488

Brazilian contemporary kitchens: core or backstage?

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ABSTRACT

This paper addresses socio-spatial changes concerning kitchens in three contemporary building types that predominate as residential options within middling to upper social spheres in Brazil: houses occupying individual plots; houses in gated condominiums; and speculative flat units in high-rise blocks. The investigated cases inform about change and continuity concerning habits and ways of living impregnated in domestic space configured throughout the last half century. The focus on the space used for preparing meals stemmed from the awareness that its geometrical and topological natures varied intensely along that time span, considering study sources drawn from the professional experience of the herein authors – teaching, researching, designing. Design aspects concerning the way kitchens relate to the whole of the domestic compound are, therefore, investigated as they appear in the plans of the three referred dwelling types, in the light of the literature and of former studies carried on by the authors. Traits that indicate inherited socio-spatial relations and signs of a new order within the domestic milieu were scrutinized. Findings point out changes in geometric position and, especially, in configuration properties with reference to studies of 20th century Brazilian homes, alongside the persistence of what seems to be hard-core inherited attributes, and of schemes that although by no means novel, serve to accommodate old and new status and roles.

KEYWORDS

Space Syntax, Domestic Spaces, Brazilian homes, Kitchens, Gourmet area.

1 AN INTRODUCTION FROM THE REPERTOIRE: KITCHENS IN THE HIERARCHY OF DOMESTIC SPACE - A PREGNANT WIDOW?

Kitchens have been socio-spatial thresholds in the history of houses in Brazil, signalling boundaries related to varying aspects of temporal and regional orders, but mainly and predominantly to those of gender and class. The space in which food was cooked, partially or fully prepared, and often

consumed, in the 19th century, has been acknowledged as a reclusive, exclusive, impenetrable haven (or otherwise) place of women – be them served or servants, free or enslaved. Deeply set into the buildings, adjoining backyards or at the top of multi-storied terraced rows of townhouses – the sobrados – they functioned as thresholds between the sphere in which served inhabitants resided and interfaced with visitors and that in which serving inhabitants slept, usually in outbuildings or under the attic roofs.

We argue here that this is perhaps the longest standing, most entrenched spatial property of Brazilian houses to this day, since the social changes that, from the late 19th century on, altered the levels of accessibility and the importance of some rooms, did little to revert the spatial role of kitchens as thresholds between the whole of the house and the service quarters, between what was to be seen and what was not. Social entertainment including the female presence, for instance, progressively turned rooms used for meals – former backstage spaces adjoining the kitchen – into centrepieces of housing design – in area, access, visibility and furnishings –, and housewives into "mistresses of ceremony" at dinner parties and such. Although that change tended to pull kitchens into a less secluded position within the domestic layout, they carried on being the obligatory route to servants' accommodation, laundry facilities, rubbish disposal or whatever might be deemed distasteful to the eye. That attribute remained unchanged when, from the 1950s on, servants' rooms moved into the building shell and under the home roof, in modern dwellings, being frequently set apart from the private sector of bedrooms by a partition wall only. Nonetheless, the route from the servants' accommodation to any domestic space remained almost always through the kitchen and its ancillary space labelled as "service area", where laundry and cleaning tools are kept. To this day, even in the tiniest flat, it is rare to find washing machines in kitchens, but tucked away in the service area, where a window or parapet, often serves as the source of air and light to the kitchen and the servants' room, provided its door is open or glazed or louvered. The spatial quintessence of kitchens as a threshold between the clean and the dirty is thus preserved.

However, the awareness that the way kitchens now relate to the domestic space configuration indicates that something did change along the time spanning the mid-twentieth century and the present day, has inspired these, as other researchers, in their aim to understand the constant recasting of spatial form in order to express and mould social relations. The research presented here aims to do that by setting apart what seems to be inherited diehard spatial properties and new configuration schemes that although by no means novel, appear designed to accommodate the old and the not so old, without tampering too much with statuses and roles.

The examination of three sets of data comprising contemporary residential plans, to be described as follows, led to the view that we are witnessing an important change regarding the status of the kitchen, a main locus of interface between inhabitants who are served and inhabitants who serve them. Perhaps more than with any other space, the relative position of this key domestic cell tells about the nature and nuances of social relations within the domestic spatial compound in a country of extreme social inequality.

We are possibly witnessing, over a century on, a change comparable to that which followed World War I in Europe, when domestic labour went scarce, as widely acknowledged in the literature. This period coincides with an important alteration in early 20th century British domestic space configuration pointed out by Trigueiro (1997), who explored an array of 500 house plans published in specialised magazines from the 1870s to 1930: "[…] from mid-nineteenth century to the inter-war years the British home developed from less to more integrated complexes and from a spatial system centred around the family/visitors sphere, focused on the circuit of reception rooms, to one centred in the inhabitants domain of rooms used for eating and cooking meals" (Trigueiro, 1997, p. 19.13).

The study of British plans also indicated that the reshuffling of accessibility within the domestic space occurred differently and at a diverse pace in the plans designed for distinct social groups of potential occupants. In upper middle-class homes, the restructuring starts as early as the turning of the century and leads to a configuration centred on dining rooms; in middle middle-class homes only round the war years changes become noticeable with reception-centred layouts giving way to kitchen-centred ones. In houses apparently designed for lower middle or upper working-class families in the post-war years, either the spaces used for cooking – whatever they be termed – or those which simultaneously accommodate eating and cooking become the most accessible.

Hanson considers this shift from a generally segregating visitor-centred complex to a more compact inhabitant-centred one to be suggestive of a "[…] scenery that was already being put into place for the development of the modern, nuclear family during the Victorian period" (Hanson, 1998, p. 296). Middle-class homes in Britain therefore evolved during the nineteenth and early years of the twentieth centuries, from a relatively segregated spatial system that was centred on the interface between the family, servants and visitors to a more integrated layout which was family-centred (Hanson, 1998, p. 296). However, without the hindsight that Trigueiro and Hanson had by looking at data from a standpoint of nearly a century on and witnessing some of their outcomes in contemporary life, this attempt to understand what is going on at present in Brazilian middle-class homes, although far from being guesswork, is very much an act of faith in what architectural morphology, space configuration and space syntax tools can tell in anticipation to the fully fledged actual phenomena.

Martin Amis's (2011, p. I) depiction of an incomplete feminist revolution in the 1970s – The pregnant widow – takes its title from Herzen's idea that what is frightening in the "[…] death of the contemporary forms of social order […] is that the departing world leaves behind it not an heir, but a pregnant widow." The new social order is, therefore, still to be known. It just may be that what is being presented in this paper is a yet faded image of a new domestic order to be born.

2 THE DATA AND HOW IT WAS EXAMINED: KITCHENS IN THREE CONTEMPORARY RESIDENTIAL TYPES

Houses can portray culture as much as act on it by favouring (or not) social relations through the ways in which their spaces are connected. As Hanson emphasises "[…] the analysis of domestic space configuration provides the link between the design of dwellings and their social consequences" (Hanson, 1998, p. 1).

Houses are not just assemblages of individual rooms but intricate patterns of organised space, governed by rules and conventions about the size and configuration of rooms, which domestic activities go together, how the interior should be decorated and furnished and what kinds of household object are appropriate in each setting, how family members relate to one another in different spaces, and how and where guests should be received and entertained in the home (Hanson, 1998, p. I).
This study addresses socio-spatial changes concerning kitchens in three building types of Brazilian contemporary dwellings: (1) mass-produced residential units in housing estates; (2) architect-designed houses in gated condominiums; and (3) speculative flat units in high-rise blocks. The data about flats and housing estates units support two developing doctoral theses; the houses in gated condominiums were designed as architectural practice commissions. The addressed housing estates and gated condominiums are located in the state of Rio Grande do Norte, and high-rise flat blocks are recent buildings (or building plans to be – or being – constructed) in the state of Paraíba, a neighbouring state (Figure 1).

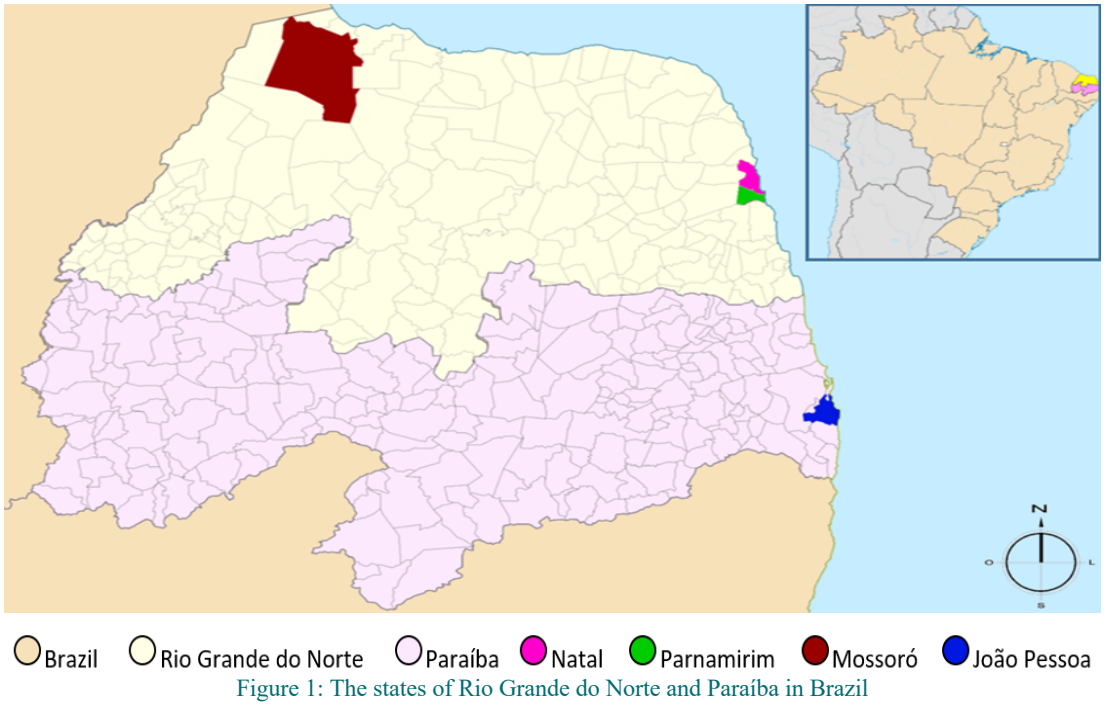

Figure 1: The states of Rio Grande do Norte and Paraíba in Brazil
Source: Paraíba, 2022; Rio Grande do Norte, 2002, edited by the authors.

The states of Rio Grande do Norte and Paraiba belong in the same region – the Brazilian Northeast – with low latitudes (close to the equator), abundant rainfall concentrated in the winter, and high temperatures with little thermal amplitude throughout the year (Lamberts; Dutra; Pereira, 2013, p. 82-83). Although Mossoró is located in a micro-region within the Northeast – drier and hotter on average – the architectural demands of shade and crossed ventilation pervades the whole macro-region, so that

if there is a soul of the Brazilian house, it is the relevance of the exterior, which functions as provider of light and air and, traditionally, as an integrator that is capable of modifying spatial hierarchies.

The data in this article derive from two research pieces carried out by doctoral students at UFRN[1], and from various studies addressing residential architecture and ways of living, conducted or supervised by participants of the research group Morfologia e Usos da Arquitetura – MUsA (Morphology and Uses of Architecture). The house plans in housing estates were obtained through architectural surveys drawn in loco by the researcher (with the permission of dwellers) or from records available in the database archives of the construction licensing authority for the municipality of Natal[2]; the data about flats were collected from commercial advertisements published in a local paper – Correio da Paraíba – in João Pessoa. Two of the authors in the present paper designed some of the house plans in gated condominiums and some were kindly provided by colleagues[3].

The studied three sets of dwelling types embody most current residential alternatives for middling socioeconomic strata in the country. Housing estates formed by numerous rows of detached or semi-detached one-family houses became the main residential option in the 1970s, when some Brazilian towns went through unprecedented urban occupation, as is the case of Natal. Housing estates were extensively multiplied after the military coup of 1964 when a national financing policy for habitation was designed as a political manoeuvre to attain popular support and, most importantly, as a basis for structuring the building industry in capitalist modes (Bonduki, 2008, p. 71). The houses studied here were built in the 1970s and 1980s, having been through successive alterations in their original plans so that they may be understood as evidence of changing modes of life along nearly half a century. The speculative flat units, figure here as instances of the most sought-after residential building type for 21st century middle-class urban living. They appeared – from 2006 through to 2015 – in the Sunday issues of a daily paper, which was a main reference for real estate advertisement in the state of Paraíba, before brokers turned to the internet. From the 1990s on, gated condominiums – either horizontal or vertical (and some of the flats examined here belong in those) – have become a prominent residential choice for the middle to upper-middle classes, who buy the triad safety + entertainment + exclusiveness, largely publicised in announcements. In some such ads, especially those referring to tower blocks dubbed condominium clubs, the living units are hardly mentioned in comparison to the advertised wonders of multiple swimming pools, sports courts, gyms, bars, barbecue grills, reception saloons (complete with kitchens, restrooms etc.) and whatnot. Although high-rise towers make up most gated condominiums, developments following similar concept lines but offering generous plots for the construction of tailored detached houses are also abundant. In these, that triad is enriched by the appeal to nature and environmental qualities, not to mention larger areas – thus to the tranquillity of a New Haven of equals enveloped by an otherwise hostile world. The studied cases are houses

[1] Programa de Pós-Graduação em Arquitetura e Urbanismo at Universidade Federal do Rio Grande do Norte - PPGAU / UFRN
[2] Secretaria Municipal do Meio Ambiente - SEMURB.
[3] We would like to thank Kleyne Rondelly and Matheus Duarte for kindly sharing items from their design practice records for the purpose of developing the present study.

thought to represent architectural desires of safety, commodity, social status and, maybe, bucolic ethos by people who can afford to turn them into spacious buildings.

The choice to focus on kitchens was motivated by the assumption that the alterations or oscillations in the way kitchens have been noticed to relate to other spaces within these diverse types of contemporary homes signal on-going changes in sociocultural behaviour patterns in the domestic milieu. This awareness has motivated discussion amongst the herein authors who, besides conducting their individual research pieces, are engaged in a study group that investigates relations concerning form and use of the built environment.

The plans in each data set were observed in their geometrical and topological aspects of form with a focus on kitchens but taking into view other labels that tell about key designed functions of the domestic spaces. Morphological properties of shape (area and position in relation to the building) and of configuration (connectivity and accessibility of key spaces in relation to all others) were compared within each data set and across the three data sets.

Whereas geometrical properties – a long standing means to describe building morphology – inform about features traditionally associated with functional importance and social status (i.e., size and location – front, back, centre, side), topological patterns may indicate spatial relations ingrained in configuration, as a "means by which architecture can carry culture", according to Hanson (1998, pp. 31-33), for whom.

Configuration exists when the relations which exist between two spaces are changed according to how we relate each to a third, or indeed to any number of spaces. Configurational descriptions therefore deal with the way in which a system of spaces is related together to form a pattern, rather than with the more localised properties of any particular space (Hanson, 1998, pp. 22-23).
The search for identifying the way in which a system of spaces is related together to form a pattern, and more specifically, the way kitchens relate to that system was here gauged by representing each plan in access graphs that allow for calculating the order in which each space is more or less accessible to all others, or the real relative asymmetry (RRA) of each space, mostly referred in space syntax studies as the order of integration values (Figure 2).

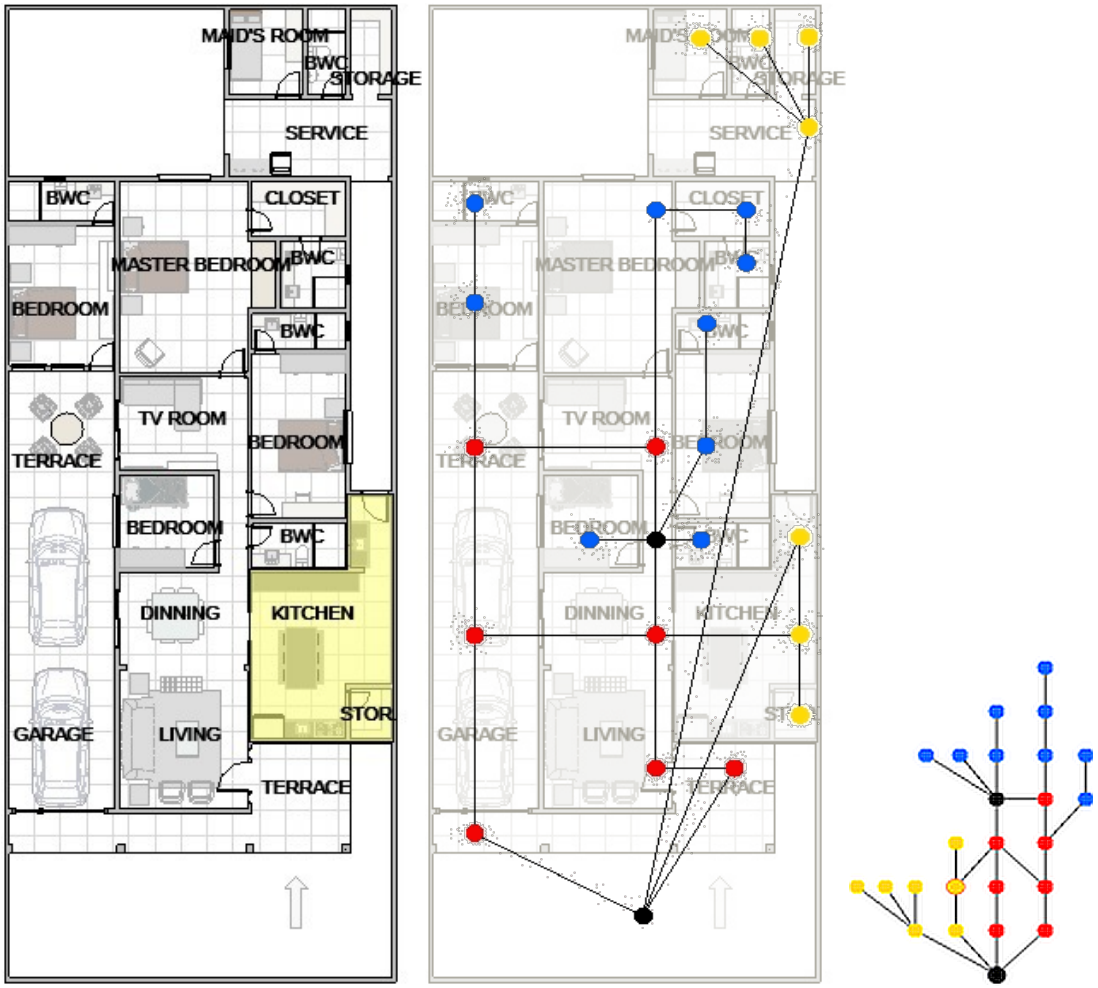

Figure 2: Research analysis procedure - the kitchen in yellow. / Sectors: yellow-service, red-social, blue-intimate. Source: Authors (2022).

Integration has emerged in empirical studies as one of the fundamental ways in which houses convey culture through their configurations. […], we began to find that in cases where we were able to work with a statistically reliable sample of real houses from the traditional and vernacular record, different functions or activities were systematically assigned to spaces which integrated the dwellings to differing degrees. Function thus acquired a spatial expression which could also be assigned a numerical value. Where these numerical differences were in a consistent order across a sample of plans from a region, society or ethnic grouping, then we could say that a cultural pattern existed, one which could be detected in the configuration itself rather than in the way in which it was interpreted by minds. We called this particular type of numerical consistency in spatial patterning a housing 'genotype'. […] If houses display configurational regularities then the buildings speak directly to us of culturally significant household practices which have been crystallised in the dwelling in the form of an integration inequality genotype (Hanson, 1998, pp. 31-38).

The way kitchens relate to others was also enlightened by the observation of the type of space that kitchens are; whether they are part of a circular (ringy) or of a linear route or are the end space in a sequence. Hanson considers the configurational variables ring – part of a route with at least two alternative ways – and depth – a position well into a linear sequence of spaces – as fundamental properties of architectural space configuration (Hanson, 1998, pp. 25-27). Terminal spaces are termed,

in space syntax jargon, as type a, spaces with at least two connections in a linear sequence are called type b, those that are part of a ring or a route with alternative access directions are type c and the ones being part of more than one ring are designated as type d.

3 ABOUT EACH CONTEMPORARY DWELLING TYPE

3.1 Houses in gated condominiums

Houses in gated condominiums are one of the two residential building types most preferred since the 1990s (the other being flats, mostly also in multi-tower gated condominiums). The data set examined here comprise 16 cases of houses built between 2005 and 2018 in gated condominiums situated in three towns in the state of Rio Grande do Norte – Natal, Parnamirim and Mossoró (Figure 1), all being conceived to meet the needs and desires of affluent middle-class owners. Only one case was found to have been altered due to a layout remodelling in 2016.

Plans were examined to ascertain whether, in these tailored-author-created cases, kitchens relate to the domestic compound similarly to the ways that market flat units or converted housing estate units do. Areas, sector division, relative position of labels within the spatial layout, connections, and accessibility properties were the examined variables.

The studied cases range from 180.29m² to 451.57m² (294.56m² on average), and have three to five bedrooms, all but one being two-storied buildings. Kitchens are invariably located on the ground floor, mostly at the side or back of the building shell, being sized from 9.78m² to 18.43m², a value that tends to increase as the overall size of the building increases, especially as concerns the sizes of the social sector.

In a third of the cases, kitchens connect directly to the dining area, and in 93.75% of cases to the service area. Over 56.25% of kitchens are part of a ring (through the exterior), and 43.75% others lie in two rings. 37.50% of kitchen layouts are "U-shaped" and display an "island" and/or a "peninsula"; 12.50% are linear and 50,00% "L-shaped". In topological terms, kitchens relate more closely to social spaces, being less segregated than their previous counterparts – kitchens in modern one-family houses – tended to be. The prevailing expression of inequality concerning topological accessibility is: Dining > Living > Kitchen > Exterior > Veranda > (master) Bedroom. However, kitchens may rank in all places in the hierarchy of integration values whereas the variation respecting other labels is less intense (Figure 3).

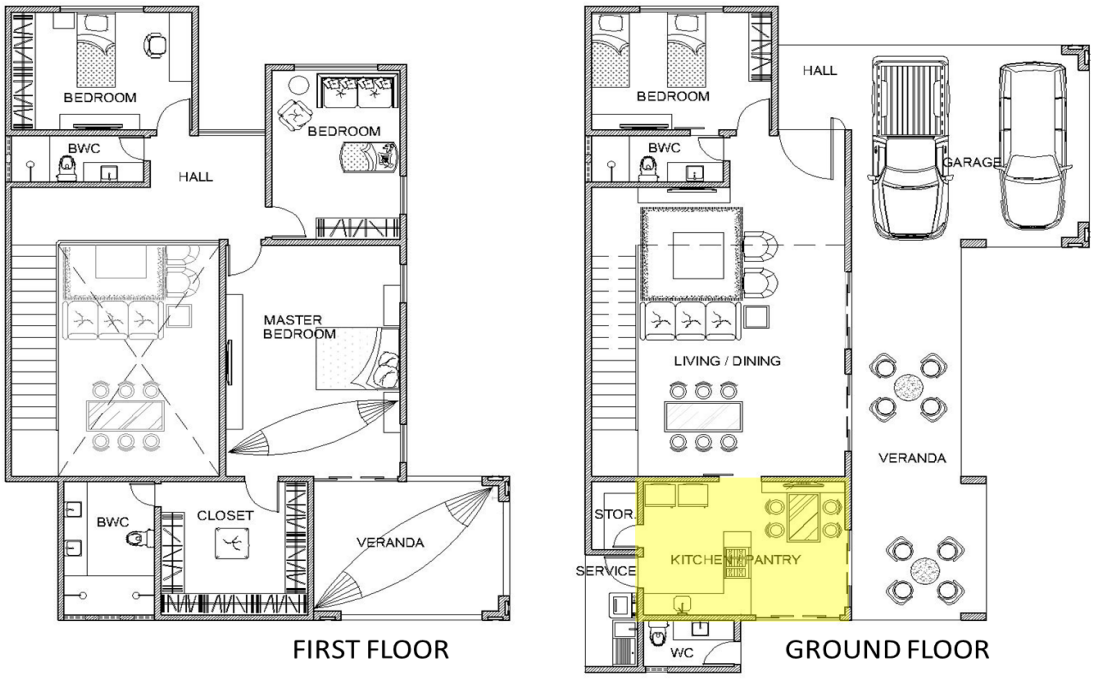

Figure 3: Gated condominium - the kitchen in yellow.
Source: Authors (2022).

3.2 Converted housing estate units

The data set about housing estates underpin an ongoing doctoral thesis and comprise forty-nine cases of houses built in two of the largest such developments in Natal: Ponta Negra and Cidade Satélite. They date from 1978 through to 1983 originally embodying distinct built versions, mainly conditioned by size, whereas plots were mostly similar in area. Sizes varied from 37.97m² embryo-like homes, to 118.50m² buildings, with three bedrooms (including one with en-suite wc/shower) and maid's bedroom plus wc/shower room. In her research on housing projects, Medeiros (2015) attested that almost 90% of the residents in these housing estate complexes claimed to have carried out renovations in their homes through the addition of rooms, repair and/or rearrangement of internal walls. At present, these houses range from two to six bedrooms, and from 92.31m² to 320.49m², with an average 198.49m².

Kitchens have been considerably altered. Originally built with an average size of 7,00m², most have doubled in area, some to over 30,00m², so that their mean area is now 17,92m². This corroborates França's (2008) findings concerning flats in Brasilia (DF), a turn of events that deny modernist ideals of a "laboratory of housework" associated to the concept underlying the Frankfurt kitchen. Elseways, it signals the preference for availability of eating space in the kitchens, which were, in most housing estate cases, extended to fully occupy the free spaces at the sides of the plots so that they now sit in a central-lateral position within the building shells. Half of the cases connect to living or dining rooms or to a transition space leading to them and to the exterior. 60% of cases connect to the service area, which may, alternatively, be part of outbuildings that sometimes also accommodate servants' quarters and/or storage rooms (Figure 4).

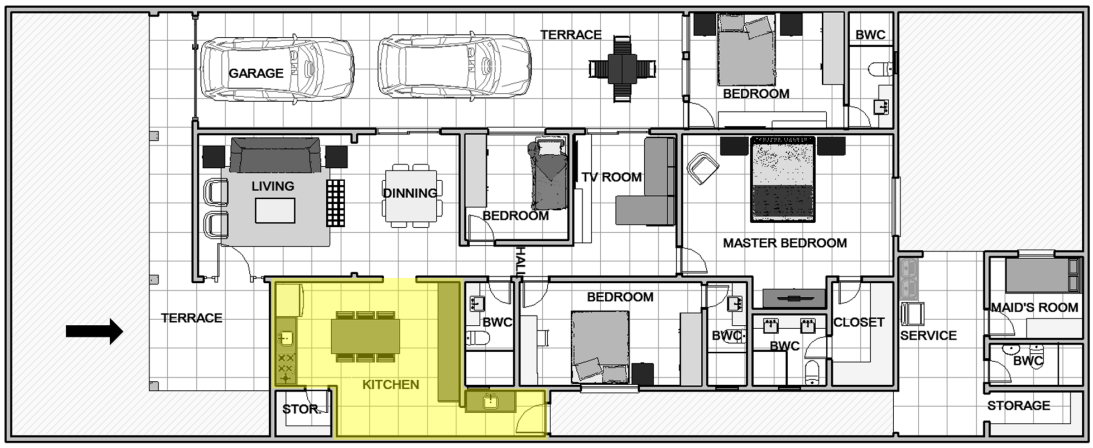

Figure 4: Case in housing estate - the kitchen in yellow.
Source: Authors (2022).

In 78% of cases, kitchens are part of a ring (type c spaces) and in 20%, of two or more rings (type d spaces), mostly going through the exterior, a situation that echoes traditional Brazilian domestic configuration patterns, signalling the importance of the exterior as an integrating (or segregating, as the occasion may be) space that grants (or not) access to the various categories of house users – served and serving inhabitants and visitors – each with their proper entrance door (Trigueiro, 2015).

3.3 Speculative flat units

This data set comprise sixteen plans of flat units advertised for sale in the real estate section of Correio da Paraíba Sunday issues published between 2006 and 2015 in João Pessoa. The studied cases range from 34.66m² to 125.70m² (76.09m² on average), and the selected plans represent the types of space layouts most offered on the market – with two or three bedrooms (one linked to an en-suite wc/shower room) plus a separate WC/shower room – besides living room with adjoining dining space, kitchen, service area, and, sometimes, veranda and servants' quarters (bedroom and WC/shower). Kitchens are invariably at the back of the building shell (opposite the flat's balcony, but close to the entrance door), being sized from 3.31m² to 12.54m², a value that represents 5.10% to 12.01% of the total area of the flats.

The designed function for each room was easy to visually identify in the examined 16 plans, even in those where there was no labelling, due to the furnishing presented in the layouts. The triad "sink-stove-refrigerator" was present in all samples, 31.25% also displaying a freezer[4] and 6.25% a double sink. Over 90% of the kitchens were organised in a linear layout, 50% with fixtures and fittings lined along the same wall and 43.75% along two walls, facing one another; 6.25% of cases, the larger ones, are L-shaped. The presence of a table in the kitchen layout was identified in 43.75% and in 25% this space was labelled as copa – roughly the equivalent of the English pantry, for keeping tableware,

[4] The presence of freezers in Brazilian kitchens dates back to the 1970s as the heyday of innovations "in imitation of the American way of life", according to Veríssimo and Bittar (1999, p. 114). Studies have pointed out the reduction of freezers in the layout representations of new apartments ads (Vespucci, 2017, p. 75), which is attributed to various factors such as: reduction of space, less frequency of cooking, the energy saving agenda, etc.

serving dishes and, in the Brazilian traditional home, for eating daily meals[5]. In 68.75% of the kitchens, light and air enter through the opening – window or balcony – in the service area, usually adjacent to, and delimited from, the kitchen by a low narrow wall (Figure 5). Although considering the climate – and the bright sunshine all year round –, this does not seriously undermine lighting in the kitchen, but it reduces thermal comfort in a space that is usually particularly overheated. In 25% of kitchens a window opens to the exterior, and to the service area in 6.25% of cases.

Figure 5: Porto Bristol Residence - the kitchen in yellow.
Source: Correio da Paraíba - Classificados, 2007-01-07, p. 18, edited by the authors.

As usual, most kitchens connect to the service area and the dining space; 31.25% of cases connect to a mediator space and 25% to a semi-private circulation thus forming an exterior ring. This ring indicates the presence of distinct accesses intended for distinct users, related to the social and service spheres of domestic life, a scheme that appears perpetuated in time. Some historians consider such circulation separators an architectural materialisation of the relations between masters and their enslaved servants (Lemos, 1996, p. 79) of the Brazilian colonial and imperial eras. In our not so long history of multi-family housing (the first blocks of flats appeared in Rio de Janeiro, round the 1930s) separated accesses were common features even in flats so small that the service and social entrance doors touched one another (Trigueiro and Cunha, 2015; Morais, 2017). In 43.75% of the studied flat units a maid's room, plus en-suite wc/shower, is present, but 12.5% of these plans are laid out so that walls may be knocked off to "revert" the maid's room into a study, a closet, another bedroom or whatever cell appended to the bedroom sector and no longer exclusively accessible through the kitchen. Only

[5] When there is a *copa* in or next to the kitchen, this tends to become the main space for eating, while the dining room or dining area is kept for sporadic meals in the presence of visitors or on special occasions. In a scenario of socio-spatial segregation, these less formal eating arrangements are also the exclusive meal setting for servants.

three- or four-roomed flats offer a maid's bedroom and only the flats with a maid´s bedroom have a service entrance door. In smaller flats, kitchens tend to be visually integrated with the social sector. In 18.75% of cases the inequality expression of integration values shows the usual social sphere as the most accessible spaces whereas verandas and the exterior occupy the segregated half of the expression – Living > Dining > (master) Bedroom > Veranda >Kitchen > Exterior. In 12.5% kitchens (followed by the exterior) take over living rooms in the ranking – Dining > Kitchen > Exterior > Living > (master) Bedroom > Veranda – and in another 12.5% the master bedrooms sit in the most accessible half of the scale – Dining > Living > (master) Bedroom > Kitchen > Exterior > Veranda. This has come as a surprise considering that, from the 1980s or 1990s on, master bedrooms have tended to become as segregated as the servants' quarters have traditionally been. Kitchens remain as the most erratic key domestic space in the scale of accessibility.

4 ON THE MORPHOLOGY OF CONTEMPORARY KITCHENS: SHAPE AND CONFIGURATION

4.1 About shape – the basic geometric features of area and position

Kitchens were observed in the three sets of dwelling plans with the aim of gauging whether their area and position in relation to other rooms and functional sectors (Amorim, 1997) – social, service and private – echo features in 19th or 20th century homes or indicate diverse trends. Flats are the smallest units, ranging from 34.66m² to 125.70m², as stated earlier, converted homes in housing estates sit in-between (92.31m² to 320.49m²), and architect-commissioned private houses in gated condominiums are the largest (180.20m² to 451.57m²), as well as less diverse in area, with the smallest house being around 40% as big as the largest one.

Spaces mainly used for cooking have varied greatly in size along previous centuries, regardless of regional and social differences. Similarly, larger kitchens can be many times as big as their smallest counterparts in this data set; in housing estate units the largest kitchen is five times over the size of the smallest one, in flats the difference gets to three times over, and in condominium houses they vary the least. Also, in tune with traditional records, kitchens tended to increase in size following the increase in the overall area of the building, as well as in the number of bedrooms (Figure 6).

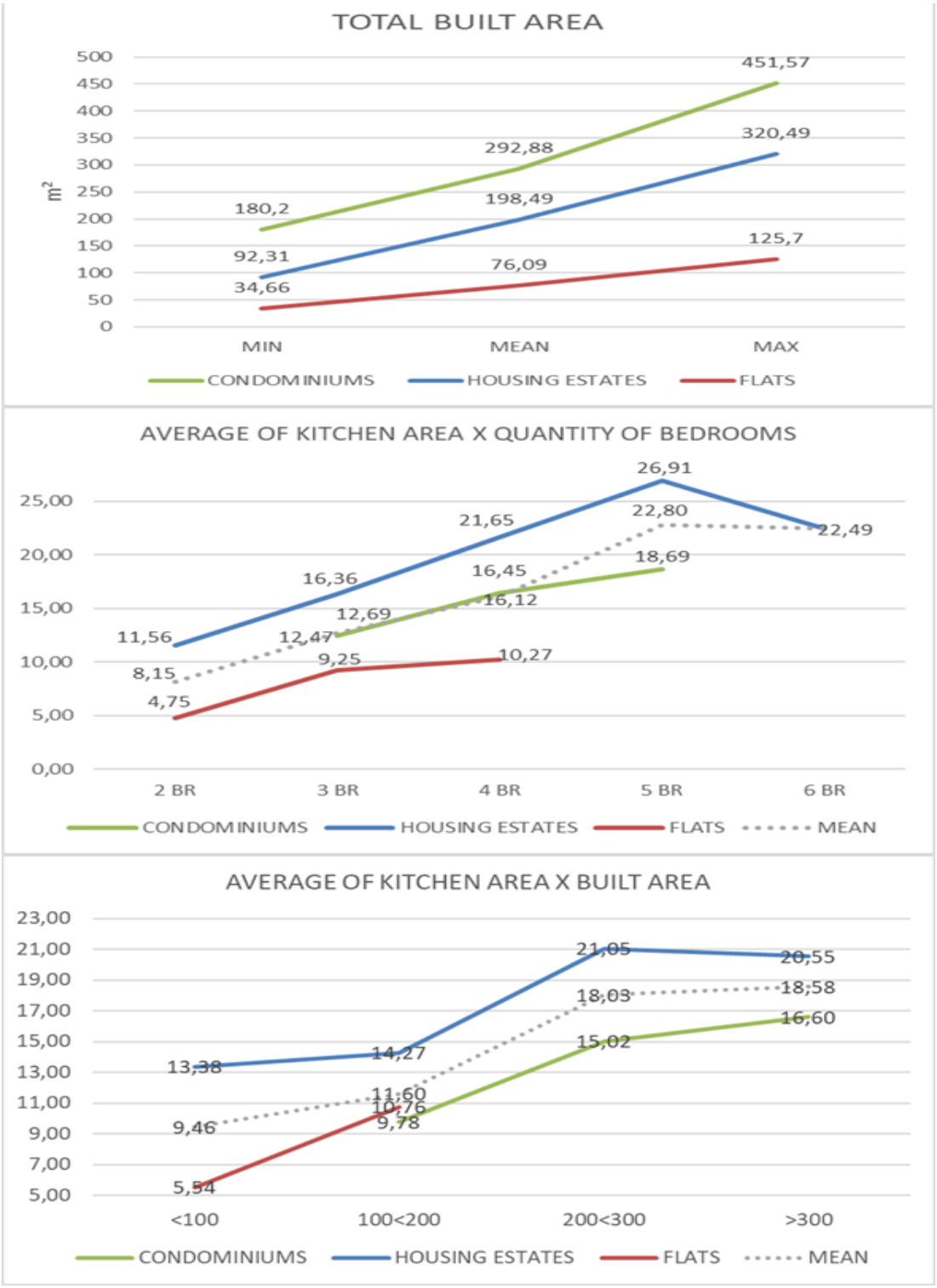

Figure 6: Built areas in the three building types, average kitchen area in relation to overall built areas and number of bedrooms in the three building types. Source: Authors (2022).

However, whereas in historical accounts, kitchens were invariably positioned on the rear half of buildings, they now appear anywhere, mostly in or around the geometrical centre of plans. In housing estates, for instance, 73.5% of kitchens sit at the centre, 20.4% at the front, and only 6.1% at the rear. In condominiums, 25% at the centre, 6,25% at the front and 68,75% at the rear, as in pre-modern dwellings. In flats 100% of kitchens sit at the back, also reflecting colonial schemes of Brazilian dwellings.

4.2 About configuration: the space syntax of kitchens

The topological accessibility of kitchens have varied well in studies of past residential space structures, mainly due to its connections to the exterior that has traditionally been a strong integrator in Brazilian dwellings (Trigueiro, 2012; Trigueiro, 2015). The data sets comprising houses, both in the gated condominiums and in the housing estates, confirm the trend, since in all condominium houses and in 98% of housing estate units, kitchens are part of one or more rings (*type c* and *type d* spaces, respectively) that include the exterior. In only 25% of flats, however, kitchens sit on a ring, a turn that signals the discontinuity of service entrances, which used to be an almost obligatory feature, even in small flats, until quite recently.

It has been mentioned that perhaps the topmost diehard domestic spatial property inherited from earlier times is the role played by kitchens as a threshold, setting apart what should and should not be exposed to eyes other than those of the inhabitants. In the studied data sets, kitchens link to the service areas in all condominium houses and flats, and in 60% of housing estate units, and to the dining room in nearly 70% of flats and in 37% of housing estates and condominiums. Other frequent links were living rooms (nearly 40% of housing estate cases) and a circulation space that mediates access among sectors (50% of condominiums houses and almost 30% of housing estates and flats) (Figure 7).

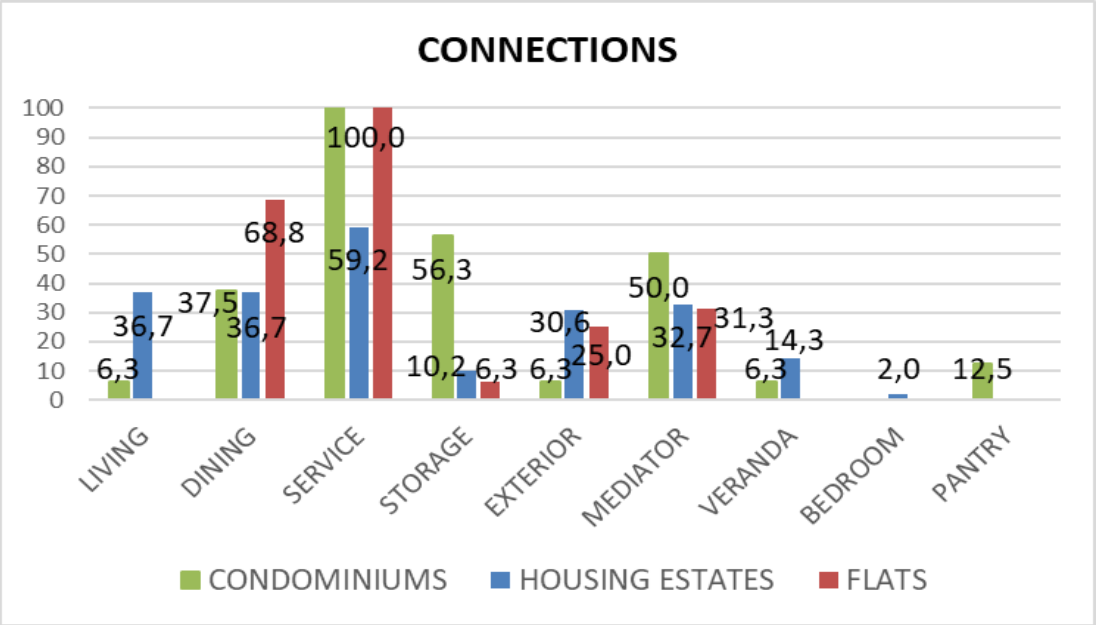

Figure 7: Spaces connected to kitchens according to building type.
Source: Authors (2022).

Inequality expressions of integration values were worked out for the three datasets taking into account the six spaces that are considered most essential in the domestic compound since they represent, and allow for, potential interaction among inhabitants and between these and visitors. In the first group kitchens figure, of course, as a locus of family interaction and that of family and servants if the case may be; living and dining rooms stand for settings of potential interaction between inhabitants and visitors, as also do, in the case of Brazilian homes, verandas / terraces / balconies; bedrooms (in this

study the master bedroom) figure as the locus of inhabitants' privacy; the exterior also needs to be taken into account given its importance as an integrator in Brazilian domestic architecture and indeed its relevance in all space syntax studies that deal with interfaces concerning closed and open spaces. Exteriors are here considered as the outside of the domestic unit, the open space within the private plots in the cases of housing estate and condominium units, and as the outside of flats linking private spaces and common areas (halls, lobbies, corridors).

The integration order of key domestic spaces is more homogeneous in flats, not surprisingly, since they are standard real estate products being offered in the market with the possibility of customization by the owner. Even thus, there is an oscillation in the integration of the kitchen, which strengthens the idea of changing roles and lifestyles in contemporary living.

Kitchens were found to be in the most accessible side of the scale of integration value in 62% of flats units, 47% of housing estate units and 31% of condominium houses. However, in 25% of flat units and in 18% of both housing estate and condominium houses, kitchens sit in the segregated scale, while in the remaining cases (50% of condominiums, 35% of housing estates and 12% of flats units) kitchens are neither particularly integrated nor segregated (Table 1).

Table 1: Integration hierarchy of kitchens according to the studied building types.
Source: Authors (2022).

Residential types	Most integrated	Fairly integrated	Less integrated
Condominium (16)	5 = 31,25%	8 = 50,00%	3 = 18,75%
Housing estates (49)	23 = 46,94%	17 = 34,69%	9 = 18,37%
Flats (16)	10 = 62,50%	2 = 12,50%	4 = 25,00%

Thus, the inequality expression of integration values concerning the three data sets reveals kitchens as the space that varies most in relative position. Whereas dining and living rooms sit consistently in the integrated side of the expression, and the exterior as well as verandas, in the segregated end, kitchens jump up and down the scale relentlessly. Dining rooms are among the most accessible main domestic spaces in 93,8% of flats, 86,1% of converted housing estate units and 53,1% of condominium houses, living rooms being also well integrated in 56,3%, 49,0% and 56,3% of each data set, respectively. Master bedrooms – a formerly integrated domestic space turned gradually more and more segregated from the mid-20th century on, were found to vary mildly in the studied cases, being in the segregated side of the expression in over 80% of houses (in housing estates and condominiums), as expected for contemporary cases, but in only 37.5% of flats, in which master bedrooms are among most integrated spaces in half the cases. Would that be a new trend? The question remains to be investigated as the current doctoral theses proceed. However, this is a timid outcome if compared to the way kitchens move around the expression of inequality regarding the integration values of key domestic spaces (Figure 8).

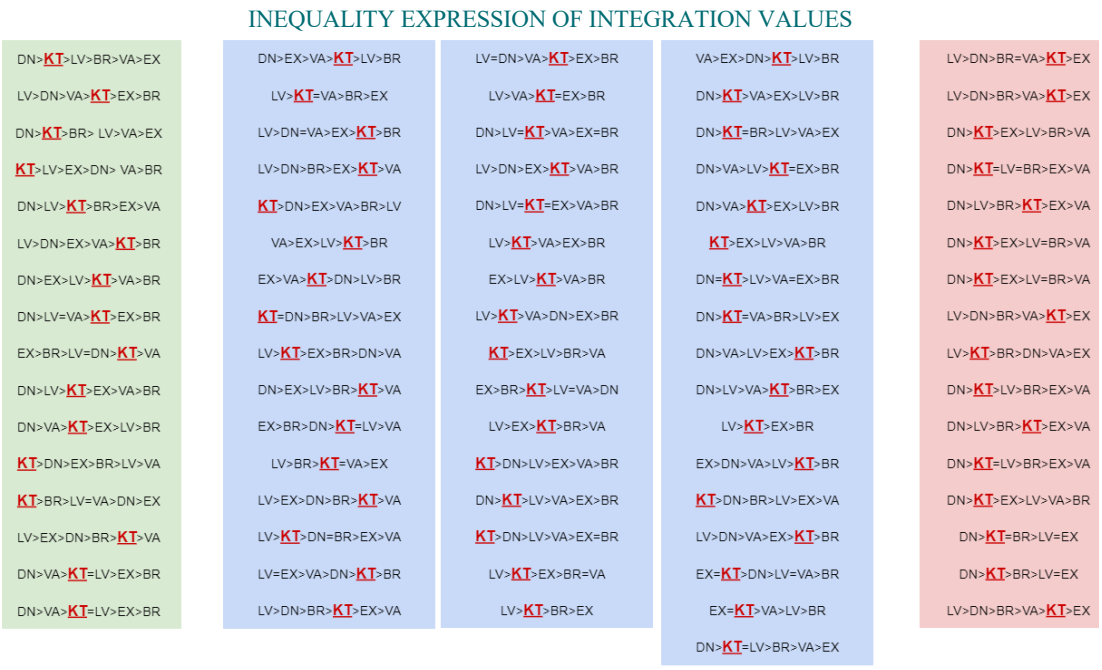

Figure 8: Accessibility hierarchy according to the studied building types: condominium houses (green), housing estates (blue) and flats (pink). Source: Authors (2022).

5 GLIMPSING THROUGH A STILL UNCLEAR IMAGE: A NEW ORDER?

Other studies concerning the nature and role of kitchens in present day Brazilian homes have pointed out similar results. Vespucci (2017, p. 123), investigating flat plans, advocates that although kitchen functions remain the same, they drift away from a separated service enclave to exert influence over the social sphere. The integration kitchen-living-veranda is strongly related to the morphological and syntactic alterations found. The kitchen layout in houses of gated condominiums, designed to include new spatial arrangements of the “island” or “peninsula” kind, emphasises the cooker, in the guise of a so-called “cooktop” (also named as such in Brazilian Portuguese). In general, kitchens in these houses appear more closely related to the social spaces. Its most eloquent current expression in Brazilian homes is the provision of a cooking facility, dubbed “gourmet space”, within or next to, verandas or other leisure areas. Thus, the action of cooking – and its unfailing cleaning chores – is upgraded into the leisure milieu, ceasing to be a backstage activity, not seldom hid in “auxiliary kitchens”, tucked away in outbuildings. Such arrangement, which had been very popular in middle class homes of the 1970s and 1980s is still found in the housing estates converted houses herein examined.

The social upgrading of kitchens requires the inclusion of an image of beauty and modernity to be displayed for neighbours and visitors in a frame of exposure usual in gated condominiums, where openness and transparency compensate for – or are thought to compensate – the opaque high walls surrounding the compound, and the sense of safety, a core attractor in this residential type, stimulates. The transparency, generously adopted in gated condominiums, exposes a scenery of social interplay among equals, bonded together by the spirit of safety promised to inhabitants that reside within walls, no longer confined to the living and dining spaces, but often extended to the kitchen and, especially,

to a “gourmet terrace”, a space that is sometimes linked to the kitchen, sometimes free-standing in open view of outsiders.

The “gourmetization” of social life in contemporary dwellings has also inspired the appearance of “varandas gourmet” or gourmet balconies in blocks of flats in the last decades as often mentioned in studies addressing recent changes in Brazilian domestic space design (Amorim and Loureiro, 2005; Valéry, 2011; Griz, 2012; Brandão and Manhas, 2015; Macedo, 2018). According to Anitelli “[…] the balcony can also contain the same furniture as the living and dining rooms, simulating an ambience normally existing in the social area of the apartment: armchair and sofa, next to the dining table. In other cases, in addition to the living and dining areas, the balcony also contains equipment that are typical of kitchens, such as countertops for preparing food and sink, as well as a barbecue” "(Anitelli, 2015, p. 431).

If the data sets examined here can be considered representative of contemporary living, the suggested outlook may, therefore, be that middle-class domestic space in Brazil is becoming more diversified and that diversification seems to evolve very much around the kitchen. However, it may also be the case that the intermittent geometrical and topological properties surrounding kitchens, as found here are traces of an unpredictable order yet to come to light.

None of the plans presented in the collected advertisements of flat units included gourmet verandas or any cooking facility other than the kitchen itself, but other novelties reinforce the prospect of change surrounding the service area. In a flat advertised in João Pessoa in January 2014 (Figure 9), the text highlights that this 73.67m² apartment includes a bedroom with an en-suite wc/shower room and 2 reversible bedrooms: one that may be turned into another bedroom (complete with en-suite wc/shower room) or be used for whatever purpose, and another (also with en-suite wc/shower room) that may be a third bedroom or a maid’s room. In this very curious arrangement, the maid´s room shall probably come into play if its door that leads to the bedroom corridor is shut and the access is restructured through the wc/shower compartment (!!?!!), the service area and, of course, the kitchen.

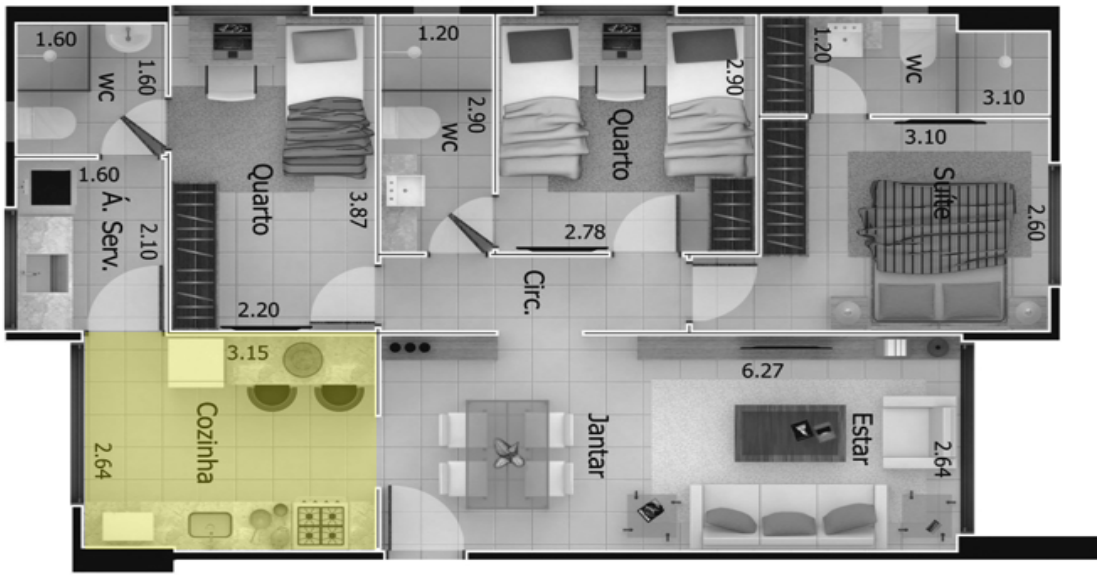

Figure 09: St Tropez Residence - apartment with reversible spaces - the kitchen in yellow.
Source: Correio da Paraíba - Classificados, 2014-01-12, p. 01, edited by the authors.

The dissemination of the reversible bedroom responds to the disappearance of a living-in maid – and, therefore, to a maid's room –, as well as to the expansion of the intimate sector, which has increasingly tended to become an area of prolonged permanence (Tramontano, Pratschke and Marchetti, 2000; França, 2008; Amorim and Loureiro, 2005).

The most advertised layout component in middle-class apartments is the reversible bedroom – an ingenious solution that allows for the use of the servants' bedroom either as a space within the private or the service sector. From a morphological point of view, that component forms a kind of bypass from one sector to another, generating an internal ring that includes the living room, the service area and the hall linking the bedrooms. Its origin is related to the emergence of new family arrangements, meeting the needs of families that can no longer afford the permanent services of a maid, or those in need of space, but unable to pay more for apartments with a larger area. (Amorim and Loureiro, 2005).

Will the shadowy legacy of the segregated, invisible, kitchen-mediated servants' sphere that has been countlessly equated to the sinister senzalas – the slaves' quarter – of colonial and imperial Brazil, linger on forever in compromising schemes such as the reversible bedrooms? Or would the – at last – riddance of the maid's room, together with service entrance doors and "reversible" bedrooms be the new order?

Our findings indicate that two coexisting scenarios predominate at present in the Brazilian home: one that may be regarded as a sociocultural setting similar to that in current European homes, and another still related to what should not be fully seen, for being, perhaps, associated with second-order inhabitants: women and servants.

Figure 10 shows some of the variety in size, shape and relative position of kitchens within the domestic compound, which helps to illustrate some of the issues raised in this brief analysis of the main service room as loci of sociocultural relations amongst categories of household members – employers and employees, but also residents and visitors (particularly concerning what visitors can see from the social area).

Figure 10: Examples of the variability of kitchen visibility in relation to social areas - the kitchen in yellow. Source: A-B-C, Kleyne Rondelly and Matheus Duarte; D-E-F, by authors; G-H-I, Correio da Paraíba - Classificados, G, 2008-01-05, p. 07; H, 2010-01-10 - p. 15; I, 2008-01-20 - p. 03, edited by the authors.

Despite this variety, there seems to be a growing tendency to hide the kitchen less. The so-called open kitchen (or "American kitchen" in the Brazilian real estate jargon), once commonly restricted to holiday homes, is increasingly being adopted in permanent residences so that the market is responding with the possibility for customers to decide if the kitchen is to be fully or partially joined with the social sector. Therefore, **neither core nor backstage** is the present answer to our question as we seem to be living in a moment of transition that points to a range of possibilities concerning the ways kitchens may relate to the domestic whole. Let us just hope that these possibilities evolve towards a less segregating domestic milieu.

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REFERENCES

Amis, M. (2011) *The pregnant widow.* London: Vintage Books.

Amorim, L.M.E. (1997) 'The sectors' paradigm: Understanding modern functionalism and its effects in configuring domestic space', *Proceedings of 1st International Space Syntax Symposium*. Volume II: Domestic space. London, UK, 16-18 April. pp. 18.1-18.14.

Amorim, L.M.E. and Loureiro, C. (2005) 'Dize-me teu nome, tua altura e onde moras e te direi quem és: estratégias de marketing e a criação da casa ideal 2'. *Arquitextos*, 05(058.06).

Anitelli, F. (2015) *[Re]produção?: repercussões de características do desenho do edifício de apartamentos paulistano em projetos empreendidos no Brasil*, PhD thesis, Universidade de São Paulo, São Carlos.

Bonduki, N. (2008) 'Política habitacional e inclusão social no Brasil: revisão histórica e novas perspectivas no governo Lula', *Arq. urb*, (1), pp. 70-104.

Brandão, L.S.C. and Manhas, A.C.B.S. (2015) 'Espaço doméstico em edifícios multifamiliares. Uma percepção da cozinha gourmet no setor de serviço contemporâneo em apartamentos de alto padrão em Maceió AL', *Minha Cidade*, 16 (184.05).

França, F.C. (2008) *Indisciplina que muda a arquitetura: a dinâmica do espaço doméstico no Distrito Federal. Brasília*, PhD thesis, Universidade de Brasília, Brasília.

Griz, C.M.S. (2012) *Quando o luxo é necessário: sobre projetos de apartamento no Recife*, PhD thesis, Universidade Federal de Pernambuco, Recife.

Hanson, J. (2003) *Decoding Homes and Houses*. Cambridge: Cambridge University Press.

Lamberts, R., Dutra, L., and Pereira, F. (2013). *Eficiência energética na arquitetura*. São Paulo: PW.

Lemos, C.A.C. (1996) *História da casa brasileira*. São Paulo: Contexto.

Macedo, P.F. (2018) *"Apertamento": um estudo sobre dimensionamento e funcionalidade na produção imobiliária de habitações mínimas verticais em Natal (RN),* Master thesis, Universidade Federal do Rio Grande do Norte, Natal.

Medeiros, S.R.F.Q.D. (2015) *Produção do espaço residencial em Natal: renda, segregação e gentrificação nos conjuntos habitacionais,* PhD thesis, Universidade Federal do Rio Grande do Norte, Natal.

Morais, F.O. (2017) *O quartinho: a dependência doméstica na habitação multifamiliar na cidade de João Pessoa (PB) no Século XXI*, Master thesis, Universidade Federal de Paraíba, João Pessoa.

Paraíba (2022) In: Wikipédia. Flórida: Wikimedia Foundation. Available at: <https://pt.wikipedia.org/w/index.php?title=Para%C3%ADba&oldid=62885403>. (Accessed: 30 January 2022).

Rio Grande do Norte (2022) In: Wikipédia. Flórida: Wikimedia Foundation. Available at: <https://pt.wikipedia.org/w/index.php?title=Rio_Grande_do_Norte&oldid=62892285>. (Accessed: 30 January 2022).

Tramontano, M., Pratschke, A. and Marchetti, M. (2000) 'Um toque de imaterialidade: o impacto das novas mídias no projeto do espaço doméstico', *Seminário Internacional Psicologia e Projeto do Ambiente Construído*, Rio de Janeiro, RJ, 23-25 August. pp. 1-4.

Trigueiro, E.B.F. (1997) 'The dinner procession goes to the kitchen: a syntactic approach to nineteenth and early twentieth century British houses', *Proceedings of 1st International Space Syntax Symposium*, Volume II: Domestic space. London, UK, 16-18 April. pp. 19.1-19.16.

Trigueiro, E.B.F. (2012) 'Are colonial sobrados seen-one-seen-them-all buildings?', *Cadernos Proarq: Revista de Arquitetura e Urbanismo do PROARQ*, 19(1), pp. 194-211.

Trigueiro, E.B.F. (2015) 'Is there a Brazilian home? An overview of domestic space and modes of life', *Proceedings of the 10th International Space Syntax Symposium*, London, UK, 13-17 July. pp. 11.1-11.12.

Trigueiro, E.B.F. and Cunha, V. (2015) 'O quarto da empregada: história de um apartheid imutável num espaço doméstico em mudança', in Guimarães, V. (ed.). *Doméstica: coletânia de textos + filme.* Recife: Desvia Produções, pp. 120-139.

Valéry, F.D. (2011) 'Da casa de família ao espaço gourmet: reflexões sobre as transformações dos modos de morar em Natal-RN'. *Cadernos CERU,* 22(1), pp. 147-174.

Veríssimo, F.S. and Bittar, W.S.M. (1999) *500 anos da casa no Brasil: As transformações da arquitetura e da utilização do espaço de moradia*. Rio de Janeiro: Ediouro.

Vespucci, G.M. (2017) *Do quarto de empregada à varanda gourmet: uma análise comparativa das plantas de apartamento em Florianópolis entre 1954 e 2008*, Master thesis, Universidade Federal de Santa Catarina, Florianópolis.