THE DINNER PROCESSION GOES TO THE KITCHEN

a syntactic approach to nineteenth and early twentieth century British houses

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0 Abstract.

General observations and space syntax techniques applied to house plans designed from mid-nineteenth century to the inter-war years indicate that the British home developed from a segregating spatial system, centred around the family/visitors sphere, to a less segregating, inhabitant-centred one and that this process affected dwellings of distinct status differently.

When ... dinner was announced, the host gave his arm to the most important lady present; the rest of the company ranged themselves behind him, two by two, normally in order of precedence, and the whole procession set off for the dining room. The route which it took was called the Dinner Route, ... This formality was still being observed up to 1914 .(Jill Franklin)

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Keywords: space, domestic, British, pre-modernist.

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1 Introduction

This work is part of a doctoral thesis (Trigueiro, 1994) in which the spatial configuration of late nineteenth and early twentieth century houses was investigated with the purpose of verifying traces of foreign influence in houses built during and after a period marked by a strong British presence in Recife, Brazil, a fact said to have promoted alterations in modes of behaviour (Freyre, 1948). This part of the study aims to decipher what sort of homes the supposed agents of transformation — businessmen, engineers, skilled workers, clergymen, people from the middling ranks of the British society — had left behind.

The sample comprises 500 British house plans collected from The Builder (issues published from 1843 to 1910 and from 1927 to 1930) and from The Building News (1854 to 1926), by leafing through the journals without any specific criterion, other than date of design, completeness and display of room labels.

This study develops in two parts: in the first, plans are probed to enable the definition of time and status categories; the second part is a syntactic analysis of their spatial configuration. Both sets of analytical procedures are worked out in synchronic and diachronic perspectives.

Each plan, regarded as one structured complex of interior spaces linked by indoor connections — the *minimal living complex* — has been worked up as follows (figure 1a/b):

• Each *function space* (in which some activity is performed) or walk-in storage cell counted as one space, regardless of its shape;

• transition spaces were divided, according to bends and doorways, regardless of their dimension;

• outbuildings and semi-enclosed ground floor appendages (open porches, terraces, conservatories) were disregarded.

Figure 1. Example of procedure applied to all plans;

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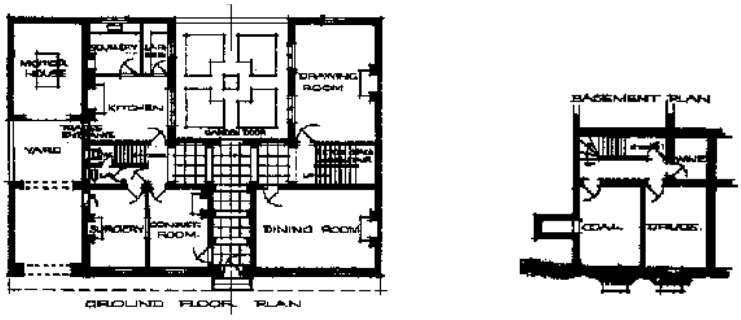

Figure 1.a. Plan of house 201 as scanned from photocopied material;

Figure 1.b. Plan broken into a minimal living complex of spaces;

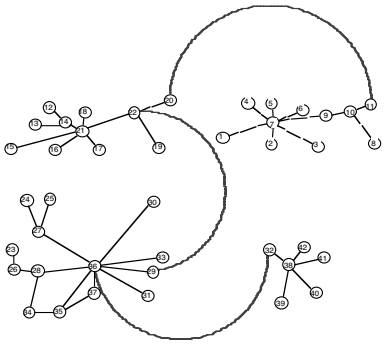

Figure 1.c. Access graph of minimal living complex worked from the plan;

landing	St.	hall	st.	T	st.	T	bed	T	kitchen	consult.	entr.	drawing	dining	store	T
22 >	29 >	36 >	20 >	21 >	32 >	11 >	19 =	28 >	27 >	35 >	37 >	30 =	31 =	33 >	10 >
.854	.871	.904	1.002	1.068	1.15	1.167	1.183		1.199	1.208	1.216	1.232			1.347
T	bath	bed	bed	bed	T	surgery	lavtry.	larder	scully.	T	bed	hmc	wc	store	coal
14 >	18 =	15 =	16 =	17 >	38 >	34 >	26 >	25 =	24 >	9 >	8 >	13 =	12 >	42 =	39
1.364	1.397				1.413	1.487	1.495	1.528	1.667	1.561	1.676	1.692		1.742	
drugs	wine	T	wc	box	wc	bed	bath	bed	bed						
40 =	41 >	7 >	23 >	6 =	4 =	2 =	5 =	1 =	3						
		1.791	1.824	2.119											

Key: St. main staircase; st. secondary stairs; T.transition space; entr. entrance lobby; hmc housemaid closet.

Figure 1.d. Syntactic measurements and RRA scale (from more integration tomore segregation): mean RRA=1.485, BDF=0.854.

2 Part I

2.1 Size and functions as indexes of status

Authors have related number of rooms (Muthesius, 1982:44/45) and availability of key domestic functions (Long, 1993:31) to social status. In this study these variables are correlated and results adjusted according to the labels used to designate main living rooms. These were sorted out into reception rooms — in which no service-related activity was likely to occur — and service rooms — in which some sort of service-related activity (i.e. cooking) could occur.

In the sample, most plans have from one to three reception and service rooms, and three to five bedrooms (table 1). These parameters were related to the number of interior spaces — total, transitional and functional — for establishing tentative size categories (table 2).

Table 1

	number of rooms used for/as							
reception	none	one	two	three	four	five	six	seven
cases	16	133	218	100	29	2	1	1
service	one	two	three	four	five	six	seven	eight
cases	221	161	84	23	8	2	0	1
bedrooms	one/two	three	four/five		six/seven		eight/nine	ten/fourteen
cases	40	184	159		78		33	6

Table 1. Availability of main function rooms.

Table 2

cases	*number of spaces: total*			*function*	*transit.*	*funct./trans.*	
		min.	max.	mean	mean	mean	mean
RECEPTION rooms							
Three or more	133	14	102	38.2	17.9	14.2	1.5
Two	218	10	56	21.8	10.6	7.6	1.5
One or none	149	7	51	13.9	6.6	4.7	1.6
SERVICE rooms							
Three or more	118	18	102	40.1	18.7	15.1	1.4
Two	161	8	43	23.5	11.4	8.4	1.5
One	221	7	29	15.3	7.4	5.0	1.6
BEDROOMS							
Six or more	117	19	102	40.5	18.6	15.4	1.3
Four or five	159	14	56	24.7	12.1	8.7	1.6
One to three	224	7	27	14.5	7.0	4.7	1.6
TOTAL							
	500	7	102	23.8	11.3	8.5	1.5

Table 2. Size categories according to the number of main function rooms.

References in the literature have granted support to those categories. The larger houses in the sample, with three or more reception rooms, six or more bedrooms and an average of eighteen function spaces, correspond to Long's houses (1993:31) for the *upper middle-class*, with three or four reception rooms and five to seven bedrooms; they may also be placed between the top categories identified by S. Muthesius (1982:44/45), for whom 'gentlemen' lived in houses with about twenty rooms and lawyers, merchants, civil servants in fifteen-roomed dwellings. Medium-sized houses, with two reception rooms, four or five bedrooms and around eleven rooms match Long's category for the *middle middle class*, with two reception rooms and four bedrooms as well as Muthesius's house for the 'professional man', with ten rooms. Small dwellings, with around seven function spaces, one or no reception room and one to three bedrooms correspond to those authors' categories for the *lower middle classes* — lower clerks, shopkeepers, lower-paid professionals — and the better-paid working-class, with up to two reception rooms, three or two bedrooms and five to eight rooms.

Correlation procedures between number of spaces and availability of main function rooms, following several tentative breakups of the sample into successive time periods, produced varying results — suggestive of alterations in domestic programmes — which have led to the identification of four time categories (figure 2): between 1843 and 1893 the number of reception rooms produces a better correlation than that of service rooms; from 1894 to 1914, and after 1923, this relationship is inverted. As the plans published during and immediately after World War I (from 1915 to 1922) produced the poorest correlation for all variables, (R-sq.=0.182, 0.446 and 0.46) this category shall be omitted for diachronic observations.

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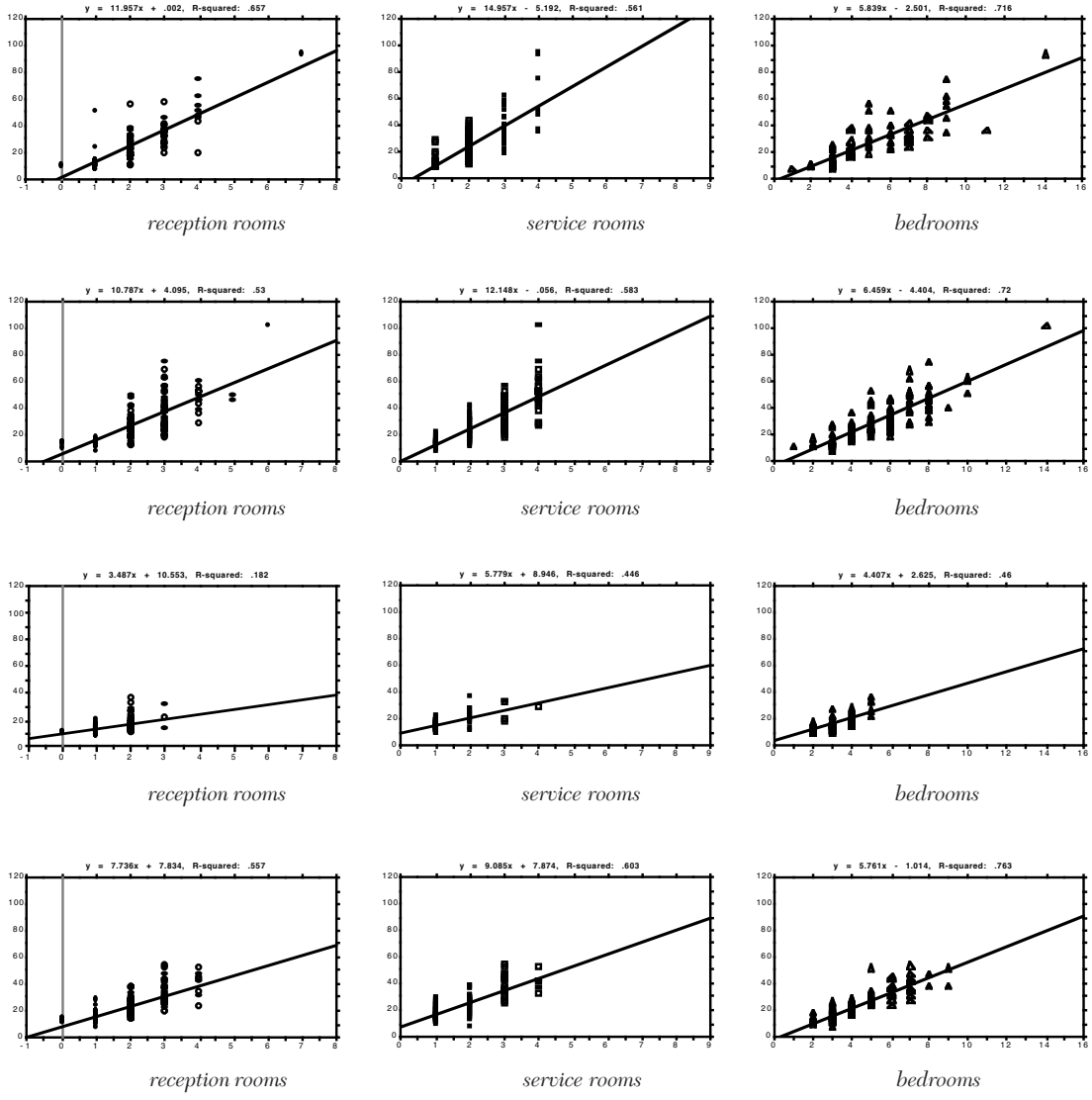


Figure 2. Correlation between number of spaces and availability of main function rooms;
Figure 2.a Plans published between 1843 and 1893 (100 cases);
Figure 2.b Plans published between 1894 and 1914 (144 cases);
Figure 2.c Plans published between 1915 and 1922 (108 cases);
Figure 2.d Plans published between 1923 and 1930 (76 cases).

The variable number of bedrooms — which generates the steadier correlation, throughout the time span — was chosen as a basis for calculating the frequency distribution of the other variables, so that an outline of what might have constituted the designer's brief for the dwellings of distinct social groups is defined. Findings highlight the presence of multiple reception rooms as index of status before 1894 (three or more in 72.7% of six-or-more-bedroomed plans); the presence of multiple reception and service rooms from 1894 to 1914 (72.4% and 79.5%, respectively); and a reduction of either after 1923 (69.2% and 61.5%, table 3). These results support the thesis of a spatial rearrangement in British postwar houses and suggest that

this process led to less differentiation in the availability of spaces among the homes of distinct social groups, a fact acknowledged in the literature (Long,1993:177).

Table 3

no. of rooms		*6 or more bedrooms*		*4/5 bedrooms*		*1/3 bed-*	
time period	*rec/serv. cells*	*reception cases %*	*service cases %*	*reception cases %*	*service cases %*	*reception cases %*	*service cases %*
1843 - 93	0-2	09/27.3	15/45.5	21/74.9	23/82.2	38/97.4	39/100
	3-7	24/72.7	18/54.6	07 /25.1	05/17.8	01/2.6	0/0
1894 to 1914	0-2	16/27.6	12/20.5	37/77.9	36/65.4	28/90.3	30/96.8
	3-8	42/72.4	46/79.5	18/32.7	19/34.6	03/9.7	01/3.2
1923 - 30	0-2	08/30.8	10/38.4	40/72.8	48/87.3	65/97	66/98.5
	3-8	18/69.2	16/61.5	15/27.3	07/12.7	02/0 3	01/1.5

Table 3. Frequency distribution of main function rooms among size categories.

2.1 What is in a label

Different labels identify similar functions across the sample so that thirty-five families of labels are used to designate the three basic functions *receiving*, *eating* and *cooking*. However, only nine of such families appear in 85.6% of cases (428 plans). When the nine prevailing families of labels are correlated with number of spaces, the *drawing-dining-kitchen* family top the list followed by the *sitting/living-dining-kitchen* set; *parlour-living-(scullery)* and *living/parlour-kitchen* layouts feature in the middle of the scale; and at the bottom sit a living-scullery family or just a living room, in which all basic day activities concentrate (table 4).

The role of dining rooms as centres of domestic ceremonial display is well illustrated

Table 4

prevailing families

family	*no.of cases*	*%*	*mean no. of spaces*
Dr.Di.K	181	36.2	34.3
Si.Di.K	23	4.6	24.2
L.Di.K	30	6.0	23
P.L.S	52	10.4	14.9
P.L	42	8.4	14.7
P.K	22	4.4	13.5
L.K	25	5.0	13.8
L.S	38	7.6	12.5
L	15	3.0	12.7
sum	428	85.6	23.7

other families

family	*no.of cases*	*family*	*no.of cases*	*family*	*no.of cases %*
P.L.K	8	H.Di.K	2	Af.Mg.K	1
Lo.Di.K	7	H.L.K	2	Dr.Si.K	1
P.P.K	7	H.Si.K	2	H.Dr.K	1
P.Di.K	6	L.Di.S	2	L.W	1
Dr.L.K	5	L.L.K	2	P	1
Si.L.S	4	Lb.L.K	2	R.R.K	1
Di.K	3	P.Di.S	2	Sa.Di.K	1
M.Di.K	3	Si.K	2	Si.L.K.	1
Si.L	3	Si.Si.K	2		
sum					72 14.4

Af. - Afternoon room
Di. - Dining room
Dr. -Drawing room
H. - (living/sitting) Hall
K. - Kitchen
L. -Living room
Lb. - Library
Lo.- Lounge
M. - Music room
Mg.- Morning room
P. - Parlour
R. - Reception room
S. - Scullery
Sa. -Salon
Si. - Sitting room
W. - Washing room

Table 4. Families of labels used to designate main day living rooms.

by Franklin's description of the so called dinner procession, previously cited, which evolved from the drawing to the dining room (1981:50). This view, shared by several authors (i.e. Kerr,1864:110; Girouard,1978:233), is corroborated by the recurrence of dining rooms in the larger cases in the sample. The same can be said about drawing rooms which have also been regarded as the most prestigious reception room (Muthesius,1982:45).

Houses in which the setting for meals is labelled as living room tend to be smaller than those with a dining room as well as than the few cases in which a sitting room was apparently designed for that purpose. Swenarton (1981: 99) explains that '*... In traditional working-class houses, the living-room ... served for cooking, as well as for eating and general living and S. Muthesius* (1982, 48) refers to *... 'living-room' 'sitting-room'* and *'best room', ...* as alternative designations for the parlour, whose pres-

ence marked a social distinction in working-class houses. In the sample, apart from its role as an actual living room of the modest home, those cells seem designed for receiving, eating or cooking, lone or combined, and as an alternative day room in larger houses.

19.6

Burnett (1991:163/231) claims that ... *washing in the scullery, cooking and living in the kitchen and display in the parlour, which could be further refined by using a gas-cooker in the scullery* ... defined a 'respectable" or 'superior' prewar working-class house. A massive upgrading of sculleries into settings for cooking was verified in the plans published between 1915 and 1922 of which over 50% show traces of cooking apparatus in sculleries. However, houses with the families *parlour-living*, *living-kitchen* and *parlour-kitchen* tend to occupy a similar size niche even when cooking goes on in the scullery.

2.2 Of size, time, labels and social status

Before 1894, 61.5% of houses with more than six bedrooms have a drawing-dining-kitchen layout and all middle-sized houses have a dining room and a kitchen (table 5). Between 1894 and 1914 a *dining-kitchen* arrangement increases in both clusters. After 1923 the presence of drawing rooms is reduced, its function taken over by some alternative label (i.e.living rooms); the presence of a *dining-kitchen* arrangement remains strong and can also be found in a significant proportion of houses with three or less bedrooms.

Table 5

1843 to 1893									
families	Dr.Di.K	Si.Di.K	Li.Di.K	P.L.S.	P.L	P.K	L.K	L.S	L
bedrooms	n/%	n/%	n/%	n/%	n/%	n/%	n/%	n/%	n/%
six/more	32/61.5	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•
four/five	15/28.8	1/50	•/•	•/•	•/•	•/•	•/•	•/•	•/•
one-three	5/9.6	1/50	•/•	1/100	•/•	8/100	11/100	8/100	•/•
sum	52	2	0	1	0	8	11	8	0
1894 to 1914									
six/more	53/60.2	1/14.3	•/•	•/•	•/•	•/•	•/•	•/•	•/•
four/five	33/37.5	6/85.7	1/100	•/•	•/•	2/28.6	•/•	•/•	•/•
one-three	2/2.2	•/•	•/•	2/100	5/100	5/71.4	3/100	6/100	4/100
sum	88	7	1	2	5	7	3	6	4
1923 to 1930									
six /more	16/47	•/•	4/15.4	•/•	•/•	•/•	1/16.7	•/•	•/•
four/five	11/32.4	10/90.9	16/61.5	1/10	1/10	•/•	•/•	•/•	•/•
one-three	7/20.6	1/9.1	6/23.1	9/90	9/90	4/100	5/83.3	12/100	9/100
sum	34	11	26	10	10	4	6	12	9

Table 5. Frequency distribution of prevailing families of labels across size categories.

Findings thus suggest that the labels drawing room, dining room and kitchen constitute key designations for sorting out status categories in nineteenth and early twentieth century British dwellings. Their presence along with other evidences resulting from the procedures above, enabled the realignment of size groups without the constraints imposed by one single variable. A set of requirements and restrictions were thus established for defining status categories across time (table 6). The few plans that did not conform to the parameters were classified on a case-by-case basis.

Before 1894 houses for the upper middle class are defined as having four or more bedrooms and three or more reception rooms; middle middle class layouts have two reception rooms, a kitchen and three or more bedrooms; and lower middle class plans have none or one reception room (not labelled drawing or dining room) and three or less bedrooms. 93% of cases conform to this model.

Between 1894 and 1914 upper middle class houses have four or more bedrooms and a minimum of six day living rooms: two or more reception rooms —one being a drawing or a dining room — and three or more service rooms — one being a kitchen. Middle middle class dwellings have three or more bedrooms and a maximum of five day living rooms: two or three reception rooms and two or three service rooms — one being a kitchen; lower middle class homes have a maximum of four bedrooms and three day living rooms, none labelled as drawing or dining room. 97.9% of cases conform to this model.

After 1923 upper middle class plans have four or more bedrooms and a drawing-dining-kitchen layout plus at least an extra service room; or a dining room -kitchen family plus an extra reception room and two or more service rooms. Middle middle class ones have three or more bedrooms, one to two service rooms (one labelled as kitchen) and two to three reception rooms, one being either a dining or a sitting room. Lower middle class houses have a maximum of four bedrooms and three day living rooms. 97.7% of cases conform to this model.

It is believed that a fair portrayal of the spatial layouts that occupants of distinct status were likely to have inhabited has been constructed, thus enabling the spatial syntactic analysis that follows, to be grounded on a social mapping of the housing panorama in Britain at the time.

Table 6

a) from 1843 to 1893

	availability of functions			*availability of labels*		*further requisites*
status	*reception*	*service*	*bedrooms*	*required*	*restricted*	*required*
upper middle	3/more	•	4/more	•	•	•
middle middle	2	•	3/more	kitchen	•	•
lower middle	none/1	•	3/less	•	drawing/dining •	

b) from 1894 to 1914

	availability of functions			*availability of labels*		*further requisites*
status	*reception*	*service*	*bedrooms*	*required*	*restricted*	*required*
upper middle	2/more	3/more	4/more	drawing and/or dining and kitchen	•	rec.+ serv.≥6
middle middle	2/3	2/3	3/more	kitchen	•	rec.+ serv.≤5
lower middle	none/2	1/2	4/less	•	drawing/dining	rec.+ serv.≤3

c) from 1923 to 1930

	availability of functions			*availability of labels*		*further requisites*
status	*reception*	*service*	*bedrooms*	*required*	*restricted*	*required*
upper middle	2	2	4/more	drawing dining and kitchen	•	•
	2/more	3/more	•	dining and kitchen	•	
middle middle	2/3	1/ 2	3/more	dining or sitting and kitchen	•	
lower middle	none to 2	1/2	4/less	•	•	rec.+ serv.≤3

Table 6. Requirements and restrictions for defining status categories

3 Part II

3.1 Walls, doorways and social nexus

The number of spaces in a dwelling, their designed use, and even the semantic adjustments used to fine tune rooms designed for similar purposes to their proper status cannot reveal the social character of a building, as they overlook the fact that buildings are networks of walls and doorways which order a void for the purpose of separating or connecting activities and the people who perform them. Thus, led by the notion that a building's spatial structure *... can, and does, in itself carry social information and content ...* (Hillier and Hanson,1984:xi), it is believed that by inspecting the way walls and doorways articulate to enable the movements of a given human group at a given period of time, a record of their behaviour is being inspected.

H. Muthesius (1905:79) highlights the lack, in England, of communicating doors between rooms which can only be accessed from a passage or hall. What Muthesius terms as a sort of cage is referred by Evans (1978:268-272) as the *terminal room* which, linked to transition spaces, define the *corridor plan*, a *... network of circulation space which touched every major room*. That model, said to have peaked in the Victorian period, is often associated with the need to keep family and guests apart from the rest of the household, as stressed by Kerr (1864:76): *... the Servants' Department shall be separated from the Main House, so that what passes on either side of the boundary shall be both invisible and inaudible on the other.*

In configurational terms, rooms linked to distinct segments in a chain of transition spaces by way of a single door configure highly asymmetric complexes. A system is said to be asymmetric when one or more cells control access to other cells (Hillier & Hanson,1984). By measuring the asymmetry of a space in relation to all others in a network, one is actually assessing its accessibility or how integrated that space is in the system, that is, how desirable whatever goes on and whoever enacts it in a certain space is to come into contact with what goes on in the other spaces. Integration is, thus, as Hanson (1992:145) puts it, *... one of the fundamental ways in which houses convey culture through their configuration*, because it offers clues for the norms underpinning the ways walls and doorways are constructed to halt, hinder or facilitate interaction among people.

Highly asymmetric structures have been identified in studies using space syntax techniques as, for instance, in seventeenth century houses in the Banbury region (Hanson and Hillier,1979:20-24); in traditional working-class terraced houses (Hanson and Hillier,1982:20-23), and in houses in Milton Keynes (Hanson, 1992:144). However, findings do not entitle the assumption that such is the *only* British model of domestic space. Eighteenth century Banbury houses, for instance, altered towards a symmetric model, reportedly accompanying changes in the region's social climate; so did working-class terraced dwellings converted into middle-class homes.

3.2 Procedures

The analysis that follows focus essentially on *patterns of integration* which are verified by means of a measurement called *Real Relative Asymmetry* (RRA). This measurement enables comparison across systems with varying number of spaces by eliminating the effect that size can have on asymmetry values (Hillier and Hanson,1984:109-111). The higher the asymmetry (or RRA value) the more segregated a space is in relation to all others within a network of connected spaces; the lower the RRA value, the more integrated that space is. A high *mean* RRA value in a complex indicates that many spaces are segregated, that is, the access to them is controlled by other spaces which may, or may not, also be segregated. A wide range of RRA values in a system indicates that some spaces have easy access to and strong control over others and may suggest a high level of hierarchy. An entropy-based measurement called *Base Difference Factor* (BDF), adapted from Shannon's H-measure for transition probabilities (Hillier, Hanson and Graham, 1987:365) that compares a set of any three different values, can assess differentiation within a complex by comparing its mean integration (mean RRA), most integrated space (minimum RRA) and most segregated space (maximum RRA). Lower values translate more differentiation.

The following analytical procedure aims at identifying: 1) models of spatial configuration and how these develop across time and social groups; 2) how essential functions relate to those models; and 3) the rules governing the way those functions articulate — the *genotypes*.

Each plan was translated into a set of circles and lines representing the spaces and their connections, following the rules on page 1. Graphs resulting from those procedures — *access graphs* — were translated into numerical measurements by software applications developed for the purpose at the Bartlett School, UCL. The average integration (mean RRA) and the differentiation (BDF) of each complex was measured as well as the individual integration (RRA) of its component spaces (figure 1c/d).

3.3 Of structure, time and social status

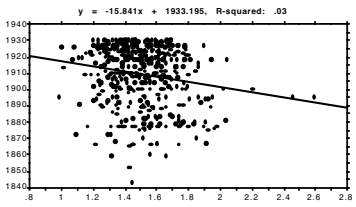
In the sample, plans tend to become more integrated over time, especially after 1923. Integration also correlates with differentiation and with lower function-to-transition-space ratios (figure 3). This suggests that plans which are more integrated tend to be more hierarchized and that a highly segmented circulation network contributes towards segregation.

When status categories are considered, middle middle class plans are the most integrated (1.475 mean RRA) and differentiated (0.826 BDF), on average and lower middle class ones, the most segregated and least differentiated (1.527, 0.836). However, diachronic observation show that the tendency towards more integration after the war, affects status categories differently, being weak in the lower middle class (1.541 to 1.520 RRA), strong in the middle middle class (1.541 to 1.433) and, especially, in the upper middle class, which shifts from the most segregated to the most integrated category (1.568 to 1.424, figure 4). More integration does not necessarily lead to more differentiation, as suggested for the whole sample. Lower and middle middle class plans alter little as compared to upper middle class complexes which become less differentiated. The correlation between integration and the size of the circulation network may also be relative. All postwar categories present similar function/transition-space ratios (around 1.6) despite their differences in integration and differentiation.

Findings thus indicates that the idea of an asymmetric model does not exhaust the spatial profile of nineteenth and early twentieth century British homes but that subtle nuances — in a constant restructuring process — lay behind the way walls and doorways articulate to respond, it is believed, to varying socio-cultural requirements. The British house altered towards more integrated networks after World War I but changes produced diverse hierarchical restructuring for distinct social groups.

3.4 Of most integrated functions: searching for genotypes

It is believed that when a set of spaces which are used for distinct functions in a building present integration values in a numerical order and the same order can be found for spaces of equivalent use in a significant number of cases across a sample, an inequality genotype — here understood as a numerical representation of a cultural pattern —has been revealed.



a) year of publication (1843-1930);

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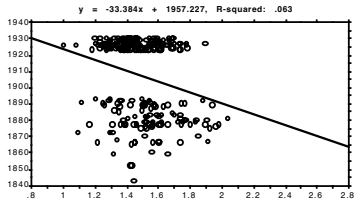
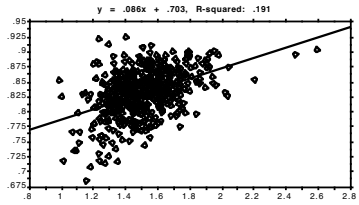
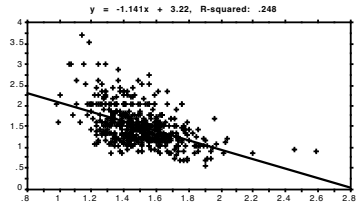


b) year of publication (1843-1893 and 1923-1930);



c) differentiation;



d) the ratio function/transition spaces;

Figure 3. Correlation between mean integration and other variables.

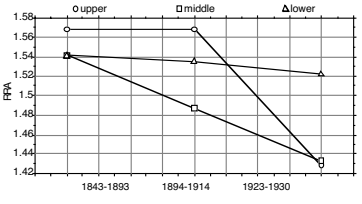


Figure 4a. average mean integration (RRA).

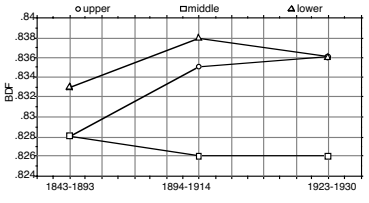


Figure 4.b. average differentiation (BDF).

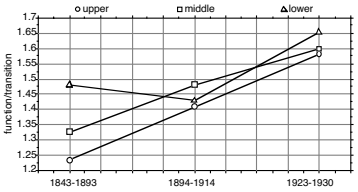


Figure 4.c. Average function/transition;

Figure 4. Alteration in integration, differentiation and function/transition.

19.10

In order to identify genotypical patterns of integration among main domestic functions, the accessibility of the rooms designed for receiving, eating and cooking in each plan — as previously defined — was measured and results compared across time and social groups. When more than one function occur in the same space, they were treated as having equal RRA.

The space used for eating meals is the most integrated day room in 26.6% of cases (1.514 mean RRA); that used for cooking in 24.2% (1.407) and the main reception room in 13.4% (1.607); in the remainder cases, more than one function share most integrated position.(table 7).

Allowing that the spaces used for cooking meals and for receiving visitors function as opposite poles for the inhabitants versus outsiders interface, whereas the setting for eating meals —and entertaining to a meal — bridges the two domains, observations across successive time periods reveal that the restructuring process generates a gradual transference of focus from the social to the private arena. This may be numerically verified by comparing the proportion of all receiving- and/or eating-centred against all eating- and/or cooking-centred plans across time: before 1894, receiving- and/or eating-integrated cases dominate (65%) against eating and/or cooking-centred ones (53%); this proportion levels to 61.8% against 61.1% in the next two decades and to 42.6% against 70.3% after 1923 (table 8). Again, that process unfolds differently across social status.

Table 7
most integrated space used for: | *cases* | *%* | *mean RRA*

receiving	67	13.4	1.607
eating	133	26.6	1.514
cooking	121	24.2	1.407
receiving-plus-eating	78	15.6	1.553
eating-plus-cooking	60	12.0	1.537
	459	91.8	1.509

Table 7. distribution of cases according to the most integrated function.

In upper middle class households, the proportion of eating-and/or receiving- to eating-and/or cooking-integrated plans (77.4% against 61.3% before 1894) is inverted (to 65.4% against 76.9%) as early as the turning of the century, remaining roughly the same after 1923. The process of transference of focus from the public to the private sphere is, therefore, triggered earlier on. In middle middle class cases that proportion remains roughly unaltered until the war (70.3%and 68.3% against 51.3% and 56.7%) and becomes inverted (44.8% against 72.4%) after 1923.That proportion, which remains fairly well balanced among prewar lower middle class, tilts towards eating and/or cooking-centred models (64.1 against 24.5) after 1923.

Findings thus highlight a considerable change in the role played by the spaces designed for cooking, shifted to the limelight of domestic interaction, after the war. This process although developing at the expense of main reception rooms, more and more withdrawn from the hub of movement, has, it is believed, less to do with their specific situation than with a syntactic rearrangements of the other functions, specially cooking which presents the widest range of RRA values in the sample, whereas the setting for receiving present the narrowest (figure 5).

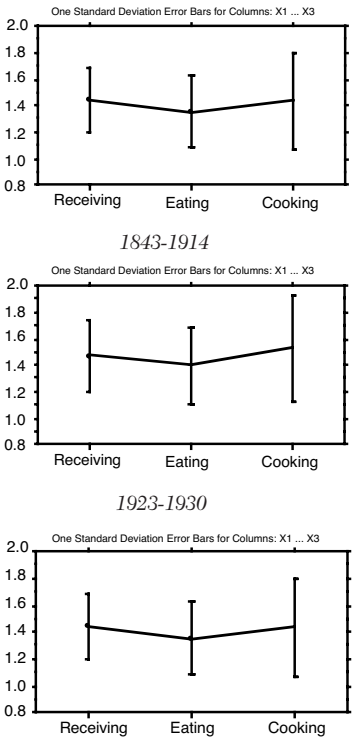


Figure 5. ange of integration values for the three main day functions.

3.5 Capturing genotypes

The three essential day functions (E for eating, C for cooking and R for receiving) can, hypothetically, be ordered into thirteen expressions. With the purpose of verifying the occurrence of genotypical trends, the integration values of the spaces used for those functions, in each plan, were ordered according to the expressions below. Amalgamated functions were treated as having equal RRA values:

1)	E>R>C	4)	R>E>C	7)	E=R>C	10)	C>E=R	13)	E+R+C
2)	E>C>R	5)	R>C>E	8)	C>E>R	11)	E=C>R
3)	E>R=C	6)	R>E=C	9)	C>R>E	12)	R=C>E

Five expressions alone comprise 69.2% of cases in the sample (with 11% of cases or more, each), while others are practically nonexistent. (table 9) Whereas receiving and cooking, for instance, almost never have equal values in a same complex (0.6%), receiving and eating, share the same values in 31% of cases (29.5% without amalgamated functions). However, the proportion of non-amalgamated eating-plus-cooking-integrated plans is irrelevant (2%).

Table 9

period	1843-1930		1843-1893		1894-1914		1923-1930	
expression	cases	%	cases	%	cases	%	cases	%
E>R>C	73	14.6	17	17	22	15.3	18	12.2
E>C>R	58	11.6	5	5	18	12.5	18	12.2
E>R=C	2	0.4	•	•	•	•	•	•
eating-centred	133	26.6	22	22	40	27.8	36	24.4
R>E>C	32	6.4	8	8	14	9.7	6	4.1
R>C>E	22	4.4	4	4	6	4.2	6	4.1
R>E=C	13	2.6	3	3	4	2.8	1	0.7
reception-centred	67	13.4	15	15	24	16.7	13	8.9
C>E>R	25	5	4	4	9	6.3	12	8.1
C>R>E	19	3.8	2	2	7	4.9	9	6.1
C>E=R	77	15.4	13	13	18	12.5	34	23
cooking-centred	121	24.2	19	19	34	23.7	55	37.2
E=R>C	78	15.6	28	28	25	17.4	14	9.5
E=C>R	60	12	12	12	14	9.7	13	8.8
R=C>E	1	0.2	•	•	•	•	1	0.7
E=R=C	40	8	4	4	7	4.9	16	10.8

Table 9. Frequency distribution of inequality expressions of integration.

Diachronic observations show a tendency for the integration focus to migrate from the drawing/dining circuit to the dining room and, later to the kitchen. Before 1894, double-reception-centred (E=R>C) plans (28% of published cases) prevail over eating-centred (22%), cooking-centred (19%), reception-centred (15%), and eating-plus-cooking-centred plans (12%). Between 1894 and 1914, eating-centred cases (27.8% of cases) dominate over cooking-centred (23.7%),double-reception-centred (17.4%, still constituting the mode), and reception-centred ones (16.7%). After 1923 cooking-centred (37.2%) take over eating-centred plans (24.4%) as prevailing trend; double-reception-centred systems drop dramatically (9.5%), and eating-plus-cooking- and reception-centred ones represent 8.8% and 8.9% of cases, respectively.

The development of prevailing genotypes differ continuously across social groups over time, corroborating previous findings. Eating-centred plans dominate in the upper middle class (38.8%) even before 1894. This tendency is strengthened from 1894 onwards (44.3%), whereas the proportion of double-reception-centred cases loses relevance (table 10). Earlier mainstream genotypes are both kitchen-segre-

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gated: E>R>C (32.3%) and E=R>C (25.8%). In the next decades, eating-centred/ reception-segregated plans (E>C>R) become more frequent than E>R>C ones (23.1% against 21.1%) and although they still dominate (35.1%) after 1923, cooking-integrated C>E>R cases emerges (21.6%). All reception-integrated models (E=R>C, E>R>C and E>R>C) tend to be more segregating (1.691, 1.607 and 1.509 average mean RRA) than reception-segregated ones (E>C>R, 1.428/1.416 and C>E>R, 1.365, table 11). Among middle middle class plans, not only did preferences for the double-reception-centred model appear to have lasted longer but when it was finally dropped after the war, favour fell on kitchen-centred genotypes rather than on dining-centred ones as happened among upper middle class cases. E=R>C plans (29.7%) dominate over cooking-centred (27%), eating-centred (21.6%) and reception-centred ones (18.9%). As double reception- and reception-integrated systems decrease slightly

status	*upper middle clas*				*middle middle class*				*lower m*iddle class			
period	1843-93	1894-914	1923-30	all	1843-93	1894-914	1923-30	all	1843-93	1894-914	1923-30	all
expression	cases %	cases %	cases %	cases %	cases %	cases %	cases %	cases %	cases %	cases %	cases %	cases %
E>R>C	10 32.3	11 21.2	2 5.4	25 19.7	5 13.5	10 16.7	9 15.5	25 14.7	2 6.3	1 3.1	7 13.2	23 11.3
E>C>R	2 6.5	12 23.1	13 35.1	27 21.3	3 8.1	5 8.3	4 6.9	14 8.2	•	1 3.1	1 1.9	17 8.4
E-centr.	*12 38.8*	*23 44.3*	*15 40.5*	*52 41*	*8 21.6*	*15 25*	*13 22.4*	*39 22.9*	*2 6.3*	*2 6.2*	*8 15.1*	*42 20.7*
R>E>C	3 9.7	10 19.2	5 13.5	18 14.2	5 13.5	3 5	1 1.7	11 6.5	•	1 3.1	•	3 1.5
R>C>E	1 3.2	•	•	2 1.6	2 5.4	6 10	6 10.3	17 10	1 3.1	•	•	3 1.5
R>E=C	•	•	•	•	•	•	•	•	3 9.4	4 12.5	1 1.9	13 6.4
R-centr.	*4 12.9*	*10 19.2*	*5 13.5*	*20 15.8*	*7 18.9*	*9 15*	*7 12*	*18 16.5*	*4 12.5*	*5 15.6*	*1 1.9*	*19 9.4*
C>E>R	3 9.7	3 5.8	8 21.6	14 11	1 2.7	6 10	3 5.1	10 5.9	•	•	1 1.9	1 0.5
C>R>E	•	7 13.5	4 10.8	11 8.7	2 5.4	•	5 8.6	8 4.7	•	•	•	•
C>E=R	4 12.9	6 11.5	1 2.7	13 10.2	7 18.9	10 16.7	21 36.2	41 24.1	2 6.3	2 6.3	12 22.6	23 11.3
C-centr.	*7 22.6*	*16 30.8*	*13 35.1*	*38 28.9*	*10 27*	*16 26.7*	*29 49.9*	*59 34.7*	*2 6.3*	*2 6.3*	*13 24.5*	*24 11.8*
E=R>C	8 25.8	1 1.9	4 10.8	14 11	11 29.7	17 28.3	6 10.3	36 21.2	9 28.1	7 21.8	4 7.5	28 13.8
E=C>R	•	1 1.9	•	2 1.6	1 2.7	3 5	•	5 2.9	11 34.4	10 31.3	13 24.5	53 26.1
E=R=C	•	1 1.9	•	1 0.8	•	•	2 3.4	2 1.2	4 12.5	6 18.8	14 26.4	37 18.2

Table 10. Frequency distribution of inequality expressions of integration across time and status categories.

Table 11

							number of spaces				
					mean	*mean*	*total*	*f/tr.*	*rec.*	*serv.*	*bed.*
status	*period*	*expression*	*cases*	*%*	*RRA*	*BDF*	*mean*	*mean*	*mean*	*mean*	mean
upper	1843-93	E>R>C	10	32.3	1.509	.828	42.1	1.2	3.3	3	7
middle		E=R>C	8	25.8	1.691	.832	33.2	1.4	2.7	2.6	6
class		genotypes	18	58	1.590	.830	38.2	1.3	3.1	2.8	6.6
	1894-914	E>R>C	11	21.1	1.607	.848	49.1	1.4	3.1	3.9	7.2
		E>C>R	12	23.1	1.428	.820	39.2	1.5	3.4	3.5	
		genotypes	23	44.2	1.514	.833	44.0	1.4	3.3	3.7	6.8
	1923-30	E>C>R	13	35.1	1.416	.845	38.5	1.6	3	2.8	6
		C>E>R	8	21.6	1.365	.848	36.6	1.5	2.9	2.7	6.2
		genotypes	21	56.7	1.396	.846	37.8	1.5	2.9	2.8	6.1
middle	1843-93	E=R>C	11	29.7	1.504	.830	28.2	1.3	2.2	2.1	4.8
middle		C>E=R	7	18.9	1.471	.835	21.6	1.6	2	2	4.4
class		genotypes	18	48.6	1.491	.832	25.6	1.4	2.1	2.1	4.7
	1894-914	E>R>C	10	16.6	1.519	.821	29.3	1.4	2.1	2.5	5.6
		E=R>C	17	28.3	1.510	.827	24.9	1.5	2.2	2.1	4.9
		C>E=R	10	16.6	1.448	.839	24.9	1.5	2.2	2.3	5
		genotypes	37	61.5	1.496	.829	26.1	1.4	2.2	2.2	5.1
	1923-30	C>E=R	21	36.2	1.400	.827	21.4	1.6	2	1.5	3.8
lower	1843-914	E/R>C	16	32	1.616	.836	11.6	1.4	1	1	2.6
middle		E/C>R	21	42	1.498	.827	13.3	1.4	1	1.8	3.0
class		genotypes	37	74	1.549	.831	12.6	1.4	1	1.4	2.8
	1923-30	E/C>R	12	35.3	1.568	.863	14.5	2	1	1.3	3.1
		C>E/R	12	35.3	1.355	.807	15.2	1.6	1	1	3.1
		genotypes	24	70.6	1.461	.835	14.8	1.8	1	1.2	3.1

Table 11. Prevailing genotypes across time and status categories.

in number during the next two decades (28.3% and 15.0%), eating- and cooking-centred complexes become more numerous (25% and 26.7%). After the war cooking-centred plans reign unchallenged (49.9%) whereas the proportion of eating-, reception- and double reception-integrated cases decrease (22.4%,12% and 10.3%, respectively). Prevailing genotypes among earlier plans are E=R>C (29.7%) and C>E=R (18.9) both remaining strong in the next decades (28.3%, 16.7%), whereas the frequency of E>R>C plans increase (16.7%). After the war, the C>E=R model prevails (36.2%). Again, reception-integrated models (E=R>C and E>R>C) tend to be more segregating (1.504/1.510 and 1.519) than the reception-segregated one (C>E=R, 1.471 /1.448/1.400).

Whereas before 1915 both prevailing genotypes among amalgamated lower middle class— E/C>R (42%) and E/R>C (32%) — are integrated in the space used for eating, those prevailing after 1923 are centred around the setting used for cooking — E/C>R and C>E/R (35.3%, each). Prewar eating-plus-cooking-integrated plans tend to be more integrating (1.498 av. mean RRA) than cooking-segregated ones (1.616), the same applying to postwar cooking-integrated (1.355) as opposed to eating-plus-cooking-centred (1.568).

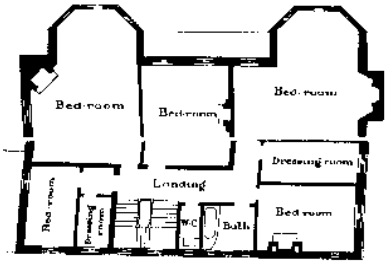
Figures show that reduced transition networks, although contributing towards integration, do not determine it. Upper middle class E=R>C types, for instance, are more segregating but less fragmented (av.mean RRA = 1.691, 1.4 function/transition ratio) than their E>R>C counterparts (1.509,1.2). The same applies to postwar upper E>C>R (1.416, 1.6) and C>E>R models (1.365, 1.5) and to postwar C>E/R cases (1.355, 1.6) which are more integrating and fragmented than other genotypes (E=C>R and R=E/C) in the lower middle class category (1.556 and 1.497, 1.9 both).

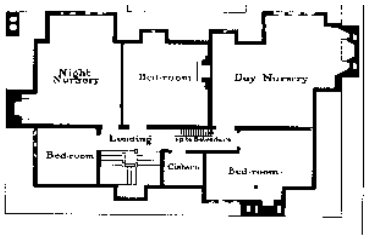
However, on the whole, reception-integrated complexes tend to associate with more segmented circulation systems and more segregating complexes and cooking-integrated ones, with more integrating, less fragmented systems. Such findings indicate that the ways in which certain functions link to the circulation system, and not the size of that system, is the crucial factor to determine distinct levels of accessibility in British homes. They also suggest that modifications in the links connecting kitchens to other domestic functions underlie the development from a social-centred configuration to one less segregating and inhabitant-centred.

Those issues were later verified through a case-by-case syntactic analysis (Trigueiro, 1994:) which included an investigation of the relationship between domestic complexes and their surrounding spaces. Some of the fifty genotypical cases investigated are illustrated in figure 6.

4 An overview of British homes

Observations demonstrated that from mid-nineteenth century to the inter-war years the British home developed from less to more integrated complexes and from a spatial system centred around the family/visitors sphere, focused on the circuit of reception rooms, to one centred in the inhabitants domain of rooms used for eating and cooking meals.





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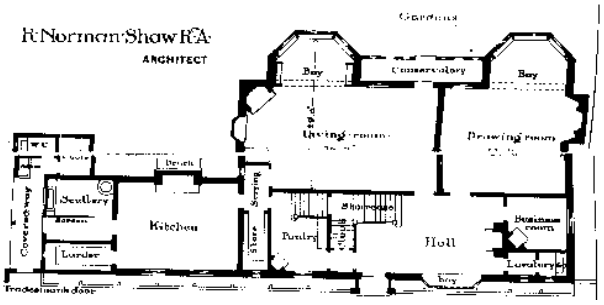
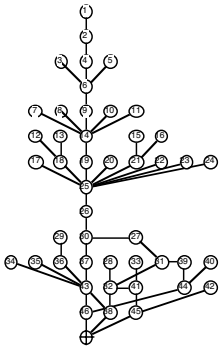
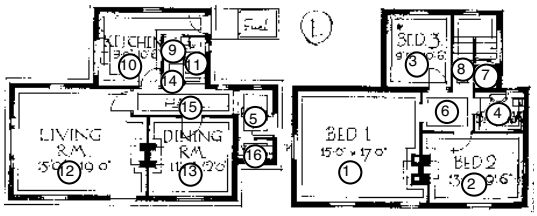


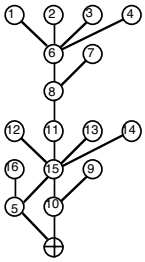


mean RRA=1.516, BDF=0.765

landing	st.	T	st.	St.	st.	T	T	landing	hall	bed	bath	bed	bed	wc	T	servery
25 >	26 >	30 >	19 >	37 >	27 >	18 =	21 >	14 >	43 >	17 =	23 =	24 =	20 =	22 >	31 >	32 >
dining	T	T	pantry	dress.	dress.	bed	bed	lavtry.	cistern	bed	bed	n.nrsry	bness.	drawing	kitchen	bed
38 >	9 >	48 >	39 >	16 =	13 =	12 =	15 >	36 >	11 =	10 =	8 =	7 >	35 >	34 >	41 =	6 >
T	store	wc	st.	T	d.nsery.	larder	bed	store	T	scullery	belvedere					
44>	26 >	29 >	4 >	45 >	3 =	33 =	5 >	40 >	2 >	42 >	1					

Figure 6a. Example of upper middle class genotype (E>R>C): house 49 (The Building News, 31 Oct.1879.

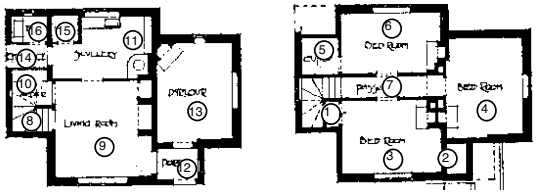


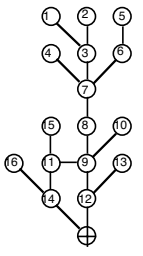


mean RRA=1.271, BDF=0.862

St	hall	landing	T	kitchen	entr.	store	dining	living	linen	bed	bed	b/wc	bed	wc	larder
11 =	15 >	8 >	6 >	10 =	5 >	14 =	13 =	12 >	7 >	1 =	3 =	4 =	2 >	16 =	9

Figure 6b. Example of middle middle class genotype (C>E=R): house 357 (The Building News, 16 Feb.1923).





mean RRA=1.413, BDF=0.828

living	St.	landing	scullery	bed	porch	larder	bed	bed	bck.ent.	fuel	store	store	parlour	store	e.c.
9 =	8 >	7 >	11 >	3 =	12 >	10 =	6 >	4 >	14 >	15 >	2 =	1 =	13 >	5 >	16

Figure 6c. Example of lower middle class genotype (E/C>R): house 159 (The Builder, 19 Nov.1904)

Figure 6. Example of genotypical plans investigated case-by-case.

Diachronic observations across social status categories indicated that this process although affecting the sample as a whole, evolved differently and at diverse pace, in the homes of distinct social groups of potential occupants, as represented in the sample. Whereas in upper middle class homes, that development starts as early as the turning of the century and associates chiefly with the transference of the locus of integration from a drawing-plus-dining room arena to the dining room, in middle middle class homes, vestiges of the dinner procession linger until the war years, crystallised in the popularity of the double-reception-centred model. However, contrarily to what went on in the upper group, the downfall of that model does not lead to the adoption of dining-centred systems, but principally to kitchen-centred complexes. This echoes at the bottom of the social rank, in the dominance of postwar complexes centred in the space used simultaneously for eating and cooking meals or in those where cooking takes place.

Continuous evaluation of the extent to which high transition segmentation affects general accessibility, a kernel theme in the literature, has led to the conclusion that although transition segmentation tends to generate segregation, the way in which rooms attach to transition segments constitutes a key generetaing factor for varying levels of accessibility. This property, which associates particularly with the way the spaces designed for eating and specially, for cooking have moved around the transition core, has contributes to alter the configurational position of main reception rooms and has, therefore, played a crucial role in the process of transference from segregating visitor-centred complex to a compacter inhabitant-centred one.

Further investigation of a subsample representative of prevailing genotypes in late nineteenth and early twentieth century British homes, revealed configurational mechanisms and socio-cultural implications underlying that process.

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