



# Space as a Machine

## introduction to space syntax analyses

Seminar and workshop, course 3.312, October 21-31 in the big auditorium in the IT-building.  
Associate Prof. Bo Grönlund

Do you want to understand space in its complexity in a systematic way and how it relates to human activity? Do you want to simulate spatial consequences of your architectural projects interactively with computer software? Then the course 'Space as a Machine' might be something for you.

Space syntax analyses is a theory and method to understand and work with architecture and spatial configurations. It is developed by the Bartlett School of Architecture at UCL in London since the early 1980's (see <http://www.spacesyntax.com>). Space syntax can be used on both cities and buildings and is a contribution to an analytical theory of architecture, which is concerned with the combination of spaces, space as a network, and space as visual fields. The course will give an introduction to the theory and its development as well as the opportunity to try out the special analyses and simulation software in a workshop form. The idea with the course is also to give students a possibility to work with space syntax on their own semester projects.

Space syntax is now an established scientific way of doing spatial analyses in architecture and urban environments. It is today used by a growing number of architects and others with interest in the spatial configurations of the built world - from London to North America, Japan, China and the Middle East - from Chile and Brazil to Northern Europe. The methods are initially developed by Bill Hillier and Julienne Hanson in the books 'The Social Logic of Space', 'Space is the Machine' and 'Decoding Homes and Houses'. Many others have contributed as well, e.g. PhD students. Since 1997 there have been international space syntax symposiums every 2 years - the 4th in London in June 2003. Many architects have presented their space research here, much of which is freely available on the internet. Bo Grönlund has taken part in 3 of the symposiums and will report from the forefront of spatial research development.

### Program:

#### Tuesday October 21:

9.30 - 11.30 Lecture: Introduction to morphology and typomorphology analyses in the built environment.  
11.45 - 12.00 Lecture: Introduction to the basics of space syntax analyses and its phenomenological backing: the isovist, the convex space, and the axial line. Methods and measures for scientific analyses and simulation of the configuration of complex spatial systems.  
13.15-15.15 Workshop with space syntax software - basic features of the programs 'Axman', 'Spacebox' and 'Pesh'. Learning a new way of looking at space with the help of these programs.

#### Wednesday October 22:

9.30 - 18.00 Workshop: Using 'Axman' to build an axial map of Copenhagen. (Students form groups that sign up to do specific areas - the task will take about 4 hours. The time frame for when you do it during the day is flexible - groups and time frames will be settled the day before).

#### Thursday October 23:

9.30-11.00: Lecture: Space syntax and observation analyses. Typical observations: Movement of people and traffic. Static people (sitting, standing, etc.). Location of shops and cafes. Building heights. Location of entrances. Other data may be used as well, e.g. prices of land, plot size, noise, pollution, crime, bus and train stops, etc. Statistical software tools for analyses of relations between spatial configuration and other observations are introduced as well.  
11.00- 15.15. Field studies. Space syntax and observation - a case study in a selected district of Copenhagen.

#### Friday October 24:

9.30 - 12.00: Workshop: Bringing observation and space syntax together. Students axial maps from Wednesday and observation data from Thursday are analyzed together to see possible correlations and other systematic findings. Discussion of results and of what has been learned.  
13.15-14.00 Lecture: Some systematic findings of relations between urban spatial configurations observation data

- towards a theoretical and practical understanding of urban space. Results compiled from research within the international space syntax community. This lecture is at the same time an overview of fields of application of space syntax so far.

14.15 - 16.00 Workshop: Students bring their own semester projects from their departments. Discussion of how space syntax analyses can be used in these projects, and what preparations have to be done to be able to work with space syntax analyses on these projects the following week.

#### Monday October 27:

This day the workshop is open to finish the studies of week 1 (if needed) and to get individual guidance for the use of space syntax analyses in the student's own semester project (if wanted).

#### Tuesday October 28:

9.30- 10.30 Lecture: Space syntax and building analyses. An overview of some exemplary cases, methods and findings.  
10.45 - 12.00 Lecture: Space syntax software for building analyses: 'Pesh' and 'Depthmap'. How does these software packages work and what can they do?  
13.15 - 15.15 Workshop: Some basic exercises in building analyses. Discussion of possibilities.

#### Wednesday through Friday, October 29 - 31:

9.30 - 18.00 (Thursday 9.30-14.00) Open workshop. Students bring their own projects for space syntax analyses, or can get more advanced tasks to work on from the teacher. Students come and go according to agreement in advance.

#### Friday October 31:

14.15-15.15 Lecture: Summing up. What have we learned? Discussion and proposals for improvement of the course.

NEW! The Axman software is now available for use via the Internet. The Internet version of the program works with a server at Bartlett in London, and can be used freely by architectural students throughout their architectural education - and from any internet connected computer in the world.

All students taking part in the course will be given a CD-ROM with literature on space syntax analyses.

This program can be downloaded from the Internet at: [http://homepage.mac.com/bogronlund/3\\_312\\_2003fall.pdf](http://homepage.mac.com/bogronlund/3_312_2003fall.pdf) and references with clickable links at: [http://homepage.mac.com/bogronlund/3\\_312fall2003ref.htm](http://homepage.mac.com/bogronlund/3_312fall2003ref.htm)

**NB! Deadline for signing up is already October 7,** because the course have been moved to start a week earlier than announced in the 'Undervisningsplan 2003-2004'. This is due to the limited availability of auditoriums with IT equipment. Sign up at the list for foreign students in the 'study office'. The course is open for Danish students as well, and some instruction in the workshop will be in Danish for students who prefer this.

