
SPATIAL INTERFACE BETWEEN INHABITANTS AND VISITORS IN M'ZAB HOUSES

061

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Abstract

The main theory of this paper is based on the concept that social events are expressed within the spatial configuration of the house. The method that is used to analyse the data, with the objective of understanding the relation between the use and pattern of space, and also to observe the underlying structure of the houses in the M'zab [Algeria] is space syntax. The primary hypothesis of space syntax analysis is that the topological structure of space is a fundamental mean by which society constitutes itself, and thus, the spatial patterns of buildings both embody and shape social patterns. The approach used in this study is to interrelate and integrate topological data and adopt descriptive and numerical methods in the analysis process. Hence, this paper aims to study the spatial interface between visitors and inhabitants with regards to M'zabite traditional houses. The syntactic property [depth] of the sample has been observed in order to explore the sequence of movement and permeability from the entrance. The study points to the penetration of different users into the M'zabite house that is constrained by social/cultural and religious norms. Adapting and adopting this method to the data and by integrating topographical approach obtained some significant results. The study shows that the entry and penetration of the visitors to the house's interior, in the M'zab culture, is regulated by certain socio-religious codes. These codes identify the visitors along gender and kinship lines. This identification determines the domain and the spaces where she/he will be received. In actual terms, the interface is between male visitors and family domains. The research suggests a prime model that defines the house as a collection of domains, e.g. male visitors/male and family/female. This model is built on socio-cultural norms that are based on the empirical findings. These latter, suggest that the houses tend to be divided into two separate domains, one section is exclusively used by the inhabitants and the other is reserved for receiving male guests, thus the configuration appears to modulate the social dynamics of the house's occupants by distancing the hosts from immediate contact with male guests. The study also asserts the significance of entrances in regulating the interior organisation of the M'zabite house in terms of depth properties. The intimacy gradient which can be found in each culture at varying degrees, in the case of the M'zabite house, the study suggests that such gradient involves other dimensions than simply front to back, or formal semi-private to most intimate spaces.

Introduction

The spatial interface between visitors and inhabitants is one of the essential issues for every house in every culture, and it is central to the theory of space syntax. The penetration of different users into the M'zab traditional house is constrained by social/cultural and religious norms. The aim of this paper is to assert the significance of the entrance in regulating the interior organisation of the M'zab house and provides a further understanding of M'zab domestic spatial patterns. According to the late Pierre Bourdieu, the organisation of Berber society in any given period and place is inextricably linked to its setting-the house, the settlement, and the landscape- which in turn had been created by the group (Fentress & Brit, 1996: 234). This attempt to analyse the physical structure of the M'zab house might help to better understand the organisation of the house spatial properties.

In Berber as in Arab communities, visitors are always welcome. Hospitality towards visitors is one of the cultural and religious obligations, yet the spatial interface between visitors and inhabitants lies embedded in social and religious norms, which regulate the penetration and receiving of visitors into the house. The intention here is to explore and interpret syntactically such socio-spatial relationship by detecting the "depth property" from the entrance. This highlights the significance of the entrance and the transition zone in M'zab culture, in regulating the interface between inhabitants and visitors.

In M'zab [Berber] Muslim culture, the identity of a visitor as observer to the house is not only defined as formal or informal, it is defined foremost as male/female, *Muhram*/non *Muhram*, and then as formal/not formal. *Muhram* categories, according to Islam, are those with whom marriage was disallowed such as father, brother, sons, for female and as mother, daughter, and sister for the male. It also includes nephews or nieces and aunts. And for women, they are also uncles, grandfather, brothers or sons and grandmother as well as similar gender [female/female and male/male]. Furthermore, the penetration of a *Muhram* visitor [male or female] to the inside of the house is not allowed if there is no *Muhram* present. For instance, if a male *Muhram* wants to enter the house and there is no male inhabitant present and only non-*Muhram* female, he is not allowed to enter. It is the same case for a female who comes to visit when there is no female at home but only a male inhabitant who is not *Muhram* to her. Neither she is allowed to enter, *Muhram* identity and obligation, with its roots in Islam, includes both male and female, yet the culture discusses it as female obligations rather than both gender. The identity, which embedded socio-cultural and religious norms, plays a significant role in determining how the visitor "will" experience the spatial pattern of the house. Gender identity of the visitor defines the domain into which he/she "must" be ushered. In addition, the male visitor's identity as *Muhram* and non-*Muhram* decides the limit he can penetrate into. It also determines, whether he could be exposed to women and whether the women need to veil themselves or not. The status of visitors, as formal and informal, determines the space in which they be received. Yet, in the M'zab, the traditional environment, we notice that the categorisation of the visitor as formal is applied more to male visitors than female visitors. Spatially speaking, many scholars have described the spatial interface in the Muslim and Arab world between visitors and inhabitants in terms of front and back relationship, or semi-private and secluded domains of the house, and foremost, as male visitors and female members of the family.

The house in the M'zab also separates the male guest [non-*Muhram*] and family occupation spatial zones. The split at the *Skifa* is the prime

indication of this separation. This split provides the two genders the possibility of freedom of movement in and out of the house without mixing. The M'zabite family accommodation is relatively at the front [two steps from the exterior] and not at the back, while the male quarter is deep into the house [the *Aali* on the first floor] or at the front [the *Houdjrat* or *Douira*] on the ground floor. Thus, the movement of the female from the inside to the outside of the house and vice-versa is controlled. It is controlled by socio-cultural norms, which restrict the female from passing through/by a male zone when there are visitors, unless there is a necessity for this passing. To clarify the interface between visitors and female/family members our intention is to interpret this spatial relationship syntactically by exploring the depth properties of examples from the sample.

Composition in the M'zab Traditional House

Although, coming from sub-rural economy, the houses present an astonishing urban character (Donnadieu & Didillon, 1977: 5). This concern has been prompted by the existence of a particular morphological feature, "the spatial configuration" of the houses themselves. The M'zab house inherited the fundamental spatial dispositions of Maghreban houses: central open space, sometimes bordered by arcades and leading to surrounding living spaces (Ravereau, 1981: 17). This spatial arrangement can be found in many Saharan oases (Schacht, 1954: 27). The M'zabites brought a major modification, probably for climatic reasons; the ground floor open courtyard has been covered in such a way, that it leaves just a small opening in the ceiling, the *Chebek*, that allows light in. For instance, Meunier explains that the houses of the M'zab are hybrid. He claims that they probably derive from Arab style-houses that at least, appears to be the plan of houses at the earlier towns of Sedrata and Tahert but have been adapted by the closure of the central court to a more typically Berber plan (Meunier, J., 1962:68). This claim is also supported by another author who sees the Berber house in the Anti-Atlas in Morocco, appearing to derive from Arab prototypes, although their decoration is characteristically Berber (Fentress, 1987:47-68).

The individual house plan reflects a pattern of life which has hardly changed since the M'zabites first settled in the M'zab; an austere and secret life, proud of its early hardship and achievements and highly regulated in every detail. The size of family determined the size of house and public buildings were no more than a number of typical houses joined together to provide extra space (Etherton, 1971: 187). On the other hand, scholars who have conducted extensive research into the M'zabite traditional architecture developed the concept of "type-less" M'zab houses (Donnadieu / Didillon, 1977: 19). Accordingly to the authors, every single house is a model of its own. Although, their description of the M'zab houses put more emphasis on the house differences rather on similarities, they do identify certain unifying feature of the house, such as the ground floor main room or the *Ammas N'taddart*, and the *Ikoumar* or arched portico at first floor level.

Space Configuration in the Traditional M'zab House

The survey covered twenty-nine house plans. All the plans show the ground floor, the first -floor, and if it exists, the second-floor, the accessible terrace and the cellar. The sample is broadly representative of the M'zab house plan types. The space outside, usually a dead-end, an alley or a lane, is represented as a single convex space.

The twenty-nine houses were broken down into their convex organisation. Permeability graphs were drawn for each house from the

point of view of the house plot. Therefore plans and justified graphs from the outside have been drawn for each example, in order to clarify the space configuration and permeability patterns of the houses. A syntactic analysis is presented first, on a house-by-house basis, in order to group the houses configurationally, and then a statistical and functional account is attempted for the data as a whole, in order to see if space pattern and space use relate systematically to another. Basic syntactic data for the set of examples are tabulated in tables [01] showing the mean depth for each case of the sample.

Analysis Procedures

In this section, the study will focus on the justified graph. The justified graph is used as the basis for structural and syntactic analysis. It is the permeability structure where every convex space in the system is identified according to its relation to every other space or the relational logic of parts to the whole. Hillier describes the characteristics of a justified graph as: *"These are the spaces at depth one from the root. Then an equal distance above the depth one row we align the spaces that connect directly to first row spaces, forming the line of depth two spaces, and connect these to the depth one spaces, and so on"* (Hillier, 1996: 32).

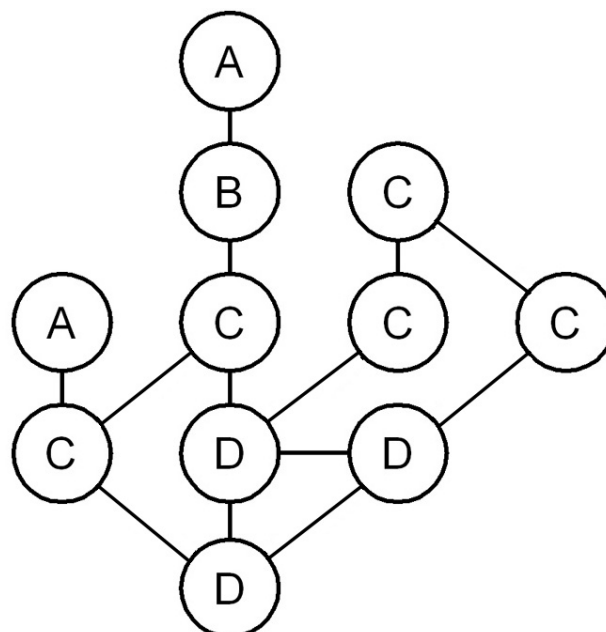
The justified graph is more than a simple illustrative tool to clarify space configuration in buildings. As space syntax is concerned, *"the configurational variables depth and rings turn out to be fundamental properties of architectural space configuration, and also the means by which architecture can carry culture"* (Hanson, 1998: 27). Justified graphs provide the breakthrough, which led to quantitative analysis. We will, at the same time, also bear in mind that the justified graph represents the permeability of the system and that the depth property indicates how many architectural steps one must pass through to arrive at a particular space in the configuration of the house.

In a justified graph, a space is represented as a circle and lines stemming from it represent its connections to other spaces. The letters a, b, c, or d represent the space structural dimension [See fig 1]. The distribution of different space types can be seen clearly in the justified graph. This fact can be more important to the system than the integration value of each space type because it is likely that the space type that covers the largest area would be the one that characterises the structure.

Figure 1:

Space-types in a graph

A: space with a single link.
B: space with two or more connections.
C: space with two or more connections and part of a ring.
D: space with three connections or more and on the intersection point of at least two rings



The space with a single link is defined as a-type and has one connection to and from it, which is also defined as dead-end spaces through which no movement to other spaces is possible. A b-type space have more than one link, generally it has two connections: one connection is from other spaces and the other is to an a-type space or isolated groups of sub-complexes spaces. This type of space does not fall in a ring. The other two space-types are more flexible; a c-type space has two connections or more and has to be a part of a ring [a complete roundabout of connected cells], while d-type space has three connections or more and has to be on the intersection point of at least two rings. C- and d-type spaces indicate possible flexibility or choice of movement. Spaces of -a and b-type indicate a more controlled movement, while they single out the passage when moving to and from them.

Theoretical Analysis

The analysis involves a-b-c-d type-spaces, which are comprehended through movement. Their numbers of connections to differentiate a-b-c-d type-spaces and from others while passages; junction and place types are differentiated by their physicality in architecture.

Movement to and from spaces: Passage

The first and most straightforward experience is the passage representing the linearity of human movement. It is common to experience a passage in everyday life since it is a consequence of being connected with other spaces. In architecture, spaces that offer such a quality of passage are translated into staircases, halls, corridors etc... Passage provides rich experience of type, number, sequence, and location of architectural space with which it is associated. The experience becomes more interesting when taking into account the socio-cultural aspects of everyday activities.

Movement in-between spaces: Junction

Junction is usually attached to and is experienced by movement along a passage. There is always at least one junction in every occupiable space, in between two or more different spaces and is where activities change. Its physical and spatial properties are found where a movement exists on one spatial context and enter another; this means that most spaces can become junctions to other spaces. In comparison to passage, junction type is a much more condensed activity. The situation such as a pocket space of doorway, a group of columns or the drop of a ceiling defines change in space and thus the activity of junction. The integration quality of this spatial type is expected to be in between those of passage and place.

Movement in a space: Place

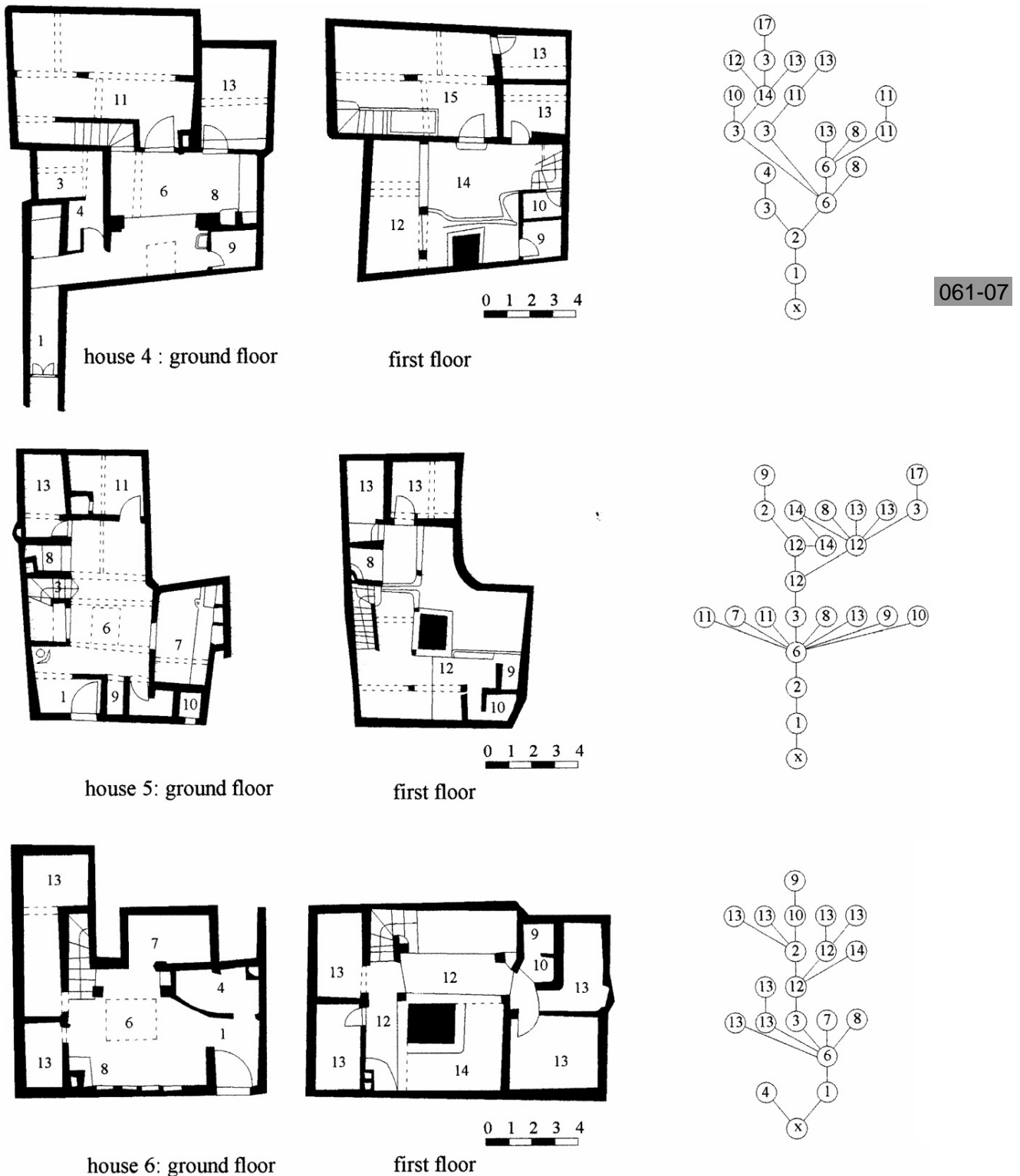
The junction type usually introduces a place type space. Compared to the other two "experiences", place is the most static. Place indicates a different scale of movement which is smaller than passage but larger than junction. The integration quality might be at the lower scale if it is an enclosed room. However, when place does not represent enclosed spaces such as rooms but common spaces such as the *Ammas N'taddart* of traditional M'zab houses, it could become the most integrated as well as the richest experiential space.

In conclusion, a passage type-space is a space that suggests a to-and from- movement in a goal-oriented space which is a form of architectural space used to connect at least two functions together, e.g. a corridor. A junction type-space suggests an in-between changing movement in a decision making space which is a form of architectural space used to introduce the change of architectural conception of space, either in movement or function, e.g. a doorway.

Houses 1-3 with their justified graphs

The study of each example will be completed as follows:

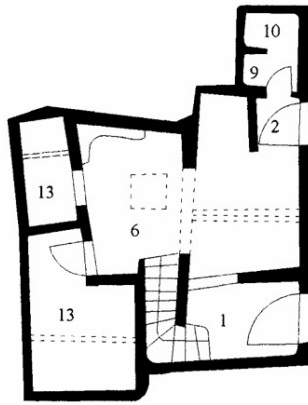
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**Figure 3:**

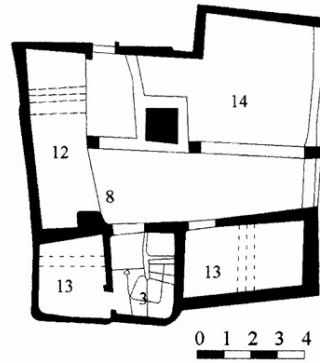
Houses 4-6 with their justified graphs

2. Second a syntactic analysis of the spatial properties of the main functional spaces of M'zab house [the *Ammas N'taddart* or the large living female space, the *lkoumar* or arched portico on the first floor, the *Skifa* or chicane, and the *Tisifri* or women's living room], which should lead to a more general proposition about pattern of spatial configuration and to display possible spatial types within the sample. [See tables 2-5]

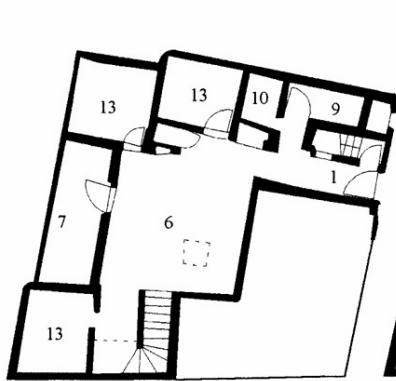
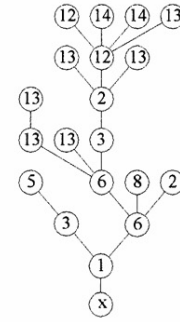
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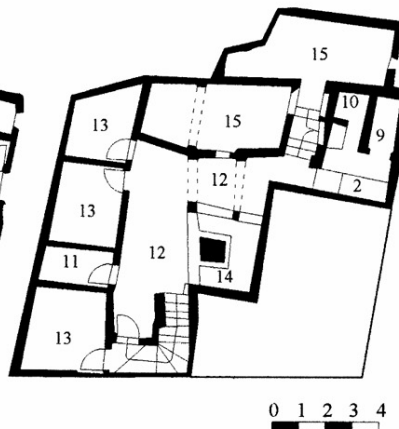
house 7: ground floor



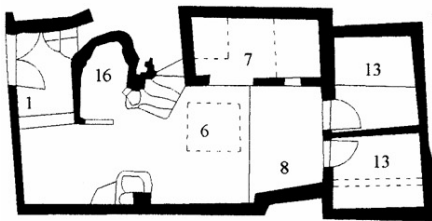
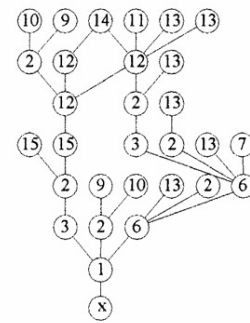
first floor



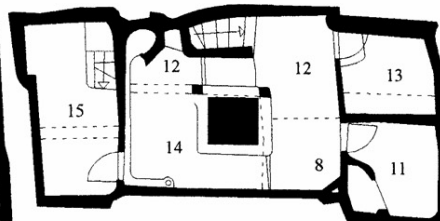
house 8: ground floor



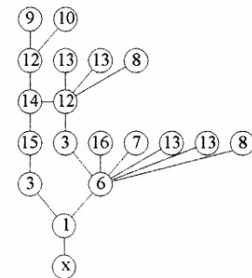
first floor



house 9 : ground floor



first floor

**Figure 4:**

Houses 7-9 with their justified graphs

Discussion

The justified graph from the exterior shows that the houses are deep from the exterior; the mean average for the whole sample is 4.52 (Bellal & Tacherift, 2003: 125). Observing the depth of the male guest room, we noticed that the *Houdjrat* or *Douira* are shallower at depth two [eight cases for the whole sample: houses 4-6 from the ksar of *Ghardaia*, houses 4, 6, and 9 from the ksar of *Beni Isguen*, house 1 from the oldest settlement of *El Ateuf*, and house 1 from *Melika*], while the *Aali* is at depth three [sixteen houses: houses 2-3, 8-9, and 11 from the ksar of *Ghardaia*, houses 2-6 from the ksar of *Beni Isguen*, houses 1-4 from the ksar of *El Ateuf*].

House N	C.S	SLR	M.D	Integration With Exterior			BDF	Integration Without Exterior			BDF
				Mean	Min	Max		Mean	Min	Max	
1.	28	1.07	4.33	1.21	0.70	1.80	0.83	1.19	0.71	1.68	0.83
2.	24	1.04	5.08	1.48	0.85	2.22	0.88	1.48	0.87	1.70	0.84
3.	29	1.10	3.92	1.12	0.60	1.61	0.82	1.13	0.62	1.61	0.82
4.	21	1.00	4.90	1.19	0.57	1.87	0.80	1.15	0.54	1.95	0.77
5.	24	1.08	5.17	1.18	0.68	1.87	0.81	1.42	0.91	2.10	0.86
6.	20	1.00	4.15	1.30	0.73	2.02	0.80	1.26	0.68	1.84	0.78
7.	22	1.00	4.47	1.41	0.78	2.06	0.82	1.43	0.79	2.13	0.82
8.	30	1.06	4.48	1.26	0.88	1.70	0.91	1.27	0.90	1.76	0.91
9.	19	1.10	3.66	1.00	0.59	1.35	0.86	0.99	0.62	1.33	0.86
10.	29	1.03	4.75	1.29	0.73	1.97	0.82	1.30	0.74	1.97	0.82
11.	50	1.06	5.22	1.17	0.76	1.76	0.86	1.18	0.77	1.77	0.87
12.	28	1.07	4.62	1.10	0.51	1.54	0.79	1.09	0.50	1.54	0.78
13.	30	1.00	5.00	1.39	0.76	2.26	0.78	1.42	0.77	2.34	0.77
14.	20	1.05	4.15	1.28	0.73	2.77	0.85	1.29	0.71	1.75	0.85
15.	34	1.05	5.24	1.31	0.82	1.99	0.85	1.31	0.80	1.98	0.84
16.	27	1.03	4.69	1.24	0.72	1.76	0.84	1.24	0.73	1.75	0.85
17.	27	1.03	4.96	1.47	0.79	2.74	0.70	1.45	0.78	2.93	0.66
18.	17	1.00	5.00	1.40	0.81	2.98	0.85	1.35	0.79	1.93	0.85
19.	18	1.00	3.82	1.09	0.56	1.55	0.81	1.08	0.58	1.54	0.81
20.	23	1.04	4.72	1.28	0.72	1.90	0.82	1.27	0.73	1.89	0.83
21.	22	1.00	5.09	1.61	0.98	2.35	0.85	1.61	0.96	2.35	0.85
22.	17	1.00	4.62	1.31	0.68	2.04	0.78	1.27	0.68	2.01	0.78
23.	14	1.14	3.92	1.22	0.67	1.83	0.81	1.18	0.60	1.77	0.80
24.	28	1.04	4.12	1.37	0.70	2.32	0.74	1.39	0.73	2.36	0.75
25.	29	1.00	4.39	1.25	0.67	2.19	0.74	1.25	0.70	2.27	0.74
26.	22	1.04	4.85	1.16	0.69	1.72	0.82	1.15	0.68	1.76	0.83
27.	26	1.07	4.32	1.26	0.81	1.97	0.86	1.26	0.81	2.00	0.84
28.	26	1.07	4.32	1.11	0.58	1.55	0.82	1.10	0.60	1.56	0.82
29.	41	1.02	5.24	1.24	0.70	1.91	0.81	1.23	0.69	1.92	0.80

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MD: stands for mean depth, BDF: stands for base difference factor, CS: stands for convex spaces, SLR: stands for space link ratio

The result shows interesting finding for the female quarter. The permeability graph from the *Skifa* shows that the *Ammas N'taddart* is just at depth two, when we exclude the intermediate space where it exists. This means that the *Ammas N'taddart* which is a female space per excellence is shallow from the exterior, which contradicts what it has been assumed that the female spaces are secluded and oriented towards the back of the structure. In fourteen cases the *Ammas N'taddart* is of b-type suggesting that there is no choice of mobility, of movement to and from this space, it is a through space. In twelve cases this space is of c-type which means also a through space, but falling in a ring that suggests a degree of choice within the house when moving around. While in three cases [house 11 from the Ksar of *Ghardaia*, houses 2, and 4 from the Ksar of *El Ateuf*] it is of d-type. This function label shows here a higher degree of choice and of integration in these houses. The *Ammas N'taddart* represents the linearity of user's movement that tends to create a horizontal volume of space. Since, it is connected to other spaces; most of the movement that happens in the *Ammas N'taddart* is more global and dynamic in terms of the to-and-from relationship between spaces and the movement that happens.

The entry and penetration of visitors to the house's interior, in the M'zab culture, is regulated by certain socio-religious codes. These codes identify the visitors along gender and kinship lines. This identification determines the domain and the spaces where he/she will be received. The intimacy gradient (Alexander, 1977) which might be found in each culture at varying degrees, in the case of the M'zab house, such gradient involves other dimensions than simply front to back, or formal semi-private to most intimate spaces, for the above mentioned reasons. The syntactic property [depth] of the whole sample has been observed in order to explore the sequence of movement and permeability from the entrance. A *Skifa*, which is an entrance space, is found in all the twenty-nine cases of the sample. In

Table 1:

Syntactic properties of convex spaces

seventeen cases it is a b-type space with only one link, while in twelve cases it is a c-type space. From the results, it appears that the Skifa plays an important role in the functioning of the house. This space type suggests an in-between changing movement in a decision-making space, which is a form of architectural space used to introduce the change of architectural conception of space, either in movement or function. In many cases two separate pathways start from the Skifa, one leading to the family quarter and the other to the male guest room [Aali or the Houdjrat].

Table 2:

061-10 Spatial properties of Ammas
N'taddart

House N°	Space type	RRA	Mean/c	BDF*	S-I/C
1.	C	0.74	1.28	0.80	Integ
2.	B	0.55	1.18	0.76	Integ
3.	C	0.69	1.05	0.80	Integ
4.	B	0.70	1.21	0.83	Integ
5.	B	0.46	0.98	0.75	Integ
6.	B	0.73	1.17	0.79	Integ
7.	B	0.66	1.26	0.79	Integ
8.	C	0.60	0.95	0.80	Integ
9.	C	0.55	1.00	0.85	Integ
10.	B	0.69	1.21	0.76	Integ
11.	D	0.68	1.07	0.84	Integ
12.	B	0.69	1.14	0.75	Integ
13.	B	0.67	1.30	0.77	Integ
14.	C	0.72	1.02	0.76	Integ
15.	C	0.62	1.00	0.79	Integ
16.	C	0.69	1.07	0.81	Integ
17.	C	0.66	1.05	0.86	Integ
18.	B	0.60	1.21	0.71	Integ
19.	C	0.46	1.07	0.67	Integ
20.	B	0.61	1.16	0.80	Integ
21.	B	0.92	1.41	0.82	Integ
22.	B	0.61	1.15	0.84	Integ
23.	B	0.45	1.05	0.76	Integ
24.	C	0.57	1.05	0.76	Integ
25.	B	0.65	1.23	0.82	Integ
26.	D	0.65	1.00	0.85	Integ
27.	C	0.64	1.05	0.83	Integ
28.	D	0.65	1.22	0.72	Integ
29.	C	0.67	1.14	0.82	Integ

RRA: stands for real integration value
BDF: stands for base difference factor

Table 3:

Spatial properties of Skifa

House N°	Space type	RRA	Mean/c	BDF*	S-I/C
1.	C	1.28	1.28	0.80	Integ
2.	B	0.86	1.18	0.76	Integ
3.	C	1.01	1.05	0.80	Integ
4.	B	1.01	1.21	0.83	Integ
5.	B	0.88	0.98	0.75	Integ
6.	B	1.10	1.17	0.79	Integ
7.	B	0.87	1.26	0.79	Integ
8.	C	0.67	0.95	0.80	Integ
9.	C	0.83	1.00	0.85	Integ
10.	B	1.04	1.21	0.76	Integ
11.	D	0.93	1.07	0.84	Integ
12.	B	1.08	1.14	0.75	Integ
13.	B	1.12	1.30	0.77	Integ
14.	C	0.79	1.02	0.76	Integ
15.	C	1.10	1.00	0.79	Segreg
16.	C	0.90	1.07	0.81	Integ
17.	C	1.03	1.05	0.86	Integ
18.	B	1.06	1.21	0.71	Integ
19.	C	0.93	1.07	0.67	Integ
20.	B	1.19	1.16	0.80	Segreg
21.	B	1.36	1.41	0.82	Integ
22.	B	1.02	1.15	0.84	Integ
23.	B	0.78	1.05	0.76	Integ
24.	C	0.98	1.05	0.76	Integ
25.	B	1.15	1.23	0.82	Integ
26.	D	1.04	1.00	0.85	Segreg
27.	C	1.09	1.05	0.83	Segreg
28.	D	1.07	1.22	0.72	Integ
29.	C	1.21	1.14	0.82	Segreg

RRA: stands for real integration value,
BDF: stands for base difference factor

The Tisifri or women's living room is where the female members gather and is found under different labels, yet they all have similar functional and spatial roles. In M'zab traditional houses this space is used by women to receive their female counterparts, it is also used as women prayer hall, and women move there after giving birth. Spatially, it gives onto the Ammas N'taddart. This space is found in all cases. It is considered to be a terminal or dead-end space; an a-type with only one link that means no movement is possible to other spaces through it. An a-type space is thus movement that can be seen as static suggesting an occupying type of movement in a function-setting space in a form of architectural space used to signify a particular function.

Table 4:*Spatial properties of Ikoumar*

House N°	Space type	RRA	Mean/c	BDF*	S-I/C
1.	C	1.19	1.28	0.80	Integ
2.	B	0.83	1.18	0.76	Integ
3.	C	0.66	1.05	0.80	Integ
4.	B	0.75	1.21	0.83	Integ
5.	B	0.62	0.98	0.75	Integ
6.	B	0.62	1.17	0.79	Integ
7.	B	1.02	1.26	0.79	Integ
8.	C	0.58	0.95	0.80	Integ
9.	C	0.61	1.00	0.85	Integ
10.	B	0.69	1.21	0.76	Integ
11.	D	0.63	1.07	0.84	Integ
12.	B	0.67	1.14	0.75	Integ
13.	B	0.86	1.30	0.77	Integ
14.	C	0.49	1.02	0.76	Integ
15.	C	0.62	1.00	0.79	Integ
16.	C	0.64	1.07	0.81	Integ
17.	C	0.66	1.05	0.86	Integ
18.	B	0.83	1.21	0.71	Integ
19.	B	0.80	1.07	0.67	Integ
20.	B	0.88	1.16	0.80	Integ
21.	B	0.86	1.41	0.82	Integ
22.	B	1.53	1.15	0.84	Segreg
23.	B	1.12	1.05	0.76	Segreg
24.	C	0.62	1.05	0.76	Integ
25.	B	0.77	1.23	0.82	Integ
26.	D	0.68	1.05	0.85	Integ
27.	C	0.59	1.05	0.83	Integ
28.	C	0.82	1.22	0.72	Integ
29.	C	0.67	1.14	0.82	Integ

RRA: stands for real integration value,
BDF: stands for base difference factor

The whole family for sleeping at night during summer time uses the Ikoumar or arched portico. Also, some occasional activities take place there i.e. washing, cooking, and after-noon coffee taking. The Ikoumar is found in almost all cases. In fifteen cases the Ikoumar is b-type [a through spaces], while in twelve cases the space is c-type and in two cases it is d-type. These houses with alternative, but interconnected routes to the upper-floor are the ones where high integration shifts to the Ikoumar. They are generally well connected to other spaces. An exceptional case shows that the Ikoumar is a-type space [house 11 form the ksar of Beni Isguen], being a dead-end space and not a through space falling in one or more ring, as it is usually the case.

Results

In all examples the justified graph was constructed, corresponding to the exterior and the basic justified graph, in which all the spaces in the structure are located in relation to the carrier. The justified graphs showing the route of permeability from the threshold, prove that the *Ammas N'Taddart*, which is used by the family members, and the male guest room on the ground floor [the *Houdjrat* or *Douira*], are relatively shallow in relation to the street, and they are in the front positions relative to the street, while being in a front/back relationship with each other. At the same time the *Aali* [male guest room on the

first floor] or the basement [there are three cases in the sample houses 07 and 11 from the ksar of *Ghardaia*, and house 01 from the Ksar of *Melika*], are deep inside the structure, three steps respectively from the carrier.

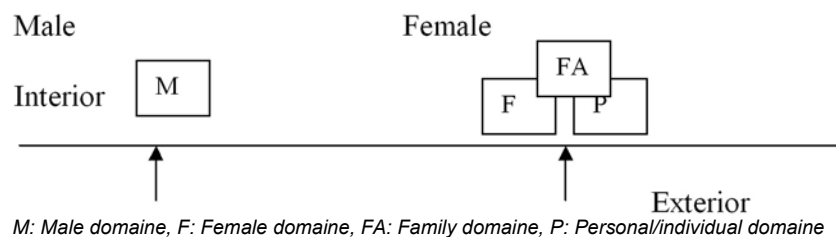
Table 5:
Spatial properties of Ikoumar

House N°	Space type	RRA	Mean/c	BDF*	S-I/C
1.	A	1.18	1.28	0.80	Integ
2.	A	1.29	1.18	0.76	Segreg
3.	A	1.01	1.05	0.80	Integ
4.	A	1.16	1.21	0.83	Integ
5.	A	0.93	0.98	0.75	Integ
6.	A	1.21	1.17	0.79	Segreg
7.	A	1.10	1.26	0.79	Integ
8.	A	0.91	0.95	0.80	Integ
9.	A	1.05	1.00	0.85	Segreg
10.	A	1.12	1.21	0.76	Integ
11.	A	1.00	1.07	0.84	Integ
12.	A	1.12	1.14	0.75	Integ
13.	A	1.07	1.30	0.77	Integ
14.	A	1.02	1.02	0.76	=
15.	A	1.03	1.00	0.79	Segreg
16.	A	1.03	1.07	0.81	Segreg
17.	A	0.96	1.05	0.86	Integ
18.	A	1.13	1.21	0.71	Integ
19.	A	1.01	1.07	0.67	Integ
20.	A	0.98	1.16	0.80	Integ
21.	A	1.42	1.41	0.82	Segreg
22.	A	1.14	1.15	0.84	Integ
23.	A	1.24	1.05	0.76	Segreg
24.	A	1.03	1.05	0.76	Integ
25.	A	1.08	1.23	0.82	Integ
26.	A	1.08	1.00	0.85	Sgreg
27.	A	1.07	1.05	0.83	Segreg
28.	A	1.30	1.22	0.72	Segreg
29.	A	1.03	1.14	0.82	Integ

RRA: stands for real integration value,
BDF: stands for base difference factor

The finding also shows that, the family and male domains are in a parallel route see fig [5]. In relation to the street, the family occupation of space is deeper than the male guest room when we exclude the Aali or the basement [these are four cases in the sample; house 07 and 11 from the ksar of *Ghardaia*, and house 01 from the Ksar of *Melika*], hence the male visitors will penetrate the house without crossing the family domain. The study in this section provides further understanding of the M'zab domestic environment in terms of visitors and inhabitant interface. In actual terms, the interface is between male visitors and family domains. The study also asserts the significance of entrance in regulating the interior organisation of the M'zab house in terms of depth properties.

Figure 5:
The parallel model



The results also show that the exterior zone is always segregated from the domestic life, which confirms the social code in such a culture. Concerning the spatial interface between visitors and inhabitants the study provides further understanding of M'zab domestic environment in terms of visitors and inhabitants interface. In actual terms, the interface is between male visitors and family domains. The study also asserts the significance of entrances in regulating the interior organisation of the M'zab house in terms of depth properties.

Implications for Research Advancement

In this paper, we have concentrated upon the relation between the plan layout of the house and the social life it is supposed to envelop, and how this container might have an impact upon the social life. Houses are more complex phenomena than accounts based on mode of construction or architectural style. They usually encode a wealth of social and symbolic information, which is then taken for granted by their occupants. For whom they constitute a shared framework of spatial patterns and social practices that shape everyday life and which therefore seem natural and familiar. Houses may encode several perspectives on everyday life, which sometimes co-exist without seeming to be aware of one another. However social phenomena are durable in that they leave traces of the material form of their existence in the way in which the pattern of domestic space is arranged, in the way in which objects are found in different locations in the house and in the distribution of activities and behaviour, which can be observed there over time. Spatial configuration can therefore be decoded so that the social and symbolic information are retrieved directly from the study of how houses are organised and used. These spatial descriptions speak directly to us about how the social universe is constructed and reproduced in everyday life.

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