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The pursuit of urbanity in traditional town centres

The case of Fortaleza

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ABSTRACT

This research addresses urbanity in traditional town centres by articulating spatial variables, land use and density to identify how their combination may affect the appropriation of public spaces. In this study, urbanity means a quality of the urban space marked by activities of movement and permanence; by diversity of use, buildings and people; by relations of co-presence and co-awareness; and by smooth barriers between public and private spaces. Urbanity does not refer to the agglomeration of people in public spaces, but to environmental qualities that allow cordial relation among residents and visitors, enriched by the possibility of encounter and socialisation. Since urbanity is affected by a range of variables present in space, as a phenomenon, it does not manifest in a continuous and homogeneous way, but as a spectrum, with different intensities and combination of elements. The argument forwarded here is, therefore, concerned with differentiating the concepts of urbanity and urban animation by exploring morphological variables deemed conducive of urbanity and verifying how they combine in places with different levels of social activity. Data collected from fieldwork about land use and the interfaces linking buildings to open collective spaces were overlaid on axial and segment maps within a GIS data base. By furthering the understanding about the way some of these combined variables relate to varying degrees in the spectrum of urbanity, it is expected that a framework of sustainable qualities can be outlined, thus contributing to underpin directives for urban interventions in traditional town centres.

KEYWORDS

Urbanity, Urban animation, Traditional town centres, Diversity

1 INTRODUCTION

This research, which is part of a developing doctoral thesis, addresses urbanity in traditional town centres by articulating spatial variables, land use and density to identify how their combination may affect the appropriation of public spaces. In this study urbanity means a quality of the urban space marked by activities of movement and permanence; by diversity of use, buildings and people; by relations of co-presence and co-awareness; and by smooth barriers between public and private spaces. Urbanity does not simply refer to people agglomeration in public spaces. It is associated to environmental qualities that allow cordial relation among residents and visitors in daily activities, enriched by the possibility of encounter, socialisation and leisure as people meet people at random. Furthermore, the sense of safety in urban space is an important aspect to this experience.

Jacobs (2009) refers to urban 'liveliness' to explain that live urban spaces are marked by functional and physical diversity among adjacent uses, and by diversity of users. Hillier (2007) indicates that 'urbanity' implies in co-presence of visitors and inhabitants in public space, with diverse land uses, density and movement. Holanda (2010) proposes that 'urbanity' involves the intense participation on urban life, where the social space is not only private and the limits that connects private and public areas are soft. As opposed to 'formality', marked by hierarchical social systems that blocks the connection between private and public space. These authors point that urbanity is affected by a group of variables present in space.

This study refers to urbanity as a phenomenon that doesn't manifest in urban space in a continuous and homogeneous way, but as a spectrum, with different intensities and combination of elements. In this context, a set of variables will be analysed: spatial properties of the urban grid, land uses, density, the shapes of blocks and plots and types of building interfaces. The study stems from the idea that conditions of urbanity are affected by centrality and movement through the spatial configuration (Hillier, 2007). The research is based on the case of Centro, a consolidated central neighbourhood in Fortaleza, Brazil. It is a dense area, predominantly marked by an orthogonal urban grid, and one of the most highly accessible parts of town. This spatial configuration reinforced its centrality over the years, which, in turn, acted on the real estate dynamics, changed the land use by attracting commercial activities to its central core, pushing other uses towards the limits of the neighbourhood. Urban animation can be observed in spaces with diversity of uses and located in highly accessible areas, marked by a 'live centrality', as argued by Hillier (1999). However, this does not necessarily mean an experience of urbanity in Brazilian towns. For this reason, this research intends to differentiate the concepts of urbanity and urban animation.

The study involves analysing spatial properties and patterns of space use in Centro, considering macro and microscale, and how they can influence the quality of urban life (van Nes and Lopez, 2007). At macroscale, it is possible to observe the impact of the urban grid configuration in the

movement and attraction dynamics to Centro (Hillier et al, 1993). At microscale, the relations are more complex, because it involves different aspects at the blocks and plots scale, considering diversity of use, density, relations of adjacency, permeability and visibility between buildings and streets (Whitehand, 2001).

Oliveira (2016) discusses that urbanity involves social and spatial dimensions of urban life. It can be affected by elements of urban form (streets, blocks, plots and buildings). The author indicates that a high level of urbanity means high accessibility, density, diversity and a strong sense of continuity. And argues that the concept of urbanity refers to planned contributions and unplanned factors. This aspect is important to the analysis of urbanity in Brazilian town centres, where the urban space is also affected by a set of socioeconomic problems and the lack of planning.

2 THE URBAN CONTEXT

The study is based on the case of Centro, the foundation site and a current commercial centre, in Fortaleza, Brazil. Fortaleza is the capital city of Ceará, a state located in the northeast region of Brazil. With over 2.5 million inhabitants, the town presents an extreme social inequality and diverse urban realities. This means that while some areas have a group of space qualities where urbanity can emerge, others are marked by precarious settlements and urban segregation. Centro has 28.154 inhabitants and mainly concentrates retail and services occupation (Sefin, PMF, 2015), being still the traditional town centre, where the first settlement started in the 18th century. In the 19th century, Fortaleza initial planning regulations adopted the regular grid to guide the urban expansion.

Hillier (1999) argues that centrality must be understood as a process, affected by spatial configuration that influences movement and use. In Centro, we have a predominant regular grid, highly accessible, that attracted retail and services uses over the years, thus strengthening Hillier's proposition concerning movement and use of space. The area's topological accessibility is further reinforced by expansion vectors that run from Centro's regular grid towards west, south and east (the north direction being limited by the Atlantic Ocean) thus permeating great lengths of the urban tissue. Figure 1 shows the expansion vectors stretching from Centro to other regions of the town.

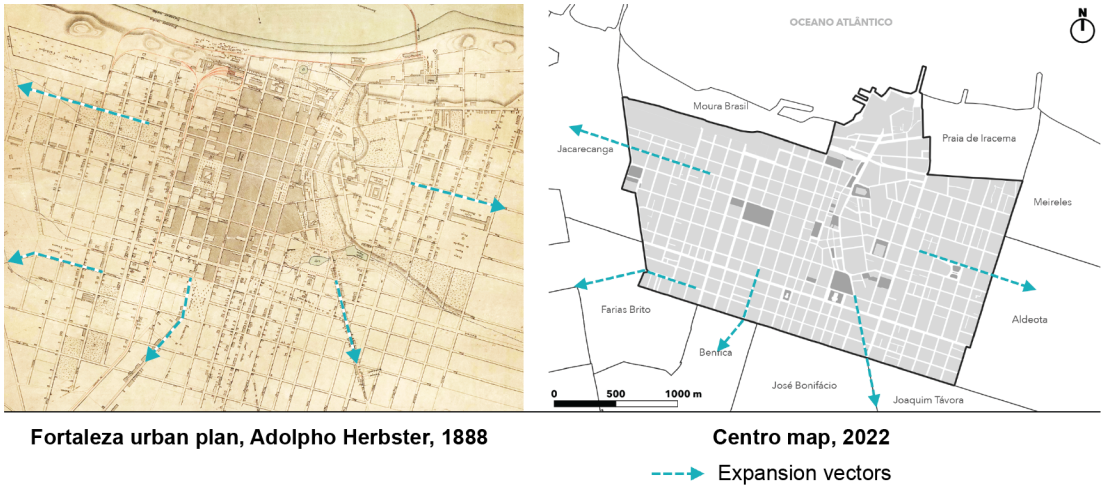
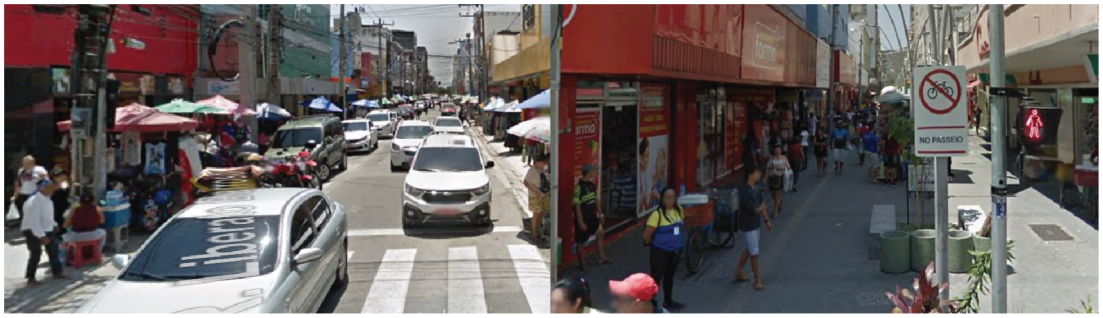


Figure 1: Urban grid expansion vectors

The neighbourhood is marked by intense movement of vehicles and pedestrians (inhabitants and visitors), having a strategic role to the city mobility, and attracting people from several parts of Fortaleza and its metropolitan region. Given that the co-presence of different groups of people with different activities affects the appropriation of public spaces (Hillier, 2007). The streets are full of life during the business hours. However, during the night or weekends, with most of the retail and service premises closed, the movement through the streets declines, affecting the sense of safety.



Retail and service core | Pedestrian-only streets

Institutional areas | Office buildings

Residential occupation – row houses | Residential occupation – larger plots

Residential occupation – larger plots | Self-built community – Poço da Draga

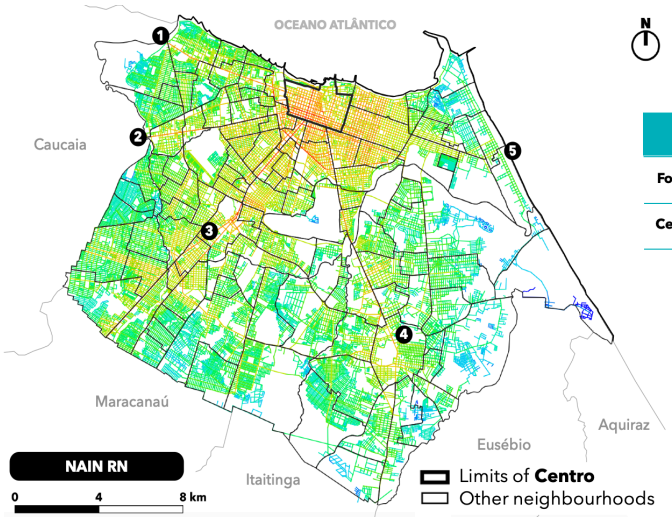
Figure 2: Different morphological areas in Centro

In this study, it is proposed that urbanity manifests as a spectrum, with different combination of elements and intensities, that may affect the appropriation of public spaces. Urbanity involves urban features, that can be recorded and measured; and how people use space, that can be observed, recorded, analysed and confronted with other variables. The objective is to identify how different urban features are presented in space, how they can combine with one another and if such combinations tend to coincide with diverse modes and intensities of social activities carried on in the public space.

Different morphological areas can be observed in Centro: retail and service core; pedestrian-only streets; low-cost shops; office buildings; institutional buildings; and different residential occupation. In this study, the residential occupation is classified as: small plots (row houses), scattered round the neighbourhood and intensified in the self-build community of Poço da Draga; large plots (single and multi-family buildings) (Figure 2). There are 12 pedestrian-only streets in Centro that function as alternative routes affecting movement and the use of public spaces. They concentrate diverse commercial use (retail, services, street vendors), enhance walkers experience and encourage co-presence.

3 DATASETS AND METHODS

Studies based on Space Syntax Theory (Hillier; Hanson, 2005 [1984]) indicate that urbanity is related to different morphological variables associated to various intervening factors, which may be complementary or independent. Data concerning morphological attributes of blocks and plots, types of interfaces between private or closed and public or open spaces, and land use are being recorded and related to configuration analysis of the urban grid in this study, considering Fortaleza and Centro as the empirical object of a thesis currently being developed. Axial and segment maps were constructed for the representation and quantification of spatial properties that are being georeferenced together with the other collected data on a QGIS database. Spatial measures of integration and choice, at local and global scale were calculated and explored in the axial and segment maps.



	NAIN RN			NACH RN	
	MÁX.	MÍN.	MEDIAN	MÁX.	MEDIAN
Fortaleza	1.8996	0.4843	1.2226	1.6131	0.9804
Centro	1.8198	0.7986	1.5408	1.5580	1.0524

Expansion vectors:
1. Centro to Barra do Ceará;
2. Centro to Caucaia (Metropolitan Region);
3. Centro to Parangaba;
4. Centro to Messejana;
5. Centro to Praia do Futuro

Figure 3: Segment map of Fortaleza, NAIN RN

The integration measure (NAIN) indicates the level of accessibility of the urban grid, and the topological distance between one segment and all the others in spatial structure. The highly integrated segments are the most accessible ones (Figure 3). The integration measure can show to-movement tendencies, considering a destination from each segment to all other segments.

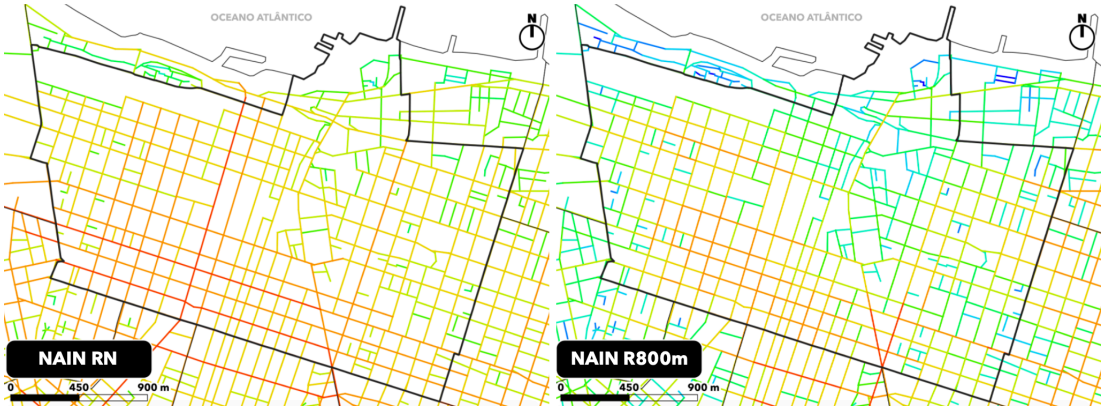


Figure 4: Segment map of Centro, NAIN RN and NAIN R800m

The choice measure (NACH) represents the simpler paths between one segment and all others in the system, being associated with the possibility of routes in the grid. It can show through-movement tendencies and it usually refers to the residents' movement in a neighbourhood, as they know better that urban space. These measures indicate possibilities of movement as well as use of space, since movement is a powerful generator of encounter fields, which is, in turn, a basis for social relations and for a range of phenomena related to place animation.

The representation and analytical procedures herein developed considered the whole system at different radii, to verify whether and how segment hierarchy would interact with other variables at global and local scales. At R800m, it was observed the role of pedestrian-only streets affecting integration values, at local scale (Figure 4).

Areas and density values of blocks and plots are also being verified and modelled in this study (Figure 5). The initial analysis shows the predominance of the regular urban grid with a small variation in the areas of the blocks. Most of the plots show what can be considered as small area, in Brazilian standards, reinforcing the relation of a large number of plots per block. This context, that could stimulate diversity in urban space, does not seem robust enough to overcome the strength of a preponderant commercial activity, which limits animation to business hours.

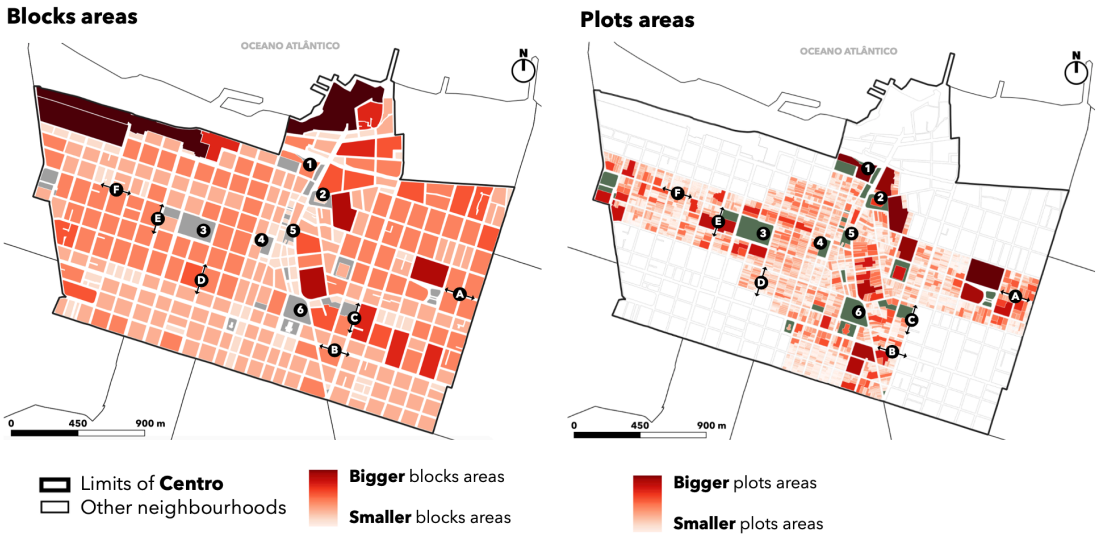


Figure 5: Blocks and plots areas in Centro

The study involved the development of georeferenced land use maps, based on data collected at the field. These maps were related to axial and segment measures of accessibility as well as to data about the interfaces connecting building interiors and open collective spaces. Complementing the space structure analysis, the mapping of land use (Figure 6) was recorded in order to ascertain the existing activities in the neighbourhood and how they are distributed. The map shows that Centro is mainly occupied by commercial and services activities in a considerable area. And the uses are more diverse towards the neighbourhood boarders. The commercial and services activities are concentrated both on the irregular urban grid and the regular blocks. Data published by the municipal administration (SEFIN, PMF, 2015) present the built area occupied by the main activities in Centro: (a) commercial activities with 2.104.132,40 m^2; residential use with 1.103.787,89 m^2; and services activities with 201.915,47m^2.

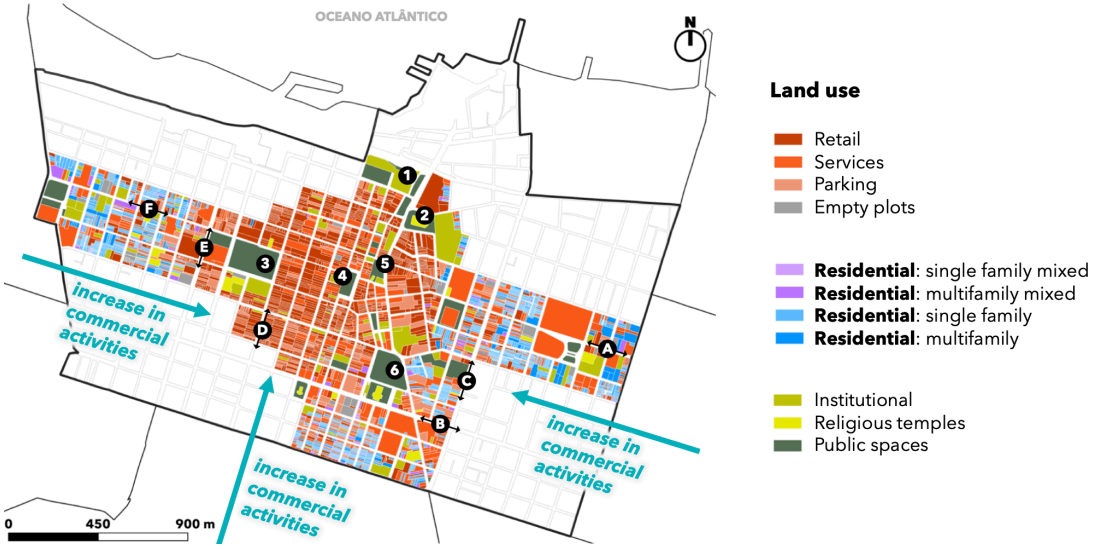


Figure 6: Land uses in Centro

The study also considered mapping the types of connection between private and public spaces (Figure 7). At the commercial and services core of the neighbourhood were identified seven types of interfaces: (a) Open entrance; (b) Open doors and glass storefront; (c) Open doors and fences;

(d) Closed doors; (d) Façades without access; (e) Glass façade without access; (f) Glass façade with doors;

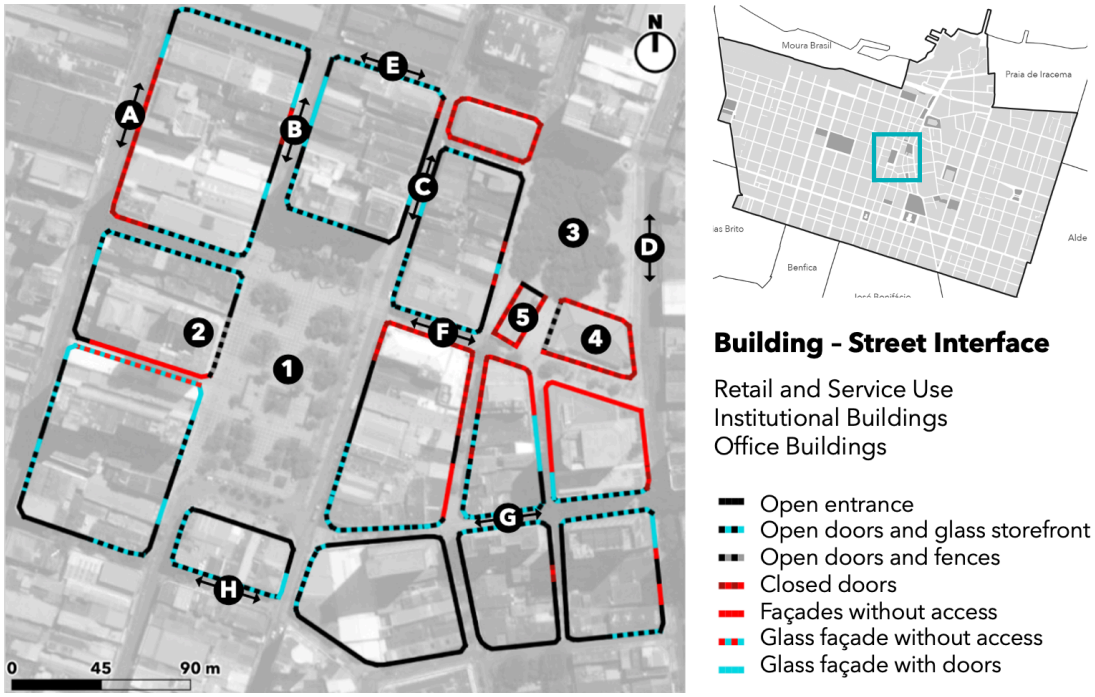


Figure 7: Example of interface mapping: Praça do Ferreira

At the residential area the interface classification changes, considering the building use and configuration. There are residential occupations directly connected to the public space and other ones with frontal setbacks. Data collected at the field indicate four types of interfaces to the public space: (a) doors and windows directly connected; (b) low opaque wall with view to the doors and windows; (c) high opaque wall; (d) fences with view to the doors and windows.

This research requires the analysis of urban features and patterns of space use. The data related to the use of the public space were affected by the pandemic restrictions. The use of public space involves activities of movement and permanence that required field observation and photographic documentation of urban life in Centro, varying day, time and location. The static snapshot was the method of observation to capture how people use space. These data were important to initially map and identify different patterns of space use, and further compare them to each urban context within the neighbourhood.

4 RESULTS

The initial urban features analysis indicates the existence of different morphological areas that were classified. Although much research needs still to be carried on, as, for instance, the observation of activities in public spaces – hampered by the pandemic – and their classification into categories, the different morphological areas suggest that we have two urban contexts: one marked by urban animation; and another where urbanity manifests. We can see a live centrality in: retail and service core; low-cost shops; wholesale shops; institutional and office buildings;

cultural buildings. This live centrality is affected by the business hours, when mostly shops are open, once it usually benefits from movement (Hillier, 1999). And we can see aspects of community life in: areas with small plots and row houses, with land use diversity (Figure 8); and at Poço da Draga, a self-build community, located in a segregated area in Centro (Figure 2).

Figure 8: Urban animation and urbanity observed in public space

The segment analysis (Figure 3 and Figure 4) show that Centro presents high measures of accessibility at global and local scale. It also points the importance of the expansion vectors from Centro to other parts of the town. The segment analysis of the pedestrian-only streets presents that, at a global scale, these streets have small influence in integration and choice (Figure 4). But they have a larger influence in a local scale, R800m, affecting the possibilities of movement and permanence, concentrating small shops and attracting people.

As argued by Van Nes, Berghauser Pont and Mashhoodi (2012), in many studies spatial integration has been analysed with different metrical radii, indicating that the main routes through and between urban areas are highlighted with a high metrical radius, whereas at traditional centres some characteristics are highlighted with a low metrical radius.

The land use mapping is in progress and shows that Centro is marked by diversity. The map indicates that a large area concentrates retail, services and institutional uses. The residential use is mainly located at its borders, where diverse uses were also identified, such as hospitals, schools and other services.

As discussed in other studies, in Centro, it is observed that areas with high integration measures combined with high density present land use diversity. However, the areas with lower density and integration measures usually present less diversity in land use. Integration and density analysis indicate a potential for land use diversity (Van Nes, Berghauser Pont and Mashhoodi, 2012).
The building-street interface can affect movement and other activities at public space. The study initially maps the surroundings of Praça do Ferreira, one of the most important public spaces in

Centro. This area concentrates mostly retail, services and institutional use. The commercial and service areas are marked by diversity of buildings (Figure 7).

In Centro, there is a variation in residential occupation that consists in row houses, in small plots, and houses located in larger plots with a private space within its limits. This implies in variation of the connection between these buildings and the public space. These morphological aspects also affect movement in the streets and the experience of urban life. Houses in larger plots, with a certain distance from the plot limits and restrict connections with the public space, opaque high barriers, can be observed in less integrated areas, at the neighbourhood borders. Another variation in residential occupation is the multifamily residential building. Most of them have residential and commercial use. The areas with high integration measures presents multifamily residential buildings, mostly built between the 1950s and the 1980s, located at important streets in the neighbourhood, with diversity of use at the ground floor and visibility to public space. These areas are marked by intense movement, especially in business hours. It is relevant to note that from the 2000s the multifamily residential buildings configuration completely changed until nowadays. The new residential buildings present high density and most of them are exclusively residential. They are generally located in less integrated areas of the neighbourhood and with more introspective spatial arrangements, with restrict access to the public space at the ground floor (Holanda, 2013; Santana, 2016).

Another residential configuration is Poço da Draga, the self-build community. The area is classified by Fortaleza Urban Plan (2009) a special zone of social interest (Zona Especial de Interesse Social – ZEIS 1), that recognizes it as a precarious settlement, with low-income residents, that started its informal occupation without a planning support. According to municipal data, the community presents 1.026 residents and occupies an area of 34.502,02m^2 (PLHIS, 2012). As argued in other studies about self-build settlements in Brasil, in Poço da Draga was observed spatial patterns that are common to organic urban structures. The analysis indicates that there are aspects in the self-organized structure that can promote the experience of urbanity, such as continuity, density and smooth barriers between private and public space (Loureiro, 2017).

The field observation in different times of the week indicated areas of the neighbourhood marked by urban animation and other ones that revealed the possibility of urbanity experience. Based on this, it was initially mapped these distinct areas (Table 1), and then analysed three specific zones: Praça José de Alencar (Zone 1), as a space of intense animation, one of the main accesses to the commercial core in Centro; Praça do Ferreira (Zone 2), as a possible superposition of urbanity and animation experiences; Rua Rodrigues Júnior (Zone 3), which concentrates a residential area part of the urbanity spectrum.

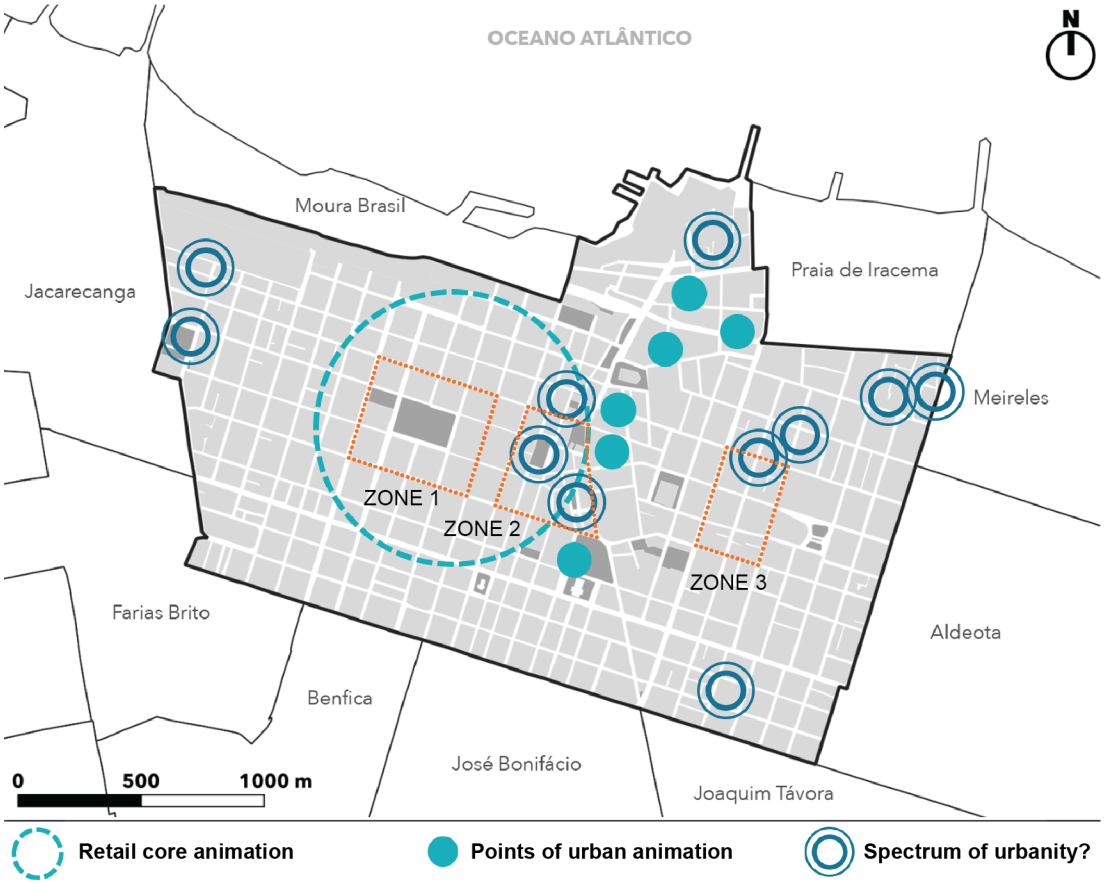


Figure 9: Urbanity and urban animation in Centro

The study identified that high integration measures are related to the commercial activities and with a lower number of plots per block (Table 1). The commercial use reinforces as predominant interface, with mostly active storefronts, without glass openings and the complete length of the façade. This morphological zone is affected by business hours and marked by urban animation, with intense pedestrian movement and concentration of informal vendors. By contrast, in the zones with lower integration measures are located single-family residential use, mostly row-houses, where it is observed a higher number of plots per block (Table 1). In this context the houses present interfaces directly connected to the public space. This area also presents other uses that support daily life, such as small shops and services. It is important to note that the segment analysis show that Centro has high integration values when compared to other parts of the city.

	NUMBER OF SEGMENTS	MAX NAIN	MEAN NAIN	MEDIAN NAIN	MIN NAIN	MAX NACH	MEAN NACH	MEDIAN NACH	MIN NACH
SYSTEM	56241	1,8996	1,2302	1,2226	0,4843	1,6131	0,9173	0,9804	0,0000
ZONE 1	27	1,8198	1,6547	1,6927	1,4134	1,4811	1,1802	1,2388	0,7719
ZONE 2	37	1,7479	1,5526	1,5594	1,3397	1,3034	0,9676	1,0708	0,0000
ZONE 3	31	1,7534	1,5128	1,4965	1,1746	1,4303	0,9818	1,0455	0,0000

	BLOCKS (units)	PLOTS (units)	AREA (m2)	PREDOMINANT LAND USE	PREDOMINANT INTERFACE
ZONE 1	10	235	213600	Retail and service (96%)	Mostly active storefronts without glass openings with the complete length of the façade
ZONE 2	22	259	141400	Retail and service (94%)	Mostly active storefronts with or without glass openings
ZONE 3	6	342	109300	Residential single family (55%)	Mostly building without side setback, and a great number without front setback with openings for the public space

Table 1: Comparison among selected zones

5 CONCLUSIONS

This study proposes that urbanity manifests as spectrum in different morphological areas, at a local scale. The initial findings show that in retail, services, institutional areas, there are highly accessible area, that attracts movement and urban animation during business hours, creating a live centrality (Hillier, 1999). In the case of Brazilian town centres accessibility does not directly relate to urbanity, once it can attract aspects of an unpleasant animation, with problems of safety, violence, intense vehicle traffic, etc. The pedestrian-only streets are alternative routes that affect movement and use and attract informal commercial activities. In residential areas, marked by small plots and high density, it can be observed aspects of community life in public space.
Data collected from fieldwork show that urban animation activities are concentrated in regions where the segments are more integrated, or near them, mostly occupied by retail. Especially near Praça do Ferreira and Praça José de Alencar, marked by the orthogonal urban grid. This context can also be observed at Avenida Duque de Caxias.

The commercial activities predominance in a considerable area of the neighbourhood stimulates the real estate speculation, affecting the land value and occupation. This context demonstrates that the land occupation remains unbalanced, restricting urban diversity, movement and permanence activities.

At Centro, urbanity manifests at urban microscale, in contrast with the city global scale. Urbanity can be experienced in regions with less integrated segments, marked by small plots, diversity of use and different types of connections between public and private spaces. The analysis of Poço da Draga indicates the importance of investigating how the conditions to urbanity and community life at microscale could emerge in a precarious socioeconomic context, located at a segregated region of the neighbourhood.

This paper brings a partial contribution of a study in progress, that involves understanding how urban variables interact in different morphological areas. The data indicating how people use the public space requires field observation and it was affected by the pandemic context and its restrictions. It is necessary to map different activities in public spaces, grouping them in categories. These procedures intend to identify patterns of urban features and patterns of space use. We expect to recognize different levels of urbanity or its absence by comparing these patterns.

The next steps of the research require to expand the methodological procedures, comparing the data and analysing the different combination of variables. Then, identify the recurring patterns and the transition areas where may occur the superposition of urbanity and animation experiences. By analysing these variables and their combination it is expected to understand how urbanity can be manifested and sustained to contribute with directives for urban interventions in traditional town centres.

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