

Comparative Analysis of M'zabite and Other Berber Domestic Spaces

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Abstract

This paper aims to analyse and compare Berber domestic spaces across a sample of houses from Kabylia, the Aures and the M'zab valley, three regions of Algeria which present distinctive geological, geographical and historical characteristics. The study will look, first at the houses, then at similarities and differences in space configuration. Simple space syntax techniques are used to explore Berber housing. The study focuses particularly on the measure known as «difference factor». The concept of difference factor has been widely used as a technique to measure the strength of a spatial genotype. As a preliminary conclusion a characteristic pattern of integration is identified, which centres on the main room or *Wast eddar*. The second finding, and not the least, concerns the integrating aspect of Berber habitat, which contradicts the abundant literature that points to the segregation of Muslim and Berber living spaces.

Introduction

According to Pierre Bourdieu, the organisation of Berber society in any given period or place is inextricably linked to its setting - the house, the settlement, the landscape - which in turn had been created by the group [Brit M. & Fentress E., 1996]. An attempt to analyse and compare the physical structure of Berber housing and settlements in Algeria might help to better understand the organisation of the house spatial properties. The three settlements considered in this analysis, come from three regions of Algeria, which present distinctive, geological, geographical and historical characteristics. Although Algeria is undergoing a fast social evolution, these settlements, as well as the houses, have been able to preserve their original physical form. This comparative analysis will use the space syntax method as a tool to achieve a better understanding of space configuration of Berber housing. Space syntax analysis is used to explore the cultural patterning which is found in large samples of plans, particularly in vernacular and traditional houses, where examples often appear visually to be unique and it is not obvious whether there are any configurational consistencies beneath the surface variety which is presented to the eye [Hanson J., 1998]. Under these conditions, the configurational analysis of the plan can be conceived as an archaeology of space. If the houses display morphological regularities then the buildings speak directly of culturally significant household practices which have been crystallised in the form of the dwelling. The degree of differentiation among integration values is a measure that highlights how strongly social relations express themselves through space [Hillier B. & Hanson J., 1984]. The analysis will concentrate on three settlements [from the M'zab, Kabylie and the Aures], looking first at the

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houses, then at similarities and differences in space configuration across the sample. Although the main concern of this analysis is centred on domestic space, it is hoped that future work will try to identify the urban spatial characteristics that might relate to differences in space use, and by this perhaps show a spatial way of understanding social phenomena that have been presented earlier descriptively. Evidently, this can only be achieved by a full analysis of the settlement forms.

1. The Settlements

Berber settlements as a whole are a complex imprecation of spaces. They are regularly perched on the hillside, and may be found on almost inaccessible summits dominating a valley. Even in the lower relief of the Saharan oases, settlements are found in the most difficult positions. This is a characteristic of Berber settlement siting.

The settlements of the M'zab each occupy conical hills whose vertical axis is emphasised by the tall spire of the minaret at the top. In fact, Ghardaia the principal settlement of the Mzab [surface area of the Ksar: 29,6 ha, total number of houses: 1806] , is situated at the highest point : 1780 feet, dominated by a minaret seventy two feet high in the form of a pyramid which, in cross section, measures twenty feet at the base and six feet at the top. The

mosque is both a place for prayer and a fortress [the minaret serving as a watchtower], where the reserve provisions were formerly stored. It is the mosque, rather than the Guelaa [Granary as in the Aures mountains] which forms the focal point of the settlement. The Ibadhite M'zabite community was based on a fundamentalist Islamic sect. Around the religious centre the houses are laid out in, concentric circles. The result is that the settlement presents the form of a pyramid made up of a series of ellipses laid out in tiers. Continuous streets surround the groups of houses, while dead-end streets service the houses themselves [see photograph 01]. From the districts in the lower town a whole network of roads converges on the mosque. Two streets only give access to the mosque : one leads to the main door; the other, which is entirely covered over, is reserved for the women. The ancient M'zabite district near the mosque is the most tranquil, the cleanest, and also the most austere. Any form of business is forbidden within its confines [Tfiech A.Y., 19th century Arabic manuscript, p 56]. Heterogeneous groups used to live in separate districts : The Arab Malekite M'dabih in the Northwest part of the settlement and the district of Beni Merzoug, in the east. The Jews also used to live in separate districts isolated beyond the ramparts in the Southeast portion of the settlement. The market square, almost rectangular in form and bordered on four sides by irregularly shaped arcades, is situated in an outlying part of the settlement quite close to the ramparts. The market

square is a public area and is completely open to every man of the community and to outsiders. It is the centre of the secular life of the community containing commercial and business functions. It is the meeting place of the city council. The circulation pattern functions as a social control mechanism. The houses are connected to the mosque or to the market square by narrow alleys forming a tree structure. From the public space of the mosque

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or the market place to the private space of *Wast eddar* inside the house each intersection of the circulation network marks a distinct transition point and creates with the narrowing of the alley, an increase of privacy.

The Kabylie settlements or *Thaddart* in Berber, tend to be found on a summit dominating a valley. Hundreds of settlements are settled carefully on defensible crests and ridges [see photograph 02]. Defence and the desire for isolation from their neighbours must have predominated in the choice of site [Pacino F., 1979, p 106]. Overlooking its fields and orchards, neighbouring settlements, roads and valleys, the Kabylie settlement densely gathers its houses on a hilltop. Settlements have several hundred sometimes even more than two thousand inhabitants. A small lane off the road that interconnects several settlements leads to the top of the hill, where there is a small square at the front. A gate building and a mosque mark the entrance to the settlement. A single narrow street runs through the settlement. Perpendicular to it dead-end alleys penetrate the housing fabric, leading to family quarters composed of a few extended family yards. Entry to the yard is through the *Skifa*. The protected alleys offer a suitable meeting place for women. Two or three nuclear family houses [Axxam] surround the family courtyard. The settlement layout thus shows a rich privacy gradient that allows for a gradual transition between the public, masculine realm and the private feminine sphere. In contrast to M'zab settlements, there are no markets at all in the older settlements of Kabylie and the Aures. Markets thus arose outside the settlements, usually at the territorial boundaries between number of settlements, preferably on a major line of communication followed by traders from other regions.

The Shawia settlement in the Aures is less elaborated than the previous ones. It consists of a limited number of clusters grouped here and there. Most of the time the rock is used as a back wall [see photograph 03]. The cluster has fortified granaries and underground storage rooms where grain, crops and water are stored. In most of the Shawia settlement the settlement granary is the focal point of the community and not the mosque as in the M'zab. One would draw the attention to the fact that in Arab settlements artisans and merchants are grouped in concentric circles around the Friday mosque at the centre, with the most precious products- perfumes, jewellery and spices- closest to the mosque itself. In the Mzabite settlements, by contrast, the market is either placed beyond the gate or just inside it.

The main point to be raised here, is the morphological differences between the M'zab settlement and the others. The M'zabite one tends to be urban, elaborated with spatial characteristics inherent in the configuration of the settlement related to different patterns of space use. The housing in the M'zab presents an unexpected urban character, but of unknown origin [Donnadieu C./P. & Didillon H./J.-M, 1977, p 5]. Whereas, the Kabylie and the Shawia settlements are on contrary, rural, have scattered houses here and there with no elaborated patterns of space use. One can say that the Aures and Kabylie settlements are based on a traditional rural frame.

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Photo 3 : Shawia cluster of houses

Presentation of the analytical method

There are applications of space syntax methodology that concern primarily the spatial analysis of houses [Hillier et al, 1987, pp 363-385]. It will be of interest to see how far syntactic analysis might reveal the underlying spatial structures of Berber houses and how far it will be possible to show these structures quantitatively.

Space syntax is a set of techniques for the representation and quantification of spatial patterns. The step towards quantification can be achieved by considering the space pattern as two-dimensional convex structure. This structure is then represented as a graph, which is, called a «justified graph». The justified graph shows how the arrangement of convex spaces [vertices] and their entrances [linking lines or edges] control access and movement. It is organised in a particular way : all the spaces are aligned above a certain space [normally the site in which the dwelling sits, which is sometimes referred to as the 'carrier' of the system] in levels according to their depth from that space until the furthest convex space is reached. «Depth» is an important configurational property of spatial patterns and indicates how many steps one must pass through to arrive at a particular space in the configuration. It is also used in a certain way, to determine the measure of integration [the relative depth of a particular space from all others]. The justified graph represents the permeability of the system, whereas integration values extend these descriptions by expressing how the graph looks quantitatively. Another important element is to be taken into account, is the degree of differentiation among integration values, which is one of the means showing how strongly social relations express themselves through space [Hillier et al, 1987, pp 363-385]. This can be expressed as a difference factor or a relativised one, which measures how strongly or weakly a consistency is maintained within a spatial pattern, by calculating the degree of difference among the integration values of three or more spaces. The sample houses are broken down into their convex organisation, and the integration values are calculated for each convex space with respect to the dwellings as a whole. 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 will be 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 patterns and space use relate systematically to one another. Basic syntactic data for the set of examples are tabulated in table 01 showing the number of convex spaces, space-link ratio, the mean integration value and the relativised base difference factor when the exterior is counted and discounted. The rank order of the integration values of the constituent spaces in each house is given in table 02.

Table 1 : Basic syntactic data.

CS- Convex spaces
SLR- Space link ratio
MD- Mean depth
BDF*- Relativised base difference factor
Me- Mean or average

House N°	C.S	SLR	M.D	Integration with exterior			BDF*	Integ. without exterior			BDF*
				Mean	Min	Max		Mean	Min	Max	
1.	22	1.04	3.80	1.11	0.58	1.55	0.82	1.10	0.60	1.56	0.83
2.	27	1.07	4.15	1.26	0.81	1.97	0.86	1.26	0.81	2.00	0.83
3.	25	1.08	4.00	1.16	0.69	1.72	0.84	1.15	0.68	1.76	0.82
4.	18	1.05	3.64	1.17	0.68	1.58	0.87	1.16	0.65	1.58	0.85
5.	15	1.06	2.85	0.88	0.25	1.27	0.60	0.89	0.24	1.30	0.58
6.	13	1.00	3.16	1.03	0.33	1.43	0.66	1.02	0.32	1.47	0.64
7.	10	1.00	2.66	1.00	0.27	1.55	0.56	1.00	0.23	1.58	0.50
8.Me	18	1.04	3.46	1.08	0.51	1.58	0.74	1.08	0.50	1.60	0.72

M'zabite Houses :

House 01 :

Wast eddar < Stairs < Ikoumar < Houdjrat < Tigharghart < Tisifri=Skifa <
 0.58 0.62 0.71 0.88 0.97 0.98
 Kitchen < Aali < Room 4 < WC < Room2=Room3 < exterior < Room1=Terrace.
 1.15 1.24 1.28 1.37 1.42 1.43 1.55

House 02 :

Wast Eddar < Stairs < Ikoumar < Tigharghart < Skifa < Houdjrat < Tisifri=Room1=Room2 <
 0.81 0.83 0.85 1.05 1.18 1.20 1.21
 Room3=Room4 < Kitchen < Room5 < Aali < Exterior < Room6 < WC.
 1.25 1.33 1.46 1.53 1.58 1.70 1.97

House 03 :

Wast Eddar < Stairs < Houdjrat < Ikoumar < Room1=Room2=Tisifri=Kitchen < Tigharghart =
 0.68 0.81 0.83 0.92 1.10 1.12
 Aali < Skifa < Room3 < Room4 < Room5=storage room < Exterior < WC.
 1.22 1.33 1.44 1.53 1.54 1.72

Shawia Houses :

House 04 :

Main room < stairs < skifa < Store room < Ladder < Kern=Terrace=Sheep pen <
 0.67 0.69 1.04 1.07 1.10 1.16
 Fodder < Store room < Exterior < upper store room
 1.38 1.49 1.52 1.58

House 05 :

Courtyard < Skifa < Store room < Kitchen=Store rooms <
 0.25 0.55 0.76 0.80
 Exterior=Room1=Room2 < WC < Sheep pen
 1.10 1.19 1.27

Kabylie Houses :

House 06:

Courtyard < skifa=Room1 < kitchen = rooms 2 < Room3=Room4 < WC < exterior
 0.33 0.82 0.93 1.32 1.33 1.43

House 07 :

Main room < Skifa < Ladder < Kern=Bed=Store space < Exterior=Adaynin < Taaricht
 0.27 0.63 0.81 1.00 1.36 1.54

**Table 2 : Order of
integration of main
functions with
exterior:**

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NB: The following are the main spaces that constitute the traditional Berber house. The numbering that precedes each constituent space will be used in the description of the house's drawings and in the justified graphs that will be shown in figures [1-3].

- 1: Skifa,[Taskift] Berber for chicane
- 3: Tissounane, Berber for stairs
- 5: Dahlis, Berber for basement
- 6: Courtyard
- 7: Tisifri, Berber for women's room
- 9: Ajmir, Berber for WC
- 11: Tazeka N elaoulet, Store room
- 13: Tazeka, Berber for room
- 15: Aali, Berber for male guest room
- 17: Stah, Berber for terrace
- 19: Loom

- 2: Intermediate space
- 4: houdjrat, Berber for male guest room
- X: Exterior
- 6: Wast eddar or Ames Ntadart
- 8: Inayen ,Berber for Kitchen or hearth
- 10: Lamghassel, Berber for Bathroom
- 12: Ikoumar, Berber for arched portico
- 14: Tigharghart or upper courtyard
- 16: Tazadit, Berber for animal room
- 18: Taaricht, Berber for loft

2. House description

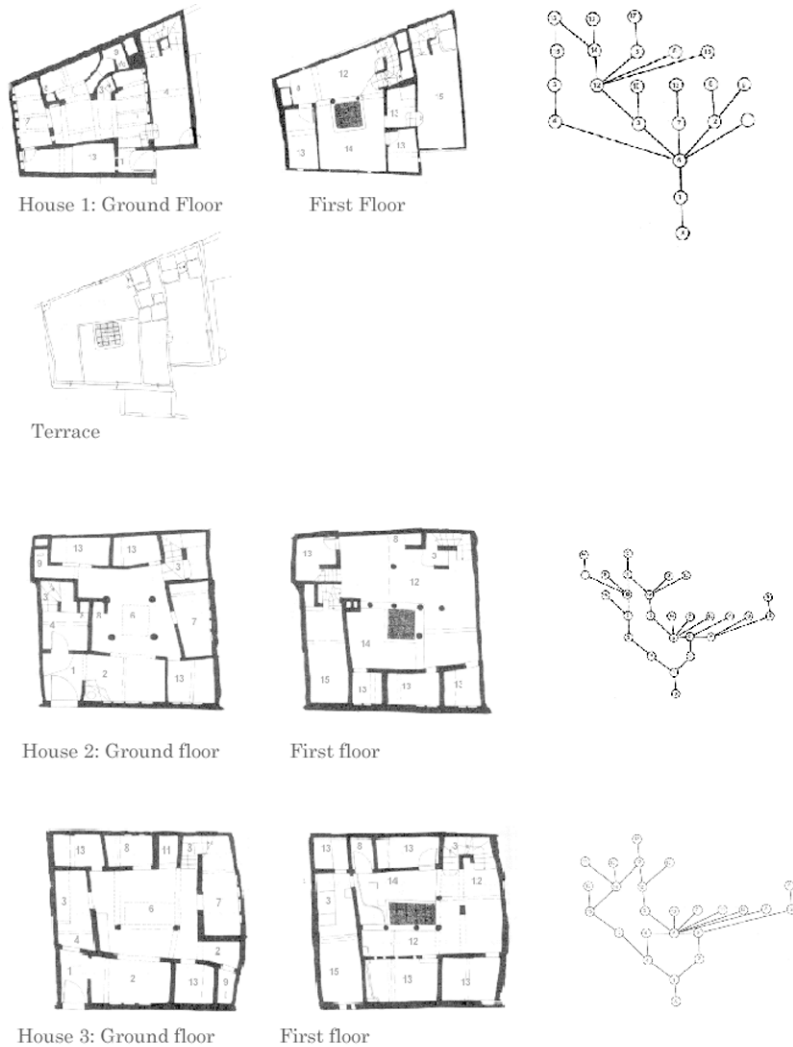
2.1. The M'zabite house

The houses in the M'zab are usually two to three storey buildings, and are invariably built around a covered courtyard or *Wast eddar*. The access from the street to the house is always through the *Skifa*, which gives directly on to the central space : a gloomy room lit only by a central light well covered by a large grille. It is the largest space in the house. No furniture exists in the central courtyard, except for the loom and the built in shelves for the cooking utensils. The toilets are usually located in a remote corner of the central court. Off this room open multi-functional rooms [used sometimes as bedrooms, storage rooms and changing rooms], the *Tisifri* or women's living area and sometimes a separate kitchen, but in general the space is used much as in Kabylie and in the Aures. On the first floor is found the *Ikoumar*, Berber for arched portico, which takes over some of the functions of the ground floor covered courtyard in the winter. A guest male quarter often exists upstairs but this would, as a rule as usual, be reached only from the *Skifa*. The *Stah*, Berber for terrace [if there is one] is rather segregated and used exclusively by women

Space configuration

The three examples used in this case came from El Ateuf, the oldest settlement in the M'zab valley [surface area of the Ksar: 8,58 ha, total number of houses: 524]. The M'zabite house is a deep core type, but still introverted or centripetal in layout [see figure 01, tables 1-2]. The spatial properties of the home suggest various forms of household organisation, supporting different conceptions of family life, gender relations and ways of receiving guests into the home, when compared to the Kabylia case, for example. The houses are larger with an average of 22, 27 and 25 spaces respectively. The *Skifa* is always shallower [depth one] and it is more segregated. The *Wast eddar* or ground floor court as well as the *Ikoumar* on the first floor are the most integrated spaces in the house and the exterior tends to be the most segregated space of all. The focus of daily life seems to be the *Wast eddar*, whilst the *Ikoumar* on the first floor is used as more casual space during wintertime. In most of the Mzabite houses, there is a split at the entrance leading to either the family quarter [*Wast eddar*] or to the upper floor male reception room. From a compositional point of view , the M'zabite house is compact, opaque and introverted.

House 01: This house is situated in El Ateuf settlement. It has two storeys. The justified graph shows a deep-tree like structure branching at the *Wast eddar*, then twice on the first floor at the *Tigharghart* or upper courtyard and at the *Ikoumar* or arched portico. The mean integration value for the house is 1.11 and the relativised base difference factor is strong at 0.82. The *Wast eddar* is the most integrating space with a value of 0.58. The *Stah* or terrace is the most segregated space in the house with a value of 1.55. The *Aali* or male guest room is accessed through the *Wast eddar* on ground-floor level with a value of 1.24.. For the *Ikoumar*, the *Skifa* or entrance, and room 03, the relativised base difference factor is strong at 0.87. If the *Wast eddar* is substituted for the *Ikoumar*, then the BDF* is stronger at 0.81. The BDF* for the *Wast eddar*, the *Tisifri* and the *Tigharghart*, the degree of differentiation is still strong at 0.93. If the *Houdjrat* is substituted for the *Wast eddar*, then the BDF* is less strong at 1.00. All these suggest, that the *Wast eddar* plays an important role in integrating, structuring and linking the different spaces within the dwelling.



**Figure 1: Houses 1-3
with their justified
graphs**

House 02: This house is situated on the edge of a block in El Ateuf. It is accessed through an alley. The justified graph shows a deep tree-like structure branching at Wast eddar's and Ikoumar's levels. The entrance is the space where the house splits into two. One route leads up to the male quarter and the other to the Wast eddar, where the main female activities take place. The two paths connect on the first floor through the Ikoumar. The Wast eddar and Ikoumar are the most integrated spaces in the house with values of 0.82 and 0.83 respectively. The mean integration value for the house is 1.26 and the relativised base difference factor is strong at 0.86. The Wast eddar and the Ikoumar are on the integrated side of the mean. The Aali, or first floor male guest room, and the exterior are on the segregated side of the mean with values of 1.54 and 1.58 respectively. The toilets are the most segregated space of all with a value of 1.97. The relativised base difference factor with the exterior for the Wast eddar, the Skifa and the Ikoumar is strong at 0.96. If the Tisifri is substituted for the Wast eddar, then the BDF* is still strong at 0.97. For the Wast eddar, the Tisifri and the Tigharghart, the degree of differentiation is still identical to 0.97. If the kitchen is substituted for the Wast eddar, then the BDF* is less strong at 0.99. These suggest that Wast eddar integrates and structures rather strongly the main living spaces in this house.

House 03: This house is situated in El Ateuf settlement, located on the edge of a block and accessed through an alley. There is a split into two at the entrance, which is at depth 01. Despite its tree-like structure, the house offers an alternative route for moving about the domestic interior. The two paths connect at the *Wast Eddar*, then at a deeper stage at the *Tigharghart* or upper courtyard. The dwelling has two storeys. As mentioned before, the justified graph shows a deep tree-like structure. The relativised base difference factor is strong at 0.82. The *Wast eddar* at ground floor-level is the most integrated space with a value of 0.68. The *Wast eddar*, *Ikoumar*, or arched portico, and *Houdjrat*, or ground-floor male guest room are on the integrated side of the mean with values of 0.68, 0.81 and 0.83 respectively. The exterior and the toilets are on the segregated side of the mean with values of 1.54 and 1.72 respectively. The relativised base difference factor for the house is strong at 0.94. The degree of differentiation with the exterior, for the *Wast Eddar*, the *Skifa* and the *Tigharghart* is still strong with the same and identical value of 0.94. If the *Tisifri*, or women's reception room, is substituted for the *Wast eddar*, then the relativised base difference factor is less strong at 0.99. For the *Wast eddar*, the *Aali* and room 01, the degree of differentiation is strong at 0.87. If room 02 is substituted for the *Wast eddar*, then the BDF^* is less strong at 0.97. All these, suggest that this example is a *Wast eddar*-centred house. It structures and links the different spaces in the dwelling.

2.2. The Shawia house

The Shawia house is found in the mountain massif of the Aures in the Northeast of Algeria, a region that is very cold in winter and quite hot in summer. Besides socio-cultural requirements, the climate and the peculiar topography of the area- rocky mountains and steep slopes- has played a major role in determining house form. The traditional Shawia house is more elaborately articulated than the Kabylean one, but the *Tgorfat n-ilmas*, or central room, still predominates. Unlike houses in Kabylie, the traditional Shawia house has a flat roof, and is built using mud bricks, slate and wood. Four wooden pillars support it. Scarcity of long, strong timber poles restricted the span between columns, which as in the Mزاب does not exceed two metres [Pacino F, 1979, p 132]. Again, the house is a self-contained unit, housing the nuclear family and all its livestock and possessions. The two or three floors of these houses are stepped back against the hillside, with terraces on the roofs. In contrast to the traditional Arab houses, courtyards are rare and subsidiary to the main building. The lowest storey floor generally houses animals, along with storage for wood, fodder and farming equipment. The first storey contains the main room, and on mezzanine levels are, further storage rooms. On the final storey, if it exists, are found drying rooms for perishable goods such as fruit and grain and above these a terrace. It is common to find this type of house with two doors- one for people, the other for animals. However, when there is only one door, people and animals are segregated in the *Skifa*. A guest room, if there is one, gives on to this space, which then serves as a kind of a buffer zone between the outside world and the inner room. The central room itself is a vast space on the first floor. It is by far the largest room and approximately square in shape. It is the heart of the house, where there is a fireplace, weaving place [a stone bench], storage room and water contained in goatskins. It is also used to receive friends and family members, and as a place to sleep. Small, high windows and some skylights in the roof illuminate the room.

Space configuration

The examples chosen here are from Rhoufi and Abdi valley in the Aures mountains. The Shawia house is similar to the Kabylean house in terms of spatial configuration. The house is a relatively shallow type. As before, Tgorfat n-ilmas, the main room, is the most integrating space and the exterior is the most segregating space. The houses have a deep main room and a shallow courtyard with an average of 18, and 15 spaces respectively [see figure 02, tables 1-2]. The main room is always deeper [it is at depth four] and it is still the most integrated indoor living space. It accommodates the more formal aspects of household life. The Shawia house clearly exploits the organising potential of a sequence and is deeper than the Kabylean one.

House 04: The house is situated in Abdi valley in the Aures. It has two storeys. The justified graph shows a relatively tree-like structure branching at the main room that controls the access to the adjacent rooms. The mean integration value for the house is 1.19 and the relativised base difference factor is strong at 0.87. The stairs and the Tgorfat n-ilmas are on the integrating side of the mean with values of 0.69 and 0.67 respectively. The exterior and the store room are the most segregated spaces of all with values of 1.58 and 1.52 respectively. The BDF* for the main room, the hearth and Skifa is strong at 0.93. If the terrace is substituted for the main room, then the degree of differentiation is less strong at 0.99. For the main room, the stairs and the store room, the degree of differentiation is strong at 0.85. If room 01 is substituted for the main room, then the BDF* is less strong at 0.91. Again the impact of the main room in structuring and integrating the house spatial arrangements is well pronounced.

House 05: This is a courtyard house in Rhoufi. It is one storey high. The justified graph shows a shallow core case as compared to the previous example. Its structure branches at the courtyard. It is another case of integrating courtyard and segregating toilets. The mean integration value for the house without exterior is 0.88 and the relativised base difference factor is strong at 0.60. The courtyard is the most integrating space of all with a value of 0.25. The Skifa and the hearth or kitchen are on the integrating side of the mean with values of 0.55 and 0.72 respectively. The BDF* without the exterior for the courtyard, room 01 and the kitchen is strong at 0.66. If room 02 is substituted for the courtyard, then the BDF* is relatively less strong at 0.96. The degree of configuration for the courtyard, the sheep pen and the toilets is still strong at 0.59. If the Skifa is substituted for the courtyard, then the BDF* is less strong at 0.85. The effect of space configuration in this house is that the courtyard draws the entire configuration together and structures the relationship between the Skifa and the rest of the spaces.

2.3 The Kabylie house

Kabylie, a mountain district in northern Algeria, occupies an important place in the country's complex variety of environment types. Noted for its striking beautiful landscapes, the region also exhibits specific cultural features, and its houses and settlement forms are of a rare architectural richness.

The traditional Kabylie house or Axxam is always rectangular in shape, never square [Basagana R. & Sayyad A., 1974, p 117]. It maintains the dominance of one "room", the Taqaat over all the other spaces of the house. The Axxam consists of a simple volume with massive windowless stone walls and a gabled roof. A wooden pillar and a governing beam support the rafters that carry the roof, which is made of reed and clay covered with Roman

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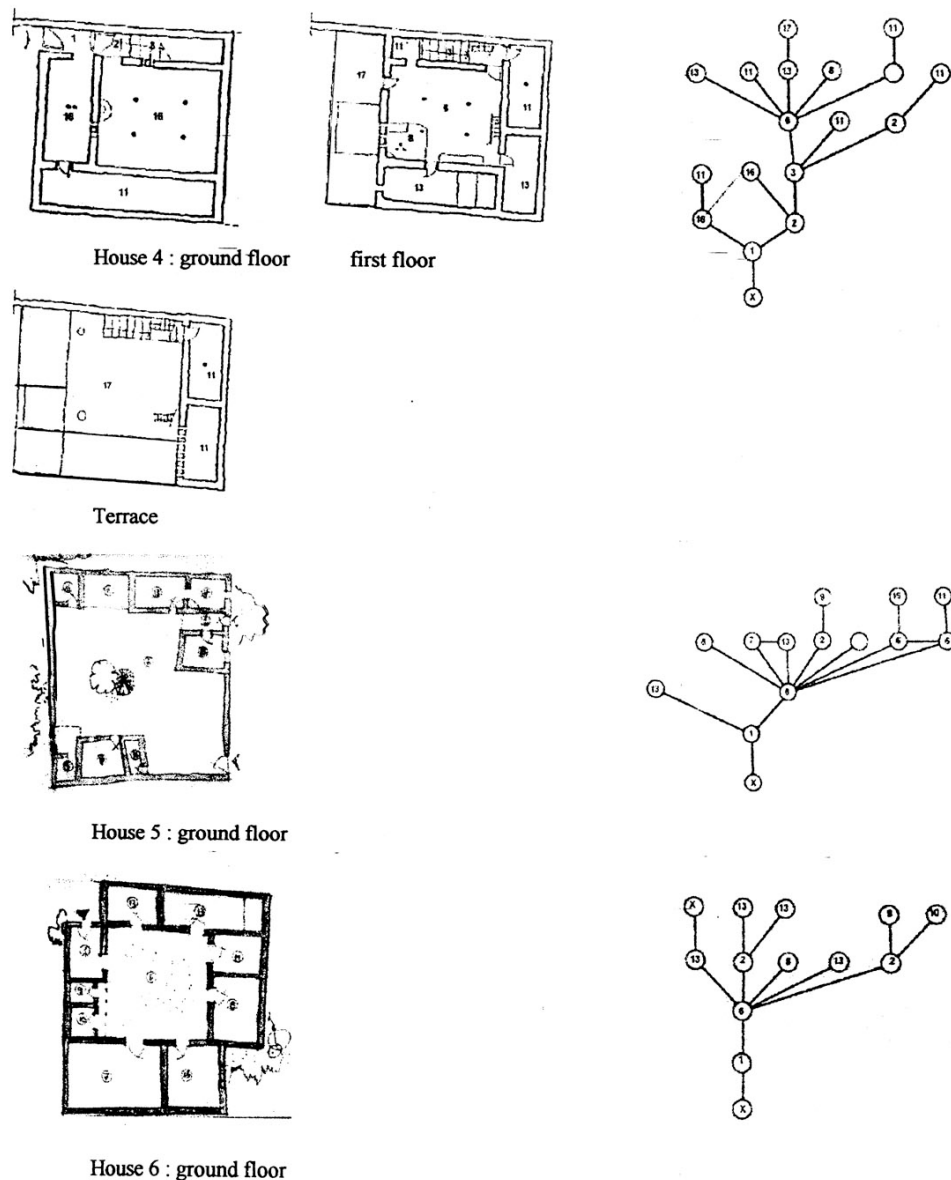
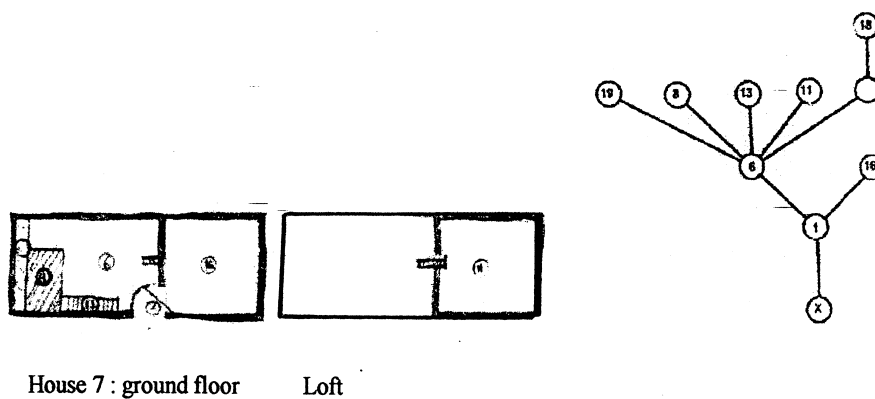


Figure 2: Houses 4-6 with their justified graphs

tiles. A large door provides access and daylight. The spacious interior is subdivided into three parts by a parapet that supports a loft. Natural beings, objects and activities occupy the upper part. The high part is reserved for cooking, weaving and chatting. Animals stay down in the Adaynin or stable, and occupy the lower and darker part. In the loft covering the stable, green fodder is kept, and children sleep; the space is called the Taaricht. The water jars are placed near the door. On the parapet stand large white clay jars filled with dried provisions. Near the wall opposite the door stands the weaving loom lit by daylight. In the houses of Kabylia analysed by Pierre Bourdieu, whose works can be considered a synthesis of traditional Kabylia ethnography, all family activities take place in the main room or Taqaat, and the subsidiary spaces are a loft for storage, sleeping quarters for some family members, and the Adaynin, or stable, which adjoins the main room below the loft.

P.Bourdieu considers the Kabylia organisation of the house according to an ensemble of oppositions: high-low; light dark; day-night; male-female; culture-nature [Bourdieu P., 1972, p 267]. The spatial arrangement might be simply due to technical requirements for its siting. The loom's wall is lit from the entrance door, since it is situated in front of it. On the



**Figure 3: House 7
with their justified
graphs**

other hand, the Adaynin is situated in the lower part of the house in order to evacuate the animal excrement. Often, the Kabyle house is constructed perpendicular to its sloping site, so it can be an answer to its spatial arrangement.

Space configuration

The examples used in this analysis were selected from a sample of traditional houses in the settlement of Tazrout. The most used variant house in Kabylie is the main room-centred house, characterised by a well-connected, well-integrated and shallow main room. [See figure 03, table 1-2] The houses are on one floor only. The typical Kabylie justified graph is shallow. The Skifa is shallower and the main room is also shallower, it is at depth one from the outside. Inside the house, all the main spaces are permeable to the main room or to the courtyard. The houses analysed in this paper tend to be middle-sized with a total of, 13 and 10 spaces respectively. The focus of informal daily life seems to be the main room which acts as a reception room for guests in house 01 or the courtyard in house 02. The main room links most of the spatial functions of the house as do the courtyard. The sleeping areas are used as more formal spaces. The main room seems to act as an integrating hinge, which links the spaces of the home together, and controls access to and from the relatively segregated outside.

House 06: The house is situated in the traditional village of Tazrout, 70 kms south west of Bejaia, the regional capital city. It is one storey high. The justified graph shows a « bush » structure branching at the courtyard. It is the most integrating space in the house with a value of 0.33. The exterior is the most segregating space of all with a value of 1.43. The kitchen and room 01 are on the integrating side of the mean and share an equal value of 0.93. The mean integration value for the house is 1.03 and the relativised base difference factor is strong at 0.66. The degree of differentiation for the courtyard, Skifa and room 01 is still strong at 0.80. If room 02 is substituted for the courtyard, then, the BDF* is strong at 0.75. The BDF* for the exterior, the courtyard and the toilets is 0.65. If the Skifa for the courtyard then, the degree of differentiation is less strong at 0.93. These results suggest that the courtyard integrates and structures rather strongly the living spaces in the house.

House 07: This is the most widely used variant in Kabylia. It is just one storey high. It is a shallow core house as the previous example. The justified graph shows a bush structure branching at the main room or the Taqaat. The Taqaat is the most integrating space of all with a value of 0.27. The mean integration value for the house is 1.00 and the relativised base difference factor is strong at 0.56. The loft, or Taaricht, Skifa and the animal space, or Adaynin are the most segregated spaces in the house with a value of 1.54, 1.36 and 1.36 respectively.

The BDF* for the Taqaat, Taaricht and Skifa is strong at 0.68. If Adaynin is substituted for the main room, then the BDF* is still strong at 0.84. The degree of differentiation for the main room, the Adaynin and the sleeping space is strong at 0.61. If the kern is substituted for the main room, then the BDF* is less strong at 0.97. This highlights the important role that the main room performs in structuring and integrating the main functions of the house.

3. House analysis results

An overall review of this analysis points to some similarities between the cases but also some fundamental differences. Taken as a set, the use of the relativised base difference factor suggests a characteristic mode for structuring the domestic interior of traditional Berber homes. Although the external aspect of the houses varies widely, the centralised 'largely female' space is a constant in Berber architecture [the Wast Eddar at ground-floor level as in the M'zab, the main room in Kabylia, or the main room on the first floor in the Aures region], with the properties of being shallow, most integrating, and linking the different levels of the houses [houses 1-4 inclusive]. The dominance of the 'central room' thus signifies the important role of women within the household as they are almost entirely responsible for carrying out everyday household activities. The sample justified graphs reveal the tree-like configuration of Berber traditional interior. Houses 1-3 turn out to be deep and ringy, house 04 is deep and tree-like whereas houses 5-7 emerge as shallow and tree-like. Different functions [receiving guests, family quarter, animal room, storing rooms] occupy separate branches. Convex organisation of the homes indicates that movement organises a simple, vertical [houses 1-4 inclusive] and inward experience of the houses. The Wast eddar [the M'zab] and the main room [Kabylie and the Aures] are among the most integrated spaces in the homes. The most segregated spaces are the toilets [houses 2-3] and the terrace [house 01] whereas the animal and store rooms are the most segregated spaces [house 4-5]. The exterior and the Taaricht are the most segregated spaces in Kabylie examples [houses 6-7]. In the M'zab, the Wast eddar both structures significant configurational differences between the Skifa and the set of adjacent rooms on the ground-floor and relates the set of rooms on the first-floor to the exterior through the stairs which held a consistent and integrating rank order. The Wast eddar performs a dual role: as a transition space which controls the access to the set of rooms beyond, and as a function space, it is there where the main female domestic activities take place. In Kabylie and the Aures, the main room acts as a hinge that structures the configurational differences between the Skifa and the set of multi-purpose rooms beyond [house 04] and plays the same role in drawing towards it all the spaces as in house 07. The most common features shared by houses in the three settlement is the fact that they are inward looking [introverted], so as to protect the women from the outside world. The Berber houses tend to be configurationally integrated and 'shallow core' in the Aures and Kabylie as compared to 'deep core' and relatively segregated in the M'zab. From a compositional point of view, houses 1-4 and house 7 tend to be compact, opaque, subdivided and introverted whereas houses 5-6 appear to be airy but still introverted. The main features common to the examples dealt with in this analysis, are the integrating aspects of the main room or the Wast Eddar within the houses. This genotype would seem to be

rooted in Berber habitat as a consequence of the influence of Islam on the spatial organisation of the house. The emphasis on privacy is characteristic of all Berber housing : windows are generally absent on the ground-floor, and are rare in upper floors when these exist. The interior of the house is quite austere, although not uncomfortable. Traditional Berber houses configure ways of life by constructing social interfaces between men and women, hosts and guests. Concerning the latter point, a major fundamental difference appears as regards the way of receiving guests into the house. In the M'zab, the graphs reveal a second configurational property -ringiness- which describes the extent to which houses 1-3 offer its residents an alternative and route choice. The houses tend to be divided into two separate domains, one path leads up to the male quarter reserved for guests on the first-floor and the other domain is exclusively used by the inhabitants, 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 justified graphs shown in figure 1-3, indicate that the difference between Mzab houses and the others is most apparent. The graphs show that the houses are rooted to their sites in permeability with a ringy route passing through either, the Ikoumar or Tigharghart. The ring from the Skifa through the Aali to the Ikoumar or Tigharghart permits a degree of the tuning of the host-guest relation in the houses, which is absent in Kabylean and Shawia houses. In the Kabylean and Shawia cases, however the spatial configuration does not allow for subtle differences by the opening up of routes , and therefore shows no such division. This difference seems to result from different attitude [progressive and conservative] within the Berber society. Concerning an other matter, an argument would be raised with people who see an evident contrast between the configuration of Berber house and the traditional Arab house, despite the fact, that the structures are quite different. Normally, the traditional Arab house consists of a large courtyard which gives on to a series of narrow rooms. These are considered to be dependencies of the courtyard, whose dominance over the rest of the house is the major characteristic of Arab houses. This suggests that the highly centralised structure of the Arab house appears to reflect the structure of the family within it. The patriarchal Islamic family is controlled to a large extent by a single individual, the head of the household. By contrast, the wife or the mother as highlighted here effectively rules the Berber household [as noted by Bourdieu's works]. Actually, the traditional Berber built environment may be considered an end product of an interaction between constant elements such as the Charia -Islamic law-, the climate, the landscape and changeable elements such as economic, technological and industrial means, that is to say a product of a societal process [Akbar J.A., 1992, pp 19-21]. The conclusion which would be made is, being a Muslim society, the Berbers, whether in the M'zab, in the Aures, or in Kabylie have a family structure, which is almost the same as in any part of Algeria. The second point that would be made, concerns the large central court, whether it is covered or open [highly probable for climatic considerations], this important space plays an integrating role in both cases. One might argue, that it contains the rooms [rather than being enclosed by the house, or adjoining it on the outside] as in the Arab house case. The point is, it does not differ from the social and spatial function it has in the M'zab, in the Aures or in Kabylie.

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