OF SPATIAL RE-CONFIGURATION AND CENTRALITY LOSSES AND GAINS

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Abstract

This paper addresses spatial configuration and centrality in so far as they may be interpreted as interrelated events – high accessibility affecting movement and land use – that allow for representation and analysis which may clarify present phenomena and indicate unfolding tendencies. It adds up to a range of studies focusing (trans)formation processes of centrality in Brazilian towns, particularly middle-sized ones located in the northeast region of the country.

The study focuses on the loss of visibility and exclusiveness of traditional town centres in two neighbouring cities – João Pessoa and Natal – that were both founded in the late 16th century, and have undergone similar courses of expansion, which led to the rapid shifting of accessibility at global scale, thus leaving areas that until the mid-20th century incorporated the roles of geometric centre, active centre and topological centre, out of the new expanded and somewhat fragmented integration cores, in which scattered nuclei point towards the emergence of new centralities.

By taking from previous studies in which space syntax analysis helped to shed light on the process, its effects and probable consequences of Natal’s re-configuration in the formation of centralities and the transformation of the old town centre we examine João Pessoa in that light in order to point out common outcomes in the two cases.

Whereas in the old centres common consequences are the devaluation of property, the generation of alternate periods of congestion and emptiness, the increasing appearance of disfiguring conversions to adapt buildings to commercial use and the growing presence of urban voids, various areas that have become highly accessible in both cities are now the privileged sites for a concentration and diversification of activities including those that were traditionally located in the old town centre (i.e. bank branches and Notary Public Offices), as well as of medium and large scale residential and commercial developments.

Findings to date – based on these cases but also on other studies, directly or tangentially linked to the question – let us believe that the effects of the urban space re-configuration over certain physical aspects of the built environment highlighted here may be taken as archetypical of the way the spatial configuration operates in terms of movement and land use definition to respond to mainstream economic and socio-cultural interests in Brazilian towns.
INTRODUCTION

This paper addresses spatial configuration and centrality in so far as they may be interpreted as interrelated events – high accessibility affecting movement and land use – that allow for representation and analysis which may clarify present phenomena and indicate unfolding tendencies. It adds up to a range of studies focusing (trans)formation processes of centrality in Brazilian towns, particularly middle-sized ones located in the northeast region of the country.

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While responding to present day urban needs these new centralities also serve the interests of an inexhaustible land market with heavy consequences to the environment, both natural and built, and most emphatically to the old town centres. The highly accessible areas are now the privileged sites for a concentration and diversification of activities that were traditionally located in the old town centre as well as of medium and large scale residential and commercial developments regardless of the existing capability of the present street structure to cope with the increasing volume of vehicular movement. On the other hand, the current scenario of areas that have witnessed the birth and development of cities and communities – where built landmarks of that historic process still stand – is one of devaluated property, alternate periods of congestion and emptiness, decayed public space, disfigured and emptied buildings and plots.

Space syntax analysis has been used to examine relations between space configuration and use as well as symbolic expression in Brazilian town centres, as, for instance Porto Alegre, capital city of the southern state of Rio Grande do Sul (Rigatti, 2005). These, as well as other findings sustain our views that the process of gradual emptiness affecting old central areas that has been investigated through a succession of insights.
since the 1990s in Natal (Trigueiro, 1999; Trigueiro and Medeiros, 2003; Trigueiro and Medeiros, 2007) expresses a course of development that can be taken as typical for Brazilian towns, north and south of the country.

By taking from these studies in which space syntax analysis helped to assess the relationship between space configuration (and re-configuration over time), its effects and consequences in the formation of new centralities and the transformation of Natal’s old town centre we examine Joao Pessoa in that light in order to point out common outcomes in the two cases, expand knowledge about a process that may be taken as illustrative of many others in Brazil, and offer a morphological approach that may serve as an alternative resource to reflect on the combined effects of urban expansion, and immediate lucrativeness.

Both in Natal and Joao Pessoa the area considered here as the old town centres coincides roughly with the perimeter delimited by heritage conservation actions – from the IPHAN - Instituto do Patrimonio Histórico e Artístico Nacional (Brazilian national heritage bureau) and from its equivalent local authority in Joao Pessoa – the IPHAEPE - Instituto do Patrimônio Historico e Artístico do Estado da Paraíba, being also defined as a ZEPH – Zona Especial de Preservação Histórica (especial historic preservation sector) in Natal.

When strolling through Joao Pessoa’s old town centre, our eyes register the deterioration, the decadence, the emptiness of a considerable number of buildings, some bearing intrinsic architectural value, others representing the memory of the city, all composing the original scenery of a place that summarizes the historical process of that society.

At the beginning of the 20th century, the street structure of Joao Pessoa occupied roughly the area that had been shaped along almost three and a half centuries – later to be designated as the town centre, herein referred to as the old town centre; this area corresponds approximately to that shown in the 1923 plan, except for the neighbourhood called Jaguaripe.

As with Natal, today the old town centre accommodates only a fraction of the residents that once lived there and covers a fragment of Joao Pessoa’s urban extent. From the 1980s the old town centre was subjected to a process of subtraction of functions operated by asphyxia that went hand in hand with the emergence of new ways of life, consumption modes and demands for comfort and leisure facilities that met market targets (and were fashioned by them) to create lucrative products in the shape of new residential areas and scattered centralities also made possible by the mobility resulting from the growing private ownership of cars.

In Joao Pessoa’s old town centre empty, ruinous or degraded buildings have multiplied since the last decade of the 20th century. These voids express a final stage in a course of events going through change in land use, decline in letting and sale prices, occupation by activities that benefit from land market devaluation, physical degradation. More prestigious uses – middle and upper-class residences, up-market retail, highly specialised services – give way to less prestigious ones, uses that are attractors in their own right give way to those more dependent on the movement, particularly that of pedestrians. Although remaining intense, this movement partly indebted to a residual concentration of diversified activities inherited from the area’s former status as a topological centre at global scale, now transformed into a local business centre or – when positioned in the fringes of the major topological centre – into a peripheral sub-centre.

To Milton Santos (1978:207) the relations between the historical periods and the space organization will reveal a succession of space systems in which the relative value of each place is always changing through
history. Borde (2006:32-38) defines these land voids produced by successive stages in the urban socio-economic dynamics as “empty emptiness”, usually associated to functional changes and expressed by loss and decay of the built environment. This process has been addressed in various studies focusing on Natal, some referred here, and may be perceived in the number of empty buildings and emptied plots (plots that have once been occupied by buildings) identified in a survey of João Pessoa’s old town centre developed in 2010 (Figure 1).

THE BUILDING OF THE OLD TOWN CENTRES IN JOÃO PESSOA AND NATAL

According to Nuno Portas (Teixeira, 2004:17) “taking in consideration that, as a rule, the purpose precedes the design, the questions must be in the sense of knowing the strategies, explicit or not, that directed the occupation of the territories”. In relation to Brazil, this strategy seemed clear. The creation of an economy in Colonial Brazil was of interest to the Portuguese feudalism, in the form of production or extraction of agricultural or mineral goods that nourished its mercantile capitalism.

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1 In the original: “as relações entre os períodos históricos e a organização espacial nos revelarão uma sucessão de sistemas espaciais na qual o valor relativo de cada lugar está sempre mudando no correr da história.

2 In the original: “Vazio esvaziado” - vazios urbanos que não preexistiam.
João Pessoa and Natal, therefore, were both founded in the late 16th century, under similar historic circumstances and have undergone similar courses of expansion.

In 1585 João Pessoa was established three leagues from the mouth of the River Paraíba, on top of a hill. Figure 2 shows linear representations of the grid, in the early and late 17th century (c.1637-1645 and 1692) with pathways running down the slope towards the harbour located on the right bank of the River Sanhauá (REIS, 2000: 123-128).

Figure 1 – The emptiness in João Pessoa old town centre. In yellow, empty buildings and plots.
There, the political colonial powers of the Church and the State left their landmarks, as described by Domingos Loreto (Pinto, 1977:155-156), who acknowledged three thousand people, a sumptuous cathedral, Misericórdia, (Compassion) and seven other temples: São Bento (Saint Benedict), São Francisco (Saint Francis) convent, Igreja da Ordem Terceira do Carmo (Carmelite church), and Colégio da Companhia (Jesuit school) a magnificent seminar attached to it, where Latin and Philosophy were studied, whereas Philosophy and Theology were studied at the Saint Francis and Carmo convents.

The urban growth along the 17th and 18th centuries was slow. By the end of the 1600s the settlement would have about twenty streets and approximately eight hundred inhabitants. In 1858, a plan commissioned by the president of the Province Henrique de Beaurepaire Rohan, shows a little over eighty streets (Figure 3), including the one linking the upper town (Cidade Alta) to the lower town (Varadouro) by the harbour, and the ones stretching southward (Trincheiras) and eastward (Tambiá) that defined the town expansion up to the first decades of the 20th century. At that time, the population could not exceed ten thousand inhabitants.

In 1923, the population was estimated at around 50.000 inhabitants. By then the urban grid stretched out to enclose the Irerês Pond, and two new neighbourhoods – Montepio and Jaguaripe – were created (Figure 3). This area contains sectors listed as historic conservation sites under the national trust (Instituto do Patrimônio Historic e Artistico Nacional – IPHAN) as well as that of the historical heritage bureau of the
state of Paraíba (Instituto do Patrimonio Historico e Artistic do Estado da Paraíba – IPHAEP). The area occupied in 1923 outlines what is here considered as Joao Pessoa’s old town centre – a small portion in the present urban sprawl (Figure 4) – in which the geometrical, topological and activity centres amalgamated for the best part of the 20th century.

Figure 3 – João Pessoa in 1858 and in 1923
Founded in 1599 on a hilltop giving on to the river Potengi – that originated the state’s designation of Rio Grande do Norte (or the great northern river) – as part of the same defense scheme to protect colonial possessions in South America that also fostered the foundation of João Pessoa, Natal remained little more than a hamlet for over two centuries. In the late 18th century the upper town (Cidade Alta) began to spread down towards the marshland located nearer the river mouth, where fishing and mooring activities went on. Slow but continuous growth during the 19th century was followed by development booms along the 20th century: in the 1920s, at the heyday of transatlantic aviation, when Natal became a stopover site; in the 1940s, when the town housed an American wartime air base; in the 1950s and 1960s when the national urbanisation thrust propelled the country from a rural to an urban nation; and from the 1970s to the 1990s, when the urbanisation process reached its peak and Natal achieved metropolitan status.

Despite the superb view to the river, the dunes and the sea, and the fact that the area lodged nearly all that remained of the stock of older buildings in town and most of what was left in the state of Rio Grande do Norte (Natal being its older town), Cidade Alta and Ribeira began to lose their former functional as well as symbolic status from the middle of the twentieth century onwards. The observation of their streets and squares in weekdays shows that these neighbourhoods continue to be “centres”, defined as areas that attract and generate movement by concentrating a variety of urban functions (Hillier, 1999). Retail, service, administration, business and religious activities intermix there in a compact and inter-accessible layout. However, the appearance of most buildings – residential and non-residential alike – indicates that whatever goes on inside is drifting a step down the socio-economic ladder by the year, most of the area becomes deserted and somehow weird looking as the clock strikes 6 p.m. and the shops close, important services including governance and judiciary ones move gradually out, buildings become hallowed ruins or disappear altogether, and the emptied emptiness swells.
As Accessibility Drags Activity

This first effort to investigate the effects of the urban spatial reconfiguration of João Pessoa over its old town centre – part of an ongoing doctoral thesis – refers, therefore the case of Natal. The diachronic syntactic axial representation of Natal’s urban occupation in 1864, 1924, c. 1940; the 1970s, the 1990s and the early 2000s showed that: in 1864, the global integration core shifted from the original founding site, the upper town (Cidade Alta) situated on a hill overlooking the river Potengi to the then newly landfilled former swamp area around the harbour (Ribeira); then, from 1924 to around 1940, back to the newly developed part of Cidade Alta, east of the foundation nucleus; in the 1970s, to the grid formed by the long axes parallel and crossing the road that connected the harbour to the war time air field in the neighbouring town of Parnamirim (now part of the metropolitan area). From then on the integration core stabilised on that position and began to expand in all directions – north, south and west of its initial perimeter – except for the east, where the town sprawl is halted as it meets the dunes and the sea (Figure 5). For both cases, the topological centre was considered as the set of more highly integrated axes, traditionally referred to as integration core in the Space Syntax literature and easily perceivable in graphic representations that translate high numerical values into hot colours (Hillier & Hanson, 1984).

![Figure 5 - Diachronic Axial Representation of Natal’s Urban Occupation in 1864, 1924, c. 1940; the 1970s, the 1990s and the early 2000s](image)

Each time the global integration core shifted, the area that had contained the previous integration core began to lose economic value and symbolic importance. The resident population shrank in number and social status; buildings fell into disrepair and decay or suffered mutilating conversions to accommodate uses and inhabitants less demanding in terms of space and/or aesthetics.

Along the last decades of the 20th century, as Natal expanded towards metropolitan scale, the perimeter defined by its global integration core was located in an area roughly corresponding to the city’s geometrical centre, became sparser and spread out in all directions incorporating the old town centre again in its fringes.
Most of the city's administration buildings moved into the area, large scale commercial and service premises, including most of the existing shopping malls emerged there, all responding to vehicular rather than to pedestrian movement flows.

The first mode of re-configuration – when the integration core moved away from the old town centre – weakened its role as a potential movement generator leading to a state of asphyxia that seems to have determined the progressive abandon of part of the building stock, still evident today (Figure 6), or to a state of “emptied emptiness”, as defined before. At the same time, the resident population was replaced by another that benefited by the depressed rent and sale prices, but were also less capable of coping with the conservation of the buildings physical structures.

Figure 6 – Evidences of Decay and Abandon of the Building Stock in Natal

With the second re-configuration mode, when an inflated and sparse integration core stretched out to re-include parts of the old town centre in its perimeter, the gradual disfigurement of the building stock was intensified as former dwellings and shops were chopped into small retail and service outlets or demolished to give way to low market chain shops and warehouses or parking space.

In order to ascertain possible parallels between Natal and João Pessoa that could reinforce our thesis of a common dynamics concerning configuration change and a scrapping process of old town centres space syntax procedures were applied to verify changes in the accessibility structure of João Pessoa in 1923, 1954, 1983, 1994 and 2004. Given the sinuosity of the grid – partly the effect of a topography rich in natural contours such as woods, lakes and a winding coastal line – continuity lines (worked out by MindWalk
application), as conceived by Figueiredo (Figueiredo & Amorim, 2006) were preferred to axial line representation to measure global integration.

The quantified accessibility was then compared to data obtained from in loco observations through which empty buildings and plots were identified and mapped in a Geographic Information System – GIS tool, alongside information concerning certain uses that were considered strong evidence of attraction and movement such as bank agencies and notary offices, for which sources of secondary information (old telephone directories and almanacks) were used. This procedure takes from the work of Cutini (2001), who compared space configuration to the location of certain service in the old town centres of Italian cities.

The measures of global accessibility obtained from the continuity map corresponding to the city mapped by Rohan (1858) quite symptomatically indicate the Rua do Comércio and other ways traditionally designated as “main streets” – Rua Direita, Rua Nova – or known to have been (or still to be) commercial thoroughfares (Maciel Pinheiro, General Osório, Duque de Caxias Street) as the most integrated streets (tables 1 and 2).

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<thead>
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<th>Table 1. Continuity Map - Global Integration</th>
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<td>MIN</td>
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<tr>
<td>MEAN</td>
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<th>Table 2. Continuity Map - Integration Value</th>
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<tbody>
<tr>
<td>STREET</td>
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<tr>
<td>Maciel Pinheiro</td>
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<td>Barão do Triunfo</td>
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<td>Duque de Caxias</td>
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<td>Epitácio Pessoa</td>
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Taking in consideration the area outlined in the plan of 1923 (commissioned by the Guedes Pereira government), as the old town centre João Pessoa defined in this study, it is important to emphasize that, among the lines presenting higher accessibility values, Maciel Pinheiro and Duque de Caxias streets, will be later seen of great importance in distinct moments, for siting bank activities.

In João Pessoa, as the urban area expands, coastal neighbourhoods emerge towards east, housing estates are built in the south-east the city grows in the shape of a “patchwork quilt” to use Medeiros’s expression (2006: 439) in his comparative study among Brazilian cities and between these and other cities round the world.

The diachronic representation of João Pessoa space structure from the 1950s to the 1980s shows that the global integration core shifted towards the east, following initially the Tambiá vector and then the Epitácio Pessoa vector. From then on, the core expanded towards the south-east, where new large housing estates were built (Figure 7).
Figure 7 – Diachronic Axial Representation (Continuity Lines) of João Pessoa’s Urban Occupation
In Brazil, bank agencies and notary offices were historically settled down in the central areas of the cities. Despite being attractors of movement on their own right and the limited competition encountered by these oligopolistic facilities, which are the privilege of only a small number of dealers, these services guard, in a considerable degree, an aspect of universality, being used by a nearly all-inclusive clientele, a fact that might lead to the choice for areas with intense movement.

Villaça (2001: 219), in his studies of intra-urban spaces in Brazilian capital cities, demonstrates the increasing importance of the southern neighbourhoods of Recife by comparing the number of bank agencies distributed in different areas to that of the old town centre, which gradually holds a secondary position in relation to the south area. Accordingly in João Pessoa, until the 1950s, Maciel Pinheiro and Barão do Triunfo streets located in the lower town by the Varadouro harbour concentrated most of the bank agencies. During the decades from 1960 to 1980 they moved into the upper town, especially to Duque de Caxias Street. From the 1980s on they are gradually transferred to the Epitácio Pessoa Avenue. Almost all the streets cited here present a distinctive high position in the accessibility hierarchy over the successive periods considered in this study, except for Barão do Triunfo, which, however, draws accessibility from Maciel Pinheiro street – the main connection between the lower (Varadouro) and the upper (Cidade Alta) towns (Figures 8, 9).

The transference of notarial offices follows closely the pattern of the bank agencies in the sense of looking for locations in highly accessible streets. Less than a decade ago, the majority of the register offices were concentrated in Cidade Alta, mostly round the Praça 1817; today five out of a total of the sixteen notaries identified in this research are located on Epitácio Pessoa Avenue.

Figure 8 - Banco do Brasil: from Varadouro to Cidade Alta

Figure 9 - Former seats bank agencies housing new uses
Figure 10 – Thoroughfares predominantly referred in this study
In a diachronic perspective, the shifting of global accessibility from the old town centre towards east, coincides with the removal of bank agencies and notarial services in that direction, a phenomenon closely related to the changing nature of urban centrality in the studied case, which space syntax analysis has been useful to expose.

The location of bank agencies and registry offices were entered in a GIS database of the present day João Pessoa. The data was organised in three successive time periods for bank agencies (1983, 1994 and 2004) and notary offices (1983, 1994 and 2004), and in five areas as follows: the lower town of Varadouro, the upper town of Cidade Alta, the neighbourhood of Cruz das Armas – an early expansion area –, the Epitácio Pessoa Avenue – the main axes linking the existing town centre to the mid-20th century expansion towards the coast to the Northeast –, and, finally, the South-east expansion. Bank agencies and notary offices were, at the beginning, situated at Varadouro, later they were established in Cidade Alta and from the period 1980-1990s they took the east direction, more precisely along Epitacio Pessoa Avenue. These changes in the space distribution of bank agencies and registry offices are shown in figures 11 and 12.
Figure 11 – Diachronic Distribution of Bank Agencies in João Pessoa
Figure 12 – Diachronic Distribution of Notarial Offices in João Pessoa
FINAL REMARKS

Of Centrality Losses and Gains

The transference of bank agencies and register offices exposes a process of use transformation, which reverberates the decadence of the old town centre in terms of centrality. This reverberation happens in so far as less profitable activities, very often informal, appear in substitution to highly-valued ones implying a process of building fragmentation which is now intense. This seems to meet the interest of the property market as the decay of vast old neighbourhoods goes along the launching of new highly profitable developments elsewhere – a discussion which borders our insight but goes beyond the limits of the present study.

However, inside the phenomenon of urban sprawl, loss of importance and segregation of old town centres, the emergence or continuation of activities that help survive an unprivileged population finds space. Nevertheless, conservation agencies IPHAN and IPHAEP in João Pessoa, IPHAN and the ZEPH in Natal not only have failed to acknowledge that in their re-vitalisation actions for these old town centres, but often impose regulations that prevent their development, thus "collaborating" indirectly to create more emptied emptiness. Once these regulations have neither, to this day, granted integrity to the building ensemble, nor helped to foster activities – residential use included – that have been to a certain extent, the sole support of vitality in certain areas, the deterioration, mutilation and abandon of properties go on.

We believe that a change of attitude in conservation policies for old central areas could benefit from a thorough exploration of relations between accessibility, movement and uses, in the light of this unprivileged, resilient, labouring population, who may be incapable of coping with the maintenance of old buildings but could certainly prevent the area’s continuing loss of animation. And if loss is reduced it may be considered as gain.

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