Ab	pove, 17, 72–73	normal architecture, solution typologies and,
Ab	ostract artefacts, 65-67	331–333
Ab	ostraction processes, 7, 34-36, 61, 62, 328-329	partisan social programmes and, 336
Ad	Iditive theory, 10	pathological use of space and, 315-316, 334
Ad	ljacency complex (a-complex), 217-219, 221	precedents and, 330-331
Ad	Jult-child interface, 147-154	procedure of design and, 318-322
Ae	esthetic purpose, 10-11, 325, 338	process of design and, 317-318
Aff	fect variables, 156-159	reasoning process vs. intuitive process and,
Ag	gregation processes, 68-69	316-317, 319-322
Alk	berti, L. B., 41, 47, 48	scientific method and, 316, 322-323
Αle	exander, C., 318-322	social art of architecture,
All	en, T., 201, 208	creative paradox and, 314
All	-line analysis, 6, 98, 271-272	social dimensions of, 2, 3, 6, 331-333
All	-line visibility maps, 270-280	socially constructed intentions, available solution
An	nalysis-synthesis process, 319-322	typologies and, 333-336
An	nalytic knowledge, 29-30	solution typologies and, 329-333, 335-336, 339
An	nalytic theory, 2, 3, 41, 42, 46, 47, 340	structural/expressive idiosyncrasies and, 6
An	nalytic theory of architecture, 1, 4, 7, 8, 40	style, non-discursive idiolect of, 336-338, 339
(development/foundation of, 2-3, 59-60	theory, structure of design process and, 44-45,
E	experimentation/simulation in design and, 1	338-341
	ogic of built environments and, 1	top-down process of, 6, 324
k	prediction of object/person relative	vernacular traditions and, 328, 329, 336
	to object and, 46-47	See also Analytic theory of architecture;
r	rational analysis and, 1	Architectural theory; Architecture; Combinatorial
	regularities vs. theories and, 4, 51	art of architecture; Space in buildings
3	See also Architectural theory;	Architectural determinism, 138, 293, 298-299, 301
	Non-discursive technique	architectural vs. social processes and, 156-160
	ngles of incidence, 277, 286	citizen use vs. space explorers and, 154-155
	nthropological ideas about space, 190-191, 193	configural changes, modified presence/
	nti-social behaviors. See Safety issues	co-presence and, 143, 145
	cher, L. B., 314	configurational modelling, architectural
	chitectural competence, 31-32, 33	variables and, 140
	chitectural design, 1, 2, 6, 43	housing estates and, 141, 142-146, 156-159
	analysis-synthesis process and, 319-322	integration analysis, housing area/estate
	analytic theory and, 340	constituencies and, 152-154
	architectural discourse and, 332-333	mean encounter rate and, 145-146
	autonomous architecture and, 336-338	methodological difficulties and, 138, 139
	configurational conjectures,	mind-body problem and, 138-139
	non-discursive generation of, 323-324, 327	natural movement, natural surveillance and, 146
	cultural/programmatic requirements and, 6, 329	pathological use of space and, 155, 159-160, 169
(design process, creative-predictive nature of,	social disadvantagement process and, 138, 139
	43-44, 46-47	spatial social structures, L-shaped non-relation
6	enclosure/repetition/hierarchy paradigm and,	and, 146-152
	334-335, 336	street-based system and, 143, 145-146, 152-154
	experimental 20th century architecture, 2, 39-40	theoretical difficulties and, 138, 139
(generation of design conjectures, reflective	urban safety, formula for, 142-146
	abstraction and, 327–329, 336	virtual community, co-presence/co-awareness
	generic function, human use of space and, 5-6	and, 141–142, 160, 169
į	ntent, realisation of, 12-13, 314-316, 332,	Architectural discourse, 332–333
	333-336, 340	Architectural probability, 223, 226–228, 256–260
k	knowledge-based process of, 324-327, 339,	Architectural theory, 2–3
	340-341	analytic theories and, 2, 3, 41, 42, 46, 47, 340
	non discursive aspects of design and 221 222	broad proposition vs. parrow proposition and

non-discursive aspects of design and, 321-322,

324, 325, 329, 335-336

47-48

broad proposition vs. narrow proposition and,

creative innovation, functional	social knowledge and, 34-35
success and, 48-49	spatial enclosure and, 19
defensible space theory and, 41-42, 47, 48, 146	subject/objects of, 13
definition of, 39, 41-42	systematic intent and, 33-34
design process, analytic-normative theoretical	theoretical knowledge and, 35, 339-340
solutions and, 43-47, 48	vernacular, reflective thought/innovation and,
discipline of architecture, development of, 2	34-36
evaluation of, 4	See also Analytic theory of architecture;
generative phase and, 46, 48-49	Architectural design; Architectural theory;
innovation/creativity in design and, 2, 3, 39, 40	Building; Buildings; Combinatorial art of
knowledge-based model of design and, 6-7, 41	architecture
laws of spatial/formal materials and, 7	Aristotle, 288, 295, 326
liberation from social knowledge and, 339-341	form-purpose paradigm of, 295-296
modernism, failure of, 39-40	physics theory of, 296, 302, 303
need for, 39-40	Art of architecture, 7, 8
non-discursive technique and, 59-60	additive theory and, 10
non-discursivity of configuration and, 27–30	creative paradox and, 314
normative theories and, 2, 3, 7, 32, 41-42, 47	everyday building, cultural richness of, 10-11
philosophy/science domains and, 55-59	Artefacts
prinosophy/science domains and, 55-59 precepts for builders, 40-41	
	abstract artefacts, 65-67
prediction of object/person relative to object	built environments and, 67-69
and, 46-47, 48, 54-55	object artefacts, 65-66
problems with, 47-49	structuralism and, 66-67
proportion theory and, 41, 42, 47	See also Non-discursive technique
simple regularities, formal definition of, 52-54	Asymmetry, 88–89, 91
spatial potentialities, system of	Asynchronous systems, 187
possibilities and, 7-8	Autonomous architecture, 336–338
surface regularity, underlying invariance	Axis, 111, 174-175
and, 50-54	axial analysis, 98, 117, 118, 120-121, 199
theory, definition of, 49–52, 54–55	axial compression of scale, 179-180
See also Analytic theory of architecture;	facades, axial disjunction and, 177-178, 180-183
Architectural design; Architecture;	instrumental axiality, 180, 184, 189
Combinatorial art of architecture; Form-	just about axial structure, 178–179, 180, 183, 184
function theory; Non-discursive technique;	labyrinthian logic, 116, 179
Partitioning theory	symbolic axiality, 175–177, 178, 184, 189
Architecture, 10-11	visibility maps and, 271
absence of architects and, 10, 34	See also Strange towns
abstraction/concretion, architectural science/art	
and, 7	Backhouse, A., 212
additive theory and, 10	Bacon, F., 49, 111
architectural competence and, 31-32, 33	Balanced asymmetry, 88-89
artistic-scientific nature of, 61-62	Balzac, H., 298
building, aesthetics/meaning and, 10-11, 34-36	Barred lines, 228-234
conscious/comparative thought and, 32-33	Barring processes, 239-245
creative intent and, 12-13, 32-35	Below, 17, 72-73
definition of, 33-35, 39	Booth map of London, 124
disorderly space use, social decline and, 5	Boundaries, 15, 16, 223-225, 271
form-function relationship, filters of, 6, 258	Buckley, F., 76
genotypical/phenotypical variety and, 34	Building, 10
language analogy and, 7-8, 31-32	absence of architects and, 10, 34
non-discursive aspects of building, speculative/	additive theory and, 10
abstract thought and, 3, 33, 35	aesthetics/meaning and, 10-11
object/activity of, 11-13, 33-34	aggregation processes and, 68-69
assist dimensions of 0.0 C 7.04 OF 040	arabitantural apparators and 01 00

social dimensions of, 2, 3, 6, 7, 34-35, 348

architectural competence and, 31-32

architecture and, 10, 11-12, 31-32, 35-36	Cities. See Fundamental city;
boundary creation, social relations and, 16	Movement economies; Strange towns; Urban
built environments, artefacts of, 67-69	design; Urban spatial form
configuration of properties, visuality to	Citizen behavior, 154-155
intelligibility and, 18	Cognitive psychology, 1, 86
design, reasoning vs. intuitive process and,	Combinatorial art of architecture, 216-217
316–317	L-shaped contiguous bars and, 230-232
logical emergents, inside/outside and above/	adjacency complexes and, 217-219, 221
below, 15, 17	architectural possibility, restrictions
non-discursivity, spatial/formal patterns and,	on structure of, 221
30-31	barred lines and, 228-234
process of, 31-32	barring processes and, 239-245
transmission of culture, built	cellular enumeration and, 217
artefacts and, 30-31, 32	centrality principle, 234, 238-239
vernacular style, 1, 3, 31-32, 36	construction of integration and, 223-234
See also Architectural design; Architecture;	contiguity principle, 234, 238-239
Buildings; Space; Space in buildings	courts/corridors and, 236-238
Buildings, 13-14	depth gain effects of bars and, 223-226,
elaboration of form/space, configurations and,	228, 230, 232, 234
17-18	dynamic spatial processes, analysis of, 239
evolutionary history of, 14	elementary objects, configurational strategies
inside/outside, interdependence of, 15	and, 235-239
layouts, space-to-space routes and, 23, 27	elements, flawed concept of, 256-257
multifunctionality/diversity of cultural expression	emergent/convergent spatial patterns
and, 14-15	and, 244-245
paradigm of the machine and, 292-294	enclosure effect and, 232, 234
physical/spatial form, bodily/socio-cultural	extension principle, 234, 238-239
function and, 16-17, 20, 30-31	functionality property and, 253-256
relational schemes of space and, 18	generic function and, 223, 245-256
social nature of, 305-311	global configurational properties and,
spatial relations, objective/non-objective nature	221, 222, 244–245
of, 15-16	global configuration, natural laws and, 257-258
strong-programme buildings, 197-199	integration, construction of, 222, 223-234
transformation of material/space,	intelligibility property and, 245-253
functional effect of, 15, 16	large complexes, shallow range
vernacular architecture and, 31-32	of possibility and, 222
weak-programme buildings, 199-201	light/air restrictions and, 220-221
See also Architecture; Building; Combinatorial	linearity principle, 234, 238-239
art of architecture; Space; Space in buildings	linearly contiguous bars and, 232-234
Built environments. See Architectural determinism;	local/global principles, architectural probability
Building; Buildings; Non-discursive technique;	and, 223, 226-228, 256-260
Urban spatial form	meta-theoretical approach of, 259-260
Bureaucratic vernacularisation, 336	permeability complexes and, 217-223
	possible spatial arrangements, filters for, 258
Calvino, I., 262	spatial elements and, 222-223
Canguihem, G., 295	wells and, 235-236
Cassirer, E., 61, 62	whole object barring and, 232, 234
Cell aggregation model, 192-193, 217, 265	See also Architectural theory; Architecture;
Cellular elements, 80-81	Fundamental city; Space in buildings;
Centrality paradox, 265-266	Spatial configuration
Centrality principle, 234, 238-239, 282	Computer modelling, 6, 93, 112
Child-adult interface, 147-154	Concretion processes, 7, 61, 62
Children explorers, 154-155	Configuration, 1, 16, 17
Chomsky, N., 31, 67	abstract artefacts and, 66-67

architectural/urban design and, 1, 2	configural properties, spatialised
built environments and, 67-68	function and, 25-27
configural properties, spatialised cultural/social	cultural genotypes and, 196-197
function and, 25-27	domestic space and, 30-31
configurational analysis, 1, 2, 25, 28, 69-71, 73	genotypes and, 60, 196, 303, 304
cross-disciplinary interest in, 1-2	transmission of culture, built artefacts and,
definition of, 23-25, 71-73	30-31, 32
elaboration of form/space and, 17-18	urban design and, 134
facades as configurations, 85-91	See also Form-function theory
non-discursive nature of, 3, 27-30	
permeability patterns and, 22, 23, 24, 27	Darwin, C., 298, 303
recognition of, 27-28	Defensible space theory, 41-42, 47, 48, 146
regular shapes as configurations, 80-81	Deformed grids, 92, 98, 134, 264, 276-277
shapes as configurations, 73-76, 80-81	Density
social dimensions of, 2, 3	building densities, 113, 125, 126
social knowledge/analytic knowledge and, 29-30	prejudice against, 135-136
space configurations/configurations of people,	short model situation and, 5
20-23	virtual communities and, 141
symmetry properties and, 74-76	Depth properties, 23, 72-73, 76-77, 79
unconscious/intuitive management of, 3, 28-30	See also Combinatorial art of architecture;
universal distance and, 79	Generic function
See also Analytic theory of architecture;	de Saussure, F., 50, 65
Architectural design; Architecture;	Descartes, R., 19, 20, 296, 319
Non-discursive technique; Pattern aspect;	Design. See Architectural design; Form-function
Spatial configuration	theory; Generic function; Knowledge; Spatial
Configurational modelling, 98-108, 140	configuration
Configurational paradigm of architecture, 302-305	de Syllas, J., 304
Connectivity of urban space, 93, 94	Determinism. See Architectural determinism
Contiguity principle, 234, 238-239, 282	Distance concept, 76-80
Convergent spatial patterns, 244-245	Disurbanism, 131-134
Convex elements in a layout, 93-94, 98	Division of labour, 201
axis, 111, 174, 179	Domain/protected space, 16
convex isovist, 114, 115-116, 123	Domestic space, 30-31, 82-84, 196-197,
co-presence and, 118-119	254, 292, 338
Convex isovists, 114, 115-116, 123	Douglas, M., 193
Co-presence/co-awareness, 4, 118, 141-142, 143,	Drew, P., 212
145, 203, 255-256, 293, 334	
Corridors, 236-238, 239	Earth-line positioning, 89-91
Court of law interface, 198-199	Edge effect, 120
Courts, 236-238, 239, 274	Elaboration of form/space, 17-18
Covering core, 263	Emergent spatial patterns, 244-245, 262,
Creativity	265-270, 277-281
building vs. architecture and, 12-13, 32-35	Enclosure effect, 232, 234
discipline of theory and, 40	Enclosure/repetition/hierarchy paradigm,
innovation, functional success and, 48-49	334–335, 336
paradox of, 314	Encounter rates, 145-146
See also Art of architecture; Innovation	Encounter zones, 125, 126, 130, 155, 201
Crime. See Safety issues	Energy economy of a plan, 85
Cross-disciplinary research, 1-2	Entropy, 55-57, 259-260
Cross-disciplinary theoretical foundation, 2	Environment, 295-297
Cultural genotypes, 60, 196, 303, 304	environmental determinism and, 297, 298
Cultural requirements, 6, 10, 20	organism-environment paradigm and, 297-302
Culture-bound spatial patterns, 3, 8	See also Form-function theory
buildings and 10 11 14 20	-

buildings and, 10-11, 14, 20

Evans, R., 314	Form-meaning relationship, 6
Evolution theory, 298	Function
Evolution of urban forms, 262–265, 269,	buildings, multifunctionality of, 14–15
279, 281–286	creative innovation and, 48-49
Experimentation in space, 1, 2, 3, 209-210, 314-316	space, function of, 1, 5, 15
Explorers of space, 154-155	spacialised cultural/social functions, configural
Expressive idiosyncrasies, 6, 10	properties and, 25-27
Extension principle, 234, 238-239, 275-276, 282	transformation, functional effect of, 15
Extensions of physical objects, 19-20	See also Form-function theory; Generic function;
	Human society
Facades as configurations, 85-91	Functionalist theory, 291
See also Strange towns	Fundamental city, 262
Fear. See Safety issues	all-line visibility maps and, 270-280
Fletcher, B., 174	beady ring urban form, 281-282
Form-function gap, 111	cell alignment and, 279-280
Form-function theory, 5-6, 8, 288-290	centrality paradox and, 265-266
architectural determinism and, 293, 298-299, 301	centrality principle and, 282
configural properties, spacialised function and,	compactness/linearity and, 268, 281
25–27	contiguity principle and, 282
configurational paradigm of architecture, space	covering core vs. radius-radius core, behavioural
as machine and, 302-305	differences and, 263
configurational persistences, social structure	deformed grids and, 264, 276-277, 281
and, 309-310	emergent spatial patterns and, 262,
environmental determinism and, 297, 298	265–270, 277–281
environment, developing idea of, 295-297	evolution of urban forms, general laws of, 262-
evolution theory, genetic information structures	265, 269, 279, 281–286
and, 298	extension principle and, 275-276, 282
form-function interdependence in space, 114-116	external space, building entrances and, 279-280
form-purpose paradigm and, 295-296, 297	generic function and, 264, 265
generative laws of space, social rules/practices	globalising rules, intelligibility/functionality
and, 304-305	and, 281
generic function and, 288, 303-304	human agency and, 280, 281
genotypes, cultural patterns of space use and,	indeterminacy and, 277-281
303, 304	internal/external integration, 266, 268
machine metaphor/paradigm of the machine	interrupted grids and, 276-277, 281
and, 292-294, 299-301, 310	linearity principle and, 282
modernism, failures of, 291, 293	local area structure/global structure and,
order without anterior order and, 296-297, 298	264, 274–276
organism-environment paradigm and, 294,	local area structures, development of, 284-286
297-302	local conditions in time/place and, 265
physical/spatial form, bodily/socio-cultural	local order, emergence overcoming
function and, 16-17	indeterminacy and, 277-281
recent history of, 290-292	near invariants and, 263-264, 265, 268, 277
social engineering objectives and, 291, 292,	90-degree process and, 275-276
293-294, 299-301	piazza/square and, 274
social nature of buildings, space-time	social/economic processes and, 265
realisations of abstractions, 305-311	space, infinite structurability of, 269-270
spatial configuration, pattern effects and,	spatial laws and, 265
301-302	structured grid in, 268-270
spatial dimension, social abstractions/buildings	two-pile grid systems and, 272-274
and, 289-290	urban grid comparisons, 263
11' 007 000	1.11.111

thingness, flux/change and, 307-309

See also Architectural determinism

visibility paradox and, 266-268

See also Strange towns

Galilean-Cartesian view of space, 19-20	universal distances and, 76-80
Galileo, 296, 326	See also Justified graphs (J-graphs); Layouts
Generative process, 193, 201, 304–305	Graph theory, 76-77
Generic function, 5-6, 223, 262	Grids. See Fundamental city; Urban design;
co-presence/co-awareness patterns and,	Urban spatial form
255-256	Group dynamics, 190, 194
depth maximising/depth minimising processes and, 247, 251-253, 255	See also Fundamental city; Housing estates; Safety issues; Strange towns
form-function theory and, 288, 303-304	
functionality property and, 247-248, 253-256, 264	Hacking, I., 209
intelligibility property and, 245-253, 264	Hanson, J., 77, 185, 191, 281
neutralised movement and, 255-256	Harary, F., 76
occupation/movement, requirements of space	Heisenberg, W., 67
and, 248–250	Hellick, M., 216
occupation/movement, type of space/complex and, 253-256	Hillier, B., 73, 75, 77, 80, 95, 96,
sequencing of spaces, functional	185, 191, 195, 281, 334 Housing estates, 4–5, 101, 314–315
interdependencies and, 254-255	L-shaped non-relation and, 147-152
spaces, topological types of, 250-253	architectural vs. social processes and, 156-159
unprogrammed movement and, 255	co-presence/co-awareness and, 141
visibility, depth properties and, 245-247	disurbanism and, 131-134
See also Fundamental city	estate degeneration, spatial design/social
Genetic information structures, 298	processes and, 159-160
Genotypes, 34, 48, 60, 106, 192, 256, 279	integration analysis of, 152-154
cultural genotypes, spatial dimension and,	multiple interfaces/social structures in space,
196, 303, 304	146–152
inequality genotype, 196-197, 203-208	socially constructed intentions, available solution
probabilistic inequality genotypes, laboratory	typologies and, 333-336
examples, 203-208	urban safety, formula for, 142-146
social genotypes of human interaction, 310	Human agency, 280, 281
solution typologies and, 329-331	Human artefacts, 65
style, explication of, 337, 339	built environments, 67-69
Giddens, A., 299	cities, 111
Girouard, M., 314	See also Fundamental city; Human society;
Glassie, H., 31, 32	Movement economies
Global configurational effects, 5, 6	Human society
aggregative process, recursive application	abstract artefacts and, 65-67
of rules and, 68-69	architectural design and, 2, 3, 6
integration analysis and, 80-81	boundary creation, social relations and, 16
local elemental configurations and, 69	configurational properties, spatialised function
See also Local physical changes	and, 25-27
Global integration in urban systems, 99-101	generation of relations, 5
Global spatial elements, 98, 116, 201-203, 257-258	generic function, human use of space and, 5-6
Global symmetry, 87-88	housing estates, impoverished virtual
Golubitsky, M., 74	communities, 4-5
Granovetter, M., 202, 208	rule-bound space and, 5
Graphical representation, 1	social decline, disorderly use of space and, 5
depth properties and, 23, 72-73, 76-77, 79	social knowledge/analytic knowledge and,
Manhattan distance/Manhattan grid and, 79	28–29, 30
normalisation formula/i-value formula and, 77	social structure, mechanical vs.
ring properties and, 23	statistical models of, 191
shapes as configurations and, 74-76	spatial patterning, activities/relationships
tessellation and, 80	and, 15, 20 spatial potentialities, system of possibilities
tree form, 23	spatial potentialities, system of possibilities

and, 7-8

territoriality and, 41-42 transformation of material/space, functional Just about axial logic, 178-179, 180, 183, 184 effect of, 15, 16 Justified graphs (J-graphs), 22-23, 72-73 transmission of culture, build artefacts configurational analysis and, 72-73 and, 30-31, 32 depth properties and, 23, 72-73, 76-77, 79 See also Architectural determinism; Formisomorphism, 86, 88 function theory; Movement economies; normalisation formula/i-value formula and, 77 Spatial configuration ring properties and, 23 symmetry properties of shapes and, 74-76 i-value equality, 88 tree form and, 23 i-value formula, 77, 82 whole-complex properties and, 80 Ideas we think of/ideas we think with, 28-29, 194-195, 339 Knowledge, 194-195 Indeterminacy in spatial patterns, 278-281 generation of design conjectures and, 327-329 Industrial purpose, 5 innovation vs. efficiency and, 213 Inequality genotype, 196-197, 203-208 knowledge-based model of design, 6-7, 41, 45, Inertia principle, 296, 298, 303 324-327, 340-341 scientific knowledge, 195-196, 201-203, Informal use of open space, 123 Innovation, 2, 3, 11 208, 209-210 architectural competence and, 33 social knowledge, 28-30, 31, 34-35, 195-197 architectural theory and, 48-49 theoretically analytic knowledge, 339-340 organisational efficiency and, 213 Kuhn, T., 331 reflective thought, genotypical/phenotypical variety and, 34 Laboratory case examples, 190, 201-202, theoretically analytic knowledge and, 339-340 203-208, 210-213 See also Creativity Labyrinthian logic, 116, 179 Inside, 15, 16, 17 Land-use patterns, 113, 124, 126, 127 Integration analysis, 25-27, 94, 180 Language all-line integration analysis, 271-272, 279 abstract artefact of, 65 central integration effect, 80-81 combinatorial systems and, 221, 256 construction of integration and, 223-234 customary language, habitual thought patterns covering core vs. radius-radius core, behavioural and, 299 differences and, 263 language metaphor, 7-8, 31-32 house plans, 82-84 sense perceptions and, 61 housing areas/estates, space use/movement theory, words/formal expressions and, 55-58 Layered models of urban space, 106-108 patterns and, 152-154 integrational inequalities, 196-197 Layouts, 23, 27, 74 integration core, 125, 126, 130, 155, 187, 199, 263 change effects, experiments with, 94, 97-98 internal/external integration, 266, 268 convex elements in, 93-94, 98 large complexes, shallow range of possibilities deformed grid structure, 92, 98 and, 222 housing estates and, 101 shape properties and, 88-89, 91 just about axiality and, 179 visual integration vs. metric integration, 268 line elements in, 98 See also Generic function local integration/global integration in urban Intelligent urban analogue model, 104-106 systems, 99-101 Intelligibility in urban systems, 91-98 See also Buildings; Strange towns; Urban See also Fundamental city; Generic function; design; Urban spatial form Layouts; Strange towns; Urban spatial form Le Corbusier, 41, 111, 292, 337, 338 Intent, 12-13, 33-34, 314-316, 332, 333-336 Lévi-Strauss, C., 66, 190, 191, 192, 193, 197, 207 Interfaces in a building, 198 Light and air restrictions, 220-221 Interiors. See Space in buildings Linearity principle, 234, 238-239, 282

Isovists, 114, 115-116, 123, 187-188, 188

Interrupted grids, 276-277, 281

Intuitive process, 3, 28-30, 316-317, 319-321

Linearly contiguous bars, 232-234

Line of sight, 174-175, 179, 186

Local integration in urban systems, 99-101	physical city/functional city and, 111-112
Local physical changes, 5, 6	precinctisation and, 134
global patterns, evolution of, 69	retail establishments, spatial distribution of, 125
spatio-temporal additions to a system, 68	safety/well-being and, 131, 134
See also Global configurational effects	socio-economic class, mapping of, 124
Local spatial elements, 98, 201-203	socio-economic forces, movement-urban grid
Local symmetry, 87-88	relationship and, 113-114
Logical emergents	transformation of cities, value systems
above/below, 17	and, 134-136
inside/outside, 15, 17	two-line logic and, 116, 118
spatial patterns in buildings and, 18	urban buzz and, 126, 127, 134
Long models, 5, 193-194, 197, 198	urban grid-movement relationship, 120-125, 126
Loos, A., 337, 338	vehicular movement and, 99, 113, 119, 123
L-shaped contiguous bars, 230-232	See Generic function; Movement economies;
L-shaped non-relation, 147-154	Natural movement principle; Strong-programme
,	buildings; Weak-programme buildings
Machine metaphor, 292-294, 299	Multifunctionality, 14-15, 112-113, 127
Manhattan distance/grid, 79	3,
March, L., 70	Natural form theory, 41-42, 47
Markus, T., 314	evolution theory, genetic information structures
Mead, M., 30	and, 298
Meaning, 10-11, 193-194, 306	form-purpose relationship, 295-296, 297
Means-ends systems, 111, 112	organism-environment paradigm and, 297-298
Mechanical model of social structure, 191, 193	See also Form-function theory
Meta-theoretical approach, 259-260	Natural laws, 66, 67, 257
Mitchell, W. J., 339	Natural movement principle, 120-125, 131, 134, 146,
Mixed uses, 4, 113	155, 303
Modernism, 2, 39-40, 41, 156, 291, 293, 294, 319	Near invariants, 263-264, 265, 268, 277
Morphogenetic models, 192-194, 207-208	Negative attractors, 183, 189
Movement economies, 4, 113-114, 127	Neighbourliness paradigm, 334-335
alignment patterns and, 124-125	Networks, 201-203
axial analysis and, 120-121	Neutralised movement, 255-256
contact, generation of, 126	Newman, O., 41, 42, 44, 47, 48
convex isovists and, 114, 115	Newspaper editorial floor interface, 199-201
co-presence, convex spatial element and,	Newton, I., 3, 296, 297, 298, 303
118–119	90-degree process, 275-276
disurbanism, housing estates/discontinuous	Non-discursive dimensions, 3, 4
urban structures and, 131-134	architectural design and, 321-322, 324, 325, 329
edge effect and, 120	building spatial/formal patterns and, 30, 31-32
encounter zones, 125, 126, 130	configuration, thinking of/with ideas and, 27-30
form-function interdependence	neutral descriptive/analytical techniques and, 4
in space and, 114-116	regularities vs. theories and, 4
informal use of open spaces and, 123, 127	speculative/abstract thought and, 3, 33, 35
integration values in line maps and, 119	structuralism and, 29-30
labryinthian logic and, 116	style as non-discursive idiolect, 336-338
land use patterns and, 113, 124, 126, 127	theoretical knowledge, architecture and,
London example, 116-119	35, 339–340
multifunctionality, part-whole problem and,	See also Architectural design; Configuration;
112-113, 127	Non-discursive technique
multiplier effects and, 125-127, 134	Non-discursive technique, 59-60
natural movement principle and, 120-125,	abstract artefacts/object artefacts and, 65-67
131, 134	aggregation processes and, 68-69
part-to-whole relationship and, 127-131	balanced asymmetry and, 88-89

pedestrian movement and, 99, 113, 119, 123 built environments as artefacts and, 67-69

configurational analysis, key principles of, 73	spatial use and, 5
configurational formalisms, simplicity in, 69-71	spatial patterning, activities/relationships
configurational modelling,	and, 15, 20-22
urban design and, 98-108	spatial patterns in buildings, natural law and, 18
configurational patterns of	vernacular act of building and, 3
abstract artefacts and, 66	See also Configuration; Spatial configuration
configuration, definition of, 71-73	Pedestrian movement, 99, 113, 119, 121, 142
configuration recognition, syntactic properties	Peponis, J., 130
and, 86-91	Permeability complexes (p-complexes), 217-223
earth-line positioning and, 89-91	See also Combinatorial art of architecture
facades as configurations and, 85-91	Permeability patterns, 22, 23, 24, 27, 82
future urban models, intelligent analogues of cities, 101-108	Phenotypes, 34, 256, 310 Philosophy of design, 1
integration analysis and, 80-81, 82-84,	experimentation/simulation in design and, 1
88-89, 91, 94	form-function theory and, 8
justified graphs and, 72-73, 74-77, 79, 80	object recognition, semantic stage of, 86
normalisation formula/i-value formula and, 77, 82	theory, philosophy/science domains and, 55-59
plans as shaped space and, 82-85	Physical economy of a shape, 82
regular shapes as configurations, 80-81	Plans
shapes as configurations and, 73-76, 80-81	cross-national/cross-temporal sample of, 216
space-time manifestation, 65-66	form-function interdependence in space and,
structuralism and, 66-67	114-116
symmetry properties of shapes and, 74-76, 86-91	shaped space and, 82-85
universal distances and, 76-80	See also Architectural design; Layouts;
urban space as layers, intelligibility and, 91-98	Urban design
urban systems, local integration/global	Plato, 66, 67
integration and, 99-101	Popper, K., 322, 323
Normal architecture, 331-333	Precedents, 330-331
Normalisation formula, 77	Precinctisation, 134
Normal science, 331	Predictive aspects of design, 43-44, 46-47,
Normative theories, 2, 3, 7, 32, 41-42, 47	325–326, 339
	Probabilistic inequality genotypes, 203-208,
Object artefacts, 65-69	304–305
Occupation, 6	Probability. See Architectural probability
Order without anterior order, 296-297, 298	Profane urban spaces, 174-175
Organic towns, 187	Programmatic requirements, 6
Organism-environment paradigm, 294, 297-302	Proportion theory, 41-42, 47, 48
Outside, 15, 16, 17	Pythagorean theory, 41, 58
Palladian properties, 41, 44	Quine, W., 307
Paradigm of the machine, 292-294, 295,	
299–301, 310	Radical innovation, 11
Partisan social programmes, 336	Radius-radius core, 263
Partitioning theory, 5	Rational analysis, 1, 3
Part-to-whole relationship, 127-131	elaboration of form/space, 17-18
Part-whole problem, 112-113, 127	inside/outside, interdependence of, 15
Pathological use of space, 155, 159-160,	Redundancy, 279
169, 315–316, 334	Reflective abstraction, 328-329
Pattern aspect, 1	Regularities, 4, 5
abstract artefacts and, 66-67	abstract artefacts and, 66-67
permeability patterns, 22, 23, 24, 27	all line analysis and, 6
rational analysis of, 1, 3	analytic theory of architecture and, 59
and the state of t	simple regularities formed definition of FO FA

regularities vs. theories and, 4 sink estates, disorderly/unsafe

simple regularities, formal definition of, 52-54

surface regularity, underlying

invariance and, 50-54	See also Architectural determinism;
Regular shapes as configurations, 80-81	Safety issues
Relations, 1, 67	Social disadvantagement process, 138, 139
Religious buildings, 174-175, 254	Social engineering objectives, 291, 292
Research	bureaucratic vernacularisation and, 336
cross-discipline research, 1-2	organism-environment paradigm and, 299
rational analysis, real design tests of, 1	paradigm of the machine and, 292-294, 299-301
Research/development organisations, 190,	See also Form-function theory; Housing estates
201-202, 203-208, 210-213	Social genotypes of interaction, 310
Retail establishments, 125	Social knowledge, 28-30, 31, 34-35, 195-197, 335
Ring properties, 23	Social life. See Architectural determinism; Culture-
Ritual, 5	bound spatial patterns; Form-function theory;
Ruralisation, 135-136	Human society
Russell, B., 15, 16, 142	Social meaning, 193-194, 306
	Social networks, 203
Sacred spaces, 174-175, 254	Social reproduction, 5, 176-184
Safety issues, 131, 134	Social sciences, 4, 19, 190-191
architectural determinism and, 138, 141, 142	Socialisation interface, 147-152, 209
architectural vs. social processes and, 156-160	Sociological perspective, 1
global scale/networks and, 203	boundaries, social relations and, 16
natural movement, natural surveillance and, 146	movement-urban grid structure and, 113-114
single category space user and, 155	statistical model of social structure, 191, 193
urban safety, formula for, 142-146	transformation of cities, value systems
Scale gap, 111	and, 134-136
Science domain, 55-59, 61-62, 66	See also Architectural determinism
Scientific knowledge, 195-196, 201-203,	Socio-technical ecosystem, 65
208, 209–210	Solution typologies, 329-333, 335-336, 339
Scientific method, 316, 322-323	Space, 18, 19
Scruton, R., 10, 11, 19, 40, 41, 42	anthropological ideas of, 190-191, 193
Sequencing of spaces, 254-255	buildings, culture-bound space of, 20
Settlement analysis, 5, 6	configurations of people/configurations of
expressive idiosyncrasies and, 10	space, 20-22, 67-68
morphogenetic models and, 192-194, 207-208	extension without objects, 19-20
spatial forms, projection of mental processes	form-function interdependence and, 114-116
and, 191	Galilean-Cartesian view of, 19-20
spatial ideas, geometrical nature of, 6	human agency and, 19
vacant space and, 6, 19	infinite structurability of, 269-270
See also Building; Fundamental city;	integration analysis and, 25, 26
Strange towns	justified graphs, depth/ring properties
Shapes as configurations, 73-76	and, 22–23
facades as configurations, 85-91	patterns of permeability and, 22, 24, 27
regular shapes and, 80-81	potentials of, 115
Shelter theorists, 14, 15	relational schemes of space, 18, 20
Short models, 4, 5, 193-194, 201	social structures of, 146-154, 191
Similar forms/relations, 186-187	spatial ideas, 6, 19
Simon, H., 65, 67	spatial relations, 15-16
Simple regularities, 52-54	synchrony of space, 185, 186
Simulation in design, 1	vacant space, 6, 18, 19
Sink estates, 5	See also Buildings; Configuration; Movement
Social decline, 5	economies; Space in buildings;
integration core, retreat from, 155	Spatial configuration
local vs. global networks and, 202-203	Space in buildings, 1, 5, 19
space design/use, social processes and,	anthropological ideas of space and, 190-191, 193
159–160	case study of, 203-208, 210-213

Space is the machine | Bill Hillier

created phenomenon, visible colleges	long/short models and, 5
and, 209-210	non-discursive aspects of space/form and, 3
division of labour and, 201	social decline, disorderly use of space and, 5
efficiency vs. innovation and, 213	social organisation of life and, 3, 20-22
generative process and, 193, 201	spatial pattern effects, 301-302
generic function and, 5-6	spatial potentialities, system of
inequality genotypes and, 196-197, 203-208	possibilities and, 7-8
integration values of spaces and, 196, 199-201	spatial relations, objective/non-
interface, functional constituents of buildings	objective nature of, 15-16
and, 198, 201	universal distances and, 76-80
local/global networks, strong and	See also Architectural design; Combinatorial
weak ties and, 201-203, 208	art of architecture; Configuration; Form-
long/short model situations and, 5,	function theory; Non-discursive technique;
193–194, 197, 198, 201, 207	Partitioning theory
mechanical/statistical models of	Spatial elements, 222-223
social structure and, 191, 193	Spatial enclosure, 19
morphogenetic models, topological properties/	Spatial group dynamics, 190, 194
settlement forms and, 192-194, 207-208	Spatial ideas, 6, 19
partitioning theory and, 5	Spatial layouts. See Layouts
probabilistic inequality genotypes, 203-208	Spatial relations, 15-16
scientific knowledge, space influence and,	Spatialised functions, 25–27
201–203, 208, 209–210	Spatio-temporal phenomena, 28–30, 31
social knowledge, spatial	built environments and, 68-69
configuration and, 196–197	space-time regularities, 65-67
social knowledge vs. scientific	time-space relationship, 185-189
knowledge and, 194-196	Specific distance, 77, 79 Statistical model of social structure, 191, 193
social meaning and, 193-194 sociological perspective and, 193	Steadman, P., 77, 216, 217, 220, 245, 247
spatial group dynamics and, 190, 194	Stewart, I., 74
spatial patterning, activities/relationships	Strange towns, 171
and, 15, 20–22	asynchronous systems, movement and, 187
strong-programme buildings and, 197-199	axis, symbol/instrument functions and,
transformation of material/space,	174–175, 180
functional effect of, 15	facades of buildings, axial disjunction and,
visual image, content/meaning and, 10	177-178, 180-183
weak programme buildings and, 199-201	facades of buildings, synchronous order in, 187
See also Buildings; Combinatorial art of	global/local structures, total disjunction and, 183-184
architecture; Human society; Spatial	heart/periphery, axial compression
configuration; Vacant space	of scales and, 179-180
Space explorers, 154-155	instrumental axiality in, 180, 184, 189
Space as machine, 302-305	integration cores and, 187
Space syntax analytic tools, 1	just about/unobtrusive axial structure
Space syntax theory and methods, 1, 60, 70, 194	and, 178-179, 180, 183, 184
Space-time regularities, 65-67	natural movement and, 180, 183, 188-189
See also Non-discursive technique;	negative attractors and, 183, 189
Spatio-temporal phenomena	organic towns, functional spatial
Space topology, 250-253	patterning and, 187
Space-to-space permeability, 23, 27	part-facade/full-facade isovists, 187-188
Space-use types, 207-208	socially constructed intentions, available
Spatial configuration, 1, 3	solution typologies and, 333-336
built environments, social purposes and, 67-68	social reproduction, symbolic spatial
configurational paradigm of architecture, 302–305	forms and, 176-184
housing estates, co-presence/co-awareness	symbolic axiality in, 175-177, 178, 184, 189
system and, 4-5	time as aspect of space and, 185-189

tunnel isovist and, 189	configurational nature of, 1, 2
See also Fundamental city	disurbanism, housing estates and, 131-134
Street-based system of interactions, 143, 145-146, 152-154, 334	intelligent urban analogue model, street network links and, 104-106
Street network links, 98, 104-106	layered models of urban space and, 106-108
Strong-programme buildings, 197-199	local integration/global integration and, 99-101
Strong ties, 201–203, 208	pattern aspect of, 1
Structural idiosyncrasies, 6	street grids, patterns of movement and, 98
Structuralism, 29–30, 66–67, 190–191	urban grids/urban functioning and, 4, 113-114, 135
Structured grids, 268–269	See also Layouts; Movement economies;
Style, 336–338, 339	Urban spatial form
Surface regularity, 50-54	Urban networks, 203
Sustainability issues, 111	Urban spatial form, 4
Symbolic axiality, 175–177, 178, 184, 189	
Symmetry properties of shapes, 74–76, 86–91	axis, symbol/instrument functions and, 174-175 connectivity of a space, 93, 94
	deformed grid structure, 92, 98, 134
Synchronous order of facades, 187	•
Synchrony of space, 185, 186	future urban models, intelligent
T	analogues of cities, 101-108
Technology tools, 1, 6, 65, 93, 112	grid-movement relationship, 4, 120-125, 126
Territoriality, 41–42, 47, 48	integration value of a space, 94
Tessellation, 80-81, 82, 84-85, 91, 271, 272	local integration/global integration, 99–101, 202–203
Theory, 4	normalisation formula/i-value formula and, 77, 82
additive theory, 10	similar form/similar relations and, 186-187
architecture, theoretical knowledge and, 35	synchrony of space and, 185
defensible space, 41-42	time as aspect of space and, 185-189
definition of, 49–52	urban space as layers, intelligibility and, 91-98
future urban models and, 102	See also Layouts; Strange towns; Urban design
knowledge-based model of design and, 6-7	
language, words/formal expressions and, 55-58	Vacant space, 6, 18, 19
partitioning theory, 5	Vehicular movement, 99, 113, 119, 123
philosophy/science domains and, 55-59	Vernacular traditions, 1, 3, 11, 31-32, 34-35,
proportion, 41–42	36, 328, 329, 336
surface regularity and, 50-52	Virtual communities, 4-5
See also Analytic theory of architecture;	architectural design, patterns of
Architectural theory; Form-function theory;	behavior and, 140-142
Knowledge; Philosophy of design	architectural determinism and, 160, 169
Thingness, 307-309	destructuring of, 159
Time-space relationship, 185-189	social structures of space and, 146-147
Top-down design process, 6, 324	See also Architectural determinism;
Topological properties, 192-194, 207-208, 250-253	Housing estates
Transformation, 15, 16	Visibility maps. See All-line visibility maps
city structures and, 134-136	Visibility paradox, 266-268
See also Combinatorial art of architecture	Visibility properties, 98, 245-247
Trans-spatial networks, 203	Visual impression, 10
Tree form, 23	
Tunnel isovist, 189	Wagner, R., 135
Two-line logic, 116, 118	Weak-programme buildings, 199-201
2-pile grid systems, 272-274	Weak ties, 201-203, 208
	Wells, 235-236
Universal distances, 76-80	Whole-complex properties, 80
Unprogrammed movement, 255	Whole object barring, 232, 234
Urban buzz, 126, 127, 134	Wittgenstein, L., 314
Urban design, 1	Wright, F. L., 337
configurational modelling and 98-108	. .

configurational modelling and, 98-108