

Hybridity in Architectural Design: Past, Present, and into the Unknown

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ABSTRACT: The aim of this paper is to verify and describe the hybridity between European modern architecture and American traditional architecture in mid-twentieth-century American college towns as expressed in residences built there by faculty members of NAAB-accredited architecture programs. Based on shape grammar as a computational design methodology, a comprehensive analysis is presented to reveal a hybridity phenomenon that though unique has broader implications for our understanding of architectural production.

KEYWORDS: College town modernism, shape grammar, hybridity, faculty-practitioners

INTRODUCTION

In *A Field Guide to American Houses*, Virginia and Lee McAlester describe “modern” as a post–World War II architecture that abandoned historical precedents in favor of new variations in architectural composition. The modern US houses featured in their book are different—in terms of characteristics—from what we know as European modern architecture as defined earlier in the century by Henry-Russell Hitchcock and Philip Johnson. In Hitchcock and Johnson’s definition, modern architecture—primarily the “International Style”—was understood in reference to three identifying features: volume instead of mass, lack of ornamentation, and regularity and standardization of elements.

The McAlesters’ definition was related to Le Corbusier’s five points for defining the “new” architecture. Rooted in Europe and transferred to and further developed in the United States, modern architecture, was characterized later in the twentieth century by scholars such as Kenneth Frampton, David Handlin, and William Curtis by principles close to those proposed by Hitchcock and Johnson: a tendency to use simple rectangular volume (instead of mass) articulated by regularity, crisply cut openings, flat roofs, the avoidance of architectural decoration, an open floor plan, and a free façade design.

In pursuing the research for the present study, the author documented examples of mid-twentieth-century architecture in college towns across the US and found that many include multiple single-family houses designed by full-time faculty members holding positions with the NAAB-accredited architecture degree programs offered at the colleges located there. Many of these houses constitute a hybridity between European modern architecture and traditional American architecture given that they incorporate many of the shapes, rules, and features of each style. They do not fully fit the existing mainstream of the period. That is, many are not built according to popular mid-century ranch, split-level, shed, or minimal traditional styles. Nor do they feature the characteristics or shapes of modern architecture such as flat roofs, ribbon windows, and free façades, as first identified by Henry Russell Hitchcock and Philip Johnson (1932) and later by scholars such as Kenneth Frampton and William Curtis. Furthermore, these houses are not colonial, revival, or Victorian in appearance and, therefore, do not conform to traditional American styles. Instead, many of the houses simultaneously reflect traditional American styles together with forms associated with modernist ideologies: for example, some houses boast sloped roofs, partially open plans, large windows, a horizontal organization in a split-level arrangement, and traditional balloon frames with local stone, wood, or brick cladding.

While numerous faculty members practiced architecture locally in the mid-twentieth century, based on the preliminary research conducted for the present study, only six of those had both trained according to modern architectural principles in the late 1930s and early 1940s, either directly or indirectly, with one of the European modern architect emigres and practiced during the mid-twentieth century post–WWII period in their respective college towns: Harry Merritt, Edward Olencki, William Hajjar, William Caudill, Leonard Currie, and Charles Burchard. These six architects practiced in only five towns: State College, PA; Ann Arbor, MI; Blacksburg, VA; Gainesville, FL; and College Station, TX (Table 1). It is important to note that all six graduated from one of the “less conventional” architecture programs of the mid-twentieth-century United States, contexts in which students were exposed to modern architectural pedagogy, including Taliesin, Harvard’s Graduate School of Design (GSD), Black Mountain College, the Massachusetts Institute of Technology (MIT), the Georgia Institute of Technology, the Armour Institute (later the Illinois Institute of Technology (IIT)), and the Institute of Design in Chicago (later part of IIT) (Alofsin 2012).

Although these six faculty-practitioners are not nationally known as influential figures in the context of mid-twentieth-century architecture, each had an impact on the architectural taste of local people in terms of their acceptance of modern/hybrid architecture. Therefore, it can be argued that they were, in fact, influential in popularizing modern architecture in the United States during the mid-twentieth century. Pursuit of this argument, however, is outside the scope of this paper and will be explored elsewhere.

The notion of hybridity between modern architecture and traditional architecture, or the duality between modern and traditional, international and local, and designed and vernacular in architectural practice has already been addressed in the literature. Ideas such as “high-style” versus “popular” architecture in the mid-twentieth century, “Brazilian popular modernism,” “critical regionalism,” and “vernacular modernism,” and the contrast between vernacular traditions and the twentieth-century built environment all refer to this duality in various geographic locations and time periods. The central concerns of this paper pertain to whether this hybridity can be verified and described and whether shape grammar—which refers to a specific class of production systems based on an initial shape or set of finite shapes and transformational shape rules—can serve as an effective computational design method for this purpose.

Table 1: Faculty-practitioners in Mid-twentieth Century U.S. College Towns who Graduated from “Less Conventional” Architecture Programs. Source: (Author 2024)

College town	University	Faculty-practitioner	Schools from which they received a degree
Gainesville, FL	University of Florida	Harry Merritt	Harvard
Ann Arbor, MI	University of Michigan	Edward Olencki	IIT
State College, PA	Penn State	A. William Hajjar	MIT
College Station, TX	Texas A&M	William W. Caudill (CRS)	MIT
Blacksburg, VA	Virginia Tech	Leonard Currie Charles Burchard	Harvard MIT and Harvard

In the context of a broader study, the current paper focuses on three college towns that hosted NAAB-accredited architecture programs during the mid-twentieth century: State College, PA, home of Penn State; College Station, TX, home of Texas A&M University; and Ann Arbor, MI, home of the University of Michigan. A systematic methodology is developed for the related purposes of identifying, analyzing, and generating hybridity in architectural design and then used to analyze examples of single-family hybrid houses designed by the faculty practicing architecture in the locales specified.

1.0 THE COLLEGE TOWN: AN AMERICAN PHENOMENON

The idea of university life and of the university community, as Laurence Brockliss argues, does not have its origins in the US, but in the medieval European universities where students and teachers lived, worked, and studied together in a “cloistered environment.” Yet, the comprehensive planned modern university campus, or what Thomas Jefferson called the “Academical Village,” is primarily an American phenomenon, and the college towns identified in present work all have in common a university with a campus structure.

In its instantiation as an American phenomenon, the college town, is a community that is heavily dependent on the university it hosts. It is a particular type of small town, one whose population is dominated by university faculty, students, and staff. College towns tend to differ from other towns and cities in their respective regions. That is, although many American college towns are situated in remote areas, the young and diverse population, the highly educated work force, the general absence of heavy industry, and the existence of cultural amenities, many of which are characteristic of large cities, set them apart from the rest of the country’s small towns. College towns have characteristics in common both with small towns and with cities: For example, in terms of population, rural/suburban setting, and most of the infrastructure, they are comparable to other kinds of small towns. However, in terms of culture and education, they are more comparable to cities. It should be noted, however, that colleges differ in terms of size, mission, degrees and fields of study, entrance requirements, tuition costs, etc., such that they attract different kinds of students and faculty who, in turn, “shape the character of the towns in which they are located” (Gumprecht 2008, 22).

Modern houses in college towns are usually the result of a specific set of conditions, especially in neighborhoods near the universities: It is reasonable to speculate that several faculty members in these small towns were pioneers in their fields at the time. It can be argued, too, that innovative people want to be seen as risk-takers, and some may have wanted to express this quality by building a house in an unconventional style (Brandon and Lu 2008). In a study of Urbana, Illinois, John Jakle observed that faculty members were more likely than other townspeople “to own houses that were architecturally distinctive as a way to set themselves apart as an ‘educated gentry class’” (Gumprecht 2008, 99).

Furthermore, general awareness of the modern movement through an architecture program might be another important condition in towns where social circles in which people are very connected to each other are likely to exist. This is in addition to the direct relationships between the architects and their clients, the latter of whom were also faculty members in some cases. Most college towns have at least one older neighborhood near campus that is home to large numbers of professors, for example, the College Heights Historic District in State College, PA. In fact, nearly half the houses Hajjar designed in the State College area are located in this neighborhood, which expanded during the mid-twentieth-century period.

The college towns in the present study are generally relatively small, and many are located in rural areas. Although beyond the scope of the present paper, studying the sub-culture context of college towns is important to

understanding the architecture produced in that context. The shape grammar technique is foundational to the study as a way to trace the formal and functional effects (and similarities) of European modern architecture and American traditional architecture. However, to describe some of the shape rules, a consideration of local aspects is also necessary to determine the relationship between those effects and the immediate local context.

2.0 FACULTY-PRACTITIONERS

2.1. William Hajjar in State College, PA

Abraham William Hajjar, known professionally as A. William Hajjar and as “Bill” to his friends, was born in 1917 in Lawrence, MA. The youngest of a large immigrant Lebanese family, he left the family’s grocery store business in 1936 to study architecture at the Carnegie Institute of Technology (now Carnegie Mellon). Having received a bachelor of architecture degree from Carnegie (1940) and then a master’s degree from the Massachusetts Institute of Technology (MIT) (1941), he joined the Department of Architecture at the State College of Washington (1942). A few years later (1946), he moved to State College, PA, to join the architecture faculty at the Pennsylvania State College (now Penn State) where he initially focused on securing tenure. As a tenured professor, he practiced in the local area for 11 years beginning in 1952, designing and building thirty-three single-family houses in the area, all of which incorporate many of the shapes, rules, and features of both European modern architecture and traditional American architecture. This period came to an end in 1963 when on a leave of absence from Penn State, Hajjar moved to Philadelphia to collaborate on projects with Vince King, a friend from MIT and a successful architect in the city.

The author has explored Hajjar’s life and practice in detail elsewhere, noting that though Hajjar initially trained with the conventional architecture program offered at the Carnegie Institute, later at MIT he was supervised by Lawrence Anderson, “a longtime bastion of the French approach” at the institution and “instrumental in bringing in modernist thinking” (Alofsin 2012, 115). Hired by MIT in 1933, Anderson served as head of the Department of Architecture from 1947 to 1965 and as dean of the School of Architecture and Planning from 1965 until he retired in 1972. He was one of a few instructors at MIT in the 1930s who pushed the school’s teaching philosophy towards modernism. He introduced a new system for reviewing the students’ work that relied on inviting outside critics to MIT to participate in the process of evaluation and criticism. Walter Gropius and Marcel Breuer—two pioneering figures of European/Bauhaus modernism who were teaching at Harvard at the time—were frequently invited to MIT for exactly this purpose. Thus, MIT’s architecture students (including Hajjar) were introduced to the philosophy of modern architecture expounded by these two architects (Anderson 1922). A simple visual comparison of houses designed by Hajjar and houses designed by Gropius and/or Breuer clearly shows this influence (Figure 1).

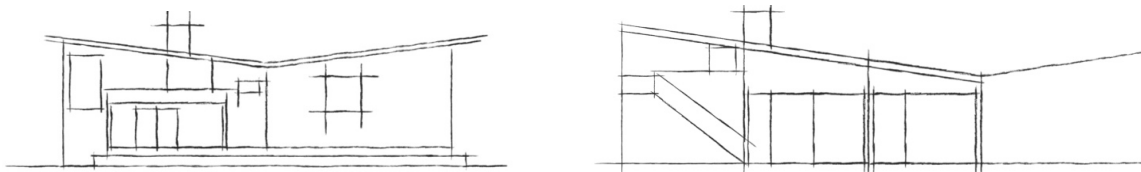


Figure 1: Diagrams of Hajjar’s Hansen House in State College, PA, 1956 (left) and Marcel Breuer’s House in the Museum Garden, MoMA exhibition of 1949. Source: (Author 2024)

Hajjar’s initial work in the State College area was mainly in the College Heights neighborhood situated immediately northwest of the Penn State campus and in the Holmes Foster neighborhood situated to the southwest of the campus. Some of the houses he designed in these neighborhoods, especially the earliest houses, consist of a core “shoe box” design element. The shoe box could be long or short and parallel with or perpendicular to the main road, and most have a low-pitched roof, whether symmetrical or asymmetrical. In addition, the houses usually have a garage (mostly with a flat roof) connected to the main house with a breezeway, although by now many of the breezeways have been altered to accommodate an enclosed addition.

Many of the houses he designed in the area with its special topography and small lots are organized with the entryway and any extension halfway between the upper and lower levels. This can be read as an adaptation of the mid-century split-level effect. However, although in section and in façade, there are similarities between Hajjar’s architecture and mid-century split-level houses, in terms of the interior planning, design, organization of the fenestrations, and the slope of the roof, there are differences. For example, Hajjar’s interior planning leans more towards a modernist idea of an open plan, especially in the public part of the house (living room-dining room-kitchen). Specifically, typical mid-century split-level houses still had a room organization with the living room facing the street, whereas Hajjar’s designs were open with the kitchen facing the street and the living room at the back of the house with large openings between the various functional areas (Figure 2).



Figure 2: Reproduction of the front elevation of the Eakin Residence, and Hajjar’s section drawing for the same house, as built in 1955 in State College, PA. Source: (Author 2024), left, and (Penn State Special Collections Library), right

Through a consideration of the volumetric relationship, spatial organization, and main features of Hajjar's single-family houses in the area, five subtypes in his plans have been identified (Figure 3): (1) tri-partite organization, where a breezeway connects the garage to the inhabitable space, the lower floor hosts the living areas, and the upper floor the sleeping area; (2) split-level organization, where the sleeping area is a half floor above the living area; (3) butterfly organization, where a cross-shape or U-shape plan prevails; (4) compact organization, where a square-shaped plan reflects Hajjar's idea of a core area; and (5) linear organization, where two square-shaped plans form a rectangular/linear plan. In addition to the volumetric relationship and spatial organization, the way in which the day-time and night-time activities are separated in Hajjar designs is significant as a modernistic feature learned from Marcel Breuer's bio-nuclear designs of 1943.

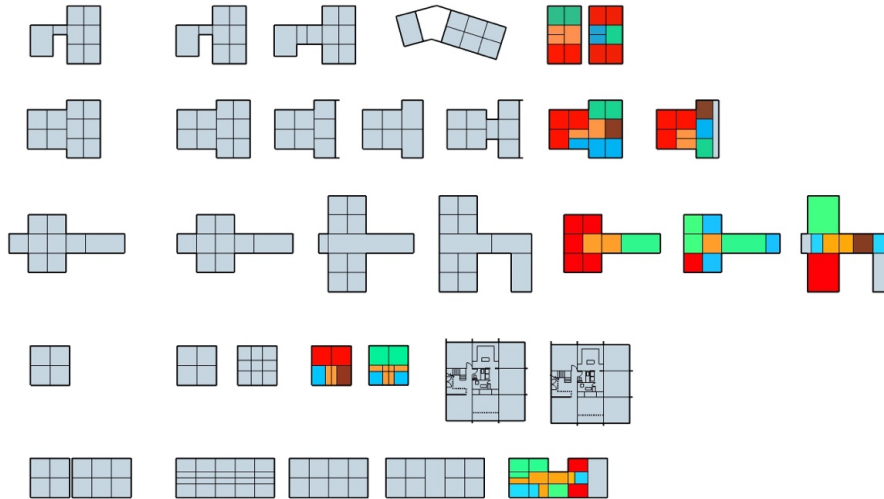


Figure 3: Diagrams showing subtypes of Hajjar's plans. Source: (Author 2024)

2.2. William Caudill in College Station, TX

William Wayne Caudill, also known as "Bill," was born in Hobart, OK, in 1914. He received his bachelor's degree in architecture from Oklahoma A&M College (OAMC, now Oklahoma State University) in 1937 and a master's degree in architecture from MIT in 1939. During his time at OAMC, the architecture world was split between the schools of traditionalism and modernism. Caudill would later write:

Some of us radical types were pressing for a new age of architecture based on logic and technology... Oh, how some of us fought for the acceptance of modern forms. Admittedly, we didn't know why they were like they were. We simply wanted change (Kline & Savage 2014).

According to Caudill, the modernists at OAMC could be divided into two camps: those who followed Swiss-born Le Corbusier and those who followed Frank Lloyd Wright. Caudill fell in the latter camp, and some of his later designs show this influence. As he recalled, much of his time in the design studio was spent arguing about philosophy instead of learning to design. While at OAMC, Caudill worked under Philip A. Wilber (1896–1974), head of the college's architecture department. After graduation, he worked for a year with his mentor at the latter's office in Stillwater. Caudill later collaborated with Wilber on the designs for Huston and Washington elementary schools in Blackwell, as well as schools in Stillwater, including the award-winning Westwood Elementary School and C. E. Donart High School, completed in 1951 and 1960, respectively. Caudill was not satisfied with the quality of his design work compared to the best in his field. To rectify this deficiency, he received a scholarship to attend MIT, and graduated with a Master of Architecture degree in 1939. His experience there was much different than his years at OAMC. At MIT, his studies focused on the real world of design, where students tried to solve problems and, as he wrote, "search[ed] for the best functional and aesthetic solution." "He seemed to be a proponent of the "community-based" design approach, emphasizing collaboration with the future users of the buildings.

For his thesis at MIT, Caudill developed an idea for a school building program for Stillwater, Oklahoma. In his thesis, he asserted that public buildings belonged to the people and, therefore, should be made available for their use. Caudill's thesis would later pay off, as his firm was hired to design eleven buildings for and additions to Stillwater's schools. In fact, among those buildings/additions was a community high school envisioned in the thesis. The school was built on the very location that Caudill had selected for it some twenty-some years earlier.

After leaving MIT, he taught architecture at Texas A&M (College Station) and served as a research architect for Texas Engineering Station where he wrote the groundbreaking bulletin *Space for Teaching* (1941). In 1946, he and John M. Rowlett started an architecture firm in Austin, TX, subsequently moving to College Station where they also taught at Texas A&M. In 1948, Wallie E. Scott joined the firm, which then became known as Caudill Rowlett Scott and Associates and later as CRS. The firm briefly had a branch office in Oklahoma. In 1958, its headquarters moved from Bryan, TX, to Houston and eventually became one of the nation's largest architectural and engineering firms (Oklahoma Historical Society). While Caudill's research and practice were focused on school design, he and his firm designed a few houses in the College Station-Bryan area that represent hybridity between European modernism and American traditional architecture (Figures. 4 & 5).

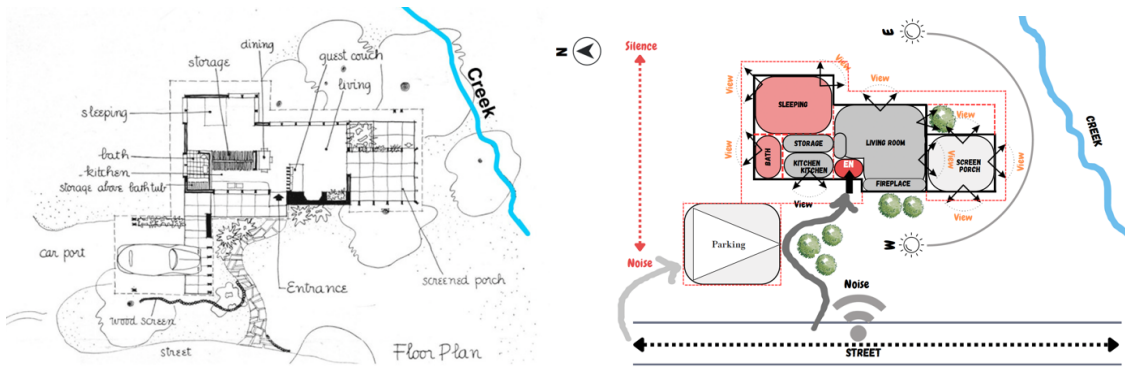


Figure 4: First Caudill House designed by William Caudill, Bryan, TX, 1946: floor plan (left) and formal and functional analysis (right). Source: (Texas A&M CRS Collection), left and (Author 2024), right

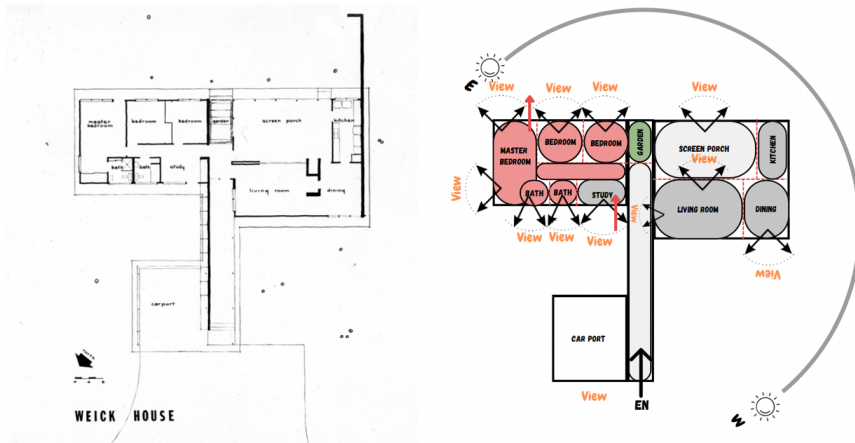


Figure 5: Murdock House designed by William Caudill, Bryan, TX, 1948: floor plan (left) and formal and functional analysis (right). Source: (Texas A&M CRS Collection), left and (Author 2024), right

2.3. Edward Olencki in Ann Arbor, MI

Born in 1922 in Chicago, Edward Olencki attended the Illinois Institute of Technology (IIT), where he received both his bachelor of science degree in architecture (1944) and his master of science in architecture (1949) under Mies van der Rohe. During his time at IIT, Olencki worked as a draftsman and later as a designer for Mies in Chicago from 1943 to 1948. He then joined the University of Michigan faculty in 1948 and continued to teach until his retirement in 1987. He primarily taught courses on construction materials and methods, comprehensive architectural design, and furniture design.

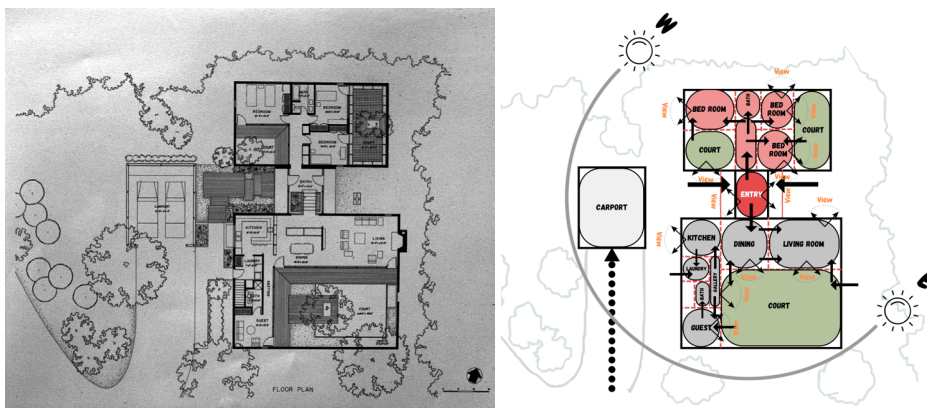


Figure 6: Eaton Residence designed by Olencki & Albano in Ann Arbor in 1962: floor plan (left) and formal and functional analysis (right). Source: (University of Michigan Digital Collection Libraries), left and (Author 2024), right

Olencki’s research interests focused on modern church architecture. During his time at Michigan, Olencki also ran an architectural firm, Olencki & Albano, designing homes, churches, and commercial buildings. His partner, Joseph Albano, a graduate of the Armour Institute (later IIT) and Northwest University in Chicago, had also studied with Mies van der Rohe at IIT. He began teaching at the University of Michigan in 1947. One of Olencki & Albano’s most famous designs in the area, the Professor and Mrs. Leonard Eaton Residence clearly shows the influence of Mies in its use of materials and certain design elements (Figure 6).

3.0 SHAPE GRAMMAR AND ANALYSIS OF HYBRIDITY IN ARCHITECTURAL DESIGN

Shape grammars in computation are a specific class of production systems based on an initial shape, or set of finite shapes, and transformational shape rules (Stiny & Gips 1971). Since the 1970s, as a design computation method, the shape grammar concept has been used in architectural analysis when a pattern of design characteristics or a stylistic repetition of shapes in architecture is evident. This method has been used to analyze examples of historical architecture, such as the Palladian villas by Stiny and Mitchell, Frank Lloyd Wright's Prairie houses by Koning and Elizenberg, bungalow houses by Downing and Flemming, Queen Anne houses by Flemming, Alvaro Siza's houses at Malagueira by Duarte, and many more. Given that the work of our faculty-practitioners shows strong evidence of shared shapes and transformation rules, the shape grammar methodology constituted an appropriate way to test the hypothesis.

Shape grammars developed to analyze houses designed by some of the three faculty-practitioners in their respective college town are published elsewhere. The present paper focuses on using shape grammar to compare and contrast distinctive design languages, in this case, European modernist and American traditional architecture, in order to identify the hybrid-style homes that faculty-practitioners created in specific local contexts as part of the unique style of college town modernism. As an example, Hajjar's grammar will be used to showcase the way in which shape grammar can be used in the process of comparing and contrasting architectural styles/languages. A detailed account of the development of the grammar for Hajjar's work is available in a previous paper by the author (Hadighi and Duarte 2018). As explained in that paper, the grammar was developed based on five subtypes identified in section 2.1 (Fig. 3). Further, the grammar encompasses four groups of rules: (1) rules that capture the way in which Hajjar situated his houses on the lots; (2) rules that describe the formal relationships between mass volumes; (3) rules that describe the way in which the interior space is divided into smaller rooms or spaces and the way in which functions are allocated; and (4) rules that generate details such as wall thickness and the placement of closets.

During the preliminary study, Hajjar's architecture, like that of his classmates at MIT, was found to reflect the influence of Gropius and Breuer. Therefore, a grammar was developed to analyze residential houses designed and built in the United States by Gropius and Breuer—in the same way and with the same level of detail as the Hajjar grammar. In addition, as can be expected with all architects, the context in which Hajjar practiced also influenced his work. To study single-family domestic architecture designed in traditional styles in the area, it is instructive to explore the College Heights Historic District, a national historic district located north of Penn State's University Park campus where most of Hajjar's works are located. In this neighborhood, most of the houses constructed in the 1920s and 1930s are built in bungalow, colonial (Dutch and Georgian), colonial revival, Georgian revival, and four-square styles. Of these architectural styles, two interior plans are particularly popular in the neighborhood: a four-square organization and a four-room organization with a hallway in the center, the latter of which is very similar to the organization of Hajjar's first house in the area. To analyze the traditional houses of the context, a grammar was developed in the same way and with the same level of detail as the Hajjar grammar.

In order to compare Hajjar's architecture in State College with both single-family houses designed by Gropius and/or Breuer in the United States and the traditional houses in the context, three strategies were identified: (1) compare the rules of the grammars; (2) compare the derivations of similar houses using each of the three grammars, and (3) use one grammar to generate a house from the corpus of another grammar. The use of these strategies to determine the extent of a house's similarity to modern and traditional architecture is further described elsewhere (Hadighi and Duarte 2021). Figure 8 shows the comparison of selected rules of the three grammars divided into different categories, e.g. rules for volumetric organization, rules for dividing the inhabitable space, rules for private vs. public spaces. Although the main purpose of this comparison was to analyze the qualities of the faculty-practitioner's architectural language and to determine how it reflects the influences of traditional American architecture and European modern architecture, the shape grammar methodology provides a way to quantify these influences (Figure 7).

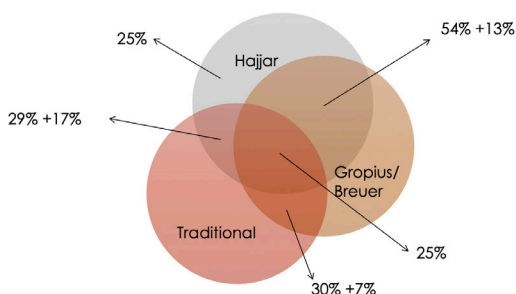


Figure 7: Similarities between the three grammars. Source: (Author 2024)

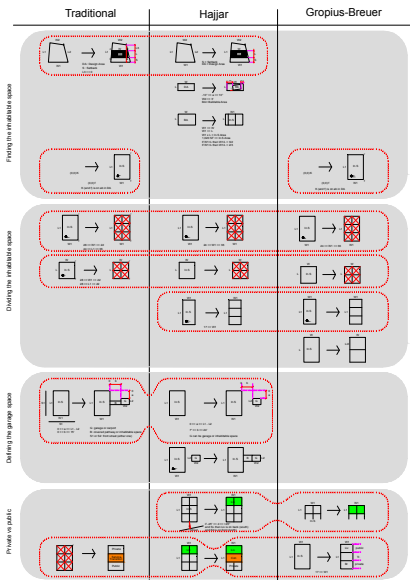


Figure 8: Comparison of the findings of the inhabitable space rules, dividing the inhabitable space rules, defining the garage space rules, and defining private vs. public rules of the three grammars. Source: (Author)

The second strategy used to verify possible similarities between shape grammars is a step-by-step comparison of their derivations, in this case between those of a house designed by Hajjar, a house designed by Gropius–Breuer, and a house from the traditional context. The author has explored this approach in detail elsewhere and shown how a step-by-step comparison of the derivations of houses generated by two grammars can explain similarities between the rules of the two grammars and the influence of one architectural language on another (Hadighi and Duarte 2021). The comparison using this strategy revealed the same qualities and quantities shown in the previous step (Figures 7 and 8).

The third strategy for comparing grammars is to use one grammar to generate a house in the corpus used to derive another grammar. For example, the grammar for Hajjar’s houses can be used to derive a Gropius–Breuer house and then the derivation and an original Gropius–Breuer design are compared with each other. Figure 9 shows the derivation of a house with a layout as close as possible to Hajjar’s Snowdon House (Figure 10) generated by the traditional grammar.

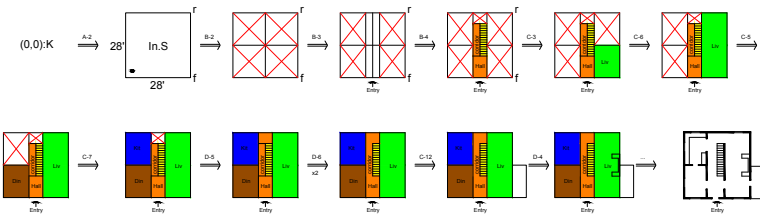


Figure 9: Derivation of a house with a layout as close as possible to Hajjar’s Snowdon House using the traditional grammar. Source: (Author 2024)

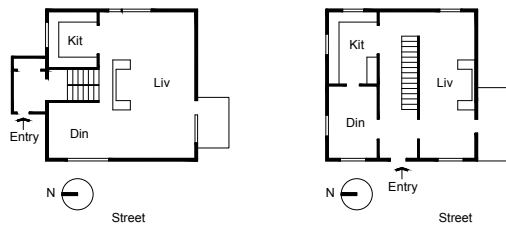


Figure 10: Hajjar’s Snowdon House (left) and a house with a similar layout generated using the traditional grammar (right). Source: (Author 2024)

It is certainly the case that similarities in relation to the size of the inhabitable space and to some extent the proportions and allocation the interior functions of the rooms, as well as differences in the openness of the interior layout and the interior circulation reflect similarities and differences between the rules of the grammar for Hajjar’s work and the grammar for traditional houses in the area. However, it remains important to understand that these similarities and differences relate to similarities and differences in lifestyle between the two periods. For instance, the kitchen and the dining area are smaller in Hajjar’s Snowdon House than in the house generated by the traditional grammar, perhaps reflecting a change in family size between the two periods. On the other hand, the living area is larger in Hajjar’s house than in the house generated by the traditional grammar, perhaps reflecting a change in the idea of social relationships in the mid-century United States.

The same strategy of generating a similar house through a different grammar is used to generate a layout as close as possible to a Hajjar design with the Gropius–Breuer grammar. For this purpose, Hajjar’s 1955 Eakin Residence, a split-level house with the garage located at the ground level of the bedroom volume, is compared with a house with a similar layout generated by the Gropius–Breuer grammar (Figure 11).

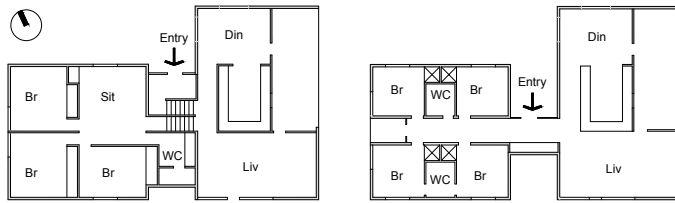


Figure 11: Main floor plan of the Eakin Residence designed by Hajjar and generated by the Hajjar grammar (left) and the plan generated by the Gropius–Breuer grammar as close as possible to the Eakin Residence’s layout. Source: (Author 2024)

Both the Hajjar design and the design generated by the Gropius–Breuer grammar reflect a binuclear layout. However, in the Hajjar grammar, the connecting part, usually the breezeway in Hajjar’s designs, is an inhabitable space occupiable by interior functions, whereas in the Gropius–Breuer grammar, the connector is mainly a transitional space between the public and private parts of the house. In the private part of the house, the Hajjar grammar can easily generate a family room or what was called the sitting room by Hajjar, whereas the Gropius–Breuer grammar does not generate that space but instead offers a wider corridor, which itself can serve as a gathering space within the private part of the house. Hajjar’s Eakin Residence is a split-level house, similar to many other houses situated in the hilly part of the neighborhood. As no houses by Gropius and/or Breuer include a staircase within the connector, the Gropius–Breuer grammar cannot generate this feature, and therefore, cannot produce a split-level organization.

A comparison of the rules of the grammars identifies technical rules for generating layouts that can be very similar (e.g., rules for converting a line to a wall). However, the comparison also brings to light rules with similar shapes but different descriptions, which predominantly reflect variations in building technologies (e.g., the maximum length of a beam) and building codes (e.g., the extent of setbacks). There are also rules specific to each grammar and rules that are very similar in all the grammars, the latter of which can explain similarities between and the influences of modern architecture and traditional architecture on the work of the faculty-practitioner (in this case Hajjar).

In Hajjar’s architecture (similar to that of the other faculty-practitioners), the allocation of interior functions shows similarities with that of the traditional architecture. However, the flow of spaces and the openness of his interior planning lean towards modern principles of design. This is also true of his attention to the idea of energy-efficiency, reflected in, for example, his positioning of the fireplace as a main design aspect of the interior circulation rather than as a feature on an exterior wall. This hybridity between European modernist and American traditional architecture was a key to faculty-practitioners’ success in practicing architecture in American college towns in the mid-twentieth century. Of course, changes in people’s lifestyles and the cultural and socio-economic changes after World War II in the United States led to a reassessment of the principles of residential architecture in the country to which contractors and architects nationwide duly responded.

CONCLUSION

Overall, a new style is identified and its influence explored through the shape grammar method: The hybrid-style homes that faculty-practitioners created in specific local contexts in the mid-twentieth-century period brought modernism to the suburbs and are part of the local communities we know and enjoy today. Through this investigative story, a unique architectural style is revealed—what may be called “college town modernism”—and the shape grammar method is introduced as a complementary tool for architects and historians to use in identifying and analyzing hybridity in architectural design.

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