URBAN TOMOGRAPHY: GRAPHICALLY EXPLORING THE URBAN REALM:
A FORM OF AUGMENTED SECTIONING

drs. architect tomas ooms
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Faculty of Architecture KU Leuven

presented at the:
third international conference
global dwelling
Manchester (UK)
2309 2016
“space is inherent in a plan but visual in a section”

Paris 1995, Nasrin Seraij
La Ville Poreuse
Secchi-Vigano
2011
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HESLETON PARISH TRANSECT

Vale of Pickering

Yorkshire Wolds

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Making sections each 45 m through the plot. Each section cuts through the most important zones.

The section lines were taken as zero intensity lines, equal private as public. For each section a line was generated, highlighting the intensity of public or private zones through the plot.

By highlighting the buildings and making the front black, the graphic became stronger.

The football field is drawn to have a point of orientation.
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**Topic:** Visual permeability: Depth of View

**Marker:**
- Low permeable: Limited depth of view
- High permeable: Large depth of view
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In Ostend, soft edges are rare. The streets and seawall are overshadowed by tall apartments and buildings. The height of the building is four times the width to emphasize this.

Five lines are drawn, the starting point is always a seawall. Five sections are made, starting from the sea to the queen Astrid avenue, through Ostend. The contours of the buildings are drawn as black volumes.

Looking for the soft edges, an analysis is made through these sections. The white dots on the black buildings represent the number of balconies. The balconies are a part of the identity of Ostend as a (touristic) beach town. The white space at the bottom of the buildings are public places, as restaurants, cafes, stores,...

In Ostend, the balconies are soft edges by way of making the big facades more interactive and less closed. It provides the opportunity to bring (and show) the life of the inside to the outside. Remarkably, the deeper you penetrate Ostend, the lower and more closed the buildings become.

The first part of the section, the breakwater, the sand and the seawall, are a soft edge as well.
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The goal of urban tomography is to show the perception of the streets in Torre Barro. The urban district of Barcelona is located at mountain slope with various topographical changes. Therefore, typical sections do not show real the feeling of the place. As the roads are the only spaces that are publicly accessible, that is one the way to show the urban perception in that place.

Creating grid (130m x 130m) was the basis to highlight 2 crucial aspects: street section, how the road changes height above sea level, elements that limits the street: colors shows different urban borders (see legend below)

Drawings are orientated. Graphs above the section line show left hand side of the street, those below, right hand side. The height of marks is determined by the view limit, the longer the stripe is the longer view is possible.
This paper shows the space flow of streets and conclusions of Streetscape Tomography. From every section, it is possible to observe characteristic features that are repetitive in many points in Torre Baro.

Drawings 05.06. 07.08: By simple modification of drawings 01.03: space flow shows. By selecting only graphs of live vegetation, high vegetation and leftones, we can observe how the street space is limited by urban elements. Characteristic is that after every moment, where the flow is strongly limited by buildings and walls, there is long perspective on landscapes.

Drawings 08.08. 07.08: Drawings show number of roofs and entrances from the street. By own placing it over drawings 01.03.02, we could observe that number of housing units (families) are not reflecting urban perception. Typologies with common stairs often hide the real number of inhabitants, especially when we stand on upper part.

Drawings 08.08: It shows characteristic moment with the junction with the other street. It often goes with certain empty area nearby.
When we went by for the first time, we were struck by the strong contrast between the organization of different typologies, function, and community that coexist in the place. Therefore, borders and boundaries seemed to be an interesting marker to research on this neighbourhood.

Although "border" and "boundary" are commonly confused, as both are considered edges, semantically, and applied to the context of public and private space in an urban context, they are different from each other, being permeability the main element which distinguishes them.

Therefore, we developed two different types of analysis. One of the visualizes the permeability of the neighborhood from its perimeter, the cultural limit. In it we trace the distance of open straight view that you have until its reaches a wall. If it is possible to walk through it, when is it only a visual edge, and when does it cross an open area, such as the docks.

The second analysis focuses directly on one of these borders/boundaries. We show the limit in between the residential area and the industrial, monofunctional blocks, which make a clear difference, mainly highlighted by the difference in heights, where big mills and silos become a strong presence visible from most of the streets, and which block the view and connection towards the water, the only open area in such a dense environment.

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We traced sections through that street every time there was a change in between each side, which already gave us a modulation, showing in which areas there is a bigger contrast at different heights. We calculated the factor resulting from the proportion between facing facades, multiplied by 10. On one side of the graphic, it shows the industrial part, and the other corresponds to the housing. In the points where there is a street or an empty plot, this factor will be much higher. This analysis also shows clearly the areas where the contrast of heights is bigger.
Saint Josse ten Noode is a super diverse district, having the highest dense and number of immigrants of Brussels. Safety is one of the significant issues in the area. Several boundaries make this district being divided into sections along the length of the area with different characteristics. Therefore, a long section has been selected to investigate on the safety throughout the region which relates to the rhythm of the urban activities.

As architectural facades are elements that can alter the routine of urban activities, then what happens on those facades such as hours of daily operation corresponding to the function of architecture could be a marker which generates rhythm of circulation in the city space. By using tomography as a tool of approach, the relationship between architectural factors and social factors is discovered.

Three times a day at 8h, 15h and 20h, statistics of pedestrians and vehicles were recorded practically along the route of 2km in order to facilitate the comparison and evaluation.

Each line in the tomography corresponds to a counting unit of an object (pedestrian or vehicle). A gray layer is superimposed at the bottom helps readers link between the elements of the tomograph easier.
Working towards a reading / URBAN TOMOGRAPHY, imaging by sectioning / CONCEPT BY DRAWING - Maig14 KUL Faculty of Architecture KU Leuven Tomas Ooms
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