the square, this statue is surrounded by three facades designed by Eugénio dos Santos, the main architect of Lisbon's reconstruction after the serious earthquake of 1755, following a rational illuministic plan (see Figure 1, below). The north (main) facade is dominated

by a triumphal arc completed only in 1873. The west facade with its characteristic turret close to the river was inspired by the former Palace of the King of Portugal ruined by the earthquake. Finally, the eastern facade is twin of the west one and was the home of Lisbon's traders exchange (*Bolsa*) as a compensation from their initiative to put a 4% levy on all transactions in order to resort the reconstruction of Lisbon's downtown, which explains the designation Praça do Comércio, literally 'commerce square' (França 1989).

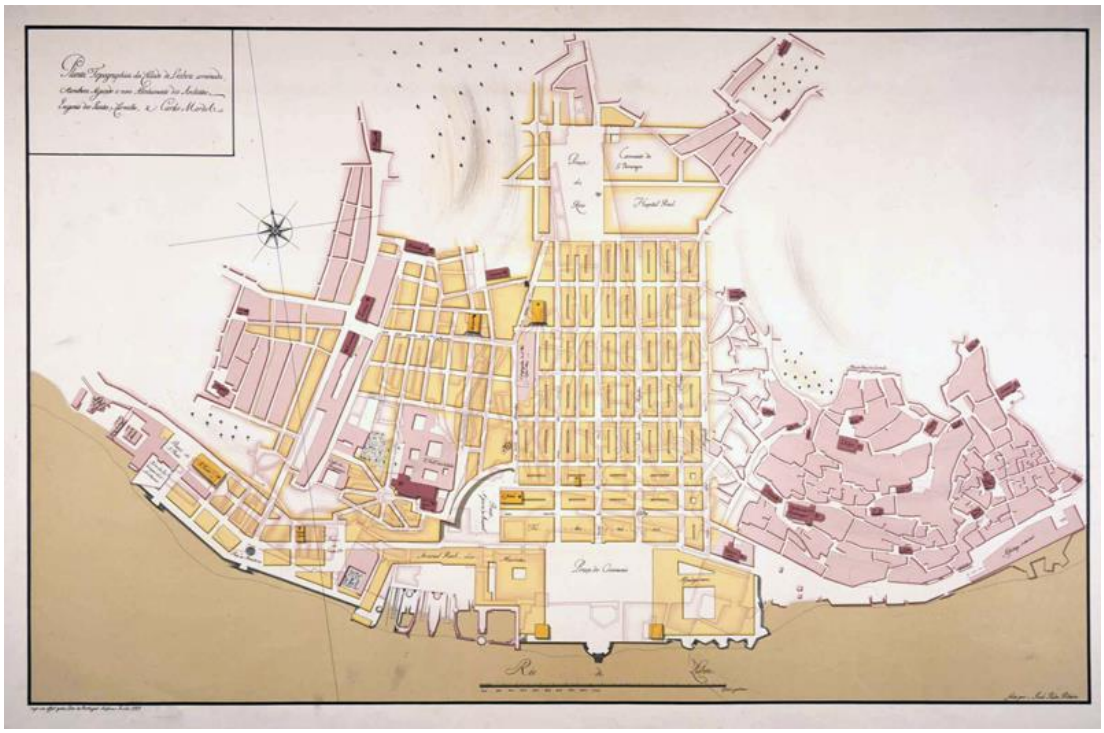

Figure 1: Lisbon City Plan, Eugénio dos Santos and Carlos Mardel, 1758, IGP/SNIG (Praça do Comércio is the biggest square at the southern limit of the plan, in front of the river, and Rossio is the smallest one at the top of the plan).

Praça do Comércio is one of the two main squares that structure Lisbon's downtown. The other is Rossio, located at the northern limit of the old town. The two squares are quite different: Praça do Comércio is bigger and roughly «squared» and it is connected with the symbolic/political power, noting that several government departments are still installed there; Rossio is smaller and extended with a north-south orientation, and it is more connected with the traditional working-class culture.

The town planners led by Manuel da Maia, Eugénio dos Santos and Carlos Mardel clearly understood that the reconstruction of Lisbon must be based on these two complementary squares and that Praça do Comércio must be bigger than Rossio (França 1989, p. 25), namely, to deal with the «negative attraction» of the River Tagus, here following the nomenclature introduced by Bill Hillier (2007) about Versailles.

In a certain sense, Lisbon's downtown can be split in two parts: a northern «neighborhood», structured by Rossio (connected with Praça dos Restauradores and Avenida da Liberdade) and the contiguous Praça da Figueira (connected with Martim Moniz/Socorro, Rua da Palma and Avenida Almirante Reis), which was the starting point of the expansion of Lisbon to the north

during the 19th and 20th centuries; and a second «neighborhood» structured by Praça do Comércio, mainly connected with the river and the places of Cais do Sodré at west and Campo das Cebolas at east. As stressed by Heitor and Pinelo Silva (2015, p. 172), the integration of Praça do Comércio with the riverside was promoted by the landfills of the 19th century, namely, the western landfill between Largo de Santos and Cais do Sodré, which motivated the creation of a new axis alongside the river, Avenida 24 de Julho and Avenida Ribeira das Naus.
The study area (Figure 2) was selected with this north-south dichotomy in mind, as well as the deep relationship of the case study, Praça do Comércio, with the spaces alongside the river. In order to minimize the edge effect on syntactic measures, the selected area is ten times bigger (350,000 squared meters) than the square properly (35,000 squared meters) and covers a shoreline with a linear length of approximately 950 meters.

Figure 2: Praça do Comércio and surrounding studied area (inside the red polygon).

The selection of a partial area inside Lisbon's downtown was a practical decision too, motivated by the difficulty that Depthmap (Turner, 2004) revealed in performing a detailed Visual Graph Analysis (VGA) for a bigger area, even in a modern and fast machine.

3.2 Legibility

Visual legible elements, that is, *landmarks* and *edges* are related mainly with *isovists* and *visual connectivity*, as suggested by Table 1 (above). The former concept was defined originally by Benedikt (1979) and can be described as "the sum of the infinite number of lines of sight (or axial lines) that pass through a single point in space (usually at eye height) and occupy the same plane (usually parallel to the ground plane)" (Dalton and Bafna 2003, p. 59.6) or, simply, as "the area in a spatial environment directly visible from a point" (Al_Sayed et al. 2014, p. 29). Because isovists are a subset of a bounded environment, properties such as its area or the distance (length) from the viewpoint to its border can be defined (Turner and Penn 1999, p. 1). Besides, the

concept of *visual connectivity* of each node in a *visibility graph*, that is, in an undirected graph connecting all the inter-visible points in a human scale grid (Al_Sayed et al. 2014, p. 29), is the number of locations that each node can see (Turner 2004, p. 10). Thus, *visual connectivity* is roughly the area of the isovist associated with each point in that kind of grid.

A swift inspection of the visibility graph of Praça do Comércio and surrounding area (Figure 3) suggests that this square is the most visible space in Lisbon's downtown. In fact, its limit near the Tagus river is the highest visually connected area (coloured with red), suggesting the association of linear high-visible regions with *edges* such shores or riverfronts. In practice, the area of isovists is maximized near and alongside the river, not only in front of the square, but also in the western shore and garden (Arsenal da Marinha), which is a (potential) scenic and contemplative spot, very popular among tourists and inhabitants.

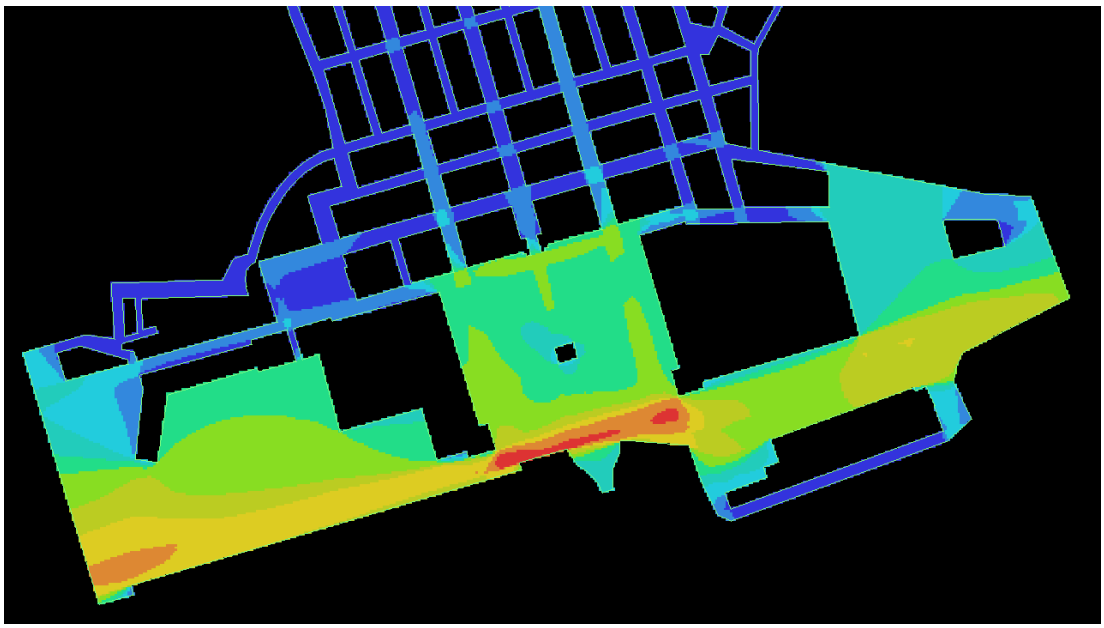

Figure 3: Visibility graph of Praça do Comércio and surrounding area (color range from low visual connectivity values at blue to high visual connectivity values at red).

The axial map (Figure 4, below) confirms that the north (main) facade of of Praça do Comércio is the most integrated axis of movement (*path*) in this area, even more than the panoramic road alongside the riverfront (*edge*). Additionally, these two axes are intersected by other two equally integrated axes alongside the west (Rua Áurea) and east (Rua da Prata) facades of the square, resulting in four *nodes*. The axis that pass near the east facade is more integrated than the west one because it is directly connected with the landfill where are located the underground train and commuting boat stations.

The two nodes near the river track the characteristic turrets that can be classified as *landmarks* in the sense that they are visible from long distances, namely, from west (Cais do Sodré) and east (Campo das Cebolas). The north facade of Praça do Comércio is also intersected in his middle by the axis of Rua Augusta, forming another *node* that coincide with an important *landmark* of Lisbon's downtown, the triumphal arc. Finally, the intersection of that axis with the path (and edge) alongside the river is the direct access to the pier (Cais das Colunas), another *landmark*.

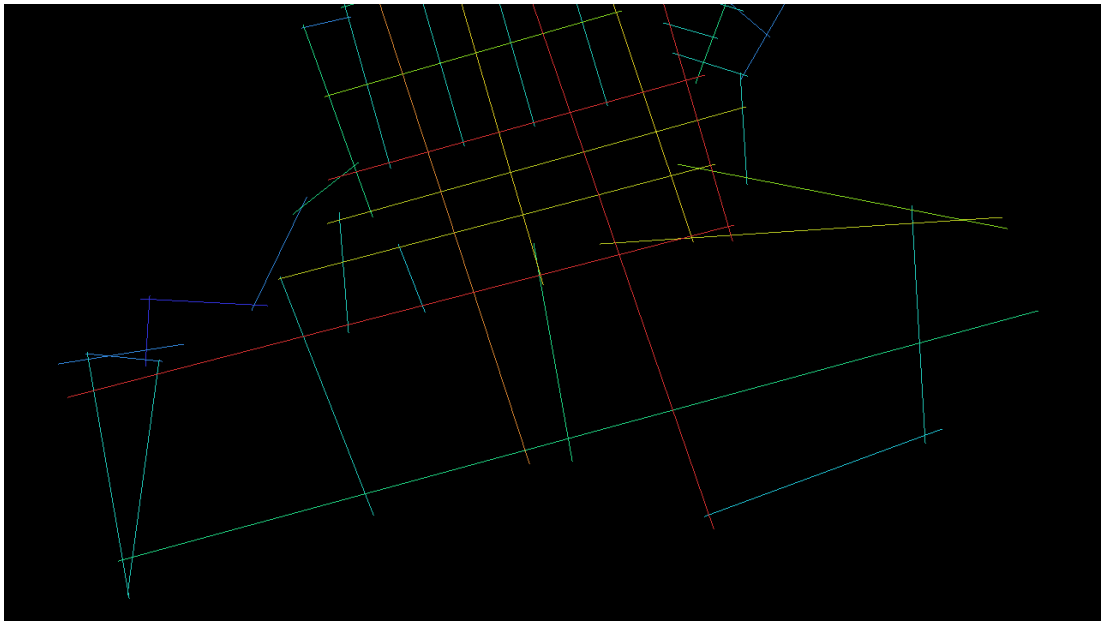

Figure 4: Axial map of Praça do Comércio and surrounding area with integration values (color range from low values at blue to high values at red).

The statue (monument) at the middle of the square, which is obviously a *landmark*, could not be detected from the axial map. Nevertheless, its isovist is very peculiar as suggested by Figure 5, confirming the idiosyncratic visibility of this element from long distances, namely from the river.

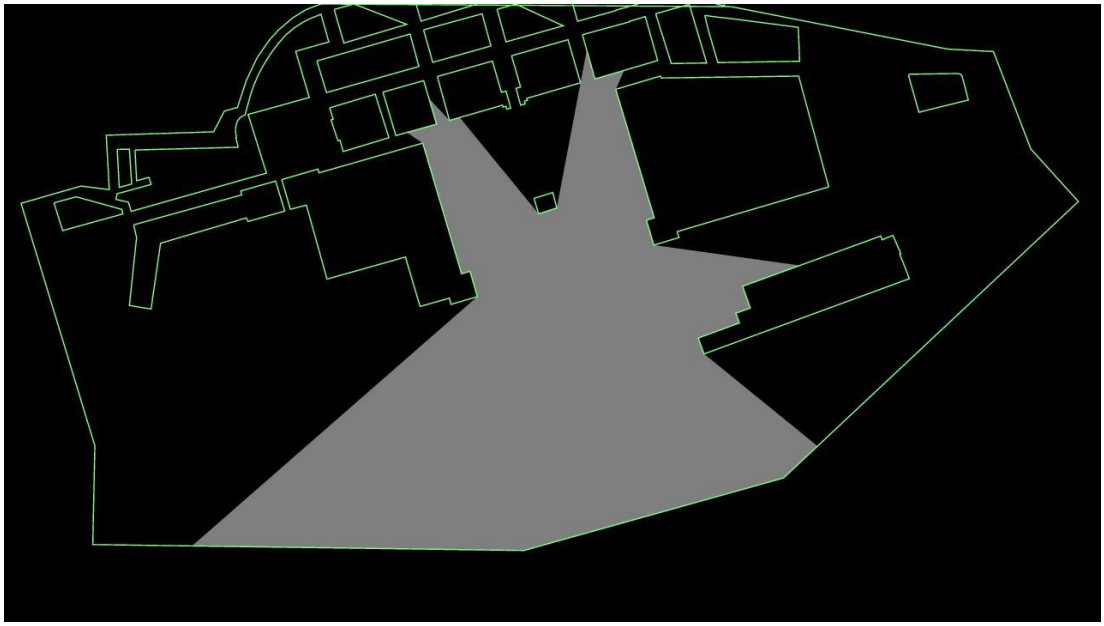

Figure 5: Isovist at the front side of Praça do Comércio's statue of Joseph I, King of Portugal.

Figure 6 (below) points out the *landmarks*, *nodes* and *edge* signaled by the previous legibility analysis. A first conclusion is that the legible elements of Praça do Comércio are symmetric, not only between the west and east sides of the square, but also between the north facade and the river, with a *pivot* at the middle, that is, the statue of the King. Thus, its scenic dimension may be quite complex, with several scenes (or «stages») and points of contemplation.

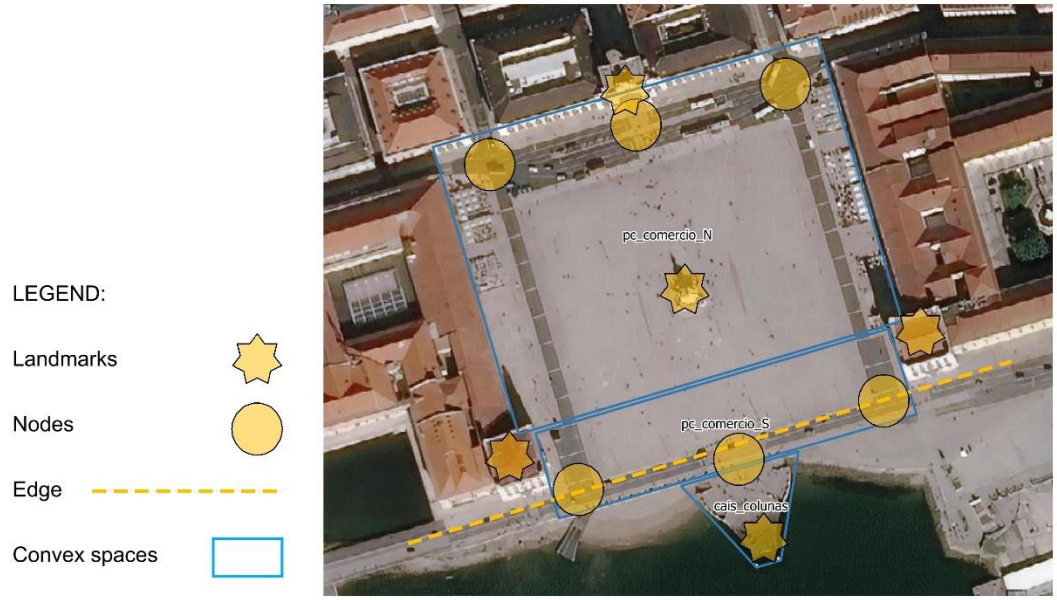

Figure 6: Legible elements of Praça do Comércio.

3.3 Contemplation

Praça do Comércio is a place of moving. In fact, pedestrians cross the square typically from north to south (and conversely) in order to take the underground train or the commuting boat in the southeast limit (landfill) of the square, or to contemplate the river near the pear by standing or sitting in the surrounding area (Figure 7).

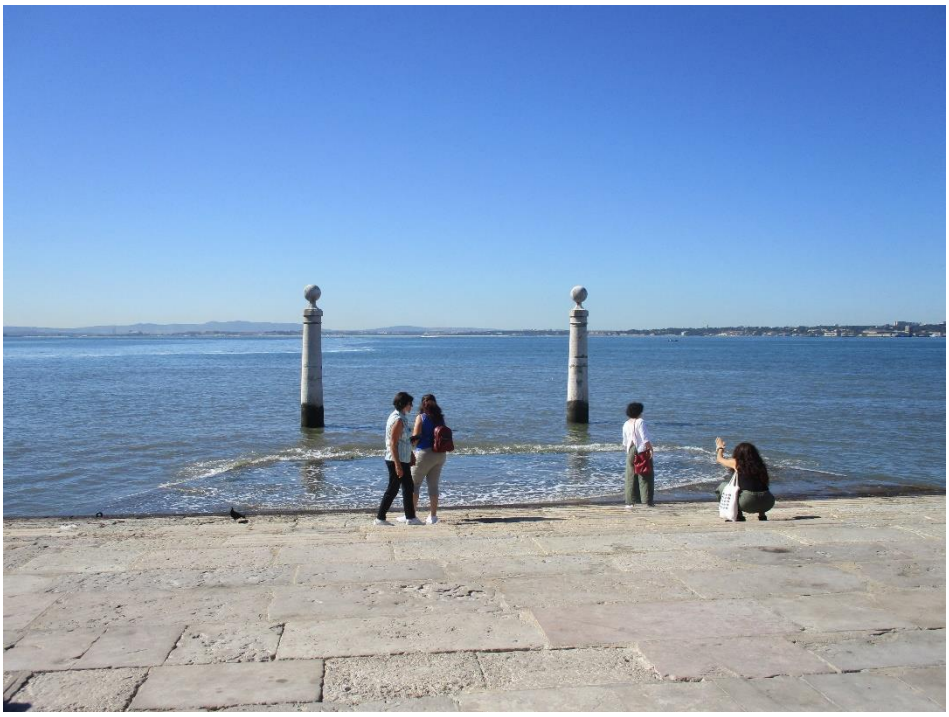

Figure 7: The contemplation of River Tagus from the pier with two columns.

Movements to (and from) the west alongside the river are also common because the recently renovated shore between the square and Cais do Sodré, another pier equipped with an interface of railway, subway and boat stations, is a very pleasant and sunny place to stay and contemplate the river. In a certain sense, the Tagus acts as a "negative attractor" (Hillier 2007, p. 183) due to its width that makes it like a lake or even open sea in the stretch alongside Lisbon's downtown. That typical behaviour of pedestrians is related with the scarcity of places to sit that are limited to the stairs surrounding the statue, a little wall in front of the west turret and the riverfront near the pier, complemented by some fancy esplanades, namely, alongside the west and east facades of Praça do Comércio (Figure 8). Additionally, the absence of trees and other elements that could cast a shadow limits the attractiveness of the few sitting places, namely, during the summer which is typically very hot and dry in Lisbon.

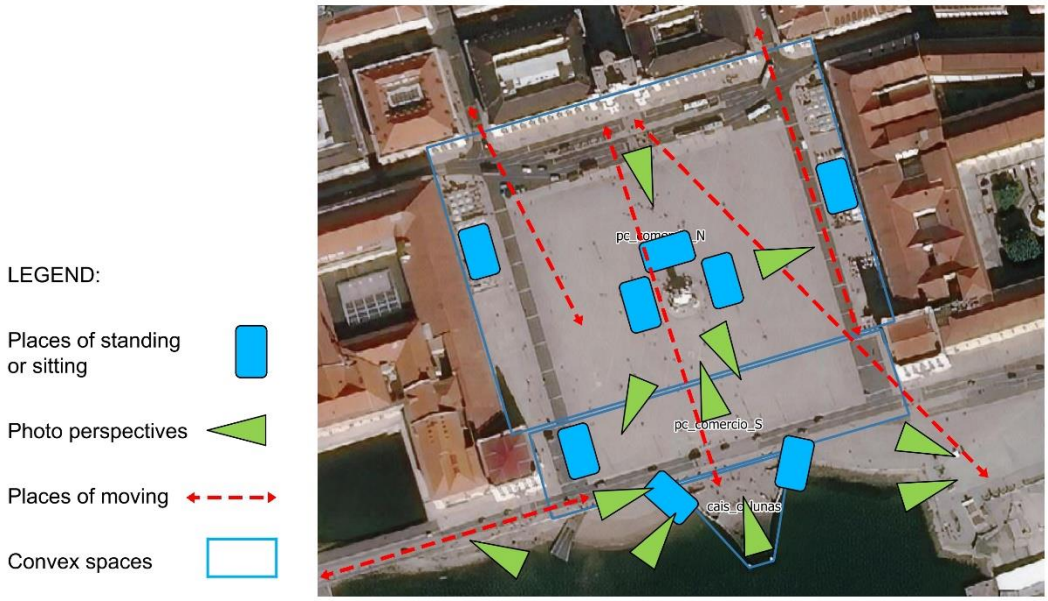

Figure 8: Places of standing, sitting or moving at Praça do Comércio.

Nevertheless, tourists eventually with guides and residents stand around the place, namely, to take photos of either the triumphal arc (Figure 9a) or the statue, frequently having the north facade and the castle's hill as background (Figure 9b). These different perspectives suggest the richness of Praça do Comércio's main (north) stage, composed by a central renaissance scene framed by the arc, a *landmark* as said, and two *scena per angolo* at the corners, that is, at the square's northeast and northwest *nodes*, recalling the legibility analysis condensed in Figure 6. Thus, legible *landmarks* and *nodes* may have scenic qualities as suggested by the set of the most contemplated and photographed spots of Praça do Comércio. The latter includes also the river, proving that *edge's* landscapes can be also highly scenic, namely, if equipped with landmarks such the remarkable pier found at the south limit of the square (Figure 7, above). The great scale and the different scenic effects provided by the square are fundamental to balance the *negative attraction* of the river, which favours the overall attractiveness of Lisbon's downtown.

(a) Arc (Renaissance scene).

(b) Statue framed by the castle's hill (Baroque *scena per angolo*).

Figure 9: Contemplation of legible elements in Praça do Comércio.

In fact, the uniqueness of Praça do Comércio is related with the multiplicity of scenes and sensorial experiences provided to the user in different directions or perspectives, exploring the symmetries or the dramatic opposition between the façades and the river (Garcia 2016, p. 92), as stressed in the following section.

3.4 Towards a scenic effect typology

The way in which pedestrians place themselves in space to contemplate a landmark, a facade or a landscape (Figure 10) defines the device that facilitated their disposition around the square.

Figure 10: Five dispositions, five devices.

From the field work, briefly described in the previous section, several remarkable types emerged, namely:

1. The square as a scene

In this device, the square is itself entirely a stage that can be contemplated. Since the observation point is completely outside and distant from the square, it promotes the necessary detachment for contemplation. As shown in Figure 11, no point of the square is favored by the observer, but the entire urban landscape, that is, the square which offers itself as a stage.

Figure 11: The square as a scene.

2. The infinite scene

Figure 7 (above) illustrates this device very well, where the scene is the landscape on the horizon. Inaccessible and powerful by its immensity, the horizon often imposes itself as a very strong scene. This can happen in many landscape situations in different places in the city, including the top of the hills.

3. The whole scene

Being accessible and practicable as a public space, the square attracts pedestrians and offers them a multitude of points of view and facades as well as events. Thus, Praça do Comércio is a device such Djamaa Lafnaa Square in Marrakech or Times Square in New York. The user in position 3 of Figure 10 is in the scene. He is part of it. He is an observer subject and an observed object at the same time.

4. The untouchable scene

Figure 9 (above) clearly shows this kind of device, which allows you to comfortably contemplate an arc, a statue, a door or a castle at a certain distance. The relationship between the observer and the observed object is not interchangeable and the last one is not touchable, though it may be accessible. This is the device closer to the classical stage of a theater.

5. The no scene

Where the scenic effect is reduced to a minimum of skyline, barely visible at a long distance along the axis of some street, one can say that there is *no scene*. Space is oriented, polarized in a direction that dictates the walking path. It is the device of any street where there is no place to contemplate except the shop windows, which monopolize the glance of the passers-by and offer them longer lines of sight, that is, broader isovists, especially at the night when the bottom of the

stores redefines the width of the street. In this sense, one can say that the shop windows are *micro-stages*.

4 DISCUSSION

The key scenic elements of Praça do Comércio, that is, the arc, the statue and the pier are located along the same *path* that comes from Rossio square through Rua Augusta and Praça do Comércio to the river. This finding suggests that the axial map may have a numerical propriety that captures the scenic dimension of (Baroque) urban spaces. The current case study indicates that this measure may be the reciprocal of control. In fact, the scenic axial line between the arc and the pier (that pass near the statue) has a low control value (0.37), signalled at blue in Figure 12.

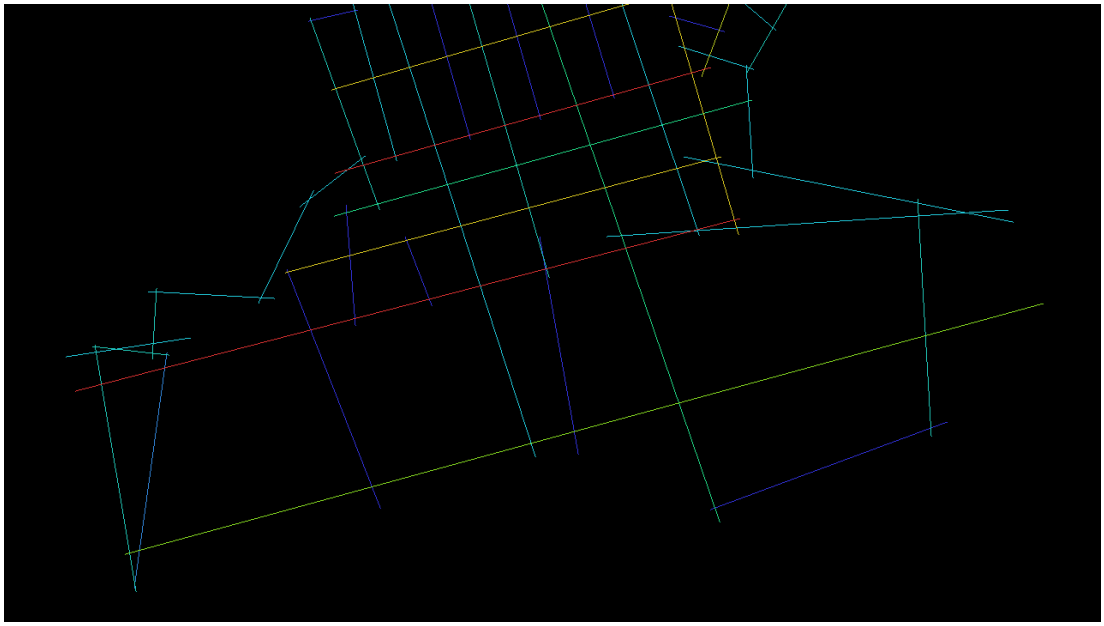

Figure 12: Axial map of Praça do Comércio and surrounding area with control values (color range from low values at blue to high values at red).

Noting that the absence of rings can expressed the degree to which some space is controlled (Hanson 1998, p. 78), the same line (between the arc and the pier) has a *relative ringiness* of only 0.05 according to our calculations using a specific Prolog computer programme.[1]

In fact, *control* measures the «space» given by the immediate neighbours to some space (Hillier and Hanson 1984, p. 109). For instance, the guard of a *Panopticon* style prison receives from the prisoners all the «space» that they have because they are (visually) connect only with her/him (Turner 2004, p. 16). So, the guard controls all her/his connections, that is, *control* is equal to *connectivity* in this case. Besides, the relationship between stage and audience is inverse to that established between the guard and prisoners in the sense that the audience have a full control or assessment of the performers. Therefore, the reciprocal of control and/or relative ringiness may be measures of the scenic potential of urban spaces, as the case of Praça do Comércio suggests.

[1] Programme available at: https://swish.swi-prolog.org/p/pcom.pl or through the Space Syntax with Prolog website: https://www.sswprolog.net. The relative ringiness of the mentioned line can be calculated by posing the query: ?-ringiness(pc_comercio,Y,Z,RR).

5 CONCLUSION

Besides the typology proposed in this paper, framed by square, infinite, hole, untouchable (and no) scenes, urban stages may be classified as topological spaces of type 'a' following the classification of Hillier (2007, p. 250), that is, as terminal spaces or end points through which no movement is possible to other spaces (see also Hanson 1998, p. 173-174). Thus, urban scenes, especially, untouchable ones may be intended for static occupation or contemplation such the shrine room in an Ashanti *abomsofie* (Hillier and Hanson 1984, p. 181). This kind of spaces are typically deep and controlled by other spaces in the sense that they cannot be traversed and do not lie in any ring. Thus, the reciprocal of control and/or of relative ringiness may be useful to track the scenic potential of convex spaces or axial lines.

However, the appropriateness of these syntactic measures should be validated with the study of other urban spaces than Praça do Comércio, a quite regulated and programmed square indeed. In addition, the development of specific local or global measures for that purpose must be favoured as a future research topic in Space Syntax.

Meanwhile, the indirect approach proposed in this paper may be applied to track the scenic dimension of squares and other similar spaces. As shown, visibility graphs, axial maps and isovists can support the identification of landmarks, nodes, edges and other legible elements. Then, the selection of scenic or contemplative elements from this short list would be straightforward with some field work and sensory data, with a qualification of the geometric quantification computed with visibility and network analyses.

One conclusion is that scenic landmarks are typically located in areas with high visual connectivity and alongside integrated axial lines. Sometimes, these landmarks are located near nodes, that is, in the intersection of axial lines. Nevertheless, nodes by themselves can have a scenic function, namely, by assuring a double angular perspective or *scena per angolo*. Edges like riverfronts or shores may be potential (infinite) scenic spots that can be identified in a visibility graph as a linear region with high-visual connectivity.

These clues provided by Space Syntax methods in association with Kevin Lynch's framework proved to be very useful for a scenic analysis of a royal square such Praça do Comércio in Lisbon, introducing a quantitative support on an unavoidably qualitative analysis.

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