A taxonomy of connections

U-JOINTS

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When the joint starts jumping

Connections and joints in playground furniture

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The ideal, child-friendly city does not limit play to certain rooms or plots. That is because play is possible in endless variations. It is not bound to any particular place, it is undemanding and basically needs no equipment. Children entertain themselves with simple clapping, singing or bouncing games. They only need their own body and that of the other person.

The most famous pioneer behind the concept of the child-friendly city was the Dutch architect Aldo van Eyck,[1] known for his 700 playgrounds and play niches in Amsterdam. After the Second World War, he was responsible for the design of playgrounds as an employee of the city's planning department and later as a freelance architect for about 30 years. In addition, he described playful needs as the measure of all things in urban planning. As one study of his work put it: "In the wake of TS Eliot, he [van Eyck] understands the child as a symbol of origin which includes its end, as a promise of full human existence. Hence, he propounds it as a touchstone for true urbanity. Cities can only be human if they are also designed for children."[2] In this respect, the city is to be understood as a network with numerous nodes, where social city events crystallise, but also articulate. Van Eyck said that this is not only ideal for children, but that the city as a living organism is dependent on this network structure of meeting points. He criticised the functional-rational way of thinking as represented by the CIAM (International Congresses of Modern Architecture) and contrasted the idea of the functional city with that of the humane city. In the 'conventional' city, however, the playground is the only public place where adults have no authority of interpretation. Children are in charge here and more children can be found at a playground than in any other urban public space. In addition, the stay is free of charge and without expectations of performance.

The chance to meet children is high, and through the meeting of children the desire for play, movement and communication arises or increases. This gives the playground – especially for children aged 1–12 years – the function of a hub in an urban space. Teenagers, on the other hand, no longer allow spaces

1. Aldo van Eyck (1918–99) was a Dutch representative of the Structuralist movement. In 1947 he began working for the Department of City Development at Amsterdam Public Works, where he was asked to design playgrounds for every neighbourhood in the city. That same year, he became a member of CIAM (Congrès internationaux d'architecture moderne). Van Eyck set up his own office in 1951; however, in parallel he continued designing playgrounds for the city of Amsterdam. In 1953, he joined Team X, a group of architects within CIAM who believed in humanist and participatory architecture.

2. Francis Strauven and Vincent Ligtelijn, "Introduction," in Aldo van Eyck, *The Child, the City and the Artist* (manuscript of 1962), SUN (Amsterdam, 2008), p. 9.

to be assigned to them, but rather seek them out for themselves and in the process get into conflicts because they are not always welcome to hang out in public space (with the exception of the skate park).

The playground was created in the course of industrialisation; it is often a standardised product with industrially produced objects. In addition to the mostly sterile and unimaginative objects and equipment, there have been some outstanding playgrounds create over time. How was this possible? The moment of articulation was certainly determining and decisive. Play objects are mostly immutable and immovable and only come to life when the child uses them. Most standard equipment, such as slides and frames, is fixed and immobile, or only allow moves in predetermined directions – the swing or the merry-go-round, for example.

Left:
Swing-Around, Oscar K Merritt, Mount Airy, Nort Carolina, ca. 1980

Right:
Conrad Roland's Three-Dimensior Network, Berlin (*US Patent No.* 3,970,30. granted on 20 July 1976).

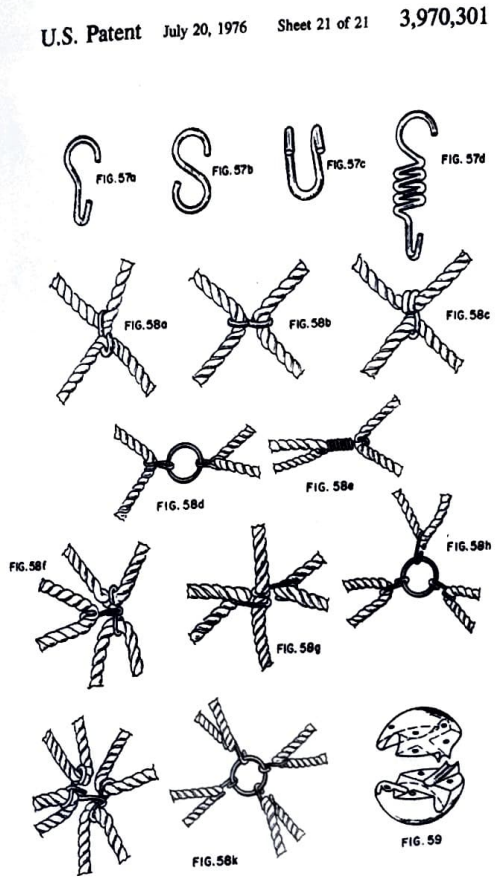
Prototype of the Giant Octa Net by Conrad Roland in Berlin-Grunewald, 1970

For children, the challenge grew when freely moving parts could be combined with fixed elements, made possible by joints, knots or other connections. The goal was no longer absolute stability, but mobility. During the 1950s, the first devices with parts that could move on all sides were developed. There were a number of hurdles to be overcome on the way to achieving this because the technical demands of movable and yet robust materials were high: the willingness to experiment and the availability of new materials made these developments possible. Joseph Brown[3] must be mentioned in this context. In the course of his unusual career, first as a professional boxer, then as an artist and university lecturer at the Princeton School of Architecture, he came into contact with the design of play equipment by chance. Through his inspiration with sports, and especially with boxing, he had the image of a moving sculpture made of rope in his mind and was looking for ways to make a piece of equipment move. Of course, he did not work with stone or concrete, but with materials that allow movement per se: rubber, rope (steel-cord rope) or springy metal (spring-steel). In 1955, he described his inventions in the *Architectural Record*: "The Jiggle-Ring, made of rope with a steel core, can be used simultaneously by adults and children without condescension on the part of either. Height, weight, and age are not advantages when the joint starts jumping… The Swing-Ring is made of rubber, rope and steel: it can rotate and swing, depending on the efforts of the individuals involved. With the proper respect for gravity, inertia and his fellow man, a child can learn to keep the ring swinging and going around without the aid of a pusher."[4]

Brown designed three particular prototypes of movable playground equipment: the Jiggle-Rail, Jiggle-Ring and Swing-Ring, where his goal was to bring movable materials into a stable form. Although he received a lot of media

3.
Joe Brown (1909–85) was an American sculpt The son of Russi immigrants, he won a sports scholarship to university. Short before his expec graduation in 19 he left universit and became a professional bo Following an injury, he worke part-time as an artist's model a became interes in sculpture. He went on to become the assistant of sculptor R Tait McKenz Combining his sculptural sensibility with his awareness the fundamen importance of movement for the human bo in 1950 he turn his attention t play equipme Nine years lat Brown publis the book *Cre Playgrounds Recreation* C containing th of his project focused on p as preparatio the responsib of adulthood

attention from the experts, his ideas hardly ever got beyond prototype stage. However, he was not the only person to be inspired by the idea of mobility. Oscar K Merritt (1894–1979) from Mount Airy in North Carolina, owner of a store for metal goods, began to tinker with this idea after his retirement. In correspondence with Brown, he enthusiastically described his invention Swing-Around, which he had developed and set up in the garden for the delight of the children: "The bottom ring is galvanised pipe, 244cm in diameter. There are 16 chains connecting the ring to the ball-and-socket joint at the top and they are 244cm long. The post in the middle is galvanised pipe."[5]



This may have given Brown the idea of making his 1954 model climbing tree rotatable, but he chose a less sophisticated technique than Merritt suggested. Merritt also filed a patent in 1958, but his spinning tree flopped – as did Brown's. It was too expensive and technically too sophisticated. Merritt rightly pointed out the advantages of the spinning tree: many children of all ages could play at the same time and the purchase of a single device was enough for an entire school. Although the idea did not reach industrial maturity, it became a successful product much later.

From 1961, the German architect Conrad Roland[6] perfected the idea of the rope-and-net structure. In 1970, he designed a spacenet as children's play equipment for the first time and brought the climbing net to worldwide success. The first type – the Giant Octa Net (1970) – still consisted of a frame made of aluminium, was not anchored, but derived its stability from its weight. The height was limited to about seven metres. Another model, the Spacenet (1973), had a firmly anchored mast and could therefore reach heights of up to 14 metres.

This gave the opportunity to expand the scope of play impressively and adventurously upwards. Many children of different ages were able to play on such playground equipment

[4] Joseph Brown, "Unpredictability – Margins for Inspiration", *Architectural Record*, no. 118, September 1955).

[5] Letter by Oscar K Merritt to Prof Joseph Brown, 06/01/1955, Joseph Brown papers (MS, 1854), University of Tennessee Libraries, Special Collections, Knoxville).

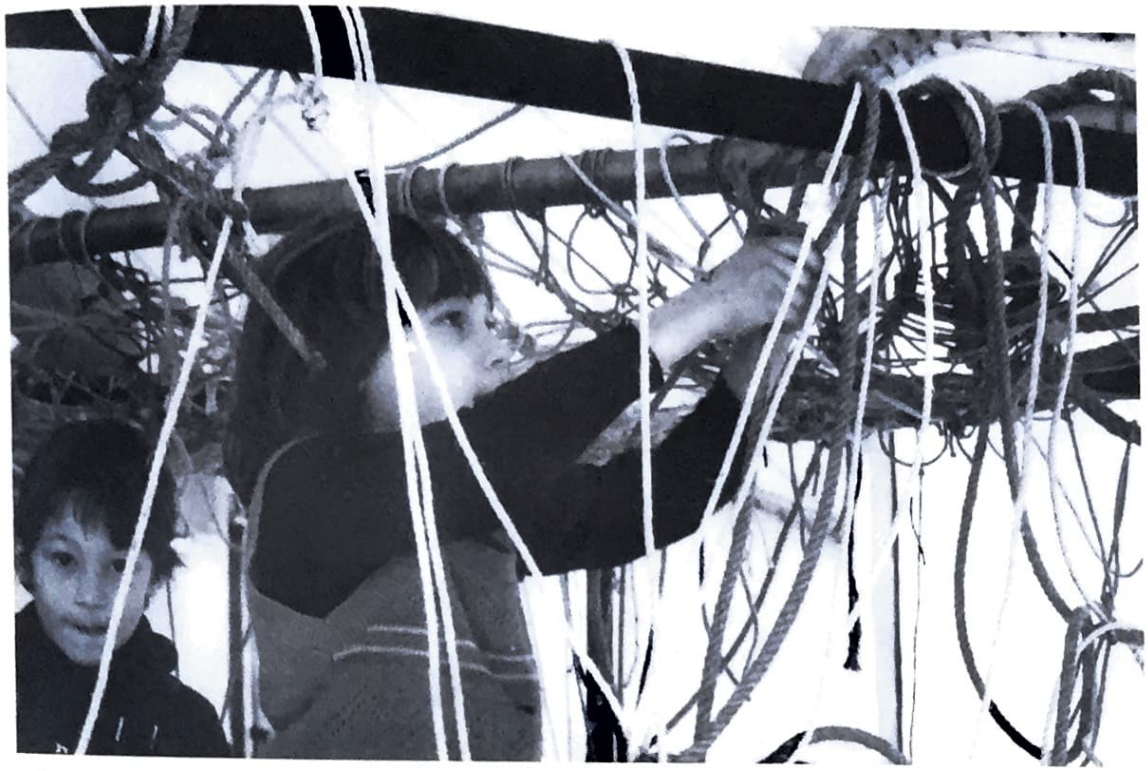
[6] Conrad Roland (Konrad Roland Lehmann, 1934–2020) was a German architect who focused on hanging and tensile structures. After working as a carpenter, he studied architecture under Mies van der Rohe and Frei Otto. Influenced by a publication on spatial network architecture by Otto – *Spannweiten* (1965) – Roland's work in the 1970s was mainly concerned with the development of play space nets. The Super Four Mast Spacenet that he made in 1987 for the Federal Garden Show in the Südpark in Düsseldorf remains the largest play space ever constructed.

at the same time, moving away from the adults who remained firmly at ground. This was one of the reasons why the equipment was also popular at major events such as federal garden shows, trade fairs or even in swimming pools. Thanks to various hooks and connecting elements, different net bodies could be hung on and inside each other, thus making possible a huge variety of shapes. Roland secured structures and nets in such a way that children could not fall far. He and his Corocord company installed hundreds of play nets all over the world.

In 1985 Roland sold the patents and company, and the success story continues to this day. In addition to these technically demanding and also expensive structures, movable connecting elements have given wings to cost-effective DIY structures. In the 1970s, in principle, anyone and everyone could build such play sculptures, but collectives in particular were fascinated by this type of process-based building. A good example is the rope park at the community centre Wipkingen in Zürich, which was built in 1977 by prospective craft teachers at the Zürich University of Arts. Part of Zürich's first adventure playground at the time, it was in place until 2004. The trigger was a survey among the children and young people in the Wipkingen district, who felt that the playground was boring and uncreative. Students, children and parents from the district then processed a total of 64km of avalanche rope into phenomenal rope installations, which bore names such as 'suspension bridge', 'net tube', 'mast basket', 'rope forest', 'wobble wood bridge', 'climbing nest', 'crow's nest' and 'giant hammock'. The teachers acquired their technical knowledge of knotting from the standard work *The Ashley Book of Knots* by Clifford W Ashley.[7]

7.
Clifford W Ashley, *The Ashley Book of Knots*, Faber & Faber (London, 1993), 1st edition, 1944. (see also p. 80)

8.
Group Ludic is a French collective formed in 1967 by filmmaker Simon Koszel (1939–2018, Poland), artist Xavier De La Salle (1938–2019, France) and architect David Roditi (b. 1937, England). Their unusual design approach involved collaborating directly with children to learn more about their needs and desires. None of the many playgrounds they built survives.



This rope playground became a legendary place and Zürich's most popular playground. In the almost 30 years of its existence it had to be constantly repaired due to weathering and acts of vandalism.

Another example of self-made structures comes from the French Group Ludic,[8] founded in 1967 in Paris by Simon Koszel, David Roditi and Xavier de la Salle. From the late 1960s onwards, they specialised in artistically refined, formally perfect play sculptures and mobile play modules. At the same time, they were also interested in discarded military material and other objects and converted them into play elements. From the 1970s onwards, they invited children to build structures themselves: first the medium was wood, and later they made knotting sculptures with the children. Group Ludic built playgrounds in holiday resorts on the Atlantic and Mediterranean coasts and in French satellite settlements and new towns. As time went on, they realised that they themselves had to be present as their local support was the most important factor. For a play offer in the framework of the 1979 International Year of the Child, the play leaders screwed together scaffolding poles from construction sites where children could hang nets and rope structures in without a plan and instructions: they were the Atelier Cordes (rope workshop). The knotting was simultaneously communication, cooperation, play and a place of rest and retreat.

Joints make the game vibrate, but also the city: they are tools against boredom, static and urban anonymity. They can be clean, technically perfect or chaotically improvised – they exert an unbridled attraction in all their forms. Children need joints and function like joints themselves in the city: they destabilise the familiar, well-rehearsed course of things, they connect and at the same time bring habits out of balance and into imbalance: when the joint starts jumping!