THE BEIRUT DOZEN:
traditional domestic garden as spatial and cultural mediator

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Abstract

Traditional domestic gardens in Beirut are associated with the detached house typology that appear in the second half of the nineteenth century. Inspired by rural origins, the domestic garden nevertheless evolved by taking on new spatial and cultural dimensions. This study explores these dimensions. The aim is to investigate the role of the urban domestic garden to determine whether it was intended as an appendage to the house or conceived and perceived independently. Space syntax analysis is applied to 12 central-hall, detached houses to investigate garden morphology in relation to house interior configuration and the public domain beyond. The findings demonstrate that far from passive backdrop, the domestic garden served as a spatial and cultural mediator, negotiating private domain and public realm, house and city, tradition and innovation. Analyzing garden spatial characteristics and house alignment point to the garden's role as a 'refuge', visually screening the house and its residents, and equally as a 'prospect' advantaging insiders over outsiders.

Introduction

The concept of garden in a region, where human societies first domesticated flora and fauna, creating ordered productive landscape of field and orchard, has historically mirrored the beauty and bounty of paradise. The garden developed partly from an agrarian culture but also in response to hot and arid climate of the eastern Mediterranean. It "originated in walled orchards and vineyards, in plantations of flowering pomegranates, quinces, plums and apricot, in groves of stately date-palms, all with their irrigation pools and canals" (Semple, 1971, p. 193). Throughout their development, Mediterranean gardens continued to employ vine-grown trellises, fruit trees and flowering shrubs rather than flowerbeds. The twelve Beirut gardens surveyed are no exception. Traditional domestic gardens in Beirut are similarly productive landscapes. The diversity and profusion of fruit trees dominate the garden spatially and skew aesthetic preferences and sensibilities.

Few domestic gardens remain in Beirut today, even fewer with their original vegetation intact. Rising land values and intensive reconstruction since 1990 has witnessed the destruction of scores of traditional detached houses and their garden. And while awareness of the city's architectural heritage has prompted action to list and protect traditional domestic architecture (APSAD), traditional gardens have received little if any such attention: Their contribution to the evolution of the city remains unexplored. What role did the rural garden play when transplanted into a rapidly expanding nineteenth century city? What was the garden's relationship to the house? Was the garden conceived/perceived as an ornamental landscape, or did it have another role?

This paper addresses these questions by investigating the spatial and cultural dimensions of the traditional domestic garden in Beirut. The garden, we contend, was a product of cultural adaptations of the rural orchard-garden to constrained physical, environmental and social conditions in the newly evolving nineteenth century Beirut. The study aim is twofold. The first is to argue that far from passive backdrop and ornamental landscape, the traditional garden was a spatial and cultural mediator, arbitrating between dwelling and city, private and public, rural convention and urban rennovation. Second, the paper aims to demonstrate that in its role as mediator, the domestic garden was conceived and preceived as a 'refuge' and a 'prospect' that advantaged insiders over outsiders.

Drawing on a study of traditional garden landscape in Beirut (Makhzoumi, 2006), twelve domestic gardens were selected for the purpose of this study. All twelve case studies are detached, central-hall type houses, built between the second half of the nineteenth century and WWII. Gardens of the central-hall house typology, whether retaining their original planting layout or not, were deemed 'traditional'. Plot geometry, garden-house area correlation are observed and space syntax analysis applied to investigate garden spatial morphology in relation house interior and the public domain outside the garden gates. Isovist analysis is a key tool to depict movement from the garden entrance to the main house and the reverse, from house entrance through the garden to the street. The findings provide the context within which the garden space may be negotiated and redefined as a spatial and cultural concept and not only as a historic relic.

Central-Hall House Typology and its Garden

The second half of the nineteenth century witnessed the development of Beirut from a walled, provintial harbor town in the eastern Mediterranean to an open, commercial city of regional importance. Mass exodus to the city trigerred by secterian conflict in the mountain hinterland contributed to a phenomenal increase the city's population from 10,000 in 1840 to 80,000 in 1880. Demography expanded, economy revived and an emerging urban bourgeoisie combined to transform urban morphology and shape social topogrpahy in terms of current neighborhood and district configuration (Saliba, 1998).

Key to the Beirut's transformation were typological changes from the single family courtyard type house to the new detached bourgeois villa (ibid). The detached house contributed directly to the formation of garden suburbs outside the walled city, previously occupied by mulberry and citrus orchards and small villages. The following account captures the extent of the urban transformation of Beirut's the growth and transformation of Beirut: "*Forty years ago, when I came to Beirut, there was scarcely a house outside of the walls fit to live in; now hundreds of convenient dwellings, and not a few large and noble mansions, adorn its beautiful suburbs, and two-thirds of the population*

reside in the gardens" (Thompson, 1886, quoted in Khalaf, 2006, p. p. 58-59).

The bourgeois, suburban villa was typically of the "central-hall" typology. Whether of single, two or three floors the house is accessed through a central hall of considerable size referred to as dar, Arabic for home, in view of the room's importance (Ragette, 1980). The substantial volume of the central hall is effectively expressed on the outside by a wide double or more commonly triple arcade opening and equally by a tent shaped, red tiled roof (Figure 1). Discussing key Lebanese traditional, vernacular house typologies, Ragette argues that the central-hall house "is the most prevalent house in the country", the "Lebanese house par excellence, the type of house most often repeated and attaining the highest degree of identity" (Regatte, 1980, p. 92).

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Figure 1:

The façade of a Central Hall type house with its wide arcade opening and red tiled roof, as it stands today in Central Beirut

The urban domestic garden emerged as a direct outcome of the cental-hall typology. Preceeding, *intra muros*, house typologies did not have gardens. They were compact with small plot areas, oriented to a courtyard The development of the suburban villa afforded larger plots, the detached building footprint leaving considerable portions of the site open. The challenge facing residents of the bourgeois villa was how to landscape the emerging garden space. In the absence of literature on the subject, we would like to propose that the village domestic orchard-garden, served as a prototype. The latter is readily explained considering the rural origins of the nineteenth century exodus to Beirut. Rural migrants to Beriut "remained attached to their home communities, kept sending money in support of their relatives and often returned later to pass their retirement days in their native country" (Ragette, 1980, p. 11). Transplanted into the urban domestic setting, the rural orchard-garden served as a reminder of the landscape the migrants came from, one that they valued. Another justification for adaptation of the orchard-garden to the detached villa lies in the rural surroundings of nineteenth centruy Beirut (Davie, 1987).. Whether the choice was intentional or inadvertant, the Beirut domestic garden evolved to adapt to the constrained physical, environmental and social conditions of the urban context.

The Traditional Orchard-garden: Prospect or Refuge?

Aesthetic pleasure that is derived from the creation and experiencing of gardens is conditioned by history and culture. It is equally rooted in human biology and behaviour. Appleton proposes that the pleasure

derived from a particular landscape can result from deeply rooted biological conditioning of environments, one that came to ensure our survival (1986). Explained as such, prospect-refuge theory is advanced to explain aesthetic appreciation of landscapes. Where perception offers an unimpeded opportunity to see, it can be said to offer a *prospect*; and where it offers opportunity to hide it is a *refuge*. And because "the ability to see without being seen is an intermediate step in the satisfaction of many of those (biological, survival) needs, the capacity of an environment to ensure the achievement of this becomes a more immediate source of aesthetic satisfaction" (p 73).

Prospect-refuge theory applies equally to the experience of natural landscapes and to "aesthetically contrived landscape(s)", "those that have been altered or devised for the *principal* purpose of giving pleasure" (p192). Despite the "more limited extent of the garden", it nevertheless, "has implications for the balance of symbolism of prospect and refuge, as can be seen throughout the whole history of the garden" (p 192). Traditional Mediterranean gardens, whether in rural or urban settings, because they are a hybrid between pleasure garden and agrarian orchard, are herein implied. The orchard-garden, packed with fruit trees, vegetable and herbs parterres are similar morphologically to the two medieval gardens discussed, namely, the 'herb garden' and the 'orchard'. Appleton argues that the whole character of the orchard is "that of a refuge, a kind of extension of the house or castle into the open air" (p193). The garden wall too was a "potent refuge symbol" associated with this type of medieval garden. We would like to argue similarly, that the traditional domestic garden in Beirut, served as a refuge to the residents, mediating *spatially* between the private dwelling and public domain and *conceptually* between traditional rural values and the new urban milieu.

Space Syntax: A Methodological Framework

Hillier and Hanson in the mid 1970s, advanced the idea that spatial configurations of built environments provide readings of the social structures that created them.

The ideas have since been developed, explored and the methodological framework refined by members of the Space Syntax community (Hillier & Hanson, 1984, Hillier, Hanson & Peponis, 1984, Hillier, Hanson & Graham, 1987, Hanson, 1988).

The most elementary type of syntactical analysis follows a process whereby representation of the spaces being analyzed, for example a house plan, is subdivided into its component elements, the relation between these elements translated into 'justified graphs'.

Important structures within spatial configurations typically fall into two categories: tree-like layouts; and ringy layouts. Hanson argues that tree-like structures imply spatial configuration with a strong program, were movement from one space to the other is very strict offering no possibility in the choice of routes within a domestic setting. Ringy configurations, on the other hand, offer more choice in movement between spaces, depending on the size of the ring and the number of spaces it passes through. The existence of rings within the configuration brings about the notion of control, specifically at the points of intersection of two or more rings. Furthermore, rings that represent the interior organization of the domestic setting are often complemented by external rings that incorporate the garden space. These occur when the domestic unit has more than one entrance. They imply varying experiences and choice of movement for the residents/users.

To this end and with the aim of tackling the research question, namely the role of the garden spaces in the twelve domestic samples, a

configurational analysis of the interiors was undertaken, vis-à-vis the context of plot layout and garden.

Syntactic analysis of the garden open spaces has not been as straight-forward methodologically as that of the interior. It is only through introducing the second generation of syntactic analysis, and exploring notions of visibility and permeability, i.e. by undertaking Visibility Graph Analysis, that we start to address the dynamic relationship between house and garden.

Introducing the Beirut Dozen

The sample consists of 12 plots of detached, central-hall houses in Beirut. Only one of the plots has a regular geometric shape, and a further three have almost regular geometric shapes, whilst the remaining eight have complex irregular plot shapes. Eight of these houses are fully detached within their plots, two of them have a common wall with their boundaries/plots, and a further two have a common wall with the boundary. The detachment of the house within its plot results in the continuity of space around the house, forming a ring of the open space surrounding the house, which occurs in eight of the twelve cases. Garden configuration, the outcome of irregularly shaped plots and house detachment, is highly irregular but spatially fluid

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Figure 2:

The sample of twelve Central Hall Houses showing plots, plans of the interiors and entrances
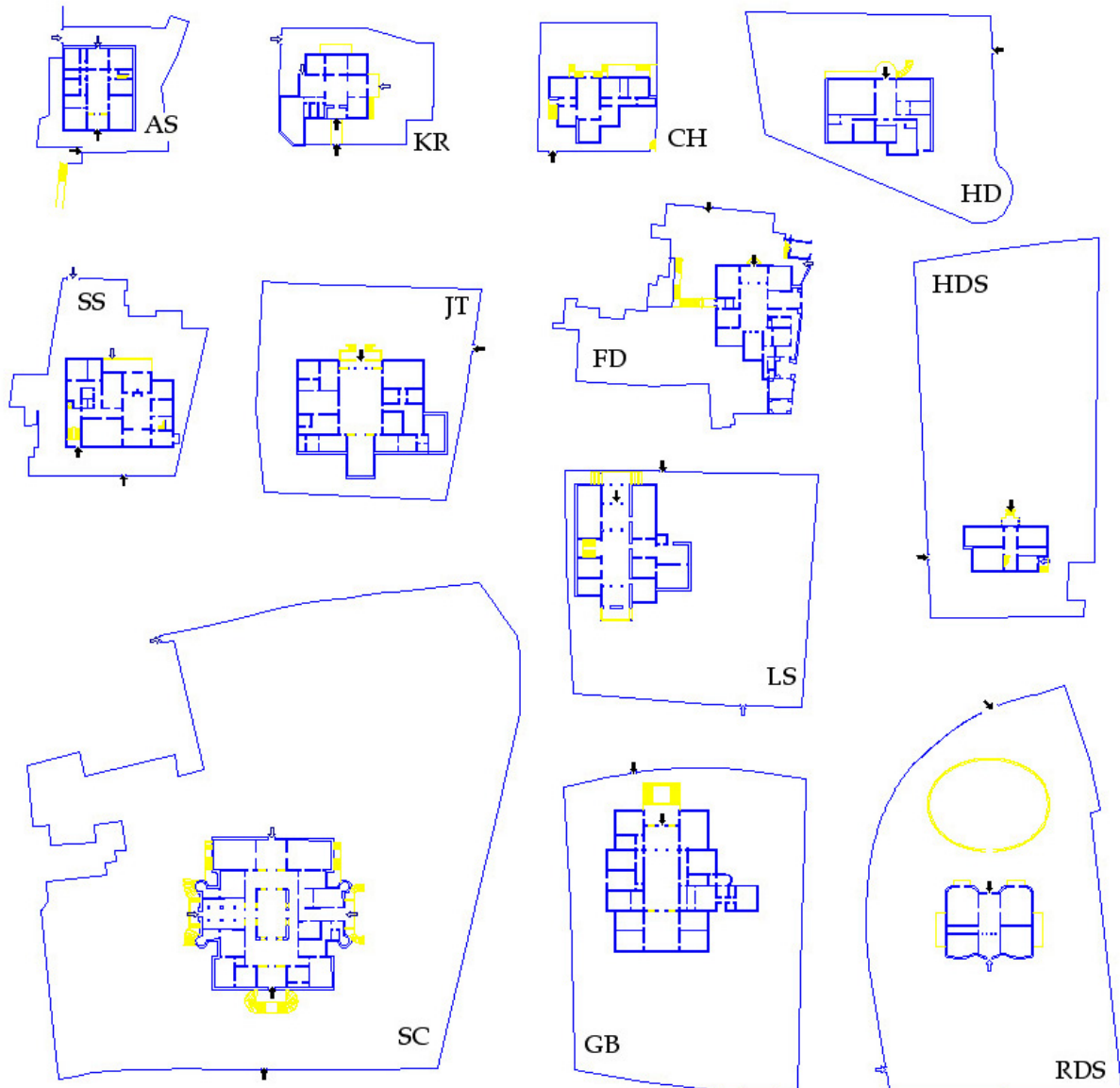
Our first stab at studying the relations between plot, house, and garden is purely metric, by carrying out an analysis of the areas of house, garden, and plot and by comparing built the areas in each of the twelve samples.

The larger plot area in all twelve samples is devoted to the garden. In eleven of the cases, this represents more than two thirds of the plot, and the mean percentage of the garden area in relation to the plot for the sample is almost 77%. In only one example does the percentage of the built up area of the plot not exceed a 40% (AS). Additionally, two of the houses have a built-up area which is less than 10% of the plot (HDS; 5.76% & RDS; 7.44%) and a further four less than 25% (SC; 10.91%, HD 18.44%, LS; 20.55% and GB; 20.82%).

Metric analysis therefore indicates that an increase in the plot area results in an increase in the garden area but not necessarily in the house footprint. Larger plots contain bigger gardens but not necessarily larger houses. The correlation between the area of the plot and that of the garden is very strong at (0.994). On the other hand, the relation between the area of the plot and that of the footprint of the house is not significant or indicative at all.

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Figure 3:

Scattergrams showing the relation between:
A - Plot area and garden area, and
B - Plot area and house footprint area

GardenArea = -1807.836 + .925 * PlotArea; R^2 = .994

HouseArea = 1807.836 + .075 * PlotArea; R^2 = .511
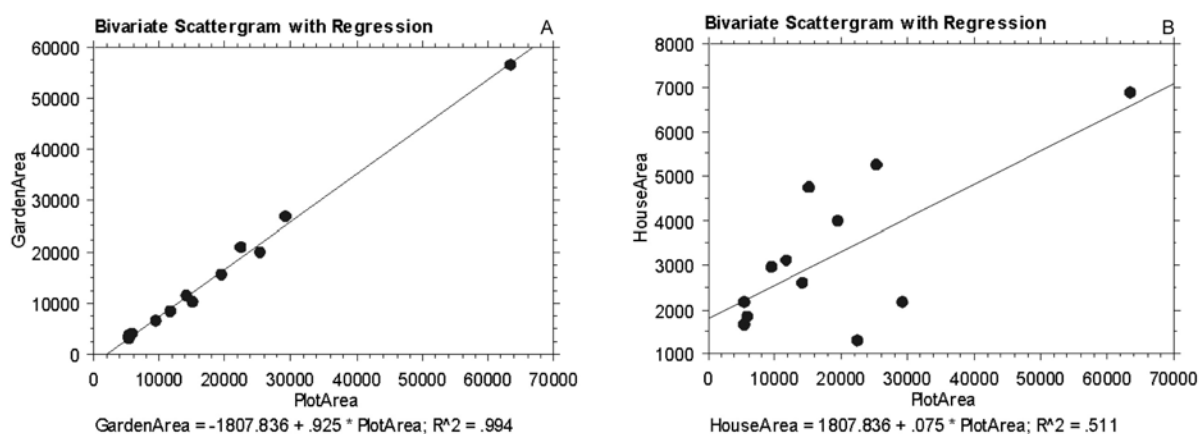
The relational analysis between the garden/plot and house/plot above, demonstrates the relation of the house footprint to that the garden area. For each example, we divided the garden area by the footprint of the house, whereby a hypothetical 1 indicates that the plot is divided equally between the two, higher figures indicating larger gardens. The values calculated indicate that gardens are generally larger than the houses in ranges between 1.462 to 8.169 times larger, excluding two houses with exceptionally large gardens (HDS @ 16.349 times and RDS @ 12.435 times). All analysis and correlations between plot, house, and garden areas indicate that an increase in the plot area would attribute to a larger increase of the garden in relation to the houses. In other words, acquiring a large plot does not reflect the owner/occupier's aspiration for a bigger house. Moreover, plot size and configuration was often an outcome of cumulative, incremental urban expansion of extended family neighbourhoods and in other cases, the widening of existing streets and/or introduction of new ones (Makhzoumi, 2005)

Entrances

Another key element to be investigated was the number of entrances into the plot, i.e. garden entrances. Only two of the twelve samples had a single entrance whilst the remaining ten had two entrances. The number of garden entrances does not appear to be related to the plot area. Five of the houses had a single entrance, a further five had two entrances, and the last two had three and four entrances respectively.

Once again the number of house entrances does not seem to relate to plot or house areas nor even reflect the number of garden entrances.

Justifications for multiple street entrances vary among the twelve samples. In some cases they provide linkages to the adjoining property inhabited by the extended family, as for the example, the LS/SC in the Sursock domain. In other cases a second gate allows access to a side or back street as in the case of SS, GB and KR. As with the correlation of built/garden area, entrance numbers and location could have been similarly related to changing street patterns in a rapidly modernizing city.

Accepting that the number of garden or house entrances do not relate either to each other or to the plot areas, gardens or house footprints, the next attempt was to try and unearth any possible geometric relations between the locations of the garden gate to the main house entrance. We were able to differentiate four distinctive relations; linear centrally aligned with the house (3 examples; KR,, RDS, SC), linear but diagonally aligned (4 examples, GB, SS, FD, LS), a perpendicular relationship requiring a 90 degree turn (3 examples; HD, JT, AS) and a more complex approach (2 examples HDS< CC). These relations do not correlate with any of the metric calculations already carried out.

The Houses: Interior

Five of the houses have definite geometrical shapes and are symmetrically organized, while the remaining seven have extensions to their geometrical/symmetrical organisation, most likely additions to accommodate growing family sizes. And whilst the location of the house within its plot, might seem to be arbitrary or unplanned, yet the actual house plan indicates high adherence to order in its original design. As previously mentioned, all twelve houses are of the central-hall typology. House plans therefore conform to the characteristics of this typology, namely the dominance of a central hall, which is seldom less than 40 meters square, 4-5 meters high, and acts as a distributor to the rooms that open directly to it.

Having established the geomteric and metric diffierences and similarities within the sample, the next step was to carry out an analytical study. The plans of the houses (albeit their ground floors only) were transcribed into their access graphs, which were first justified from the main garden entrance as the starting point ignoring all other entrances into the house, and then opening up thses entrances and justifying the graphs again.

Figure 4:

Access graphs of the sample, justified from the street, and taking in considering the main garden and main house entrances only

RDS HDS

HD CH LS AS SS FD

KR GB SC
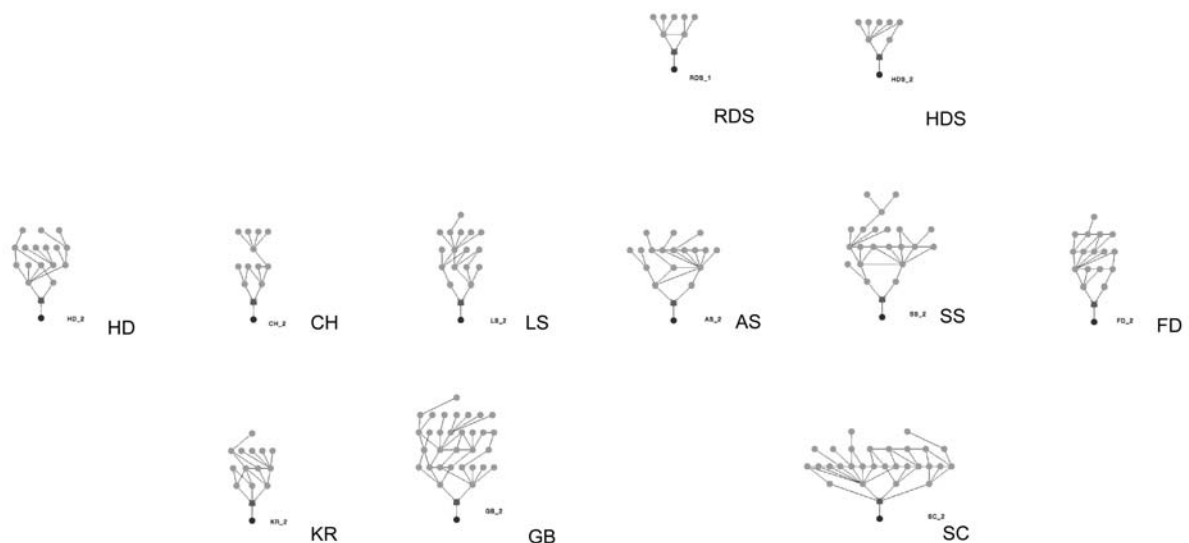
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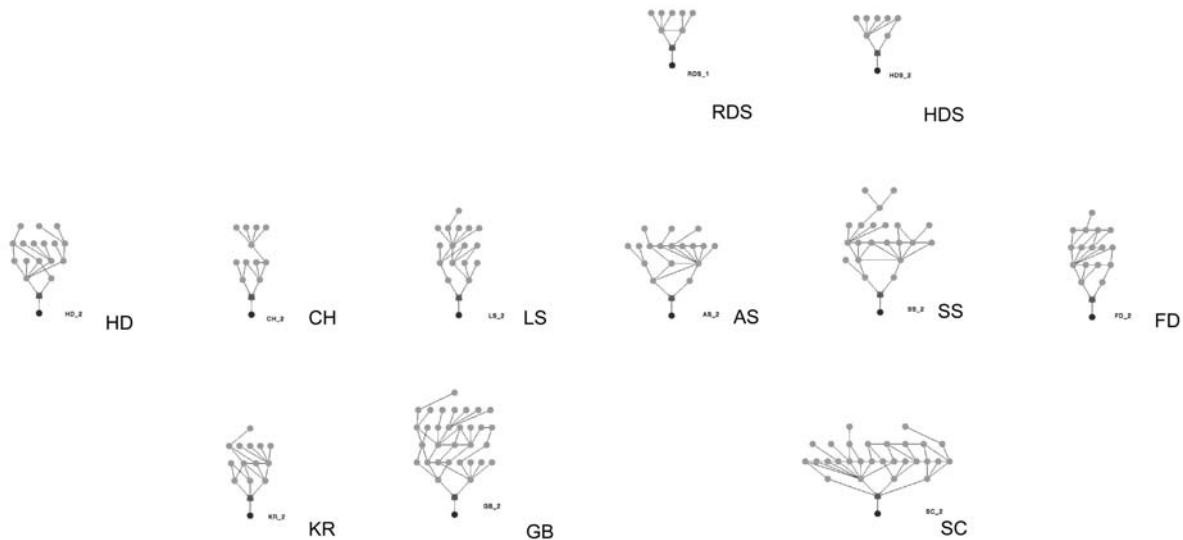
Figure 5:

Access graphs of the sample, justified from the street, but including all other garden and house entrances

Only one of the houses, has a single entrance, JT. It is very symmetrical in its spatial organisation, with the central hall as the distributing space around its central axis. The configuratin has three rings (all pass through the central hall), two on one side and one on the other. The effects of the rings are minimal as they do not cross from one side to the other. The central hall is the most dominant through its location on thse rings.

Two examples have extermly simple and tree-like graphs, RDS and HDS, in both cases the deepest ground floor room is only 4 steps aways from the main garden entrance, the central hall acts the main distributor of movement. Both houses have a second entrance which reduces the depth from the outside to 3 steps only. In both cases the ring that is created goes through the central hall, thus reinforcing the controlling characteristic of this space. These two houses have the exceptionally large gardens (HDS @ 16.349 times the foot print of the house and RDS @ 12.435 times).

Half of the sample, a further six examples (HD, CH, LS, AS, SS, and FD) have two entrances into the house, thus creating an external ring within the garden space. Moreover, all these houses also have internal rings within their configurations, ranging from a single ring and up to seven internal rings (HD; 1 ring, CH; 1 ring, LS; 2 rings, AS; 5 rings, SS; 6 rings, and FD; 7 rings). All the internal rings intersect in the Central Hall, and the external ring links with the internal rings. The introduction and opening of the second entrance, slightly affects the depth from the exterior. In four examples, the second entrance does not reduce the depth (HD and CH; are 5 steps deep, FD is 6 steps and SS maintains 7 steps deep). In the last two examples, the depth is reduced by one step only (LS from 7 to 6 and AS from 6 to 5)

A further two examples (KR and GB) have three entrances into the house, creating three external rings within the garden space, in addition to their (3 and 5) internal rings respectively. Once again all the internal rings intersect in the central hall, and the external rings go through them

The last example, SC, is the most elaborate both architecturally and spatially. It is symmetrically organised on two axes and have four entrances. Further more, the central hall space is surrounded by a colonnade from all of its four sides thus complicating its access graph and the movement within and outside the house.

The sample highlights the rich investment in the central-hall space, as the functional, spatial and visual focal point of the house, controlling the choice of movements within the house and equally with the garden.

The above findings were reinforced by undertaking Visibility Graph Analysis (VGA) of the interiors, which reveal two main distributions in their integration cores, both of which are centred on the central-hall. In the first set (six examples; AS, GB, JT, KR, SC, LS) the visual integration core is aligned with the Central hall, and in the second set it is perpendicular on it (HDS, RDS, CH, HD). Two examples do not belong to any of the two sets, and have diffused integration cores (SS, FD). Both of these have extensive extensions to their main structures. The interior organisations and its analysis indicate a high degree of control of both movement and visibility within the house. It is mostly the central hall space that is accessible and visible to any visitor and it is only in passing through this space that one can move within the house.

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Figure 6:

Visibility graph analysis of the interior of the houses within the sample

The role that the central hall plays in this housing typology lies in contrast with the role of the courtyard in the traditional courtyard-houses typology, in other parts of the Middle East. Whilst alternative routes of movements within the Courtyard house and outwards from it were ensured (Zako, 2006), such flexibility was not possible in the

interior of the central-hall house typology. Rather, all movement was centralized. It is only through inclusion of the garden space that alternative spatial configurations and substitute movement routes becomes possible within the house and between house and garden.

Isovists of House & Garden: A Unified Entity

In contrast to opening up all the entrances at once, i.e. in creating justified graphs and Visibility Graph Analysis, a more practical exercise was undertaken to depict the movement from the main garden entrance to the main house entrance and the changing visual fields between the two. The aim was to discover the amount of visual information the visitors get as they progress within the plot and arrive at the threshold of the house.

This relates directly to the relationship between the locations of the garden and house main entrances, but is also affected by the metric distance between the two. In three examples (KR, RDS & SC) the two entrances are centrally aligned together in a straight line perpendicular to the house facade, resulting in a maximum view of the garden at the garden/plot entrance, which then decreases, but increases again at the house threshold through the visual fields into the house. In a further four examples (GB, FD, SS & LS), the garden entrance is also on a straight line to the house entrance but it is off centre and therefore not perpendicular on the house façade. In these cases the visual experiences change as the visitor progresses towards the house, and with the change of the direction, a change of the visual field occurs, and the experience is therefore much more dynamic. In a further three examples (HD, AS, JT), a 90 degrees change of direction is required as the visitor moves between the main garden entrance and the house entrance. This intensifies the changing visual experience, and both the amount of the open space and its angle changes. This is even more exemplified in the last two examples (HDS, CC), two changes of direction is required as one progresses from the garden to the house entrance

While these visual fields cover the ground areas of the garden, yet these gardens had no turf grass, and were packed with trees of various heights and densities. These make the visual experience much more varied but also more restrictive than any grass turf, and also screen off the house.

Findings and Discussion

The central-hall detached bourgeois villa represents an innovative housing typology in the city, reversing the inner looking intra *muros* single family courtyard type house. Two key features of the courtyard house were its entrance space and the courtyard itself. Entry into the house through an indirect entrance space (mejaz), ensues a break in visual alignment between street and house interior (Azzawi, 1969, Warren & Fethi, 1982). The transition spaces of the courtyard house typology therefore visually distance private domain, i.e. house interior, from the public one, of the street. Moreover, the courtyard provided the house with its main distribution space, yet the spatial configuration allowed for alternative movement routes within the house and towards the outside. The upper floors had visual control over this dynamic and central space, giving the inhabitants (specifically the women) more advantage and control. Once again, such dynamic relation between visibility and accessibility empowers the inhabitants of the house (Zako, 2006). In the central-hall typology, on the other hand, a visitor crosses the threshold of the house moving directly into the central hall, which allows them visual and physical accessibility to *all* the rooms.

It is our contention that the garden space in the central-hall typology compensates for these disadvantages in a number of ways. The

garden counteracts the lack of the indirect entrance by similarly intervening between the street gate and the house entrance, and offering both spatial and visual distance. The garden through its multiple entrances into the house, entrances which are used by the inhabitants only, offers alternative routes out of the house (and possibly back into the house without going through the Central Hall). It thus provides the house and its inhabitants with a dynamic setting.

Returning to Appleton's prospect-refuge theory, it becomes clear that the garden space offers the garden space is essential to provide them with a refuge within their home and even within the garden space itself. The garden offers the inhabitants additional visual advantage, by being able to see their visitors as they approach the house from within the interior without being seen. The garden thus provides the inhabitants through its inclusion within the spatial configurations, of alternative "hiding" spaces within the house and also within the rich landscape of the garden. Without the garden space and the alternative movement routes within it, these "hiding" spaces would be controlled by the dominating central hall space, and thus loose their 'refuge' status. Above all, the rural character of the Beirut domestic garden, which was akin to a dense orchard, enhanced the role of the garden as a refuge and increased the potential of 'hiding' spaces.

Conclusion

The "persistence of the central-hall concept" argues Ragette (p. 190) is proof that cultural values and preferences are slow to change. The façades of traditional Beirut houses were responsive to new building materials and changing styles, while interiors remained unchanged. Saliba similarly explains that "architectural styles and ornamentation may have been chosen for their innovative impact and originality", but "no differences existed in the interior layout of building, pointing to similar habits and lifestyles" (Saliba, p. 35). Based on the findings of this study, we can argue that the traditional concept of domestic garden in Beirut, similarly acommodated deeply rooted social values and practices. Preference for the orchard-garden meant that the garden was an element onto itself, a middle ground. The traditional garden concept therefore is radically different from the gardens of suburban houses built in the 1950s and 1960s which were inspired by contemporary western landscape styles. Decanted of its orchards, carpeted with turfgrass, gardens became an appendage to the house, a foreground and spatial setting. The traditional domestic garden, therefore, far from being a relic of the past is a reflection of social values and cultural preferences. Both spatially and conceptually, it warrants further research and equally protection.

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