NATURAL PROCESSES IN CITIES

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MAPPING SPATIAL MORPHOGENESIS IN URBAN SYSTEM

Asynchronising structures
Mapping transformations in-between
synchronic states of the growing system

Extract an invariant that marks
growth patterns

Inter invariants from
urban growth patterns

State A+2

State A+1

State A

State T = transformation (A, A+1)

ARE CITIES AUTONOMOUS?

Barcelona

In a process of preferential attachment, city
structure records a certain memory wherever
integration change takes place and recalls this
memory to attach to new elements. This process
is continuously updated throughout growth

In a process of structural differentiation cities
adapt their uniform order to match that of
organic grid structures

Evidence on Preferential attachment

Transformation map (1898, 1806)

Higher gains in choice (angular betweenness) values [segment length weighted]

Street map 1855

SO CAN WE SAY THAT CITIES HAVE MINDS?

Foreground and background structures overlaid

How shall we treat cities?

NATURAL

or

ARTIFICIAL

In essence, the supposed mind would borrow its intelligence from the collective minds of individuals who live within. It is
a mind of a society that nests within the spatial structure of a city