

THE SYNTACTIC ROLE OF “LYWAN” IN NORTHERN MESOPOTAMIAN HOUSES

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Abstract

The region that is surrounded by southern part of Anatolia at the north, Syrian valleys and shores in the west and Iranian borders at the east, situated between Tigris and Euphrate Rivers is called “Northern Mesopotamia”. As an extent of house typology in vernacular architecture, the region is widely known by its Asian central type (atrium) houses. At the first glance, this might be true, but it needs more elaboration and in-depth explorations about the region. As a result of existence of climatic and topographical reasons, the vernacular architectural typology of houses might be extent of central type of Asian central house typology and the samplings might be considered as the reminiscent of this widely used typology. Despite the architectural configuration similarities, but anthropological structure and life styles differences in the region, only one specific space might be emerged as the “key structural element” called as “lywan” in the comparison of traditional house typologies.

In the east from Tabriz of Iran, to the western cities of Anatolia, Turkey, from this geographical interval to southern cities of Mesopotamia, to Damascus and to traditional houses of Baghdad, lywan is a striking syntactic element. Lywan’s location and formation in the house configuration, its variability, its shape and even its etymological expressions might be the key element in design considerations.

“Lywan” has connotations etymologically regarding similar purposes and functions in the region like other terminologies “talar”, “ursi”, “sofa”, “riwaq”, “tarma” and “hosch”. They all reflect similar meanings, changes in formations and geometrical shaping, rather than being variety in the architectural heritage, they also imply the cross-cultural understandings and basic considerations about the meaning of this space.

Why does “lywan” gain importance and syntactic value in Northern Mesopotamian houses? Is it because of as an extent of Asian central house typology, mainly derived from topographical and climatic conditions? Or is it derived from the formation of its existence, its fragmentation or defragmentation, or another syntactic consideration, or as an extent of symmetric or asymmetric considerations?

This study is not only a syntactic discussion regarding varieties of “lywan” in the configuration, but it also enlightens other syntactic components like analysis of “design geometry” and its traces that are found in embedded configurations.

This discussion leads us to the dimension of perceptive qualities, variability in the traditional house. It lets us to consider the quantity of convex spaces in the specific nodes, the quality of isovists and the variability of inner perceptions.

This study mainly concentrates on “grand/high style houses” corresponding to 16th-19th century period. The samplings regarding the focus area, the southern Anatolian “sofa” houses, Baghdad “tarma” houses in the southeast and Aleppo and Damascus’ “riwaq” houses in the southwest are selected with their design philosophies. This study also exhibits the rich variability of traditional house typologies in the region. This paper also reinforces how this architectural heritage is neglected during the ongoing war in the region, even this specific earth is considered possessing rich archaeological heritage like the oldest human settlements of the world.

Keywords: Vernacular Architecture, Space Syntax, Traditional Houses, Northern Mesopotamia

Theme: Historical Evolution of Built Form

Introduction

The region called as northern Mesopotamia is located between southeastern part of Turkey at north, Syrian valleys and Lebanese shores at the west, northern Iraq where the Tigris and Euphrate Rivers that become to close at east, and near to the capital city of Baghdad (Fig. 1).

In general, the traditional houses of this region have distinct spatial characteristics that include a multifunctional space, a core space and a transitional area called as “tarma”, “riwaq”, “talar”, “ursi”, “hosch” in Arabic, “sofa”, “eyvan” or “hayat” in Turkish, “lywan” or “apadana” in Persian. All these words not only have similar meanings regarding the purpose and the function, they also refer to the spatial core of these houses from a design standpoint.

This core unit -called as “embryo” in this paper- typically is a transition area between the private and semi-public sections of the house. The different settings of this space transform the spatial meaning of the whole house. These differences might be sourced from external physical factors but they are also a part of symbolic and expressional distinctions between the sub-regions.

If we focus on this transitional area in the early examples of sofa houses, we may find that this “embryo” space is generally located in the frontal portion as a semiopen area like in Anatolian prehistoric -hilani- houses in Hacilar, Troy, Kultepe and Bogazkoy (Ünlü, 1992; Ünlü, 1998).

If we consider ancient Byzantine period houses in northern Syria (Boethius and Ward-Perkins, 1970), we’ll see that similarly this space also has “embryo” characteristics. The excavations in Belyo, Beris, Sergilla, Baude, Taqle and Banaqfur show the existence of this space in ancient houses reflecting as an “embryo”, a semiopen and a multifunctional space located in front of the main house (Ünlü, 1998).

Same approach leads us to understand similar design considerations in the past of Iraqi “tarma” houses. Traditional Iraqi tarma house is an atrium type house and it is a clear-cut scheme based on a courtyard called as “hosch”. The multifunctional tarma space surrounds the central courtyard, and the location of “tarma” similarly is a typical “embryo” even in the Roman atrium house called as “atrium compliviatum” in the past.

If we consider early examples of this space in the past, we may observe that this space is mainly located in front of the house or it may have outcomes like rectangular space as inner hall that is extended from outside to inside. There are also other typological examples as raised platform and located on the first floor.

In-depth explorations in the region show that subsequent and developed house typologies might be considered as inner or central hall examples as we found in some parts of Turkey and Syria. All variations in different typologies that are mainly mentioned in Ünlü’s researches (1992; 1998), this space is commonly used one, it is a daily utilization area of the occupants, and it is mainly used for all house activities like food preparation, storing and eating.

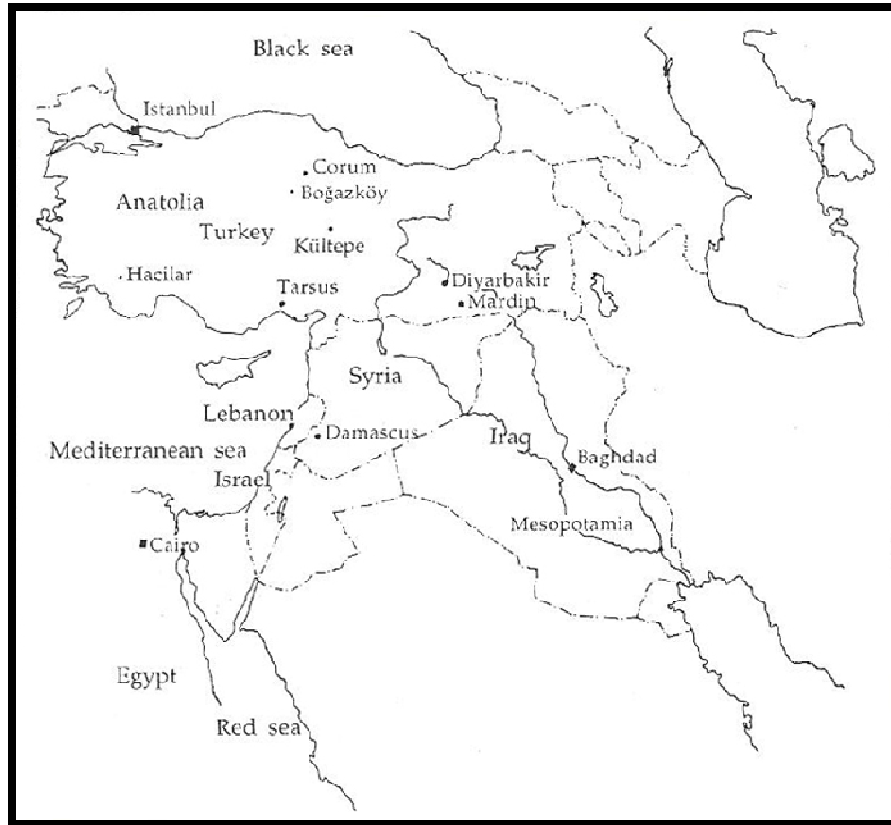


Figure 1: Regional Map

This paper is different from Ünlü's previous works (1992, 1998), it mainly focuses on and it scrutinizes the syntactic development of the "lywan" as a design concept in Anatolian "sofa", Iraqi "tarma" and Syrian "riwaq" houses. The syntactic research on these houses show that the subsequent typologies reinforce the change of "embryo" in terms of as a generic term as lywan by the effect of the period of the construction and the location. This change emerges an argument about the syntactic characteristics of the core space. This argument also emphasizes that how lywan space is important in the plan configuration.

In the first glance, this change might be correlated within the change in historical periods, like the change of space regarding periods from ancient times to Greek, Roman, Byzantine and Ottoman civilizations.

This morphological change is partly true and it is considerable, but we may also have diverse examples from simple versions to lavish examples that they are built in the same period. So, discussion on syntactic changes lead us to conclude that variations in house plans, of course, it is diachronic but also they are diverse depending on place, location and climatic determinants. So, typologies occur depending on their diachronic development, but sometimes their design development reflects variations regarding their physical determinants in the specific geography.

The technological innovations in the housing design, usage of glass in the window frames or changes in the heating systems might be considered as physical determinants for various typologies. As a parallel consideration, we may also find out similar typologies concerning the different levels in the development structure, but concerning same historical periods.

These findings push us to reconsider that the developmental or evolutionary process is based on the scope and geographical location of the house, the scope of the settlement (city, town or the country) and topographical and climatic determinants. Based on these arguments, this paper scrutinizes the syntactic outcomes of the developmental process of sofa, tarma and riwaq houses in the region and it searches these hypothetical questions cited below;

- The core unit called as “lywan”, how is it configured in these variations as shallow or deep element in the plan layouts?
- Why is sofa seen as a deep element when compared to tarma and riwaq houses?
- What about primary core spaces of regional houses, how are their syntactic levels?
- How “sofa” differs when compared to others and what makes it different?
- How the syntactic outcomes change the shape of the house.
- What about inner visibility and its range in house variations?

This paper explores the syntactic outcomes of these comparisons and it highlights the differences based on geometrical modifications. The modifications in here do not change the geometry of the design, but it changes the meaning of the core unit. The concept of design by the affect of the core unit and specifically the locations of the lywan may cause the change in the visibility range like “perimeter” or “area” of isovists. The circularity in this paper is the key point for discussion that it may explain the difference in variations as design conceptualization of the house. In here, the concepts of linearity or circularity are key points for the argument that they are basically derived from syntactic calculations.

Configurational analyses

The typical Iraqi tarma house is based on a centrally located around a courtyard scheme. This typology primarily is a Roman atrium house called in the past as Roman compliviatum. The rooms are surrounded by a rectangular courtyard, and the circulation area connects the hall between these rooms. The central space of the tarma house is an atrium called as “hosch” in Arabic.

The multifunctional and transitional space called as “tarma” is a frontal transition space between the rooms and it is a primary stage before the lywan. The lywan in the tarma house like sofa and riwaq houses is a more deep space. Figure 2 shows that how tarma and lywan locations differ in Iraqi houses.

In typical Iraqi “tarma” houses, we may also observe surrounding spaces like “ursi” or “talar”, they are also functionally similar spaces with tarma as they might be considered as specific semiopen summer rooms.

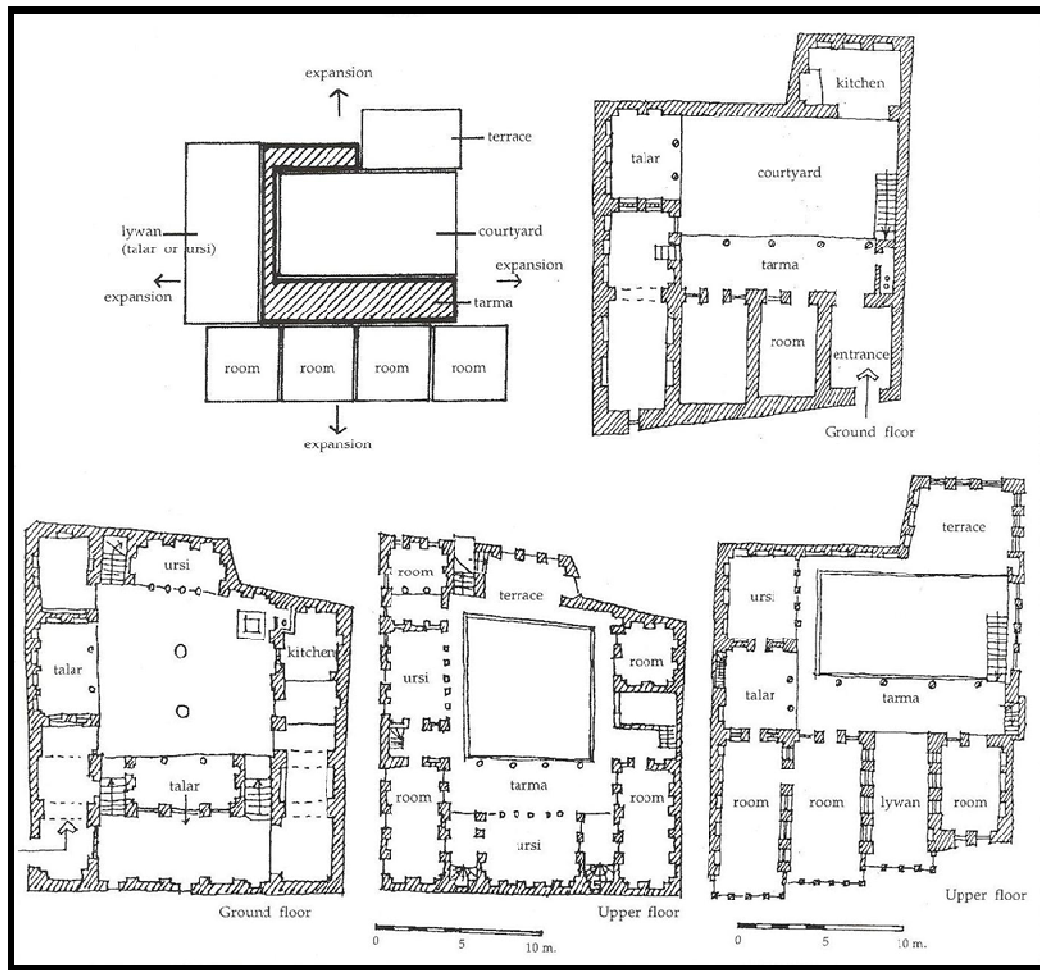


Figure 2: Typical Iraqi Tarma Houses (adapted from Schoenauer, 1981 in Ünlü, 1998)

The typical Syrian riwaq house consists of deep lywan locations and the extension of riwaq is observed as the inner hall likely found in other Anatolian sofa houses. However, 16th century Muradi House in Damascus, and Acemyan House in Aleppo are remarkable examples regarding the existence of the courtyard that both examples can be considered as the most developed ones in their typological evolution. In these examples, the courtyard is called as “hosch” that is surrounded by the riwaq space. The transitional spaces as riwaq open to deep independent lywan or group of lywans depending on variations in this typology. As emerged in plan configurations of Acemyan House, Aleppo, we may also observe the group of lywans around the small hosch (Figure 3). The lywans in this configuration is a raised platform around the hosch and it is called “qaa”. While the primary or modest examples of riwaq houses have similarities with sofa houses of Turkey in the evolution process, but at the same time, larger and considerable examples of riwaq houses show similarities with tarma houses of Baghdad.

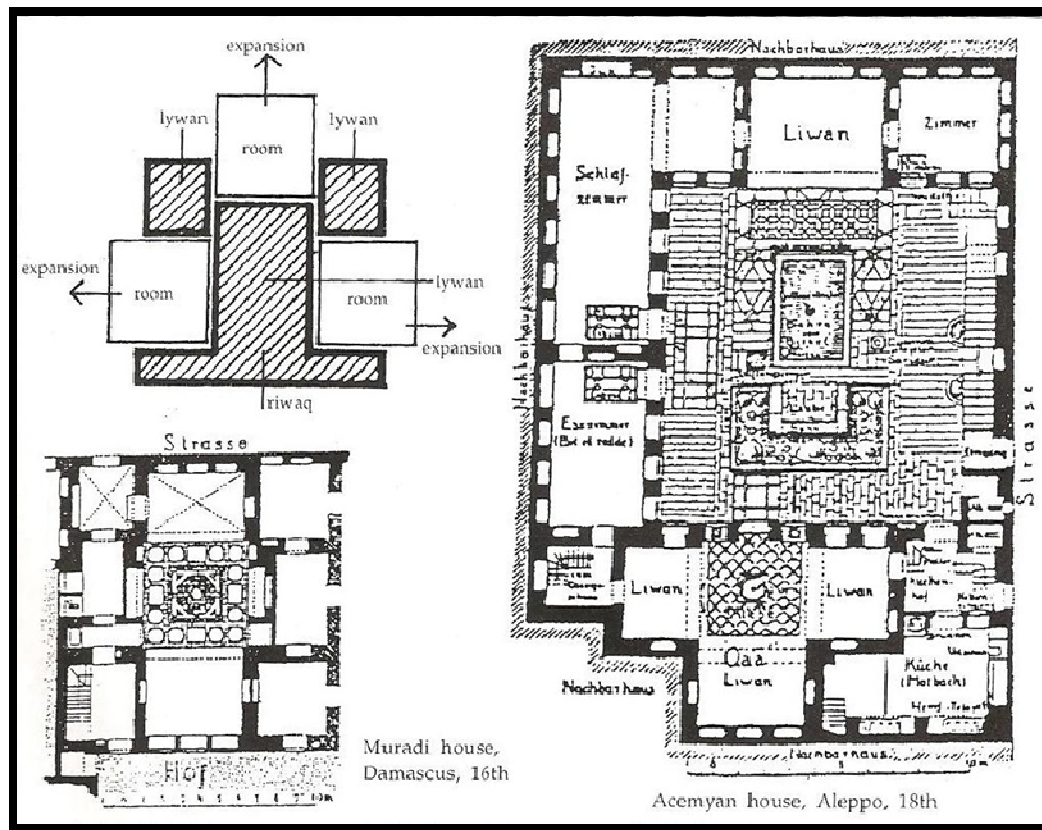


Figure 3: Typical Syrian Riwaq House (adapted from Akin, 1990; in Ünlü, 1998)

The scrutinized works on Anatolian sofa houses always discuss the existence of courtyard houses or not. The existence of courtyard in Anatolian sofa houses is very scarce in general; we may specifically find these examples in Mardin and Diyarbakir or in other cities of southeastern Turkey. The main reason of obsolescence of the courtyard might be linked to the harsh topographical and climatic reasons of Anatolian plateau. The traditional house typology in Mardin or Diyarbakir demonstrates the design based on “L” or “U” shaped courts, not clear-cut courtyards, but in terms of semi-courtyards (Figure 4).

The existence of lywan in the sofa house is also seen as a symbol of comfortable house mainly providing climatic control and achieving the desired level of privacy in the house. The existence of many lywans in the house design is the status symbol of richness, as usable and multifunctional and climatically comfortable area and it might be considered of the large and horizontal configurations. In late sofa examples, this space might be modified, like centralized sofa examples, it is modified as a central hall and an area or it is a void, rather than being as sofa integrated with lywans.

These comparisons conclude that there might be some similarities between riwaq and sofa houses in plan configurations. The sofa houses in particular mostly represent the extended version of inner halls, and in these typologies, we may observe the obsolescence of lywans around the sofa whereas in lavish examples of Syria, lywans of riwaq houses are located independently around the courtyard called as “hosch”.

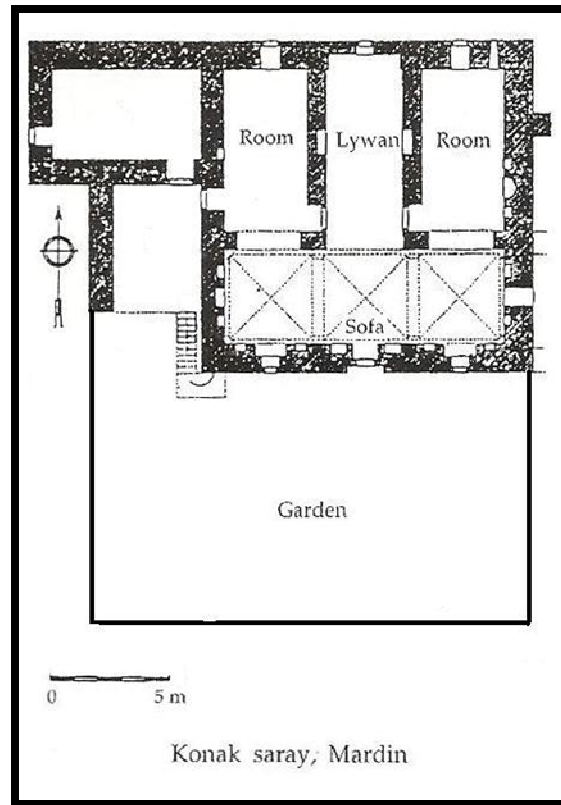


Figure 4: Typical Turkish-Anatolian Sofa House in Mardin (Akin, 1990)

The argument on regional houses emerges a configurational discussion on the existence of courtyard and the depth of the lywans comparatively. As sum of these discussions of Ünlü's former work (1998) posits a comparative evolution of regional houses (Figure 5). This comparative study is not a linear based, and a chronological development due to years, but it also embodies typological variations regarding the size, location and climatic changes.

In Figure 5, we may observe the size differences regarding the location of the house as the examples in city, town or the country. The examples found in the countryside reflect the linear based development, tended to be "L" or "U" shaped formations. By this way, Anatolian examples are much more ambiguous examples in the sense of understanding the shape of the house, mainly its configuration is based on horizontal extensions and linearity. Controversially, the city examples in general have clear-cut schemes reflecting all variations of tarma and riwaq spaces, it means that comparatively they formed around a big square where the courtyard is located in the middle (Figure 5).

The configurational analysis exhibited in Figure 5 reinforces the importance of third and fourth stages in the evolution process. The previous stages are mainly more primitive examples due to the countryside and especially lywans in riwaq and sofa houses are not existed in the primary typologies. The discussion in this paper concentrates on the existence of lywan in selected typologies, so the syntactic analyses are limited within 3rd and 4th stages due to the evolution process.

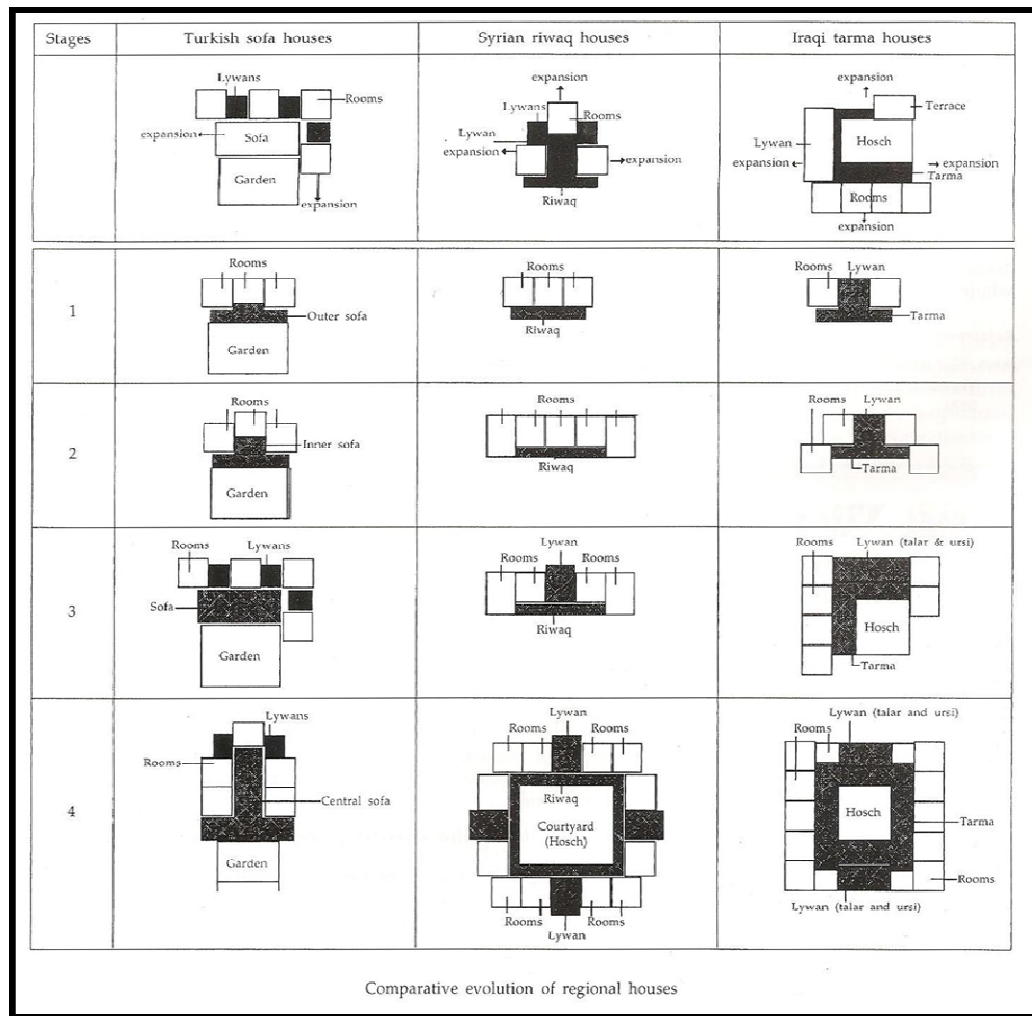


Figure 5: Comparative Evolution of Regional Houses (Ünlü, 1998)

Syntactic analysis

The syntactic analyses argue the integration and circularity values as the extent of the configurative case, and perimeter values as the isovist case in each example. The integration value of lywan in each case is very critical, it shows how it is deep or shallow space regarding sofa, riwaq and tarma houses. Similarly, circularity also gives us the basic considerations about the shape of the house. According to Figure 5 the shape of the house in the countryside and concerning the concept of linearity is the design notion in the countryside examples regarding stages 1 and 2. Contrary to this, the stages 3 and 4 will emphasize bigger and lavish examples within the clear-cut schemes. Other syntactic value like perimeter of the isovist gives us some information about the visibility range specifically for lywans or other spaces. In this paper, by the help of Syntax 2D software of The University of Michigan, syntactic analyses are obtained due to the specific examples like developed variations regarding stages 3 and 4 indicated in Figure 5.

Figures 6 and 7 exhibits the syntactic outcomes obtained from Syntax 2D and they are implemented in selected examples such as Mardin Konak Saray, Aleppo Acemyan House, Baghdad Courtyard House. The outcomes are integration values and circularity values in these selected and specific examples (Figure 6 and Figure 7).

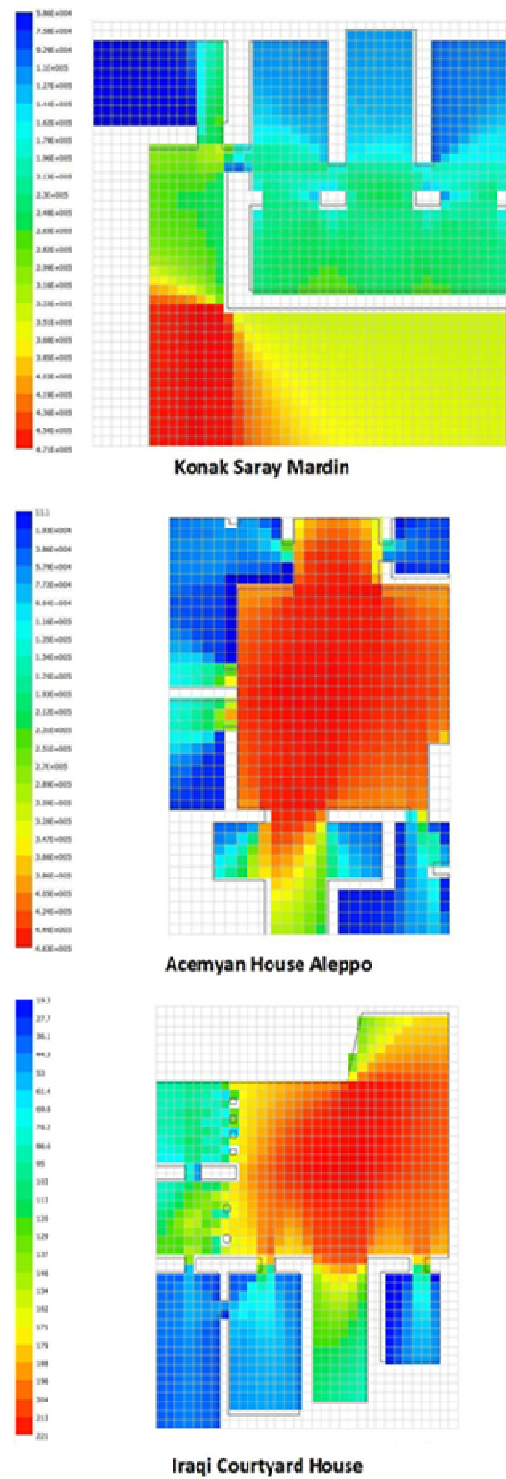


Figure 6: the Syntactic Analyses of Regional Houses due to Specific Examples-Comparison of Integration Values

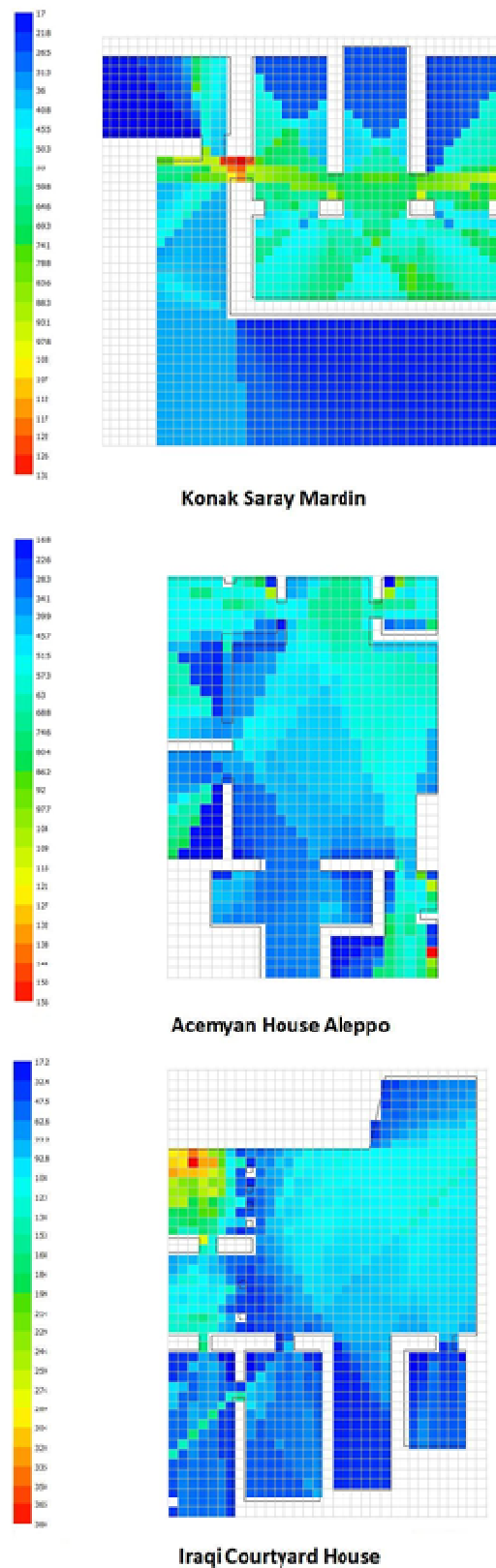


Figure 7: The Syntactic Analyses of Regional Houses due to Specific Examples-Comparison of Circulation Values

	Mean Isovist Perimeter	Mean Circularity	Mean Depth	Mean Integration
Sofa Houses / Konak Saray Mardin	73,4	39,5	2,33	261
Lywan	55,4	34,7	2,67	135
Sofa	92,7	55,5	2,33	242
Court	75,2	25,8	2,24	385
Riwaq Houses / Acemyan House Aleppo	92	46,3	1,68	287
Lywan 1	135	61,2	1,41	420
Lywan 2-3-4	71	35,3	1,89	194
Riwaq	124	52,3	1,39	428
Hosch	115	43,5	1,4	447
Tarma Houses / Iraqi Courtyard House	103	84,5	1,65	533
Ursi	126	183,2	1,74	382
Talar	105	90,7	1,61	535
Lywan	74	43,4	1,74	534
Tarma	125	80,7	1,41	805
Hosch	147	102,7	1,36	835

Figure 8: The Table of Syntactic Analyses; Integration, Depth, Circularity and Isovist Values

Figures 6 and 7 emerge the comparison table in Figure 8. If we consider the “integration value” of spaces due to mean scores, the highest integration value in the table is Iraqi tarma house-533. The integration values of riwaq and sofa houses are comparatively lower 287 and 261 respectively.

Figure 8 also indicates depth values that the highest depth value in selected examples is Turkish sofa house as 2,33, comparatively the lowest one Syrian riwaq house indicated as 1,68, and latterly Iraqi tarma house, 1,65 respectively.

The mean of circularity values in Figure 8 gives us some considerations about the shape of the house. The lowest mean circularity, in other words more linear scheme in selected examples is Konak Saray of Mardin indicated as 39,5. Aleppo’s Acemyan House is 46,3 that means more circularity in the selected riwaq house. The highest value of circularity and more clear-cut scheme like square or rectangular concept is Iraqi courtyard house corresponding 84,5.

The highest mean score in visibility range as inserted to this research as isovist’s perimeter is Iraqi tarma house as 103. This result is basically derived from the high circularity value. Latterly, the riwaq house’s score is 92 and comparatively the lowest score is 73,4 for the sofa house of Anatolia, Turkey.

If we come to the syntactic analyses of selected house types. The most integrated space in the configuration of Turkish sofa house is the courtyard or garden and the score indicated in Figure 8 that it is 385. Comparatively, the integration value of sofa is 242 and the lywan has the lowest integration value in indicated in Figure 8, corresponding to 261.

Similarly, the highest value of the mean score, the highest integration value in the riwaq house is hosch 447, the following space is riwaq indicated as 428, and the lowest integration value scores are lywan or group of lywans 194 and 420.

The tarma house also has similar scores like riwaq house of Syria. The highest integration score in tarma house is "hosch" corresponding 835. Moderately, the lower score in integration value is 805. The integration value of lywan in the tarma house is 534, which is comparatively the lowest one.

Comparison of Lywan Scores

If we consider lywan scores in Figure 8, the most shallow space-the most integrated one in typologies is the lywan of the tarma house corresponding 534, the riwaq house has moderate score that it is 194, and the lowest one that it is sofa house as 135. These scores confirms our hypothesis that the sofa house has more deep scheme and the lywan in the sofa house has the lowest value in integration level compare to tarma and riwaq houses.

Similarly, the depth values confirm these results. The highest depth value is the lywan of the sofa house corresponding 2,67 and the moderate score in this comparison is riwaq's lywan score, 1,89. The lowest depth value is lywan space of tarma corresponding 1,74 indicated in Figure 8.

The circularity and isovist values give us some information about spaciousness and visibility potential of these houses. The mean of circularity in the lywan of the tarma house is 43,4, and the riwaq house has lower score corresponding 35,3. Following this score, the lywan of the sofa house is very close to riwaq that it is 34,7 respectively. These scores confirm that tarma house more circularity compare to riwaq and sofa houses. The latter house typologies have more linear schemes compare to tarma house.

The perimeter of the isovist value exhibits similar results with circularity. The highest circularity value points out that tarma house posits the highest isovist value in the perimeter of visibility corresponding 74. Other scores follow these scores like in riwaq house it is 71, and in the sofa house it corresponds 55,4 respectively. While the riwaq house show high perimeter scores close to the tarma house, we may conclude that comparatively the sofa house has the lowest spaciousness value.

Conclusion

When we have the first glance to the regional houses, we may easily find out the similarities between the house types. The notion of similarities in house comparisons might be derived from specifically the location of the house, geographical determinants and climatic reasons. But we may also have the most important outcomes of the vernacular architecture of the region. Considering Syrian rewaq and Iraqi tarma houses, both typologies lead us to understand similarities of the solid schemes especially at the developed stages. This consideration also linked to the location type of the house concerning scope of the settlement, the city and the city life.

However, Anatolian sofa houses in southeastern of Turkey show linear based expanding schemes. Those typologies are quite different than tarma and riwaq houses. The basic reason of the difference between tarma/riwaq houses and the Turkish sofa house is mainly derived from climatic reason, in other words dry and arid climate in the sub-regions of Iraq and Syria, controversially mountainous geography and temperate climate in the plateau of Anatolia, Turkey.

When we come to the focal point of this paper, all differences in plan configurations emphasize the importance of the lywan's location. The lywan concept in the tarma house is derived from the circular structure of the tarma house, which exhibits more integrated cells in the configuration. The notion of lywan in tarma house is the part of a whole and the integrated volume, and it is the shallowest one in the selected examples.

Parallel to these considerations, in riwaq houses, the location of lywan produces moderate scores in integration or depth values compare to tarma and sofa houses. Similarly, circularity and isovist perimeter values of riwaq house also produces moderate scores in the comparison table. However, the notion of lywan and its location in the sofa house produces more deep values. Within these values, the sofa house reflects more linearity, and highly more depth values in these types of schemes. These definitions are also relevant for common type of sofa houses in Anatolia. Depending on this argument, the vernacular house in Anatolia reflects more linearity and the sofa as the core space expands around the garden or semi-courtyard. So, the common concept of Anatolian sofa house gains more importance with lywans and their expansion and location over the sofa space.

This analysis also emphasizes that Asian type of central house is still relevant in northern Iraq and Syria, comparatively its dominance disappears in the Anatolian plateau and western shores of the region. The lywan typology loses its centrality, and we may account that it is primarily derived from geographical and climatic reasons. If we consider other reasons like cultural effects as we observed in the latter periods of lywan houses found in western Anatolia and even Lebanon, the notion of lywan as a multifunctional node of the house loses its central importance and functionality. On the other hand, it tends to emerge specific outwarded archetypes like balcony, terrace, outer sofa and portico. These archetypes might be considered as outwarded spaces and moreover, they are specific but external spaces rather than internal spaces like centrally shaped as courtyards. This analysis also implies that the notion of lywan gains the "social statue" as an extracted symbol reflecting the socially anticipated external life style rather than more private and walled courtyard houses. We may also observe this change in the region regarding as the east versus west dilemma, the notion of lywan changes in the house configurations. The location of lywan changes from east to west, stage by stage, it transforms from internal considerations to the external cases as the result of social life. The house typologies in the west of the region confirm this consideration and especially this might be true for the inland of western Anatolia and the shores of Mediterranean and Aegean Seas.

Although syntactic outcomes of these three typologies produce similar results in general, the lywan formation in selected typologies produces important syntactic differences. The syntactic values, depending on the notion of lywan, emerge interesting differences in sub-regions. This paper within the space syntax perspective, a little far remote from the descriptive explanations, proves the syntactic importance based on the location and the formation of "lywan".

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