

Architecture

Appropriations of Domestic Space in the Federal District

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Abstract

This paper is a result of the field research for the doctoral thesis and it is an attempt to contribute to a broad spectrum of studies related to domestic space analyzing the morphology of apartments (geometric and configurational features) and their appropriation (occupation and use) by the inhabitants. The main goal is to understand the people's ways of living in apartments of Brasilia and of the Federal District, Brazil, analyzing spaces as originally built and after being modified by their occupants, studying domestic spaces' uses and their adaptations in the last five decades. Thus, the analytical model considered the space appropriation by residents and their morphological (geometric and topological) limitations, where the Space Syntax and other theories and methods were used looking for a logic – or even a system – in this historical process of appropriation. The sample consists of apartments of buildings for strictly residential use, including the original (140 plans) and restructured projects (60 plans). This sample is representative of the socioeconomic diversity and of the territorial occupation development of the Federal District (Brasilia and some satellite cities). Having the Pilot Plan's creation as the landmark for a modern concept of inhabiting, the study considered apartments built in different decades, starting with those built in the 1960s until those recently built (after 2000), allowing to draw a map of the domestic space's main changes in the period. The residents' appropriation is done by what is defined in the study as "heavy indiscipline", understood as deep changes in the interior space of the apartments by the residents. These indisciplines are ways to question the physical structures of the apartments, and the residents' interventions suggest discrepancies between views of the real estate market and of users. The data involve lessons on how to design minimizing future costs on the residents' part, forced to adapt the apartments to meet their wishes and ways of living. The analysis of the modified plants showed that preferences and needs of the population are in some respects, similar in different localities and social classes. The residents' interventions show a cultural resistance to certain modern spaces, confirming their preferences for some characteristics of pre-modernist houses. The analysis of morphological characteristics, comparing modified and original plants, showed significant changes in the domestic spatial structure, which undermines the tripartite structure (private, social, and service's sectors) of the Brazilian domestic space, a legacy of the Nineteenth Century bourgeois home. This shows a strong trend for narrowing the domestic space being even more privative for the family, which is clearly seen in the configuration and the appropriations.

1. Introduction

The large areas destined exclusively for housing, comprising buildings for strict residential use, are a marked characteristic of 1940s and 1950s Brazil. Modern Brazilian architecture was consolidated in

this period and huge housing blocks came to be adopted as a housing solution. By the 1960s, residential blocks had already been consolidated as a new lifestyle - living in apartments. The housing model adopted in Brasilia is a result of the maturing of this concept during the early part of the 20th century. This modernist influence can be found in the main part of Brasilia, the Plano Piloto.

This paper is the result of a doctoral research that fits into the category of studies on architectural space which highlight “the void” and its relation to the lifestyle of residents, rather than to the sculptoric aspects – volumetry, façade materials etc. (Coutinho 1998). Thus, it constitutes an analysis of inhabited/lived space (Lefebvre 1991; 2006). The analytical model examined the appropriation and transformations of space by residents at two levels: i) use and occupancy; ii) transformations in the void. These levels were described as “indisciplines”, or in other words, attitudes which challenge pre-established social structures (Certeau 2000; 2002).

Domestic space is understood as a social structure, and the architectural plan – the sketches on paper (Coutinho 1998) – is understood as a “socio-spatial representation” and thus a pre-established socio-spatial structure about which there are different kinds of appropriation and transformations. The term “indiscipline” is used here to define these appropriations which question the structure of the apartments, as an expression of the autonomy of the subject in relation to space, resulting in alterations which redefine the size and topology of the spaces (“heavy indiscipline”).

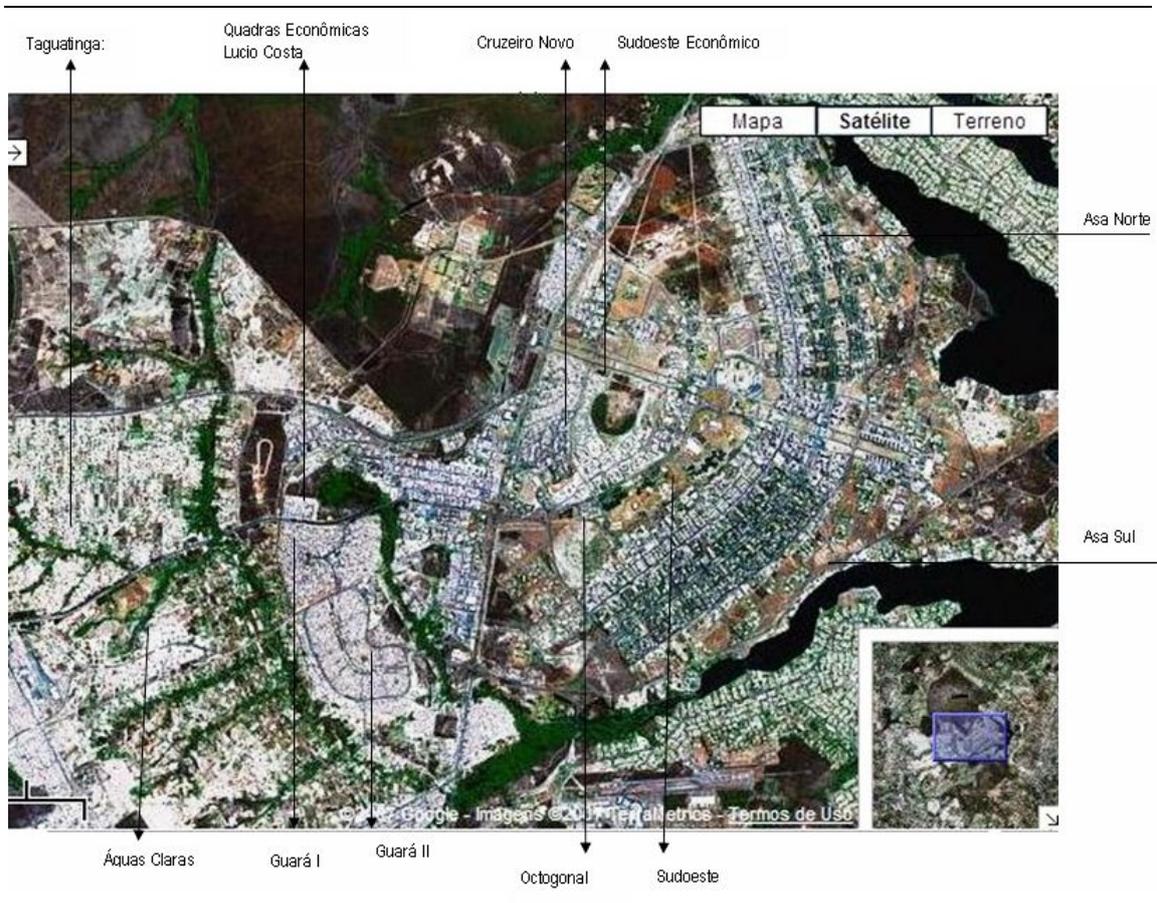


Figure 1

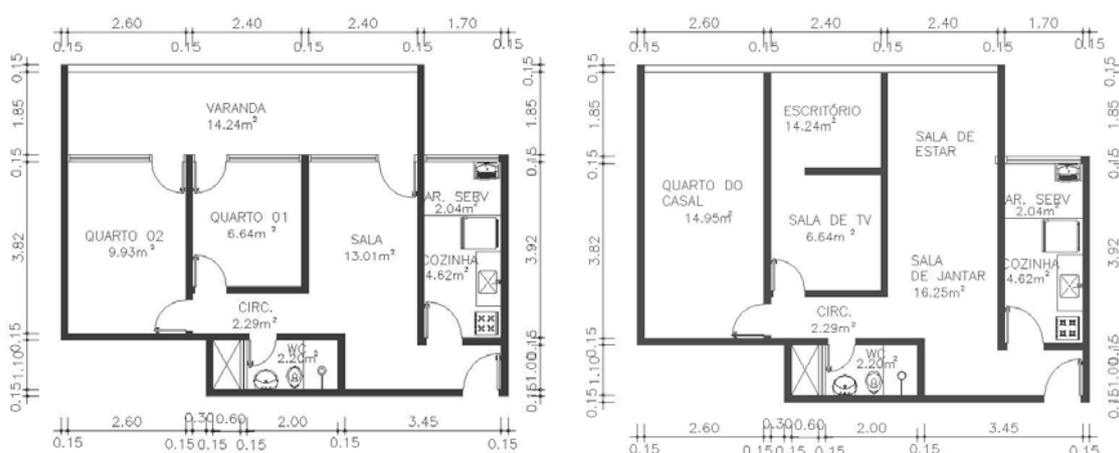
Map of federal district and location of research areas (Source : Google Maps)

Analytical categories were used for the topological analysis (integration, distributiveness and depth)¹ of Space Syntax (Hillier and Hanson 1984). Given the specific nature of this paper, major changes will be highlighted, particularly the topological alterations. Whenever possible, “light indiscipline” (redefinition of functions or labels) will be highlighted. The study undertaken in the Federal District, Brazil, from 2004 to 2007, comprising 11 areas² of vertical collective housing, over 160 people interviewed and analysis of about 200 building plans. The aim was to investigate

lifestyle in apartments and how this has been transformed over the last few decades. It is a reading of lifestyle from the point of view of space and its forms of appropriation.

2. Heavy indiscipline: main discoveries

The analysis of major changes have revealed alterations in the void of the apartments and not only a change of functions or labels (light indiscipline) of the originally-defined spaces. These interventions express the real and concrete appropriation of domestic space and alter the apartments geometrically and topologically. Figure 2 is an example of this kind of transformation. Heavy indiscipline was noticed in about 40% of the building plans analysed. For a better understanding of the consequences of these alterations, firstly, changes to the original plans were characterised along the decades, and, second, the original plans were compared with the transformed ones.



Address: QE 02 – BLOCK F – GUARÁ 1 – Date: 1992 and
 QE 02 – BLOCK F – GUARÁ 1 – Current

Figure 2

Original plan and modified plan

2.1. Geometric Interventions

2.1.1. Original Plans: sector areas

Analysis of the sectors revealed a significant reduction in the size of the service areas (kitchen, laundry and servants' quarters), in all kinds of apartments (1,2,3 and 4 bed-room) through the decades. All the rooms in this sector were reduced in size, including the apartment kitchens of the upper middle class, when compared with the older apartments (the 1960s and 1970s). Analysis by sector revealed that in apartments whose total area had not undergone big changes along the decades under analysis (the case of 4-bedroom apartments) there are significant alterations in the interior of the sectors.

Four bed-room apartments were found to be the most homogeneous after studying the total area for decades (an average area of about 140m² was maintained), but when analysed by sector, it was found that the intimate sector has been prioritized in these apartments since the 1960s. The social sector grew noticeably during the 1970s. While the private sector (family's rooms and bathrooms) stabilized its area at around 50m², the social sector increased in size by about 40% - from 38m² to over 60m². In order to increase the area of the social sector, the service area was drastically reduced. In the 1960s, the service sector attained almost 30m² and came to measure less than half its size (about 12m²) in post-2000 apartments, a decrease of almost 60%. Therefore, there was greater investment in the social and private sectors, at the expense of the service area (Figure 3).

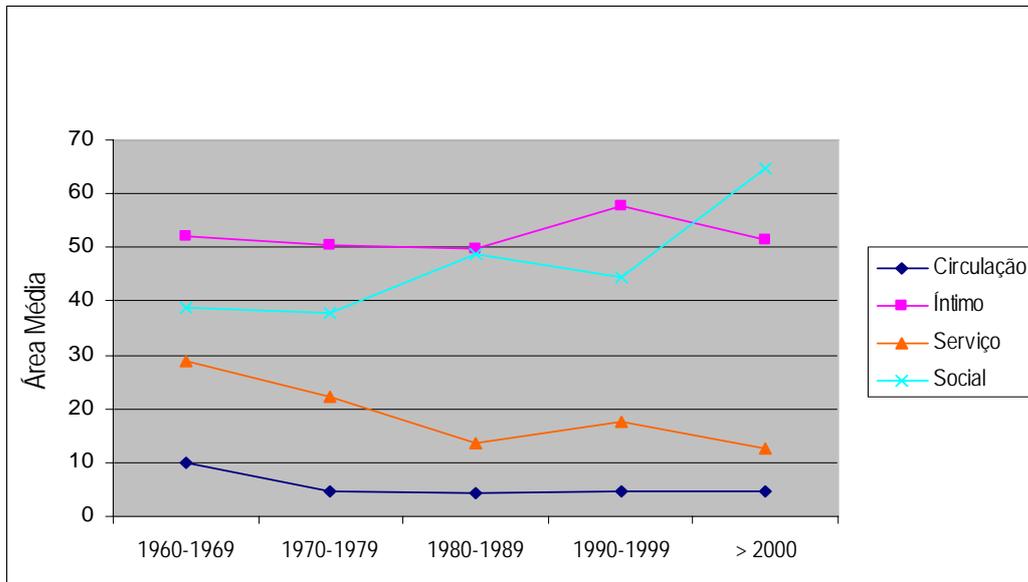


Figure 3
Average area of the sectors by decade (4 bedrooms)

In a more detailed analysis of the original plans, the study showed that the increase in size of the social and private sectors in 4 bed-room apartments did not necessarily imply an increase in size of the main rooms - living rooms and bedrooms. The reduction in the size of living rooms is drastic in latter-day apartments, a trend which has been demonstrated in apartments since the 1970s and 1980s. This reveals another side of the change in domestic space which has occurred over the last few decades: investment in the social sector did not necessarily imply an increase in size of the living room, since it reduced in size as a result of investment in other spaces of the sector, such as, for example, the balconies (Figure 4). The same occurred in the private area, whose increase in area is a result of the incorporation of the bathroom (suite) and the balconies and not the increase in the size of the bedrooms as such.

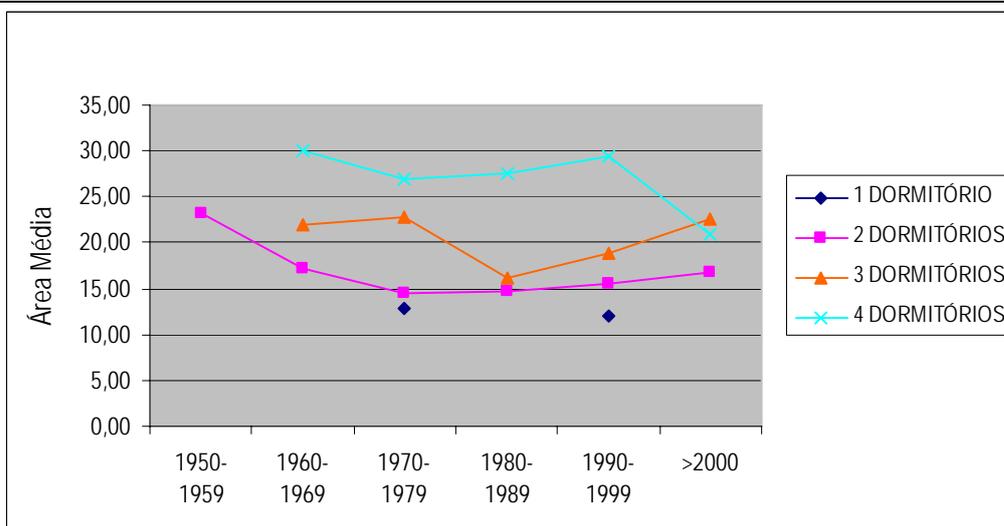


Figure 4
Average area of the living rooms by decade; Generally, there has been greater investment in the social and private areas in all kinds of apartments, at the expense of the service sectors. The difference between the larger apartments and the 2 and 3 bedroom ones for instance is that the latter also had their total area reduced, while in the four bedroom apartments only the service area reduced in size, while the other two sectors increased in area, as a result of the addition of new spaces in the residence.

2.1.2. Original and Modified Plans

Geometric analysis showed significant changes in the total area of the apartments, in the composition of the sectors and also in determining the dimensions of the main rooms. In comparing the alterations of residents with the original plans, it was possible to notice that there has been a change in size of the main rooms in the structure of domestic space in apartments. These changes confirm the importance attached to bigger and bigger living rooms, kitchens and bedrooms. The most noticeable fact in the modification of space is that there is an aversion to the trend towards having smaller kitchens, a modernist concept of the early 20th century which has survived in vertical housing.³ A smaller kitchen is predominant in original plans and is the target of the main alterations in the void. Analysis of post-alteration apartments showed that the average area of kitchens has increased in all apartments (1,2,3 and 4-bedroom). This corroborates the hypothesis that having larger kitchens is a common desire of the families, irrespective of the kind of apartment and income group (Figure 5). In order to enlarge kitchens, residents use part of the service area or the servant's quarters.

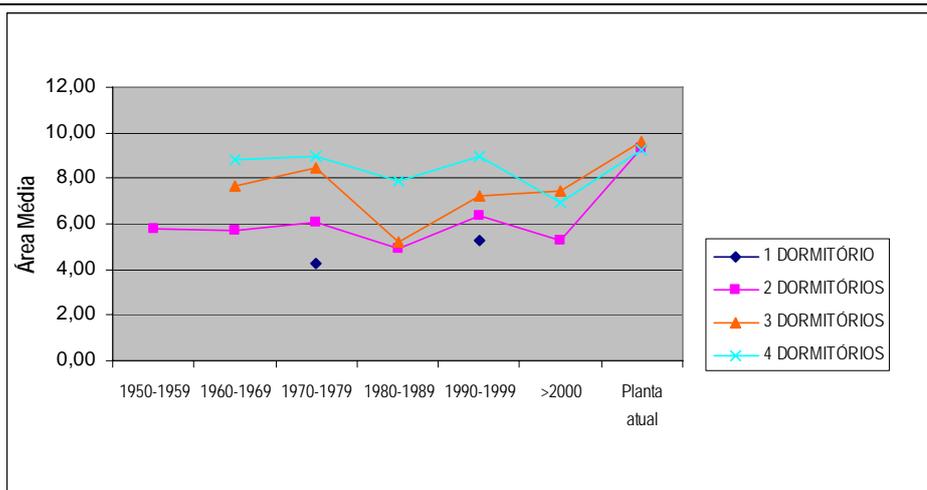


Figure 5

Average area of kitchens after remodeling

The desire to receive visitors in the kitchen was a recurrent justification to enlarge it, as the great majority of those interviewed said they were unable to use it for this purpose on account of its small size. Enlarging the kitchen is seen as an attitude which seeks to rescue the Brazilian cultural heritage of having this space as a family area and also for receiving visitors.

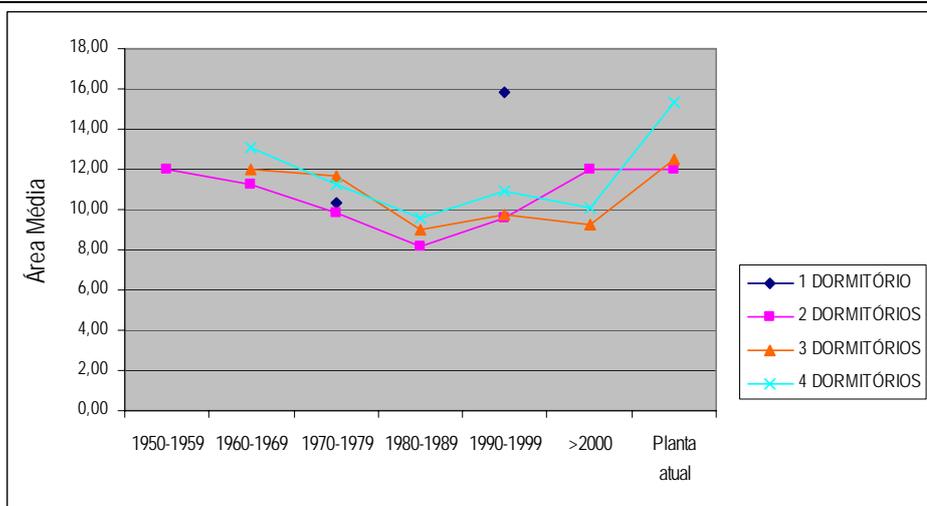


Figure 6

Average area of bedrooms after remodeling

Generally, bedrooms have gained more importance. This is even more evident in upper middle class apartments, where there has been the greatest increase in the size of bedrooms. After remodeling, bedroom sizes have exceeded the parameters of 1960s apartments (an area of about 12m²), the largest of the samples in all periods. This confirms the hypothesis that they have become larger on account of their multi-functionality, as they constitute spaces where all available household electrical appliances can be found (TV sets, computers, sound systems etc.), according to figures on use and occupancy. From the geometric analysis, one can deduce that the multi-functional nature of the rooms required that they be enlarged (Figure 6).

The increase in the average size of living rooms is among the main post-alteration geometric changes, making them larger than the older ones (the 1960s) at Asa Sul [South Wing of the Pilot Plan] . In this aspect, the Sudoeste borough sets different parameters for living room sizes in 4-bedroom apartments - about 35m (Figure 7). The increase in size of living rooms enhances the importance of this space in the current domestic structure of apartments, in spite of the trend towards having TV rooms. The living room is a hybrid space in apartments, as it is a common living space of the residents and also the most frequently used for receiving visitors (according to figures on use and occupancy).

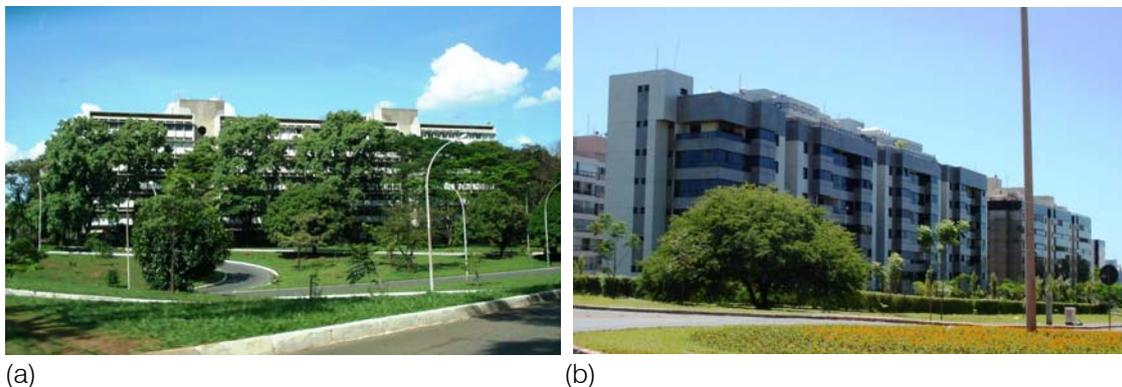


Figure 7

Examples of buildings in: a) Asa Sul (SQS), and b) Setor Sudoeste (SQSW)

In order to increase the size of the bedrooms and living rooms, it is common practice to incorporate balcony areas. Although they are seldom used, balconies are constructed by encroaching partly on air space and partly on the living room and bedroom areas, as shown by the geometric analysis of the original plans. In practice, closing balconies would mean recovering the area lost by these rooms, at the same time that, effectively, one occupies space beyond the confines of the building. By changing the function of the balcony, the indiscipline of residents demonstrates a rejection of the parameters of placing more (rooms and functions) in the same (or less) space (m²), in a housing model sold as more complex, varied and sophisticated. Obviously, real estate developers build balconies as a ploy to gain space by means of expansion towards aerial space, from the first to the sixth floor, beyond the limits of the plot in the ground plan. With this, they explore to the limit what the law permits, using low cost materials, against the demands for other functional options and larger space.

The study of geometric changes showed, on one hand, that the heavy indiscipline, led to a simplification of the housing model. On the other hand, it showed the trend towards having a service sector reduced to a small work area (or only a laundry room), keeping the kitchen as a special space and a space for the family - a situation that reveals the trend towards the disappearance of the servants' quarters from domestic space. This is already being adopted in some new real estate undertakings but it is significant to note the express desire of residents to opt for other spaces for family use. The reduction in size of the service sector explains recent changes in labour relations which do not necessarily imply an improvement in relations and working conditions. These concrete interventions in the void indicate a change in families' lifestyle, rather than a simple offer of the real estate market.

Localities	Type of Apartment								
	Living room/2 bedrooms/kitchen			Living room/03bedrooms/kitchen			Living -room/04 bedrooms/Kitchen		
	Original area	Modified Área.	Gain (%)	Original Área	Modified Área	Gain (%)	Original Área	Modified Área.	Gain (%)
	Average	Average	Average	Average	Average	Average	Average	Average	Average
Águas Claras	16,89	22,19	31,38						
Asa Norte	14,66	18,56	26,57	16,34	19,50	19,94			
Asa Sul									
Cruzeiro Novo	13,77	16,47	20,84						
Guará I	13,00	16,25	25,00						
Octogonal	13,49	20,26	51,19	13,05	18,86	45,20			
QELC	12,02	15,56	30,53	8,77	13,22	50,74			
St. Sudoeste				15,40	21,19	37,92	25,34	34,31	38,09
Sudoeste Econômico									
Taguatinga									
Average	13,78	17,91	30,64	14,22	19,36	37,79	25,34	34,31	38,09

Table 1
Increase in area by apartment type

2.2. Topological Interventions

The heavy indiscipline reveals other characteristics of the sample which are only detected by an analysis of the configuration. The characteristics were explained through the graphs (representation of the rooms and their accesses) and of the syntactic measurements of distributiveness and integration.⁴ The original configuration presented other characteristics, and the post-alteration analysis explained how these characteristics were tackled by residents.

2.2.1. Distributiveness and Depth: Original Plans

The analysis of the distributiveness of the original systems revealed a differentiation between newer apartments (1980s and 1990s) and older ones (1960s and 1970s) in relation to the number of rings (Figure 8). The marked characteristic of the newer apartments (found at the Setor Sudoeste, Sudoeste Econômico and Quadras Econômicas Lucio Costa boroughs) is the greater number of rings (existence of different routes or paths) than in the older apartments (Asa Sul, Asa Norte, Guará I & II boroughs) revealing more permeable systems, due mainly to the presence of common balconies serving living rooms and bedrooms. Although there are more distributive systems, in the sample as a whole, there is a preponderance of systems with a single ring or without rings (19% of them do not possess rings and 58% possess a single ring) or rather, structures with strictly-controlled access to the different rooms of the residence.

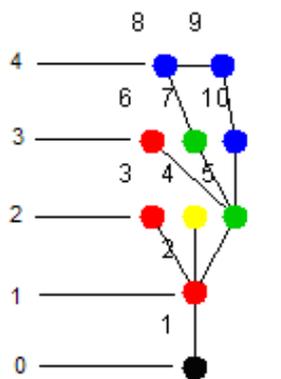
The configurational analysis revealed variations between the apartments with a single ring: i) the longest ring (the kitchen as a link between the private and service areas) is a characteristic of older apartments (1960s and 1970s) and clearly shows that the kitchen was a space destined for the family, since it was topologically more distant from the outside and accessible by passageways (space 4) to the private area (Figure 9.a); ii) a shorter ring (the kitchen as a link between the social and service areas) predominant in post-1980 apartments - led to the kitchen establishing, in terms of configuration, a direct relation with the outside and with the social sector (access through the living room - space 1 - and directly through the hallway of the building - space 0), according to Figure 9.b; iii) the ring found at only the level of the rooms (common balcony) are systems whose private area is more permeable than the system as a whole, due to the single entrance (Figure 9.c). These variations have emerged along the decades and reveal the diverse configuration of apartments with only one ring; this suggests various ways of occupying the apartments in the Federal District.



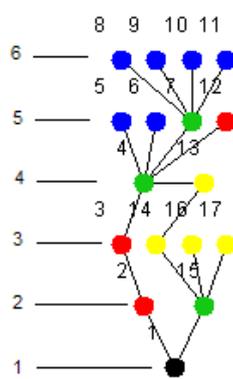
Figure 8

Examples of buildings

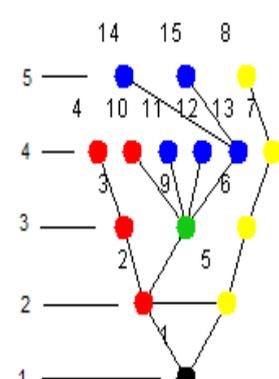
- a) Sudoeste Econômico (QRSW)
- b) Quadras Econômicas Lucio Costa (QELC)
- c) Guarã I
- d) Asa Norte (SQN)



(a) SQS 307, Bloco H, Asa Sul
- Data: 1967



(b) SQSW 102, Bloco F, Setor Sudoeste
- Data: 1991



(c) Sudoeste Econômico - QRSW 8,
Bloco B1 - Data: 1992

Captions: ● Exterior ● Social ● Private ● Service ● Passageways

Figure 9

Variations for the single ring

2.2.2. Distributiveness and Depth: Modified Systems

After remodeling, the apartments became even less distributive, with an increase in the number of systems which have a single ring. Before the renovations, 52% of the systems had one ring, this percentage rose to 57% (the case of apartments with two entrances) and an additional 15% to 23% in the number of systems without rings (the case of systems with a single entrance which lost permeability with the closure of bedroom balconies), increasing the isolation of the bedrooms. The shallow ring (comprising social and service sector spaces) becomes predominant in the sample.

The low degree of distributiveness of systems after remodeling points to two issues related to lifestyle: i) it reinforces the isolation of the private areas: one who enters through the kitchen door does not have direct access to the passageways leading to the bedrooms, at most to the living room; ii) the residents signal to an aversion to the new configurational parameters of greater permeability of the bedrooms (common balconies), reverting to a version that attaches greater importance to family space and the privacy of its members. In this aspect, one finds that the typical configuration found in the 1960s and 1970s apartments is taken up again, more precisely in Asa Sul and some apartments in Asa Norte [North Wing of the Pilot Plan], in Brasília.

Another issue related to the kitchen is its little depth in latter-day apartments. In this configuration, it has become more closely-located to the outside and to the social area, potentializing its use as a visitors' reception area. Therefore, the obstacle to this role is of a geometrical nature (size) and not topological (access) in Federal District's apartments. The kitchens are less deeply-located (closer to the outside) and the servants' space has become more deeply-located with the passage of the years.

Topologically, the servants' space has become more isolated in domestic structure, and in many situations has become as deeply-located as the bedrooms. Their greater depth, in many cases, facilitates conversion of the work area into private areas. This is configurational evidence that Federal District's apartments have undergone modifications over the decades, involving changes which favour a departure from the tripartite structure of bourgeois homes, since the configuration enables the agglutination of part of the work area to the private area.

The construction of two entrances (masters' and servants') is still present in apartments in the sample, but the actions of residents, after remodeling, weakens the concept of domestic space which separates masters and servants (our legacy of slavery), pointing in the direction of a departure from this internal sectorization of housing. Confirmed by the intervention of residents, remodeled apartments point in the direction of the prevalence of merely two areas (social and private). This differs as much from the bourgeois tri-partition as from the modernist bi-partition (division between day activities and night activities) (Tramontano 1993 and 1995), with this being a novelty in the apartments surveyed.

Bi-partitioning is present in the division between spaces for visitors and spaces for residents and the rejection of servants' spaces, in spite of the maintenance of two entrances in remodeled apartments. Lemos, in his comparison of Brazilian and European apartments with regard to the existence of the work area, wrote:

"Perhaps one day, Brazilian apartments will look like European or American ones, but having taken a different path - they have become used to the servant sleeping in squatting positions in cubicles and exiting and entering through special access points, totally removed from other residents, which did not take place in foreign lands where the luxury of household servants never climbed up the floors of collective housing." (Lemos 1976, 166)

If the trend indicated by the study is confirmed, one can say that, in terms of configuration, Federal District's apartments are approaching the standards of European apartments, converging to the meeting point that Lemos wrote about in 1976. At the same time, these indiscipline reinforce the idea of domestic space becoming an ever increasing private space for the family, by rejecting cohabitation with strangers (servants) within the family nucleus.

The indiscipline of residents reveals a predilection for other rooms (transformation of work area rooms into suite bathrooms, studies, TV rooms etc.) which, associated with new labour relations, indicate a rejection of the presence of strangers in the household. On the other hand, this action rejects the reduction of kitchen sizes, by carrying out changes (including encroaching upon work area space) to increase this space. They are geometric characteristics which change the configuration of Federal District's apartments, even in relation to the parameters traditionally seen in Brazilian housing.

2.2.3. Systems' Integration: original and modified plans

Locality	01 Bedroom		02 Bedrooms		03 Bedrooms		04 Bedrooms	
	Original	Modified	Original	Modified	Original	Modified	Original	Modified
Águas Claras	.	.	1,13	1,30	.	.	.	.
Asa Norte	1,66	1,53	1,71	1,60	1,22	1,35	1,33	1,35
Asa Sul	.	.	.	.	1,53	1,74	1,37	1,37
Cruzeiro Novo	.	.	1,62	1,62	1,38	1,52	.	.
Guará I	.	.	1,81	1,63	.	.	.	.
Guará II	.	.	1,30	1,59	.	.	.	.
Octogonal	.	.	1,88	1,85	1,91	1,80	.	.
QELC	.	.	1,87	1,91	1,75	1,94	.	.
St. Sudoeste	.	.	.	.	1,36	1,26	1,29	1,24
Sudoeste Econômico	1,87	1,98	1,54	1,85	2,04	2,48	.	.
Taguatinga	.	.	.	.	1,48	1,59	.	.
Average	1,76	1,76	1,61	1,67	1,58	1,71	1,33	1,32
Standard deviation	0,15	0,32	0,27	0,20	0,29	0,39	0,04	0,07

Table 2
Average integration by apartment type

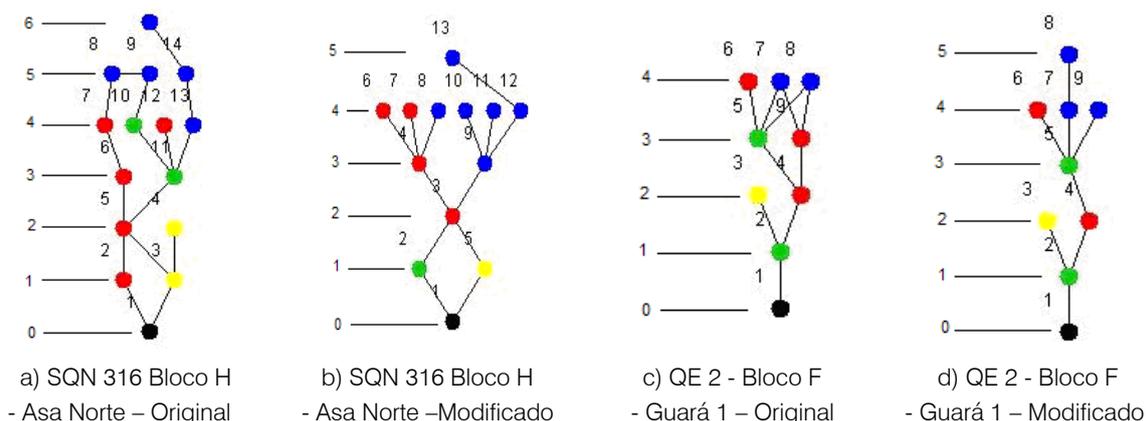
The integration measure (an index which defines the degree of inter-relation between the different spaces of the home) showed that the original systems are well integrated into apartments for the middle and lower middle class (Sudoeste Econômico, Guará I & II, Quadras Economicas Lucio Costa (QELC) and Cruzeiro Novo). There is a trend towards increased integration for one and two-bedroomed apartments and less integration for three and four bedroomed apartments. Therefore, the larger the apartment, the greater the trend towards less integration, and the difference seems to be directly related to the target public. Originally planned for people living alone or childless couples, the smaller apartments enable the occupation of more permeable spaces, with low levels of privacy between occupants. On the other hand, larger apartments were planned for larger families requiring a greater level of privacy (less integration between the rooms) of members of the group (Table 2).

In post-remodeling situations, domestic space has become more integrated in most localities, due to the depth of systems. The systems have become less deep due to the reduction in the number of passageways, especially in older apartments (the 1960s and 1970s), a device much used to give greater depth to the private areas. The fact that the systems have become less deep and more integrated is due to three reasons i) without the servants' spaces, systems have become more integrated due to the smaller number of convex spaces; ii) closing of balconies also contributed to reduce convex spaces, in some cases augmenting the integration of the apartments; iii) reduction in number of passageways (confirmed by the high degree of functionality).

The study revealed that there is a topological difference between three bedroom apartments in Setor Sudoeste and those in Asa Sul. Notwithstanding the proximity in social class, the apartments in Sudoeste are the least integrated of all the samples, even after remodeling.

The topological structure found in this locality enables a lifestyle which places greater value on the individuality of members of the family, since the systems favour greater control of access to rooms and the proliferation of convex spaces). This proliferation hinders direct contact between people, since they can remain in the same surroundings (L-shaped rooms and balconies) without interacting (absence of visual contact, for example). The practice of encroaching beyond the confines of the building (occupation of air space) has established a more complex polygon than those found in laminar blocks, typical modernist ones, found in Asa Sul and a considerable part of Asa Norte.

Apartments in Setor Sudoeste and Asa Sul exemplify one of the most marked characteristics of the sample, revealed by the integration measure. The existence of several rings and the lack of depth of Setor Sudoeste apartments suggest greater integration of the systems, unlike the Asa Sul systems in which the use of several passageways isolated their spaces. However, the analysis of the configuration revealed that the proliferation of convex spaces has interfered with the integration of the systems more than the other configurational variables, confirmed by the strong statistical correlation (above 0.7) between these parameters. This became more evident after remodeling, since the average of the integration index for 3-bedroom apartments in Setor Sudoeste dropped even lower with the closure of balconies (reduction of several rings), while apartments in Asa Sul have become more integrated after remodeling, with fewer passageways. Consequently, the sample showed that the differences between the Setor Sudoeste and Asa Sul do not only lie in the façades of the residential buildings (Ficher 2002), but also in the internal structure of the residence. Inverting the common logic of the analyses, which do not consider morphology as a starting point, Sudoeste is an example of how the production of space interferes with the building's façade. The more robust and flat façade is a result of the internal design of the apartments, more than a deliberate action to make them esthetically different. Another aspect revealed by the analysis of the configuration of these two areas is that the residences are configurationally different, in spite of being destined for people and families of similar income. Therefore, there is a difference in housing model between recent apartments and older ones, for the same income group.



Captions: ● Exterior ● Social ● Private ● Service ● Passageways

Figure 10
Variations for the isolated private areas

By the topological analysis, one sees that domestic space has become more private, evidenced by the segregation of the rooms, which reinforces the individuality of family members. The private area in tree-form (ramified structure which establishes single access to spaces) is present in an overwhelming majority of the sample, enhancing the trend to also isolate domestic space. After

remodeling, the systems resume the characteristic of isolated private areas along the patterns of 1960s apartments (Figure 10). The analysis of the configuration of the apartments strengthens the hypothesis of bi-partitioning of domestic structure (residents and visitors) by creating a system which is more accessible to the outside, particularly through the social and service sectors, segregating the rest of the household.

In short, some topological characteristics revert to the principle of older apartments, such as the poor distributiveness of the systems, and markedly, by the aversion to having a single-balcony design. The return to the parameters of the 1960s and 1970s apartments is confirmed, either by poor permeability or by the more traditional characteristics (investment in transition spaces in recent apartments) of the systems. The comparison between remodeled apartments (before and after) and the impact of the transformations in the total sample point to a sort of configurational adjustment. One notices a kind of behaviour after remodeling which portrays a rejection of more ring-like systems (normally found in more modern apartments) or very deep systems (predominant in older apartments); which rejects highly functional systems (found in newer apartments) and also highly transitional systems (as in older apartments). Interestingly enough, the topological analysis of the systems after remodeling revealed that configurational parameters found in older apartments appear in recent ones after adaptation, which leads one to believe that, new living habits notwithstanding, the space reveals, in some aspects, that there is a convergence in relation to the spatial organization of residences. Isolation of the rooms is evidence of this.

3. Conclusions

The actions of residents (indiscipline) explained forms of space appropriation, revealing strategies to solve contradictions between physical conditional factors and lifestyle. The strategies, when pertaining to interventions in the void, revealed more than a gaining of space. They showed that there were alterations in the topology of the apartments.

Therefore, domestic space in apartments has a dynamic which does not match its universalist pretensions. Even in limited physical structures (apartments), there is an effort to adapt them to the resident's lifestyle. The modernist origins of collective housing, produced on a large scale, and its standardization, have become restricted to the façades of residential blocks, with the interior being dynamic and adapted to the emerging attributes of lifestyle.

This "surveillance network" (uniformity and standardization of apartment building plans) is questioned and challenged by the residents' light and heavy indiscipline. The heavy indiscipline portrayed a rejection of the recently-adopted area parameters, with new parameters signaling similar standard sizes for different localities, as is the case with kitchens and bedrooms. There is a new housing model in which the living room is the apartment's main space for collective activities. It is also the household's hybrid space, since it is intensely utilized for receiving visitors, and is the place where family members spend the most of the time. This aspect shows a difference between houses and apartments, since in houses, the living room is the space destined for receiving visitors (França 2001) and is seldom used by the residents.

The housing model delineated in the sample showed divergence with regard to the space idealized by the author (architect) or the contractor of the project (real estate sector and construction firms). By directing some labels to spaces which correspond to social and private areas (bedrooms, living rooms, TV rooms, studios and kitchens) this new model attaches even more importance to family space. The intense utilization of the living room corresponds to the model of a single living room - a novelty in the modernist model of collective housing of the early 21st century. Bedrooms are places to which visitors have the least access (only the very intimate of friends are received in bedrooms) and one of the spaces where residents spend the most of the time.

Bi-partitioning into spaces for residents and for visitors enables greater interaction between people, given the accessibility to the social area and the kitchen (presence of the ring). At the same time, the structure of domestic space has become more restricted to family members, given

the configurational control found in the systems (tree-like structure in the private area). In other words, the living room and the kitchen are the shallowest spaces of the system, but there is concern for preserving the spaces of individuality, by segregating bedrooms. This bipartitioning strengthens the idea of domestic space being restricted to the family and gives emphasis to reinforcing individuality, provided by socio-spatial isolation of the private area.

A spatial arrangement with the following characteristics predominates: the isolation of servants' spaces of the domestic structure; the shallow ring covering the social and the work area (getting to the kitchen does not mean getting to the passageway that leads to the bedrooms, for instance); the private area has become more topologically distant from the outside and is isolated within the apartment structure; the individuality of family members is valued, in some cases the bedrooms are isolated from each other.

The comparison between remodeled apartments and the total sample showed that the novelties offered by the real estate market do not achieve their real goals and have become a hindrance to the residents' lifestyle. By reproducing housing models and spatial arrangements that do not correspond to modern lifestyle, the adaptations portray a certain out-of-dateness of real estate parameters. The study also showed that the current standardization (typical of the collective housing models) does not correspond, in some aspects, to the expectations of residents. Current housing models end up by creating a burden for the resident, either in the process of adapting to living in smaller spaces with more functions, or by having to cope with the cost of adapting the void (by installing balcony enclosures, for instance). With regard to lifestyle, the study portrayed families that seek to transform their apartments, with the cultural aspects of Brazilian households as a reference. The quest for greater kitchen space is a symbol of these references. The indiscipline of residents should serve as a warning to real estate developers to produce architectonic space based on social needs, as a policy, rather than on mere product marketing objectives.

Notes

- 1 All syntactic measurements and the graphs were generated by JASS software (Justified Analysis of Spatial Systems, version 1.0)
- 2 These areas were born in different periods of the recent occupation history of the Federal District, starting in the end of 1950s: Pilot Plan (Asa Sul and Asa Norte, in 1957) and Taguatinga (1958); in the 1960s, Cruzeiro Novo (1960) and Guar I (1967); in the 1970s, Guar II (1972); in the 1980s, Quadras Econmicas Lucio Costa (QELC) in 1987, Octogonal (1980), Setor Sudoeste (SQSW) and Sudoeste Econmico (QRSW) in 1989; in the 1990s, guas Claras.
- 3 This trend can still be found in the Federal District, with the exception of older apartments in the Asa Sul (South Wing of the Pilot Plan) and some in guas Claras (boroughs).
- 4 Syntactic measurements: i) distributiveness expresses the trend towards a "ring" or "tree-like" system. The "ring" system (more distributive), implies different options of connecting interspaces and the tree-like system (less distributive) does not present rings, since there is only one possible route among the spaces: ii) depth is the topological distance, measured by the number of convex spaces which separate the spaces within the system and these spaces in relation to the outside.

References

- Certeau, Michel. *A inveno do cotidiano: as artes de fazer*. Rio de Janeiro: Vozes, 2000.
- Certeau, Michel, and Lucy Giard. *A inveno do Cotidiano: 2. morar e cozinhar*. Rio de Janeiro: Vozes, 2002.
- Coutinho, Evaldo. *O espao da Arquitetura*. So Paulo: Editora Perspectiva, 1998.
- Ficher, Sylvia, Francisco Leito, Geraldo Batista and Dionsio de Frana. *et al. Introduo ao estudo dos blocos residenciais das superquadras do Plano Piloto de Braslia*. Braslia: Universidade de Braslia, 2002.
- Frana, F. C. "A indisciplina que muda a arquitetura: a dinmica do espao domstico no Distrito Federal". PhD diss., Universidade de Braslia, 2008.

- França, F. C . "Meu quarto, meu mundo: configuração espacial e modo de vida em casas de Brasília". Master diss., Universidade de Brasília, 2001.
- Hillier, Bill, and Julienne Hanson. *The social logic of space*. Cambridge: Cambridge University Press, 1984.
- Holanda, Frederico, Cláudia Garcia, Eliel da Silva, Franciney França, Gabriela Tenorio, Geraldo Batista and Vicente Barcellos. *Arquitetura & Urbanidade*, São Paulo: Pro-editores, 2003.
- Lefebvre, Henry. *La presencia y la ausencia Contribución a la teoría de las representaciones*. México: Fondo de cultura econômica, 2006.
- Lefebvre, Henry. *The Production of the space*. Oxford: Blackwell Publishers, 1991.
- Lemos, Carlos. *Cozinhas, etc: um estudo sobre as zonas de serviço da Casa Paulista*. São Paulo: Editora Perspectiva, 1976.
- Tramontano, Marcelo. "Espaços Domésticos Flexíveis – notas sobre a produção da "primeira geração de Modernistas Brasileiros". *Nomads*, São Paulo: FAU-USP, 1993
http://www.nomads.usp.br/site/livraria/livraria_6habitacao.htm
- Tramontano, Marcelo. "O espaço da habitação social no Brasil: possíveis critérios de um necessário redesenho". Paper presented at the VII Seminário de Arquitetura Latinoamericana. São Carlos: EESC-USP/FAU-USP, 1995