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8th November 2011

Are Cities Getting More Complex?

The Need for a Global Planning Institute

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I will develop a very simple thesis which provide an introduction to what David Prosperi will say about the need for a Global Planning Institute

In essence my thesis is that cities are becoming ever more complex, and the tools that we fashioned both to understand them and intervene in their design to improve their quality of life 100 years ago, are no longer appropriate or even relevant.

We now live in a world in which the global and the local intersect in strange and convoluted ways, and to handle all this, we need to redefine what a city is and then respond in appropriate terms. My topics are:

My Key Topics

- How are cities getting more complex and what does this mean?
- Scale and interaction. Cities are about connecting people
- Early proponents: Jane Jacobs, Chris Alexander
- Surprising predictions: emergence: segregation
- The need to intervene at key pressure points
- Less is more: the new mantra for planning
- A Global Institute

How are cities getting more complex and what does this mean?

As they grow, they cluster more and more people together and the number of potential interactions grows more than proportionately

A city of N persons has *'potentially'* N^2 interactions.

Cities change in scale and size as they grow – this is what biologists call 'allometry' and economists call economies of scale, or 'agglomeration' economies

We now know some interesting and surprising things about how cities grow and change

All others things being equal, ceteris paribus…….

- As they grow, the number of potential connections increase as the square of the population (Metcalfe's Law)
- As they grow, the time taken to travel increases
- As they grow, the density in their central cores tends to increase and in their peripheries to fall
- As they grow, more people travel by public transport
- As they get bigger, their average real income (and wealth) increases (West's Law)
- As they get bigger, they get 'greener' (Brand's Law)
- As they get bigger, there are less of them (Zipf's Law)

And by 2100, all the world will be a city. Global and local will fuse and are already entangled in countless ways

All this means that scale and interaction are key to understanding this complexity

We are fast moving to a world where everything is connected to everything else, potentially, and also through continuous time.

We are adding layer upon layer of complexity and our focus can no longer simply be on LOCATION, it needs to be on interaction and connection.

Scale and interaction. Cities are about connecting people

This is an old message one that is increasingly resonant with the times in which we live.

Manual Castells talks of the space of flows, Laslo Barabasi talks of scale free networks, Duncan Watts of small worlds, Ed Glaeser of cities as being defined as means for connecting people.

In many senses, all this was anticipated long ago by those who sought to analyse how cities evolve and also by those close to the diversity of urban life. Jane Jacobs for one.

Early proponents: Jane Jacobs, Chris Alexander

Jane Jacobs in her 1961 book *The Life and Death of Great American Cities* anticipated much of our concern for complexity and how to handle it. Much of her book is about the destruction of the old city of face to face contexts but her context of understanding draws from complexity.

Her message is that cities should be thought of as 'organisms' not 'machine' self-organising systems that evolve, not top down mechanical systems that are rigorously controlled.

There are many quotes: for example

"Cities happen to be problems in organized complexity, like the life sciences. They present 'situations in which a half-dozen or even several dozen quantities are all varying simultaneously and in subtly interconnected ways.'

Cities, again like the life sciences, do not exhibit one problem in organized complexity, which if understood explains all. They can be analyzed into many such problems or segments which, as in the case of the life sciences, are also related with one another."

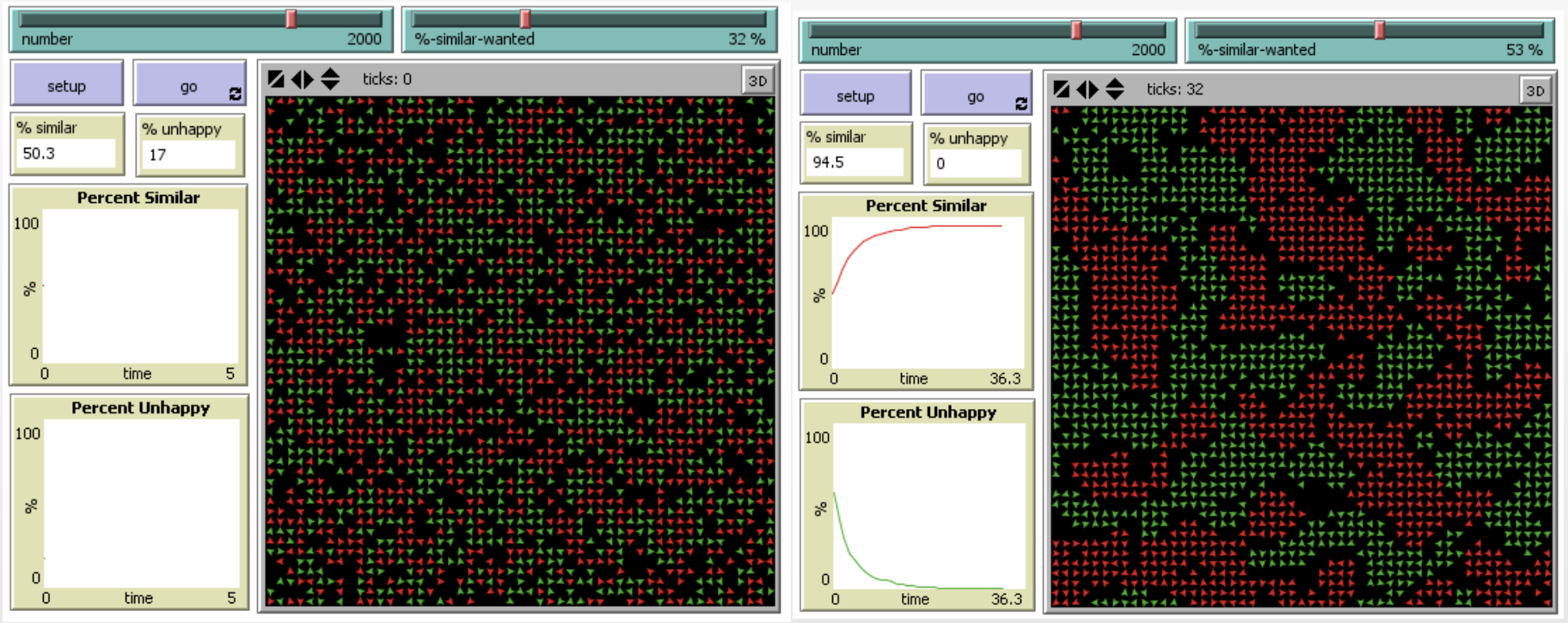
"Why have cities not, long since, been identified, understood and treated as problems of organized complexity? If the people concerned with the life sciences were able to identify their difficult problems as problems of organized complexity, why have people professionally concerned with cities not identified the kind of problem they had?"

Surprising predictions: emergence: segregation

One of the hallmarks of complexity in cities is the their action or evolution from the bottom up as millions of little decisions without co-ordinated collective action. Segregation is a case in point

Let me explain using Schelling's model which is based on how very mild preferences to live alongside people of one's own kind where a population is quite happy to live with those who hold opposite views if that number of half the neighbours, can unravel if the balance switches

Here are some notions of what might happen and I will show how the model runs…



The Program

There are many variants of this model but it shows quite directly

a) how mild preferences lead to extreme segregation

b) How we cannot anticipate how local leads to global

c) How this is all based on connections-interactions

The need to intervene at key pressure points

Less is more, said Mies van der Rohe, and as we understand more, we should intervene less?

More is different, says Philip Anderson

Essentially as cities grow they change qualitatively and when all the worlds a city, then growth will not stop but it is change that is all important

In cities, ‘what we see is not what we get’ as the physical form is relatively inert.

Cities change more in what takes place and what interacts within a comparatively fixed physical form.

Less is more: the new mantra for planning

The idea that we should intervene less is an attractive notion because in planning we have intervened so much that we now are on the back foot, planning is often seen as part of the problem rather than the solution.

Hence the notion of wicked problems

This may not in fact be the logical consequence of increased complexity because within increasing complexity, we have more and more possibilities for intervention.

We need to think this through so much better than we have so far.

A Global Institute

And of course when all the world's a city, then things may change yet again as complexity will be more focussed not on size per se but on distribution. Hence the need for massive comparative analysis

No longer should the focus be on differences in size and development but on qualitative differences that such a global institute should address

A global institute on cities would focus on appropriate strategies for planning in a global, connected, and of course digital world.

To conclude, I would like to refer you to my Web Sites

http://www.complexcity.info/

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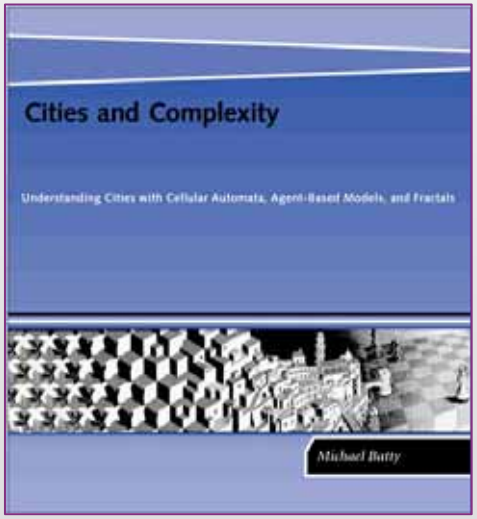
and my book



MIT Press, Cambridge, MA, 2005