



I01 – Welcome to the 13SSS!

The power of number 13

Introduction to the proceedings of the 13th international space syntax symposium

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Dear participant,

Welcome to the 13th international space syntax symposium (13SSS), for the first time arranged in Norway! Welcome to Bergen, the amazing small but beautiful city squeezed between seven mountains! And, welcome to the 5 years young – but very dynamic Western Norway University of Applied Sciences (HVL) at the campus in Bergen. Next year HVL is heading for a university status, becoming the University of Western Norway. The HVL campus in Bergen is located at Kronstad light rail stop, which is currently the largest transformation area in Bergen. The HVL buildings and the outdoor areas at the Bergen campus are just finished, making it an excellent venue for the 13SSS.

Finally, after a break of three years due to Covid19, we managed to meet again on an international space syntax symposium. Originally, we should have met last year in Bergen. But then it was impossible to enter Norway due to closed borders as an effect of strict Covid19 measurements. Words come too short to express how happy I am to see you all in Bergen, and that we finally managed to arrange this symposium in line with earlier traditions.

During the last two years, I have been daily keeping the updates of the Covid19 numbers from various countries, making prognosis on the developments of vaccines and recorded Covid19 cases, trends, scenarios etc. This was done with purpose to plan how, when, whether 13SSS should be arranged physical or not, or go for an online conference option. Normally a SSS is arranged every odd year - except from 8SSS in 2012. Therefore, 13SSS is arranged in 2022, 10 years later after the 8SSS. Maybe there is something about the number 13?

The number 13 is somehow associated with a negative impact. In the fairy tales we hear about how the 13th fairy affected the future of Sleeping Beauty, that Friday the 13th is a day with bad luck, that Judas the 13th apostle betrayed Jesus Christ, and that there are some hotels where room number 13 does not exist, and so on. The examples from history, daily practice and fairy tales are many. Before stimulating any kind of triskaidekaphobia – the fear of number 13 – we can at least conclude that the number 13 is extremely strong. Regarding the 13SSS



we can conclude that we managed to organize it, keep up the spirit, and to let the show go on in line with earlier traditions. Our HVL team never gave up organizing this event during the large digital changes during the last two years. Therefore, 13 must be a very strong number!

Space syntax deals with numbers. Behind every line or space of a colourful space syntax map, there is a number. This number indicates the degree of spatial integration, whether it is in a space in a small room or up to a street or road in a large region. Everything is related to each other in the spaces of a built environment, measured in numbers. During the years the formulas for calculating numbers have improved. Likewise, the software developments and computer capacities during the years have improved the capacities to calculate a larger number of spaces inside complex buildings as well as outside in the large metropolis that we could dream of 30 years ago. The first space syntax calculations were done manually. All this started up in the 70th with Professor Bill Hillier and his colleagues at the University College London.

At this symposium we have a memoriam session for Bill Hillier. He sadly passed away 6th November 2019. This is the first symposium that Bill Hillier is not among us anymore. But throughout the years, the PhD students under his supervision have become prominent well known international space syntax scholars. This shows that space syntax is alive and continues to grow. Bill Hillier's legacy goes on. Therefore, we continue the traditions to held space syntax symposia. It has come to stay. The shows go on. Also, here in Bergen at the 13SSS. We continue to meet physical and offer the online option for those who have difficulties to travel to Bergen.

While we were waiting for 13SSS, Laura Vaughan, Meta Berghauser Pont and I decided to arrange an online space syntax PhD conference 21st June 2021. Three years between space syntax symposia is too long for a PhD student who need the SSS for getting feedback, input, inspiration, ideas, and to develop a social scientific network. For this conference we received 50 abstracts from PhD's all around the globe. The online conference was hosted by HVL with three parallel zoom sessions. My valuable colleagues Linn Jeanette Fylkesnes and Wendy Tan were helpful to make this online event to a success. Likewise, my thanks go to the help we got from our valuable reviewers: Claudia Yamu, Jane Bobkova, Chiara Garau, Sharifa S.S Mahdzar, and Kimon Krenz. From now on, we managed to set a new tradition: To regularly arrange a separate online space syntax PhD symposium every second year.

This separate online space syntax PhD conference show that the Covid19 made the word even more digitalized than before. It was possible to meet online at the same time, but in different time zones. Various space syntax scholars joined online for commenting the work of the PhD students. Even though I was happy to meet established as well as new young space syntax researchers online, I felt that I missed to see you all live. The social aspect is even as important for exchanging knowledge. Therefore, we decided to go for a physical event, with opportunities to attend online for those who have difficulties to come to Bergen.

In total we received 330 abstracts, 210 full papers, and 196 submitted papers. The participants come from 41 different countries across the word. All continents are represented. Most of the papers meet the standards of reliable and efficient academic work, and many of them are written by young promising researchers. With this



high number of submitted full papers, the reviewing committee needed to be extended with several new members. Throughout the years we have become a large space syntax family. Space syntax continues to grow, to develop, to improve. We welcome all new members in the big space syntax family. It means that the numbers of space syntax users continue to increase worldwide.

Space syntax in Norway

For the newcomers at a space syntax symposium, what is then space syntax? First, Space syntax is a spatial analysis tool, calculating and quantifying spatial relationships in built environments on all scale levels. In towns, cities and villages, space syntax calculates the degree of spatial integration of a street in relation to all others in a given system. Inside buildings, space syntax calculates the degree of spatial integration of all rooms in relation to all other rooms.

The results from the spatial analyses can be compared with a large set of socio-economic data, such as pedestrian flow rates, property prices, crime distribution, location pattern of urban functions (shops, dwellings etc), degree of building densities, etc. As worldwide research has shown, there are correlations between degrees of spatial integration and various socio-economic data. Therefore, space syntax is recent applied in urban design and regenerating of urban areas and improving the way finding in complex buildings (such as museums, art galleries, hospitals, schools, offices etc).

What is the societal contribution of space syntax? Research and theory building on built environments is a very young discipline. Space syntax has so far succeeded in making an operational spatial analysis method that is tested worldwide on all kinds of built environments, independent on cultures and political systems. Space syntax gives scientists the mathematical support to understand and support their substantiate observations and to derive their conclusions with facts regards research on built environments.

Now we managed to bring a space syntax symposium to Norway. What can space syntax add to Norwegian research, planning and design practice? Currently, national and regional policy documents stresses that we are in need for a sustainable development. Norwegian built environments are extremely private car dependent. Only in the large cities, such as Oslo, Bergen, and Trondheim we see an urban development turning towards a compact city with good walking, cycling and public transport facilities. Densification in existing urbanised areas is on the agenda. In the remaining towns in Norway, however, we still observe an urban sprawl practice with enhancing new single-family homes with high private car dependency on unbuilt land.

Currently, there is a revolt going on in Norway named 'arkitekturopprøret' (translated as: the architectural revolt). Newly implemented buildings in urban areas are criticised that they are experienced as not bringing anything good for the existing surroundings. Building facades lacks windows and active function on the ground floor level, large parking garages are implemented on ground floor level with large blank concrete walls, contributing to that adjacent streets are perceived as scary, ugly and un-inviting for social activities. What is needed is to have operational scientific grounded spatial analyses tools to evaluate new building as well as



planning proposals when they are on the drawing table and not after implementation. Space syntax has the potential for this role. The challenge is that architects, urban designers and planners need to know how to apply these tools into practice. Therefore, training as well as research is needed.

Since 2014 we have educated students in applying space syntax into practice in urban transformation at the Western Norway University of Applied Sciences. The first master theses where space syntax is applied graduated in 2017. All students got a job in various municipalities, consultancies and road building authorities. The first thing they do, is to show their new bosses and colleagues about what space syntax can contribute to in planning practice. The students use their projects from their master education as showcase to show how space syntax work in practice. We have still a long way to go, but the snowball has started to roll. In autumn 2022, Oslo Metropolitan University will offer space syntax in their new master program. We hope to see the effects in practice the coming years in Norway.

Where are we now?

Space syntax develops constantly. Three remarkable phases can be seen, since the first space syntax symposium taking place in London in 1997. In the first phase, in the 1990's, the software Axman, Pesh, Uba Pesh and Orange box were used. Only topological distance was used, and the local and global integration was used. A plan for an upgrade of Trafalgar Square was made based on the global axial integration analyses. The second phase started short after the millennium. The calculations for an angular analysis of the street and road network were introduced in 2001 and later incorporated into the Depthmap software in 2005. Later, the formulas for normalization for the angular choice (NACH) and angular segment analyses (NAIN) was introduced and refined in 2012 at the 8SSS. The third phase started in 2015 and consists of the following three directions: theory development, application of space syntax in practice (consultancy), and incorporating space syntax into the education system. And that is where we are now.

Like earlier traditions, we start the first day with software demonstrations and testing. I continue with the traditions, like I did since the first time at the 6SSS with the DepthmapX software workshop for the newcomers. In addition, we see other softwares that starts to get a regular tradition at a space syntax symposium, such as the Place Syntax Tool (PST). Moreover, we got workshops on the Architectural Scenario game, The Isovist_App, sDNA: 3D pedestrian network mapping, and SpaceChase for Grasshopper. These workshops are useful for the exchange, learning process and upgrades of knowledge within the community. Many credits are given to Alain Chiaradia, Lingzhu Zhang, Meta Berghauser Pont, Gianna Stavroulaki, Ann Legeby, Daniel Koch, Nilufer Kozikoglu, Pelin Dursun Cebi, Tugrul Yazar, Emrah Kavlak, Ceylin Oz, Omer Bilge Ersoy, Cagla Yilmaz, Melike Sena Erden, Ogulcan Unesi, and Sam McElhinney for running the various workshops on 20th June.

On the second day, this year we have a special plenary session at the opening about Bill Hillier, his legacy and his work. It is led by the following leading space syntax scholars that has been under his supervision: Tao Yang, Sophia Psarra, Frederico Holanda, Margarita Greene, Ruth Conroy Dalton, and Vinicius Netto.



On the third day we have invited Mike Batty and Claudia Yamu to give a keynote lecture for the metropolitan scale level. For the local scale, on the fourth day we have invited Anne Minton to give a lecture for a critical view on current urban design practice, and Julie Zook for giving a presentation on the spatial configuration for complex buildings. On the last day, at the closing address we invited two young space syntax researchers, Kimon Krenz and Giovanna Stavrolaki. In addition, we have a short book presentation session about the new books that have come out related to space syntax. Many credits are given to all keynote speakers for their valuable contributions for keeping up the high quality of a space syntax symposium.

In line with earlier traditions, we have parallel sessions with a wide range of exciting topics where space syntax is applied from researchers all over the world. During the conference we have a poster presentation that shows research in progress or application of space syntax into practice. What is new in a space syntax symposium this year is the 'Nutty Nerdy Corner' table. This is the place where the participants can (hopefully) get answers on particular space syntax related questions. This is also a table where the space syntax nerds can meet up and exchange ideas. We have some bar sessions with a social program and a space syntax quiz, and of course a midsummer night party on the day with the longest daylight of the year. I hope that the weather is nice so that you can enjoy the beautiful bright pink and blue coloured summer night sky in Bergen. After the closing session, I hope that the weather collaborate so that we can arrange some small tours into the city centre, the mountains or the surroundings of Bergen. Credits are given to Remco de Koning, Sverre Myklebus, Kristoffer Hansen and Vegard Øverstad for helping us with these tours.

Credits for realising 13SSS at HVL in Bergen

There are many people I would like to thank for making 13SSS possible in Norway. First, my thanks go to the HVL team in Bergen that has been very supportive for hosting this event in Bergen. Many thanks to our inside team from HVL: Thale Åsli, Linn Fylkesnes and Simen Langeland for helping with all the administrative and practical issues, and Remco de Koning and Wendy Tan for reviewing abstracts and papers. Likewise, credits go to Arve Leiknes for being very positive and provide me with resources and staff, and my colleagues Carolyn Ahmer, Fredrik Ingmar Boge, Irene Holvik Johnsen, Anne Sofia Bjelland, Ane Lyng, Connie Reksten and Hans Jacob Roald for their extra support. In addition, my credits go to IT-avdelingen for their technical support during the event.

Likewise, my credits go to the members of the newly created 'Space syntax Interim committee': Laura Vaughan and Meta Berghauser Pont for their valuable support. This active interim committee has been extremely valuable for the planning of the 13SSS and the content of program. In addition, credits are given to the international steering committee and the international reviewing committee. See lists below. These committees are extreme value for keeping up the high scientific quality of an international space syntax symposium. In addition, I would welcome several new members of the space syntax international reviewing committee. This made it possible to conduct a double-blind review of all the submitted short and long papers. In addition, credits are given to Abdelbasseer Mohammed for being a good back up with his space syntax competence for proofreading a high number of space syntax papers.



Like earlier years, we got extra volunteers from UCL London – the master students attending the advanced architectural study course. Their help and presence at the 13SSS are the future space syntax researchers. In 2005 I organised the 5SSS in Delft. The advice I got from the chairwoman for the 4SSS, Professor Julienne Hanson at that time has still been useful for planning the 13SSS. Therefore, many credits are given to her, because her advice from 2005 has followed me during the preparation of 13SSS.

Finally, my biggest credits are given to each and every one of you who contribute with your paper, posters and presentation. You are not only contributing to an excellent international space syntax symposium, but also giving the high level of scientific content to the online conference proceedings. This might explain as to why the international space syntax proceedings are Scopus indexed. The conference is as good as its participants, and the level is this year – as usual – very high.

The HVL team wish you all wonderful days in Bergen – physically as well as online. Hopefully the weather will collaborate so that you can enjoy the beauty of the city of Bergen and its surrounding mountains and fjords to its maximum during these bright long summer days and midsummer nights.

Akkelies van Nes

Bergen 17 June 2022

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