

A6.4 Exploring 'Netspace'

'Netspace' represents the theoretical 'solution space' of possible network structures. A series of theoretical structures can be used to map out what structures occupy different parts of the netgram. In each case opposite the exact structure shown there is plotted, except for (j) and (k) which are infinitely long versions of the structures illustrated.

Towards the top of the netgram lie deeply recursive (layered or branching) structures such as trees. As more branches or layers are added to structures 'a', 'b', 'c' and 'd', these go off to infinity at point A. The lower left part of the netgram is occupied by long chain structures (such as 'i'); as more links are added, the chain goes off to infinity at point B. The lower right part of the netgram is occupied by structures with high connectivity relative to depth or continuity, such as multi-spoked stars or 'stars on a string' ('l'). A radial pattern with an infinite number of spokes, or an infinitely long chain of 'stars on a string' would be located at point C.

Not all extremely repetitious structures would occur at the vertices of the netgram, since some shape functions, as they tend to infinity, converge on a point in the 'interior'. For example, an infinitely long *Ciudad Lineal* would occupy position 'k' on the netgram. This would effectively correspond to the position of Soria y Mata's suggested *Ciudad Lineal* from Cadiz to St Petersburg, or one from Brussels to Beijing (Soria y Mata, 1892: 22).

This hypothetical *Ciudad Lineal* lies on the same line ($X = 2\Lambda$) as point 'd' representing an X-fractal shape – and Hilberseimer's *New City* (Figure 6.2 (c)). The reason they lie on the same line is that they are both strongly 'spinal', with more or less the same proportion of connectivity to continuity. This line also corresponds to the line on which the 'spine-cantilever' route type occupies on the routegram. Basically, as these structures grow, they are made up of more and more spine-cantilevers (X-fractal) or a longer and longer main spine-corridor (*Ciudad Lineal*).

Structures typically found as street patterns – characteristic structures – occupy the central zone.

APPENDIX 7 CONSTITUTIONAL STRUCTURE

A7.1 Constitutional graph representations of structure

A hierarchy of types may be represented as a *constitutional graph*, where each vertex represents a set of types – as opposed to a configurational graph where a vertex represents an individual route or junction.