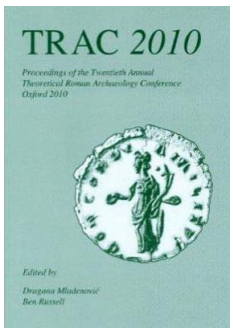

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Doors in Domestic Space at Pompeii and Herculaneum: A Preliminary Study

M. Taylor Lauritsen

Theoretical Traditions

Since scientific studies of domestic structures began in the second half of the nineteenth century, the prevailing image of the atrium house at Pompeii and Herculaneum has been that of a highly decorated, but largely empty space. In this paradigm, the Campanian dwelling served a social rather than functional purpose. Its highly symbolic decoration and architectural design was intended to signal the social standing of the homeowner to both strangers and guests (Thébert 1986: 315–316; Clarke 1991: 2; Dwyer 1991: 28; Wallace-Hadrill 1994: 39–44; Zanker 1998: 10; Mols 1999: 117). Descriptions of the front of the house emphasise the viewshed from the front door, which (uninterrupted by material objects) allowed both visitors and passers-by a glimpse into the depths of the home (Watts 1987: 187–189; Laurence 1994: 88; Wallace-Hadrill 1994: 44–45; Zanker 1998, 10). The atrium and *tablinum* are described as the "domain of the paterfamilias" (Veyne 1986: 316) in which he greeted his clients at the morning *salutatio*, "set off as a static presence on a stage, not unlike the image of a god in his sanctuary" (Dwyer 1991: 26). Beyond the atrium-*tablinum* complex, the peristyle and lavishly decorated rooms surrounding it were used by the homeowner as a sanctuary to entertain his personal friends, or *familiares*. Thus the entire house was not so much a living space, but a temple to the social and political status of the homeowner.

The development of this theoretical model can be linked to two popular traditions in classical archaeology: (1) the preferential treatment given to high-quality art and artefacts (both aesthetically and in a material sense) and (2) the reliance on classical texts to provide context for archaeological settings. Both of these trends date back to the foundation of the discipline, and both remain important aspects of the field today. In this context, the former will receive primary attention; for a discussion on the effects of latter, see the work of Dyson (1995) and Allison (2008). At Pompeii and Herculaneum, the techniques employed during the excavations of the nineteenth and much of the twentieth century were reflective of the focus on high-value materials. Early excavators, little concerned with the recovery of less-than-spectacular artefacts, produced only limited records of the content of houses, rarely noting the provenance of finds, regardless of quality. With the artefacts removed, it became quite easy for later scholars to ignore the presence of furniture, doors and screens, and domestic materials when studying the Campanian house. As a result, the wall paintings, mosaics, and elaborate stucco work that decorated many homes became the primary sources of information for students of Roman domestic architecture. This concentration on the decorative elements of the house, while important, has perhaps drawn scholars further away from a realistic understanding of how space was actually used.

In the last 20 years, however, studies of domestic artefact assemblages have shown that the houses of Pompeii and Herculaneum may have been inhabited in ways differing from the model described above (Berry 1997, 2007; Allison 2004a, 2004b). Analyses of material remains from select Pompeian dwellings have indicated that, rather than being composed of a

series of luxurious voids, houses were in fact occupied by a variety of household furnishings, including cupboards and chests, trunks, chairs, beds and couches, storage vessels, cooking implements, and commercial and agricultural equipment. Yet these assemblages, though incredibly informative, tell only part of the story. To reassess fully the nature of occupancy in the houses of Pompeii and Herculaneum, consideration must also be given to doors and partitions – physical and visual barriers that fall somewhere between architecture and artefact.

It has been argued frequently by architectural historians, urban geographers, and archaeologists alike that the identification of boundaries is critical to spatial analyses conducted in domestic contexts (Lawrence 1990: 76; Sanders 1990: 49; Grahame 1999: 55). Julienne Hanson has stated that a house is not organized as a "system of spaces", but rather a "system of boundaries", noting that the ordering of boundaries is particularly influential on the "social interface between inhabitants and visitors" (1998: 6). Though visitor-inhabitant interaction is clearly an important aspect of the "empty house" model, inquiries into the arrangement of domestic space at Pompeii and Herculaneum have consistently failed to consider the location and design of boundaries, and as a result have characterized much of the house as "public" space. When attempts have been made to assess privacy controls on particular spaces, they have often focused on changes in styles of wall painting rather than on the location of boundaries (Wallace-Hadrill 1994: 39–44; Ellis 1999: 81–82). As Grahame has shown, though frescoes may have provided some symbolic cues as to the privacy levels in certain rooms, "the power of architecture to regulate interaction is considerably more pronounced than decoration" (1997, 141). I would go one step further and suggest that it is the power of the boundary – the liminal zone that both connects and divides spaces – that holds the greatest influence over the manner in which domestic environments are inhabited.

Doors of Pompeii and Herculaneum Project

That doors and partitions have often been overlooked in studies of Campanian domestic space can perhaps be explained by their perishable nature – to put it simply, they have rarely been preserved. Of the extant examples, which typically survive in the form of plaster casts at Pompeii and carbonized wood at Herculaneum, the majority are either shop doors or the front doors of large *domus*. The few internal doors that remain (the majority in the Villa dei Misteri) provide important information regarding the types of doors that were used in domestic contexts, but their isolated nature has left them ignored as a subject of academic inquiry.

Fortunately, unlike material artefacts (which once removed show no trace of their prior location), doors and partitions leave behind architectural markers that provide a great deal of information about their design. Cuttings in the door jamb and in the threshold can be used to identify the size and style of a door, the direction in which it opened, and in some cases, if it could be locked. Thresholds and door jambs also possess their own intrinsic architectural value – the quality of the craftsmanship and materials used in their construction can offer important insights into how certain spaces were used. As in the case of doors and partitions, however, modern excavators have paid little attention to the presence of thresholds and door jambs. In the last century only one article has been published on the subject of the internal doorway (Hori 1992), and thresholds have rarely been recorded on the plans of houses from either Pompeii or Herculaneum.

In the fall of 2009, the *Doors of Pompeii and Herculaneum Project* was established in an effort to address these issues. By conducting an architectural survey of thresholds and door

jambs in 32 Campanian atrium houses, the project seeks to fulfil three main goals: (1) to reconstruct the location, size, and style of doors and partitions in the sampled houses at Pompeii and Herculaneum, (2) to establish typologies for threshold and door jamb design, and (3) to reassess the use of domestic space in individual structures once the locations of boundaries have been established. This paper will summarize the preliminary phase of this study, a four-house survey completed in October 2009.

Three of the four houses that comprise this initial survey are located in Regio VI, *Insulae* 15–16 at Pompeii – the Casa degli Amorini Dorati (VI.16.7), Casa dell'Ara Massima (VI.16.15–17) and Casa del Principe di Napoli (VI.15.8). The fourth house, the Casa di Nettuno e Amfitrite, is located in *Insula* V at Herculaneum (V.7). These houses were selected as an initial sample due to the robust body of scholarship associated with them and their variability in size and design.

Door, Partition, and Doorway Design

Measurements obtained from the pilot study confirm with statistics what visitors to either Vesuvian city might be able to determine from a tour of a few houses: that there were essentially two types of internal doorway. Wide, square doorways most often appear in rooms traditionally connected to dining or display – *tablina*, *triclinia*, and *oeci*. Narrow, rectangular doorways are typically associated with entrances to *cubicula*, latrines, store-rooms, and kitchens. The latter outnumbered the former roughly four to one. Both wide and narrow doorways contained doors, though their size and design varied depending upon the setting and the dimensions of the opening – given that no two doorways were the same size, doors must have been custom fit to each individual doorway.

Figure 1: Threshold with extant cardine (circular base). Cubiculum, Casa di Casca Longus (photo by author).

Wide doorways were occupied either by three- or four-leaf folding doors (*valvae*) or by partitions. If the opening was particularly large, two sets of *valvae* might be used, each folding against a jamb. *Bifores*, or double doors, were the only style present in narrow doorways in this survey. Frescoes from the *tablinum* in the Casa di Meleagro, however, have shown that two-panel *valvae* may also have been used in this context. Rather than swinging on hinges, Roman

doors opened and closed on pivots connected to the top and bottom of the leaf. These pivots were inserted into bronze turning posts (*cardines*) that were cut into the threshold, allowing the door to swing freely (Fig. 1). *Cardines* appear in two standardized types – one with a circular base, the other with a larger, square base. Because the cuts in the threshold vary depending upon the base type, it is possible to identify which *cardine* was used even if it is no longer present (as is usually the case).

Thresholds in many narrow doorways also contain a built-in door stop that can be used to determine the direction that *bifores* opened. The stop was created by lowering the level of the threshold on the side to which the doors were opening (Fig. 2), thereby blocking them from swinging in both directions. In the present sample, doors almost always opened from a larger space into a smaller one. No evidence for doorstops is present in wide doorways, as the folding nature of *valvae* seems to have required a flush surface across the width of the threshold.

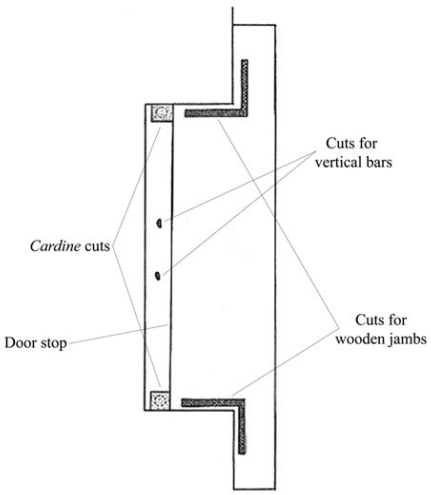

Figure 2: Design of typical Campanian threshold (after Ulrich 2007: 189).

In some cases, thresholds also provide evidence of locking mechanisms, although these are similarly only applicable to *bifores*. Small cuts in the centre of the threshold are the most obvious indicators of a locking door; when the door was closed, vertical bars slid into these cuts (Fig. 2), often connected to one another by a handle located in the centre of the door. Such an arrangement would have held the doors closed, but was clearly not intended as a substantial means of security.

Door jambs were either plastered, plastered and painted, or lined with wood; in many cases, two different styles of decoration appeared on a single jamb. Painted jambs were typically monochrome or painted in the style of one of the rooms connected by the doorway, extending the decoration into the liminal zone between the two spaces. Wooden jambs are relatively easy to identify, because rather than rounding the corner of the doorway, the painted plaster ends abruptly at the frame of the door, leaving room for the lining boards. These were attached directly to the wall along the interior and exterior of the frame, sliding into matching cuts on the edge of the threshold (Fig. 2).

Figure 3: Cuts for a partition in the tablinum, Casa del Menandro (photo by author).

Partitions (which were located only in wide doorways) can also be identified by cuts in the doorjamb (Fig. 3). Unlike doors, which required thresholds tailored to their size and style, partitions could be erected without customized thresholds or jambs. As a result, they were less incorporated into the architectural structure of the home, and, as a result, it is much more difficult to determine their design. The carbonized partition located in the Casa del Tramezzo di Legno (a rare extant example) provides a stylistic model (a central opening flanked by two sets of *bifores*), but how common this type was remains unclear. In most cases, little more than the dimensions of a partition can be safely reconstructed.

Doors and partitions were not the only means of establishing a physical boundary between spaces. There is also clear evidence for the use of screens and curtains. Screens functioned in a manner similar to partitions, but were not connected directly to the architecture of the house. A fresco of unknown provenance from Pompeii depicts screens located in the intercolumnations along the porticoes of a *porticus triplex* (Bragantini *et al*. 2009: 408); it is reasonable to imagine that they were used in a similar manner in domestic spaces.

Curtains likely served a variety of functions. Wall paintings from the Casa del Gruppo dei Vasi di Vetro and Casa del Poeta Tragico detail their presence in porticoes, and a fresco from the Casa di Giasone portrays a curtain hanging between a pair of windows. Perhaps most

interestingly, a mosaic from Carthage depicts the use of a curtain in the doorway at the front of a corridor (possibly an *andron*) (Thébert 1986: 399). Because neither screens nor curtains leave behind identifiable architectural markers, however, their locations are virtually impossible to recognize in the archaeological record. As a result, they will receive little attention in this study.

Methods of Analysis

Sixty-seven doorways were examined across the four houses comprising the initial survey. Of these, 68% displayed strong evidence for the presence of a door or partition, and another 14% exhibited threshold or jamb evidence that was inconclusive. Only 18% of doorways had no identifiable threshold (or a threshold that clearly housed no door), and thus can be safely assumed to have contained no boundary marker.

With the presence of doors firmly established in most doorways, it became clear that multiple analytical methods would be required to accurately the survey data. Of the techniques considered, three proved to be the most useful. The first, boundary modelling, measures the depth of a space by the number of boundaries that must be crossed from the front entrance of a structure to access it. Thus a room reached by crossing three boundaries is "deeper" than a room reached by crossing two. This technique differs slightly from traditional measures of "depth" in domestic space, such as those incorporated in Hillier and Hanson's space syntax theory, which measures the depth of a space not by the number of boundaries crossed but by the number of "nodes" (*i.e.* rooms) accessed relative to the linear depth of the house (Hillier and Hanson 1984). It is worth noting that many houses at Pompeii and Herculaneum had multiple entrances, and though the importance of identifying *postica* and other secondary entrances when considering access to the home is obviously important (Grahame 1997: 140–141), the focus here is upon depth from the primary entrance – this almost certainly would have been the door opening onto the *fauces*.

For Hillier and Hanson, the doorway is an open form, a liminal zone between spaces crossed freely as one passes deeper into a structure. The presence of physical obstructions, such as doors, partitions, and curtains, is not considered – if a door must be opened to access a space, this action has no effect on the overall results of analysis. The distinction here is perhaps only one of differing interpretation – rather than a junction linking two nodes, I define a boundary in structural terms, as a physical form demarking the limit between spaces. Thus a doorway without a door or partition cannot be considered a boundary, as access between the two spaces associated with it occurs freely and without obstruction. Only if access between spaces is impeded by structural features can the presence of a boundary be established. Boundary modelling assesses the degree to which spaces can be isolated from one another, with levels of privacy increasing as more boundaries are crossed.

Other aspects of space syntax theory, however, proved useful for developing a better understanding of the effects of boundaries on spatial organization. Utilizing *DepthMap*, a spatial network analysis program developed by Alasdair Turner in the Space Syntax Lab at University College London, it was possible to analyze connectivity within each house. This technique uses lines generated along visible axes to determine how "connected" particular areas are to the rest of a structure. By measuring the frequency that one line intersects others, it is possible to detect the spaces that are most easily accessible to occupants in the absence of physical boundaries. The results of connectivity analysis were compared to the survey data

obtained from each house in an effort to determine if a relationship existed between the location of boundaries and potential patterns of movement within the structure.

Further evidence for traffic patterns was obtained through agent-based analysis. This feature of DepthMap releases virtual "agents" within the house, tracking their movements over a set period of time. Agents move throughout the environment according to available lines of sight, and produce a traffic pattern based upon these movements. Though the movements of these virtual agents do not take certain "human" elements of domestic space into account – factors such as room use, decoration, and cultural taboos are not considered when their routes are selected – they do provide a viable starting point for the analysis of traffic patterns (Turner 2004).

Results

The Casa degli Amorini Dorati (VI.16.7) was the largest house in the survey, measuring approximately 830 m² (Wallace-Hadrill 1994: 215). Of the 21 doorways suitable for survey within the structure, 15 displayed evidence of doors. The rooms in the northwestern part of the house were not included in the survey due to poor preservation (Fig. 4). The house contained two clear hubs of activity – a relatively small atrium (B) located off the main entrance, and a much larger peristyle (G) dominating the house's rear. These two spaces were connected directly to one another by a narrow doorway just to the south of the *tablinum* (E). The importance of this boundary is clear even to the naked eye, but connectivity analysis conducted in DepthMap reinforced this notion, indicating that the zone stretching from the southern part of the atrium across the northern wing of the peristyle was the most visually and physically accessible space in the house (Fig. 5). Not surprisingly, doors were present in the doorways providing access to rooms H-K. This area must also have represented the central axis of movement within the structure, for though the atrium and peristyle were also connected via the *tablinum* and *triclinium* (F), these routes are less direct. As a result, the doorway linking the atrium and peristyle would have functioned as the primary locus of control in the whole of the house. When this door was closed, "front" and "back" were essentially isolated from one another.

Boundary modelling illustrates this divide well: the most private rooms of the structure were located off the peristyle, while the atrium and *tablinum* were the only rooms directly accessible from the front door, indicating that the inhabitants had complete control over what the visitor saw upon entry. Rather than being presented with a "vista that leads through the heart of the residence" (Wallace-Hadrill 1994: 44), by closing the doors in the front of the house, the viewshed could easily be limited to the atrium-*tablinum* complex alone. If inhabitants wanted greater separation from the "public" rooms of the house, they only needed to shut a few doors to obtain more privacy. Dickmann has shown that the by the first century A.D. (and likely even before), the peristyle had become the central "living space" in the Campanian *domus*, with the atrium relegated to a solely "public" focus (1997: 132 and 1999: 158). The arrangement of boundaries in the Casa degli Amorini Dorati was perfectly suited to this trend.

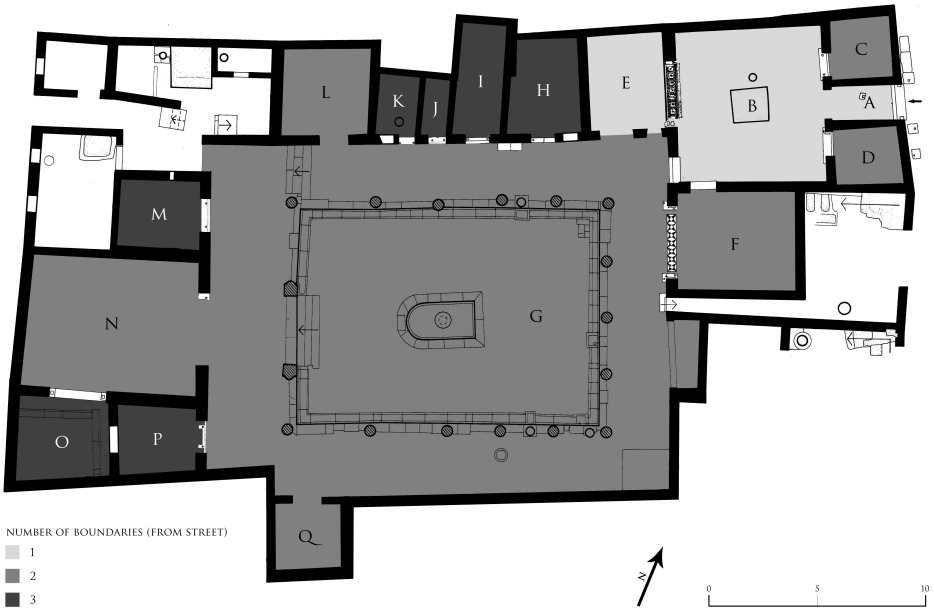

Figure 4: Casa degli Amorini Dorati, boundary model (after Seiler and Strocka 1992: 90). Thresholds in white (scale in metres).

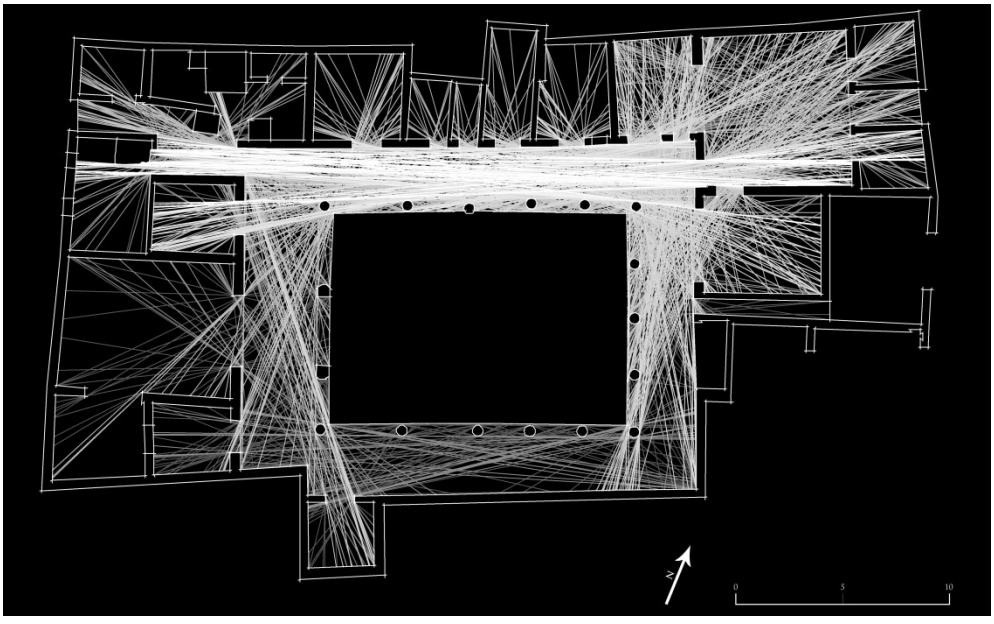

Figure 5: Casa degli Amorini Dorati, axial connectivity. Lighter lines indicate zones of higher connectivity.

In the Casa del Principe di Napoli, direct access between the atrium and the peristyle/garden was similarly controlled by a single doorway, located almost in the centre of the structure. When the house was originally constructed in the second century B.C., the importance of this boundary was mitigated by the presence of a secondary entrance located in room L, which allowed access to the southern half of the house (Strocka 1984: 34). Sometime in the first century A.D., however, this secondary entrance was blocked off from the rest of the structure with a timber-framed wall (Allison 2004b).

By A.D. 79, the only link between the two sides of the house was the central doorway. Not surprisingly, connectivity analysis conducted in DepthMap pinpointed this doorway as central to movement within the house (Fig. 6). Agent analysis reinforced this assessment, indicating that a high volume of traffic would likely have passed through this space (Fig. 7). By closing this door, the inhabitants could control all interaction between the atrium and the peristyle/garden area, as in the Casa degli Amorini Dorati.

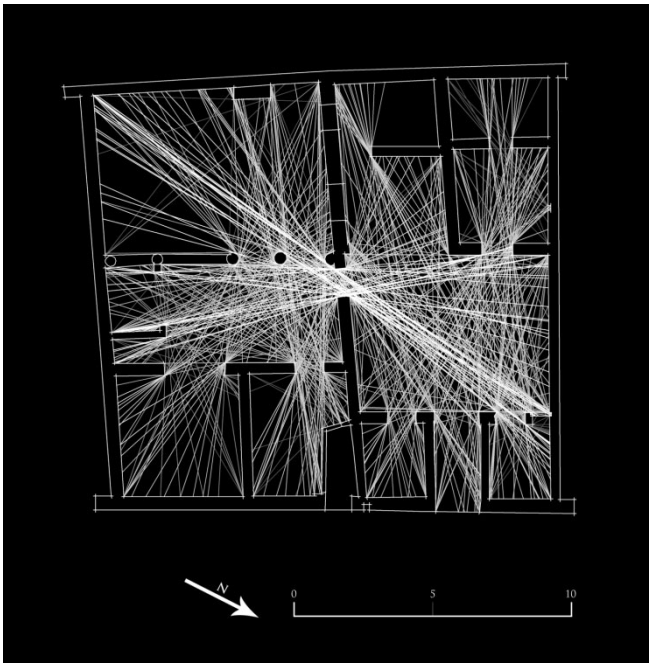

Figure 6: Casa del Principe di Napoli, axial connectivity. Lighter lines indicate zones of higher connectivity.

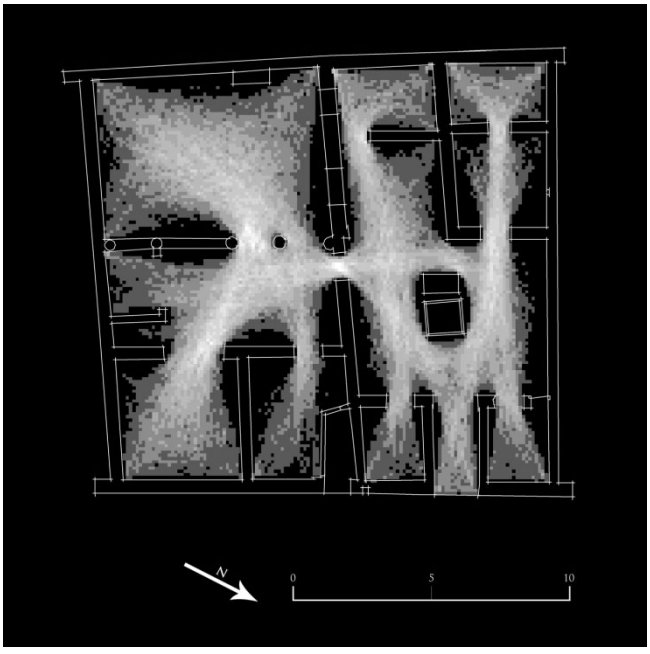

Figure 7: Casa del Principe di Napoli, agent analysis. Lighter areas indicate zones of higher traffic.

Figure 8: Casa del Principe di Napoli, boundary model (after Strocka 1984: 44).

The isolated nature of the atrium-*tablinum* complex becomes more clearly defined when we examine the sample more broadly. Of the 27 doorways opening off *atria*, 20 contained doors, and in the Casa degli Amorini Dorati, Casa del Principe di Napoli, and Casa di Nettuno e Amfitrite, the only doorway not occupied by a door or partition was located between the atrium and *tablinum* (excepting the doorway between the *fauces* and the atrium, which is rarely obstructed in any house). An analysis of boundary models in the remaining three houses displayed this phenomenon more clearly (Figs. 8, 9, 10), indicating that, as in the Casa degli Amorini Dorati, the rooms surrounding the atrium-*tablinum* complex could be closed off from this space.

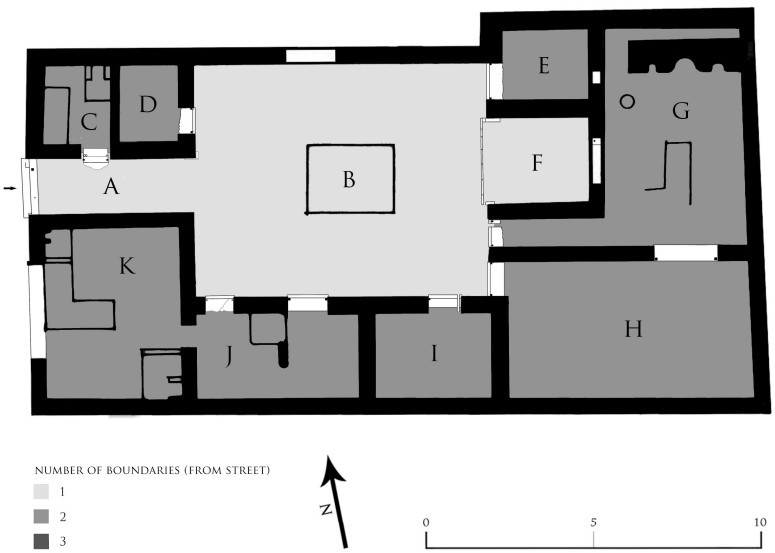

Figure 9: Casa di Nettuno e Amfitrite, boundary model (after Maiuri 1958: Tav. 4a).

The only house that did not demonstrate the presence of doors surrounding the entirety of the atrium was the Casa dell'Ara Massima (Fig. 10). This was a surprising result, given that the dwelling was the smallest in the sample and also displayed the highest levels of overall connectivity (Fig. 11). In this house, four spaces communicated directly with the atrium without being separated by a door or partition: a large open-fronted room (E), which has been posited to be a *triclinium* (Stemmer *et al.* 1992: 23) and three smaller spaces opening to the west (G,H,I). That Room E has direct access to the atrium is perhaps not surprising, given its traditional interpretation as a dining room (although Penelope Allison has shown that, by A.D. 79, this room was likely used for domestic storage) (Allison 2004b). Room 3 likely functioned as a *pseudotablinum*, which explains the absence of a boundary here, plus the shallow nature of its design implies that it was more an extension of the atrium than a room unto itself.

Figure 10: Casa dell'Ara Massima, boundary model (after Stemmer 1992: Fig. 42).

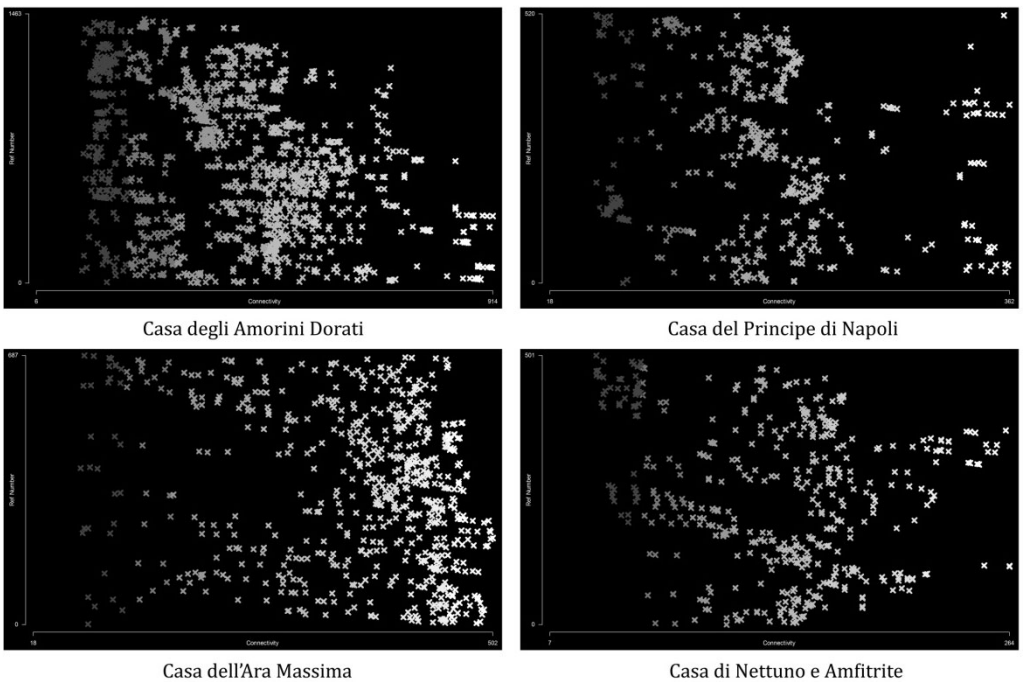

Fig. 11: Scatter plots displaying connectivity in the four houses. Each "x" represents an axial line; connectivity increases along the x-axis.

Rooms G and I, however, were almost certainly storage closets. In each room, rough plaster on the walls displays clear evidence for wooden shelving, and the floor of Room G was never paved. The artefact assemblages, which were composed primarily of *amphorae* and coarsewares, were likely used for domestic storage (Allison 2004b). Given the visibility and proximity of these spaces to the *fauces* (A), and the clear preference for placing doors in the doorways surrounding the atrium, it is surprising that such poorly appointed rooms would be left open to view. If the visitor was "presented with a visual narrative through the house, which would have provided information about the occupier's status" (Laurence 1994: 88) upon standing in the entryway, then surely placing doors in these doorways would have been significantly beneficial to the occupier's social standing. Perhaps more confusingly, doors were present in the only two doorways that could not been seen from the *fauces*, those opening onto rooms B and C. Such evidence, though admittedly limited, causes one to wonder whether a model based upon conspicuous display is perhaps the most effective means of explaining this type of spatial organization. Surely the ways in which these spaces were *used* must also have played an important role in determining the location of boundaries.

Materials

Limestone was the most commonly employed material for the construction of thresholds, outnumbering other materials approximately three-to-one. Given its durability, such frequent use is perhaps to be expected – tufa thresholds, for instance, were relatively rare. When tufa was used, the threshold usually consisted of two cut blocks, each located against a jamb, rather than a unified threshold running across the entire width of the doorway. Higher quality materials, such as marble and mosaic, were also used infrequently, making up only one-fifth of the sample. These materials were clearly in demand, however, as evidenced by the threshold connecting the atrium and *tablinum* in the Casa del Principe di Napoli. Running across the entire length of the doorway, it was composed of four smaller, reused marble thresholds (Fig. 12). Circular cuts for *cardines* appear in multiple locations, but their sporadic arrangement indicates that they were created during previous use. The craftsmanship is also surprisingly poor – no attempt was made to hide the fact that these thresholds were recycled, and the floor to either side of the doorway was pulled up and never replaced. It is a curious arrangement, particularly given the fact that this area was easily visible from the front door.

We have identified the atrium-*tablinum* complex and peristyle as the two centres of activity in the Campanian house, with the latter appearing increasingly isolated from the former. When the sample is divided by these two spaces (that is, by whether a doorway opens off of the atrium or the peristyle), the poor craftsmanship associated with the threshold in Casa del Principe di Napoli begins to appear less unusual. In the peristyle, mosaic and marble thresholds were present in half of the doorways surveyed, a substantial increase from their prevalence across the sample as a whole (Fig. 13). In the atrium, however, limestone thresholds dominate, with high-quality material used in under 10% of thresholds. Given the size of the sample, these results could very well be coincidental. They may also indicate, however, that lower quality materials were preferred in the front of the house, in the areas most accessible to visitors and guests, while the finest materials were reserved the areas surrounding the secluded back garden. This pattern is mirrored in the artefactual record – Allison has noted that marble furnishings were found less frequently in the atrium than in other parts of the house (Allison 2004a: 69).

Figure 12: Threshold connecting atrium and tablinum, Casa del Principe di Napoli (photo by author).

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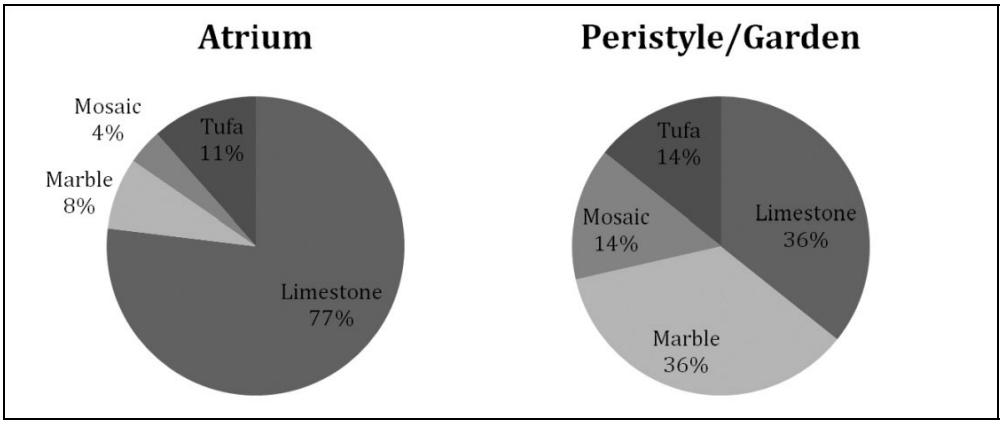

Figure 13: Threshold material by location.

Concluding Thoughts

If we take the data from this survey as whole, an interesting picture begins to develop. There is clear evidence that doors or partitions were found in the majority of doorways. Based on this sample, they were present in at least two-thirds of available spaces. Many of these doors were located at the core of the house, on the atrium-*tablinum* complex; as a result, the surrounding rooms could be isolated from this space. In the three houses with a peristyle or garden – the Casa degli Amorini Dorati, Casa del Principe di Napoli, and Casa di Nettuno and Amfitrite – the "back" of the house could be physically and visually separated from the "front" simply by closing one or two doors. These results seem to reinforce the conclusions of Dickmann, who has shown the importance of recognizing the division between these two central spaces. Though he does not go so far as to assign sets of activities to individual rooms, he does distinguish a functional difference between the two spaces and their dependencies, with the atrium serving a public function and the peristyle utilized as the primary living area (Dickmann 1997: 130–132).

There can be little doubt that the atrium was used to greet visitors to the home (it is, after all, directly accessible from the front door), but whether its design was based upon display rather than function remains unclear. If this space was intended to demonstrate the status of the inhabitants, then we would expect to find the finest materials reserved for the thresholds of this area. Yet the arrangement in the sampled houses appears to be precisely the opposite, with the high quality materials reserved for the rooms opening off of the peristyle. Other evidence, including the reused threshold found between the atrium and *tablinum* in the Casa del Principe di Napoli, and the absence of doors in the doorways of the storage closets in the Casa dell'Ara Massima, seems to point towards a functional interpretation.

Unfortunately, the data from this survey is far too limited to draw any firm conclusions here. Nonetheless, I would suggest that there is much to be gained from this type of inquiry. For too long the houses of Pompeii and Herculaneum have been studied within a paradigm that locks their former inhabitants into generic socio-cultural patterns of behaviour, allowing them no flexibility to be individuals and to occupy domestic space in unique ways. If we want to understand better how people lived in these houses, it is critical to analyze all of the data available to us, without attempting to apply theoretical models based on assumptions of how space *should* have been used in the ancient world.

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