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Domesticity and middle class in Rio de Janeiro

Abstract

This paper aims to analyze the morphological evolution of domestic spaces of one district of Rio de Janeiro called Copacabana. This analysis will be taken for the period between 1930 and 1970.

The methodology adopted starts by selecting a number of layouts of middle class apartments with 3 to 4 rooms built between 1930 and 1970 in the district. The layouts are analyzed using space syntax, to search for spatial continuities and changes. These are compared to changes that have happened in the Brazilian family ways of life and in the borough during the time period. This is done with the intention of checking where and how morphological evolution patterns might tell us about the society they are embedded.

Copacabana for its characteristics offers a unique perspective of the changes introduced in the city during the period. In the 20's its urbanization consolidates as a middle to high class borough, reaching in the 1930/40 international status as a tourist destination. During the 40's 50's experiences a process of intense increase of constructions through verticalization and densification, uncommon in other areas of the city, and changes itself to be an important cultural and leisure centre. In the two subsequent decades (60's and 70's) an intensive speculative growth deteriorates its architecture, services and compromises its prestige.

Important changes in the family patterns with significant impacts on the ways of life also occur during this period. The bibliography has shown that the superiority of the male in Brazilian society, with its dominance over the family members during the 30's, changes toward less asymmetrical relations within the family – including among men and woman and parents and kin. The family, that in the beginning of the XX century has a key role in ordering moral qualities and socio-economical ties among its members, is in the 70's in a process of “desinstitutionalization”. Hierarchy and the whole set of rigid rules are substituted for agreements among individuals, to be a set of private lives informally united.

Changes in the borough from 1930 to 1970 – Copacabana « Princess of the sea »

Seabathing is gradually seen as a healthy activity from the early years of the twentieth century, contributing to well being and beauty. This is in contrast with a previous prevailing belief that bathing, and particularly seabathing, would contribute to illness. Those cultural changes have influenced the new areas to be occupied in Rio at the early years of the XXth century. There is an expansion away from the city center and the railway suburban districts towards the coastal parts of the city. It is the beginning of a new urban culture, focused on the beach as the main leisure and public space of the city, a natural

extension of the houses and a vacation destiny for all the country and the world. In this context Copacabana emerges as the borough that synthesizes all those new urban values, and was the first residential area of the city and of the country to have apartment buildings as the predominant typology (Velho, 1999) (figure 1).



Figure 1 – Panoramic view of Copacabana

The area starts to be occupied in 1892 with the opening of a tunnel that allowed its connection to the borough of Botafogo. Since 20's years was the cenary for an amazing growth in density, prestige and innovative patterns of living, and in 1930 Vaz poses that “While in other parts of the city houses were placed away from plot boundaries and streets alignments, in Copacabana skyscrapers were built. When living meant traditional living, in Copacabana there was already a modern style of living”.

Copacabana emerges between the 30's and 40's as an important residential place for the dominant class, the destination of the “carioca¹ upper class” – politicians, artists and many foreigners live there. There is an expansion of the commercial activity, an increase on the transports and the spread of land subdivision operations. A new image of beauty and of leaving is consolidated – the suntoned leaving on the beach composes a new social representation of the dominant bourgeoisie. It is the best spatial representation of these new cultures with its respective profile: easygoing, popular and friendly. This image is sold around the world in post cards, as not just Rio de Janeiro's, but also representing the whole

¹[1] The inhabitants of Rio de Janeiro are known as Carioca.

country, attracting tourists from everywhere. It becomes the main national touristic destination, with its beauty so many times celebrated, as Levi Strauss refers in his seminal book – “Said Tropics”, after his visit to the city in 1935.

From the 30's all the south zone of the city, and particularly the coastal areas, experience a property boom, connected in particular with high inflation and the need for safe investment. The construction sector takes advantage of the status gained by “living near the beach”, to explore intensively the coastal boroughs. Boechat summarizes – “Rio was fashion, and Copacabana was the greatest fashion of Rio”. According to Velho, it is during this period that Brazilian society “grows, differentiates itself and becomes more complex, with multiple life styles and occupational activities, and Copacabana is the more clear expression of those changes” (1999, p.5).

During the 60's the city loses its status as the country capital. Copacabana grows enormously, with inhabitants from all social origins. But the high intensity of new construction in Copacabana during this period contributes to steadily changing the image of the borough into a more popular district. Only the coastal line is preserved with its original bourgeoisie attributes. A number of high rise buildings with many apartments per floor with a low housing standard are built both in the 60's and 70's. Copacabana in a short time becomes a high density district.

The methodological approach to syntax

The randomly selected sample is composed of layouts of 3 and 4 bedrooms middle class apartment building built in the borough between 1930 and 1970 – 3 cases are from the 30's, 4 from the 40's, 5 from the 50's, 3 from the 60's and 2 from the 70's. The units were taken from the department of building approval of Rio de Janeiro's Municipality (figure 2).

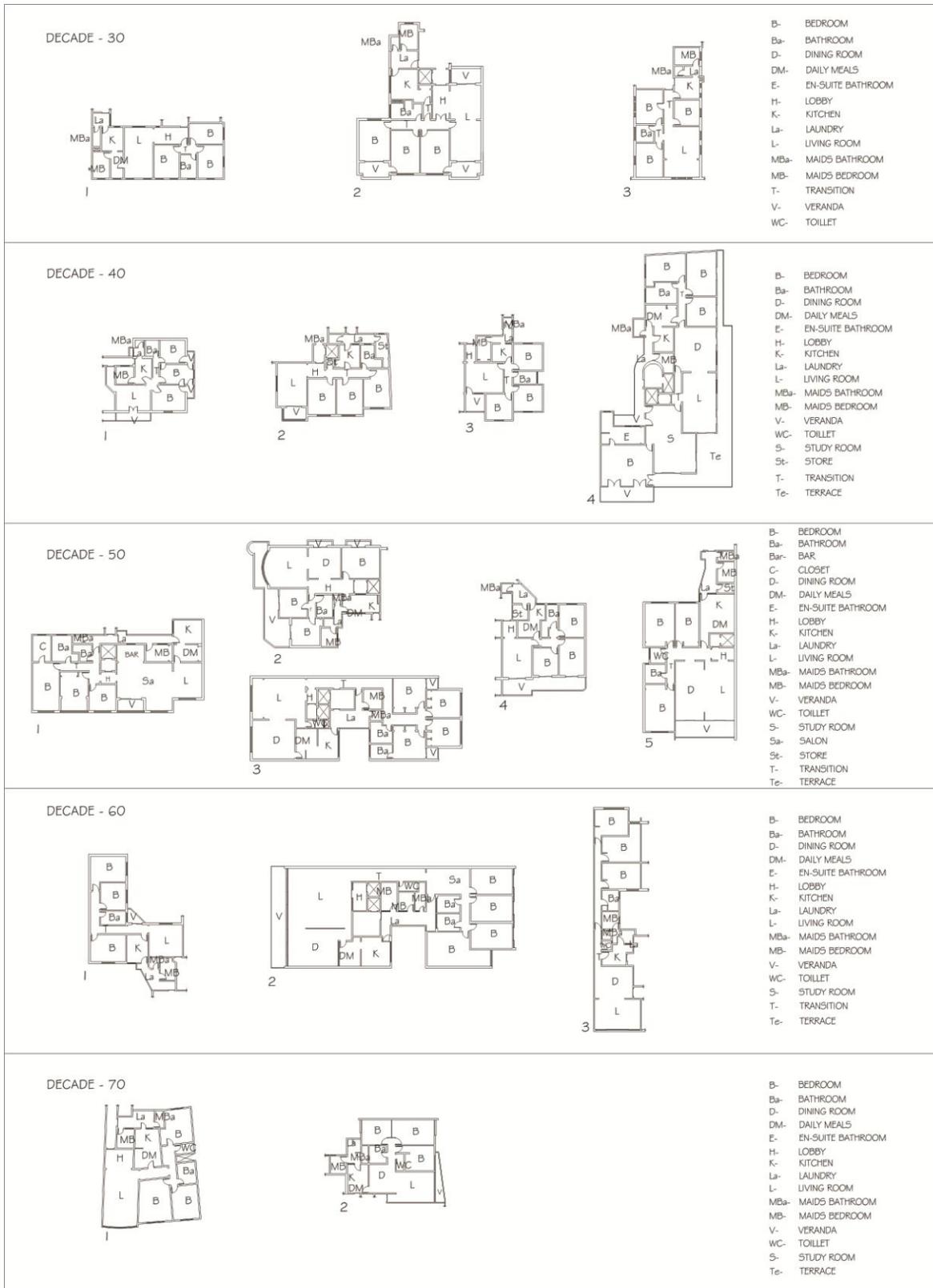


Figure 2 - Apartment plans for the 5 decades at Copacabana

The layouts were analyzed using Space Syntax (Hillier and Hanson, 1984), through their representation in convex spaces², and their correspondent justified graphs of access for each cell from outside (figure 3). The relevance of convex spaces for this study is that many cases of the sample rooms include more than one, elaborating permeability as well as visibility properties.

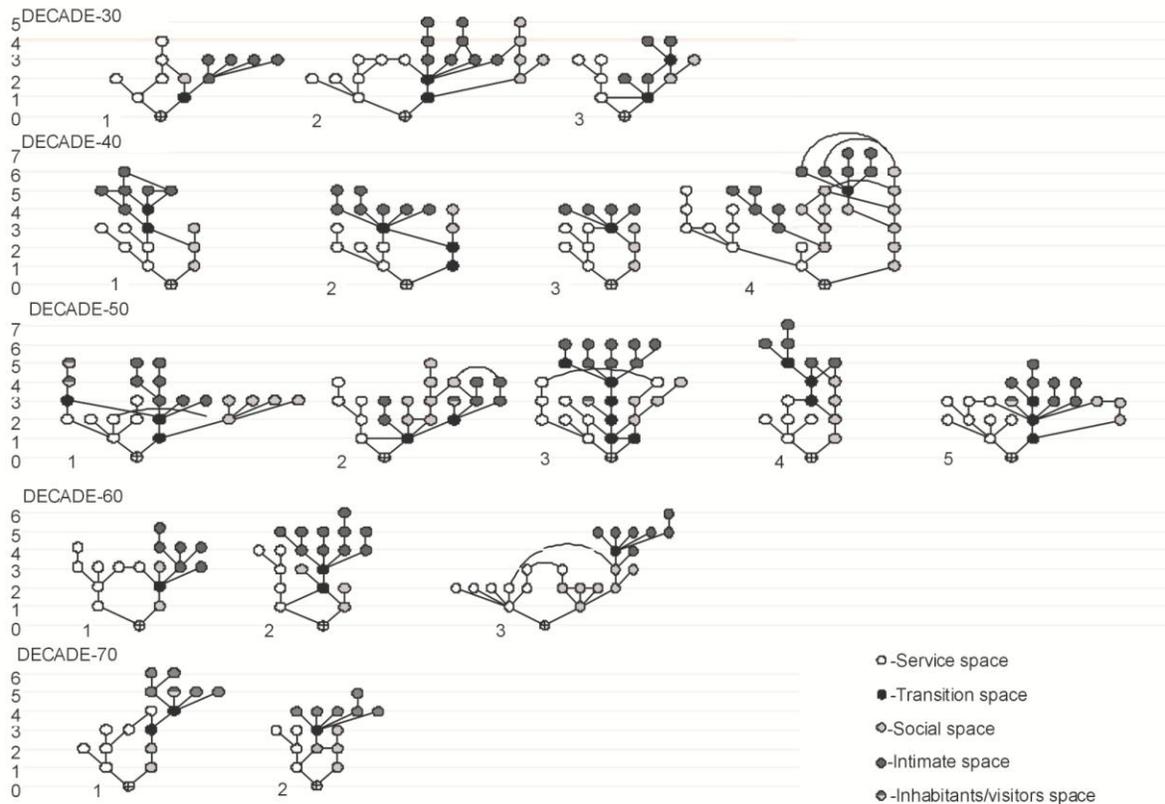


Figure 3 - Access Graphs

Access graphs are built from the concept of permeability among different spaces. Each space – room or convex space – is represented by a cell, and is connected to other cells directly accessible from it. The justified graph organizes, from a given space chosen to be the starting point, levels of permeability, highlighting access and distance relations in the distribution of space within a system.

This research has chosen to build access graphs using the convex spaces, all of them taken from outside.

The access graphs were drawn with cells differentiated by color for each sector – social, service, private and transition. Those graphs are then summarized in an access graph by sectors in order to make clear the relationship among each sector (figure 4). In as far as access graphs carry information on the distribution of connections between spaces of the house, they also bring information of the type of relationship among users – interfaces of

² Hillier and Hanson: “the formal mathematical definition of convexity is that no tangent drawn on the perimeter passes through the space at any point”. (1984, p. 97).

different categories within this universe - that express continuities and changes on the society life styles.

COPACABANA

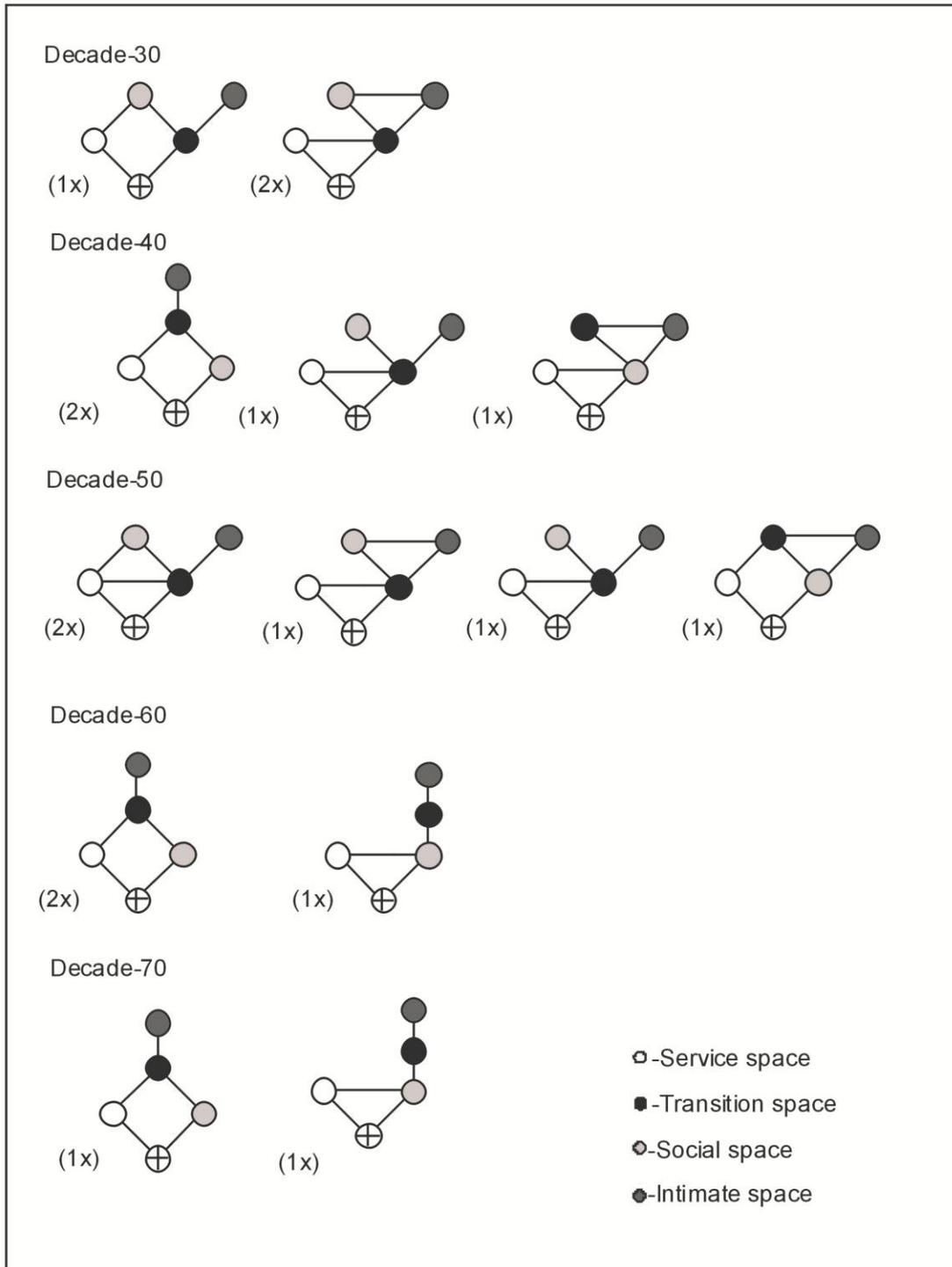
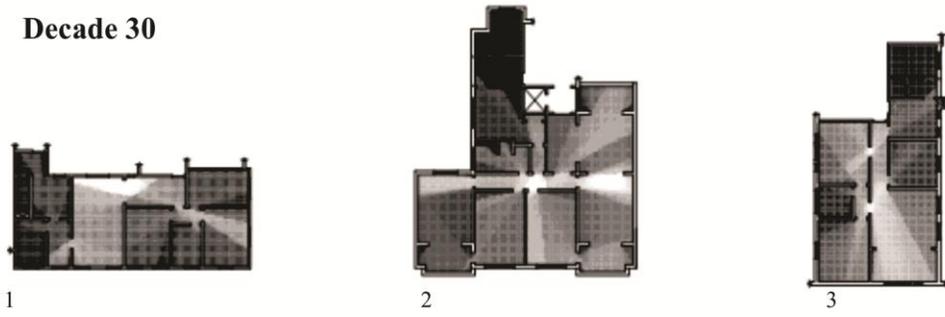


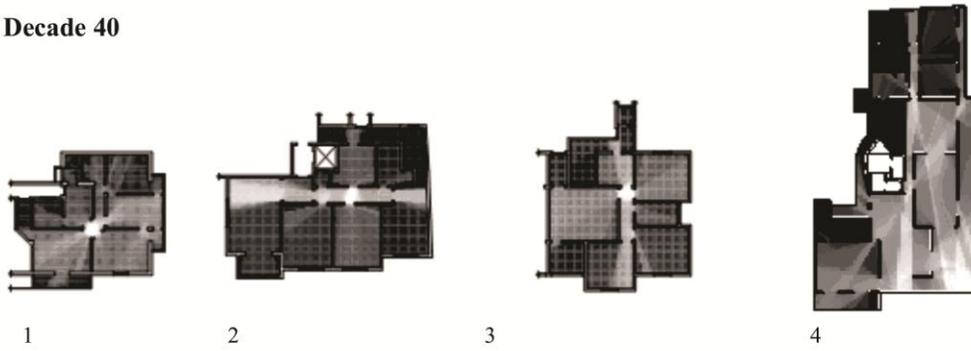
Figure 4 -Access Graph - into function sectors

Another syntax measure studied in this work is integration. Integration is “one of the fundamental ways in which houses convey culture through their configurations” (Hanson, 1998 p. 32) as its measures allow the knowledge of degrees of possible encounters or privacy patterns in the system, due to plan spatial distribution. In this work numeric integration values were calculated with the Depthmap program (figure 6), elaborated by Turnet (2004) for UCL. With Depthmap each labeled space has its values calculated for integration, visualized their variation on the layout according to colors that flood the layout in a tone ranging from white for the higher values, to black for the lower values (figure 5). The values of integration were calculated considering only the internal spaces, searching for the relationship among spaces and users and their social domains.

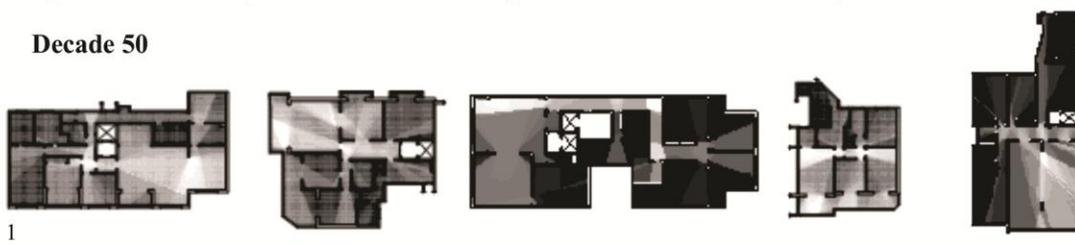
Decade 30



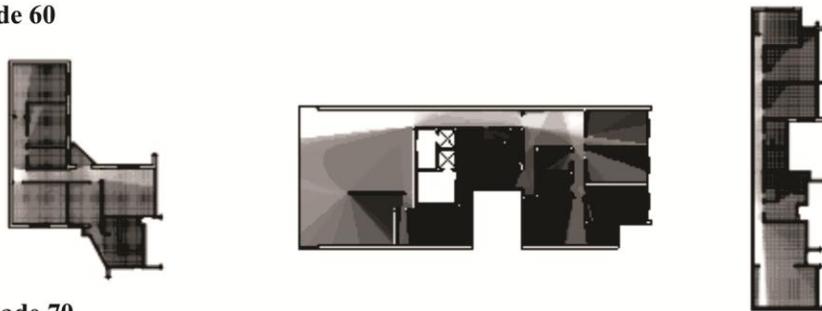
Decade 40



Decade 50



Decade 60



Decade 70

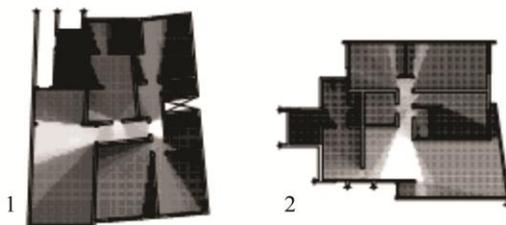


Figure 5 – Plans with integration (HH) patterns.

Decade

30	1- L > H > T > B > D > B > B > Ba > K > La > MB > MBa 23.07213 22.83017 20.5576 17.42678 17.29626 15.21144 14.76702 14.6544 13.64601 12.35048 10.94915 9.683022
	2- T > L > B > V > T > V > B > H > B > Ba > V > K > L > MBa > MB 24.11841 20.12267 19.98724 19.55802 19.47314 15.64776 17.67896 17.31124 17.19542 16.20215 18.36448 14.0874 10.02155 9.522764 9.035297
	3- T > L > T > B > B > K > B > Ba > La > MBa > MB 27.12508 26.34846 26.10142 23.0261 20.73062 18.03808 16.99014 15.27448 12.83791 10.70774 10.35344
40	1- T > B > B > L > V > K > V > Ba > B > MB > La > V > MBa 31.16723 28.46401 26.1998 25.50093 25.21348 22.8007 22.03923 20.21381 18.87533 18.53739 17.89112 17.28341 14.74445
	2- T > H > L > B > K > B > B > St > V > Ba > La > MBa > St 27.57843 22.88194 20.54389 18.60592 18.36613 16.72689 16.22737 15.70273 15.25583 14.43812 13.70092 11.67215 9.344869
	3- T > L > K > B > B > La > Ba > B > MBa > H > V > MB 26.81342 20.80879 20.7399 18.96229 17.7359 16.19747 15.86374 15.41857 14.43602 12.97826 12.72605 11.01108
	4- S > Te > T > T > D > B > V > DM > La > B > B > B > E > K > MBa > MB 27.21094 26.69082 26.35021 26.14613 25.92502 24.60658 21.7309 20.84163 17.9063 17.73853 16.32188 16.25999 15.98286 14.07957 12.78004 12.43779 10.50043 10.45304
	50
1- L > H > T > B > V > K > La > B > DM > MBa > Ba > B > Ba > C > MB 20.84396 20.51695 19.88458 17.18523 16.75861 15.90367 15.66311 15.64125 14.86759 14.01143 13.05236 12.76626 12.68264 10.86507 9.729337	
2- L > V > D > B > V > B > V > K > B > MBa > MB > H > La > Ba > T 20.84396 20.51695 19.88458 17.18523 16.75861 15.90367 15.64125 15.66311 14.86759 14.01143 13.05236 12.76626 12.68264 10.86507 9.729337	
3- T > L > D > Ba > H > B > B > La > DM > B > E > WC > K > MB > MBa > V > V > Ba 14.11729 13.45549 12.27606 11.38098 11.36384 10.47828 10.36556 9.685224 9.250413 8.942158 8.847409 8.837487 8.28935 8.194171 8.03811 7.400507 7.295067 7.269021	
4- T > V > L > B > B > K > B > Ba > La > MBa > MB 25.2669 24.41326 22.62841 21.01309 19.8081 17.5677 16.82006 16.30799 12.83909 10.64484 10.57204	
5- L > H > T > V > D > WC > B > K > B > La > B > Ba > St > MBa > MB 28.25961 25.3973 25.33939 24.96064 23.58974 18.81958 17.39798 16.82578 16.24338 15.73652 14.64378 12.14764 12.1193 11.66297 11.53987	
60	1- T > L > B > K > B > V > B > Ba > La > MB > MBa 20.13232 16.44483 15.91209 14.72884 14.05057 13.85374 12.19918 11.53939 11.31113 9.302382 8.561174
	2- T > V > Sa > L > T > D > B > B > DM > WC > Ba > B > La > B > Ba > K > MBa > MB > MF 22.46791 21.45242 21.27689 21.2059 17.05352 16.58459 14.83435 14.48765 12.69445 12.62351 12.5605 12.54193 11.67322 11.37122 11.23067 10.52403 9.880427 8.715923 7.8357
	3- T > T > D > L > B > K > WC > B > B > Ba > La > MB > MBa 27.72507 25.79288 21.33374 20.62489 16.33147 16.19798 14.31647 13.83732 13.73781 13.19103 10.65823 9.989663 8.750162
70	1- L > V > MB > B > Ba > B > MBa > B > D > K > T > La 22.01703 19.05826 17.41495 15.47661 15.39764 15.243 14.32588 13.76018 11.94003 11.59722 11.1057 7.621311
	2- D > T > L > V > K > B > WC > B > Ba > B > La > MBa > MB 26.58987 23.86308 21.05167 18.84018 17.14502 16.03859 15.74907 15.59741 15.29705 13.65002 13.35917 10.06308 9.775379

Figure 6 – Table of Integration values for apartments of each decade

The configurational analysis of flat layouts were interpreted on the light of changes on family life styles that took place though the studied period in order to investigate how changes on the domestic spaces of the sample have expressed social changes.

The areas of the layouts were also studied and compared for each decade. And correlated to data of Copacabana's demografic and residential densities. This procedure, also related to the configurational findings, aimed at identifying changes on the borough expressed in the flats arrangements in the same period.

Morphological x social patterns – continuities and changes

Although sample layouts show significant compositional variation (figure 2), observing both layouts of a single decade or among decades, the graph analysis - summed up by functions – seems to highlight some interesting trends that might bring relevant information on social changes.

Integration and sectors

The analysis of the integration values for each space of the flats layout considering the range on the number of cells, ordered by decreasing values, reveals a single pattern for the whole sample (figure 6). This pattern is characterized by more integrated spaces for the social sector or circulation/transition spaces (50's and 70's), the more segregated rooms tend to be the service spaces, mainly for servants, and the intermediate values being a mix of service and private spaces with kitchen varying between transition spaces between the social and private sectors or placed in terms of segregation after the private spaces. Bedrooms tend to present an even distribution of values and position, with one of the bedrooms assuming, in some cases, either very integrated value, getting closer to the social sector, or being on of the most segregated rooms of the system (see figure 5).

Access graphs and outside

All the cases analysed in the sample show direct access from outside to the service room. This is a common pattern of brazilian homes, were servants tend to use separate access from others. The main access, so called social, takes place through the social or transition sector.

According to the sample, during the 30's all social accesses are made through transition spaces. These spaces work as a filter between the outside and the inside and impose a rythual to the visitors access.

In the following decade only one out of the four cases studied makes use of similar transition spaces – or halls, in all the other cases the entrance space is convexly articulated, and do not open directly onto the living room. In spite of that they work as a less dense filter for the visitors permeability (figure 3 and 4).

During the 50's there is only a single case that presents the same convex pattern of the preceeding decade, in all the other cases visitors are not allowed to reach the social sector unless it passes through one or more transition spaces (figure 3). This concerns of mediating the conection bewteen outside and inside by means of transition spaces seems to reveal the need to introduce formality and social distance on the relation of visitor and inhabitants within apartment layouts. This is tune with all the formal repertoire of social rules of behaviour present in the brazilian society at that time.

The layout of apartments over the 60's change drastically and this pattern is no longer present, revealing important social changes in the local society. In the sample for this period none of the cases have the main social access through transition spaces, with no ellaboration of the access space. Visitors access are direct to the living or dining room, with inhabitants directly exposed. The following decade will also have social access direct to the social sector in all cases of the sample, and even in the two cases where access is not direct to the living room, the living is the more integrated space of the system.

Those changes seem to respond to important social transformations towards lost of rythual in the society. The family that have the role to direct moral values and social behaviour up to the mid XXth century, according to Sevcenko (2001), suffers major transformations with factors that interfere in their size, compositional members, its definition and function. Some of the factors responsible for those changes are, as referred by E. Berquó (1980), the steady decrease on fecundity rates, an increase on longevity, the increasing participation of woman in the labour market, sexual liberation, followed by an ever increase fragility on the

matrimonial links and a strong individualism. The fecundity rate decrease, observed particularly in the 60's by the use of pre-conceptive methods and voluntary abortions, has caused a reduction of the number of children and on the family size. As a consequence, the family as an institution loses the strength of its moral qualities, accepting more flexible patterns and behaviours.

The analysis of the apartment layouts shows that the rigour in the ceremony and formality of relations among visitors and inhabitants is present up to the middle of the XXth century. From then onwards those are replaced for a pattern of much greater informality.

Permeability between service and social

During the 30's only one of the cases has the living room opening directly to a service room which is the eating room. In the other two cases the connection between those two sectors takes place through a transition space. In the following decade this proportion is the same, with one of the cases where the kitchen is well integrated, behind only two other spaces in the integration values sequence - where this connection is intermediated by transition spaces adding one step into the system and generating more distance between inhabitants and servants.

During the 50's a complementary access appears either through the circulation spaces or directly by a connection between social-service. In the two cases that present this situation the access doors are located in the dining room, strategically placed so as not to show the service sector to the living room and only a restricted area of the dining itself. This relation seems to reveal an increase on the formality of relations - the service sector can reach directly the social but this convex elaboration is introduced in order to split the access of inhabitants and visitors to the service one. That solution has also the advantage of preventing kitchen noises and smells to get to the livingroom once the daily meals room intermediates the connection between those two spaces. In the other cases of the sample this connection takes place through a circulation space.

In the 60's only one case presents the pattern of the preceding decade with the eating room opening directly into the dining room. In all others the pattern is to connect the kitchen directly to the living room through a corridor. Although all cases of this decade show a concern of separating visually the kitchen from the social spaces, remaining the intention of separating service from social, the reduction of the option of a direct access between the two sectors seems to indicate a decrease on the habit of receiving formally for eating. This trend continues through the 70's with one case where the access to the kitchen is through a corridor close by the living and in the other case the kitchen opening directly to the living allowing to be partially seen either from the living and dining room. These data might be expressing a social change on the relationship between inhabitants and servants during these decade intensifying the proximity between the social and service domains. This proximity being mediated by everyday routines of keeping the connection doors between the sector closed.

As referred previously the nuclear family also change during the 70's with emergence of new patterns, as young not married couples living together and people living alone or with

friends (Tramontano, 2002). The relation between inhabitants and servants also suffers changes as a result of that, with a decrease of maids or servants living with the family that starts to be replaced by weekly service cleaners.

Private spaces connected/ isolated from the house

Bedrooms and toilets of the 30's layouts are reached through transition spaces. Two out of the three analysed cases still remain with previous pattern of access through social spaces. Observing integration values and the degree of integration of bedrooms for this decade it is possible to note that one of the bedrooms is always more integrated than the others, placing itself close to the social sector and allowing partial visibility of outside access spaces. Trigueiro (1994) points at this as been a characteristic of pre-modernist houses in Brazil, with the main bedroom placed on the shallow spaces of the house at front with windows opening onto the street. In this research the data shows that in this decade the more integrated bedroom, in all the three analysed cases, have also added advantages – in size, balconies, verandas or an additional access door. This finding seem to have its root in the singularity of Brazilian society where the family -through its head (the husband)- has still at the turner of the XXth century enormous social control over its members – determining choices of friends, of marriages, of professional activity (Sevcenko, 2001). Position legally given by the Brazilian Civil Code of 1916, which remained unaltered until 2004. The position of the main bedroom as very integrated space seem to talk about the role of man as the « head of the family » controlling all movements and activities of all other members inside the house.

During 40's there is a larger proportion of cases (three out of four) of access to bedrooms through transition spaces and only one had also access through the social sector with a clear visual and control relation of the private the social over so characteristic of the previous period. The other cases point at a reduction of this control with no distinction on the type of access with all through corridors and integration values very similar to all, yet the main bedroom still remain in closer proximity to the living room. These changes seem to be related to modifications into the family relations – women are pushing on having rights equivalent to men's, as conquering rights to vote.

In the 50's two of the analysed cases still present the old pattern with the main bedroom access either through the social sector or a circulation space. But in these cases this room is nor much more integrated than the others neither the larger room. To the contrary, the larger in four out of the five studied layouts is the more segregated room yet the variation of integration values between all rooms tends to be smaller than before. This data seems to indicate that hierarchy and control among the family is being reduced. Being the more segregated room, the main bedroom now allows more privacy and independence to parents, freeing them from the role of controlling the family members. Prost (1992) explains that the assymetry of the relation between parents and kin, still high in this decade, starts to be reduced specially because the school is gradually sharing with the family control over the education of children. This will include, in the future, the teaching of social rules. Those social changes are thus reflected in the family roles and on the home configuration.

During the next two decades (60's and 70's) the private rooms are all accessed through transition spaces and tend, according to the access graph, to be as the deepest cells of the systems. They present relatively homogeneous integration values, moving to more segregated positions. This spatial pattern might shed a light on an emerging social pattern – if on one hand the homogeneity of values might be related to a less hierarchized and assymetrical relation between the parents and their kin, on the other hand the importance of the feminism at the end of the 60's probably have introduced more simmetry among the partners, opening path to new types of relationships.

Sample data x changes in the district

Population growth in Copacabana (table 1 in figure 7) reveals striking numbers for few decades – from 18 thousand inhabitants in 1920 it reaches 250 thousand in the 70's (Velho, 1999), when starts to decrease, again in relevant levels. The number of homes has also reached surprising values – specially from 30's to 50's – with rates up to 130% and 143% respectively for each of these decades (table 2 in figure 7).

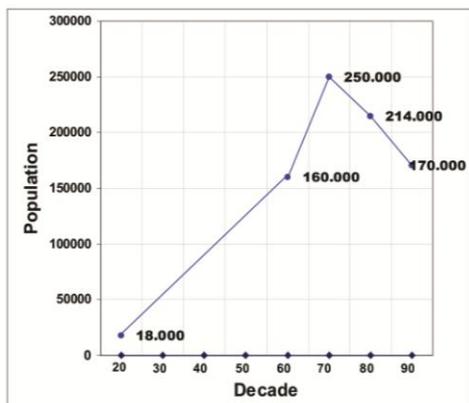


Table 1 – Copacabana's demographic growth, from 1920 to 1990 (Fonte: Velho, 1999).

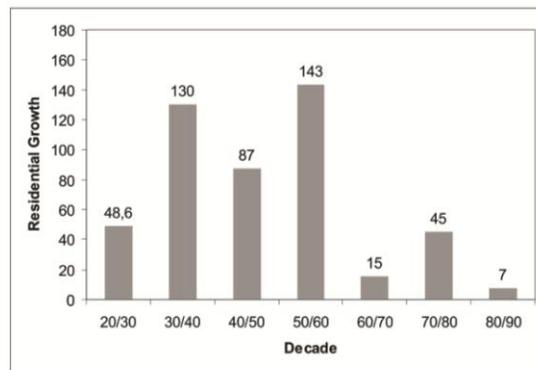


Table 2 – Copacabana's residential density (Source: IBGE)

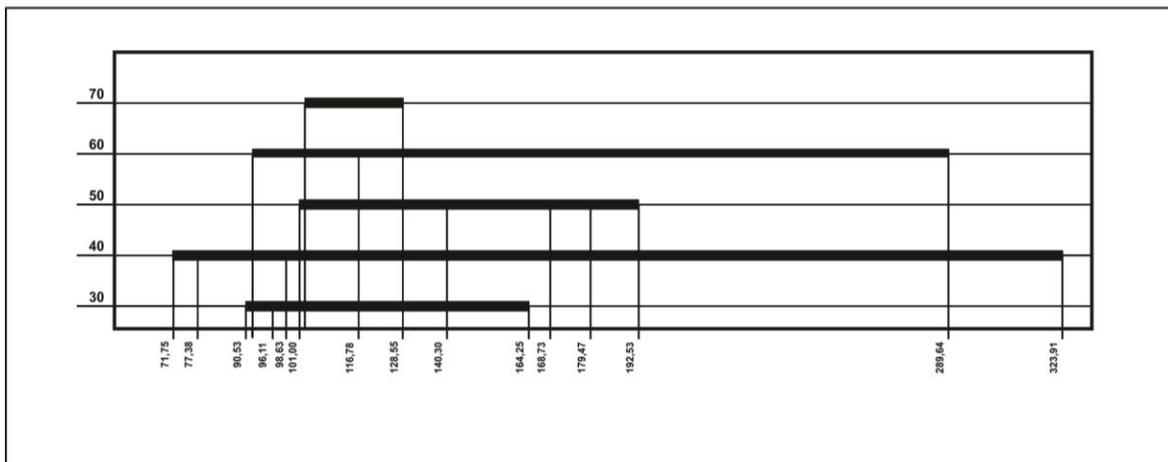


Table 3 - Table of apartments areas x decade

Figure 7 - Tables with numeric values for Copacabana

These numbers clearly express the cycle of growth and decline of Copacabana, well documented by the bibliography (Boechat, Vaz and Velho). The high numbers for the 30's residential construction are explained by a boom of high rise apartment buildings at the time, very exceptional and modern for the country, that is intensified during the following decades (Velho, 1999). The highest growth rate on the numbers of homes coincides with the 50's – the decade identified as the top development of the borough, when it was mainly occupied by upper middle class people. The continuity of intense residential construction led to around 99% of all buildings in the borough in 1969 to be high rise apartment blocks (figure 8). This growth pattern compromises the quality of living in the borough, and during the late 60's and 70's the upper class people move away, and property values declined.



Figure 8 - Copacabana, 1977

These aspects found for Copacabana in this period of time draw an outline of the complexity of Brazilian middle class variations. The analysis of the apartment areas of the sample (table 3 in figure 7) seems to also bring light on the gradation of subclasses in the borough's middle class population, as it shows an enormous span in the flat sizes, and their consequent economic relations. The 40's appears as the highest flats sizes spread period, coincident with the greatest heterogeneity of the borough population classes (Franco, 1979), going to 50's, climax of Copacabana success, which concentrates on a middle to upper middle class units sizes. In the 60's and 70's, the flats tend to concentrate in lower sizes, as housing lower middle class inhabitants.

The results of the configurational study for the plans describe crescent elaboration/ritualization of social relations (between inhabitants- visitors and inhabitants-

servants) from 30's to 50's, when rules of peoples interactions clearly go towards informality. This pattern found in the flats' spaces organizations seems to be related not just to modified codes in the society ways of living, but also to talk about the borough changes, as the tendency for losing formality through time found for the flats of this study sample can be expressing both changes in middle class social relations and changes in middle class groups to lower and less elaborated subclass living in Copacabana.

Conclusions

This paper seems to had been an oportunity to explore spatial expressions of society, since the context that it studies brings together in a relatively short period of time – 50 years – several relevant changes that had transformed social values, family relations and ways of life. So, this study of middle class apartments layout over the span period from 30's to 70's have demonstrated diverse patterns in which changes in society are imprinted in the way space is structured and that space pattern can talk about different levels of social descriptions.

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