

Seven Steps to Organic Modernism: Alvar Aalto's Civic Centre in Seinäjoki Seen through the Lenses of Bruno Zevi

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Some scholars point out that modern architecture has been comprised of two parallel currents from its very beginning: rational and organic. Although many interpretations of modernism highlight industrial standardisation and mass production, Bruno Zevi suggested that the basic ideas of functionalism already included the principles of organic architecture. Here organic does not refer to nature's forms but to human life. In the 1970s, Zevi published his theory of seven invariants of modern architecture, which received mixed reviews. This study aims to update these invariants for being viable in our time by comparing them to Zevi's former writings dealing with organic architecture and the role of space in architecture. The invariants will be tested and elaborated in empirical analysis of Aalto's Civic Centre in Seinäjoki, Finland.

Background

The status of architecture as an independent scientific discipline depends on its ability to stand on its own theoretical basis. So far, the methodological field is very fragmented. Like many other architectural theoreticians, Bruno Zevi (1918-2000) did his bit by writing his most renowned book, "The Modern Language of Architecture" in the beginning of 1970s.¹ The seven invariants introduced in the book have partial convergence with the basic theses of functionalism, which makes the invariants seem somewhat anachronistic in the 1970s. However, that decade was the dawn of postmodern architecture which, for Zevi, meant a painful return of bygone classicism; there was nothing "post" for him indeed. His generation has experienced the rise of fascist, Nazist, and communist regimes with their enthusiasm for rigid classicist symmetry, monumentalism, and eclectic use of historical architectonic motifs.² The postmodernist movement was also the reason Zevi resigned from a highly esteemed professorship at the University of Rome.³

In his book, Zevi's main aim was to develop an explicit theory for differentiating modern architecture from numerous style variations of classicist architecture. According to him, modern architecture should have a language of its own in the same manner as classicist architecture had a lexicon, grammar, and

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1. B. Zevi, *The Modern Language of Architecture* (Seattle: University of Washington Press, 1978). The English version is a translation compiled of two books originally written in Italian: "Il linguaggio moderna dell'architettura" (1973), and "Architettura e storiografia" (1974).

2. A. O. Dean, *Bruno Zevi on Modern Architecture* (New York: Rizzoli, 1983), 17-34.

3. *Ibid*, 113-118.

syntax. It is important to notice the word order in the title of Zevi's book "The Modern Language of Architecture..." instead of "The Language of Modern Architecture...". This means that Zevi's purpose was also to create a generic framework for understanding architecture over historical periods, seen from the vantage point of our present time. According to Zevi, history will be alive by being interpreted this way.⁴ However, his approach is slightly problematic, as he bases his argumentation so strongly to specific time-bound motifs and technological innovations from certain period, like cantilevers or shell structures.

Zevi's theory has been widely criticised from diverse standpoints. For example, Conrad Jameson⁵ considers Zevi's aim to create a new grammar for modern architecture very ambitious, although Zevi didn't succeed in justifying the relevance of his invariants. Jameson takes "asymmetry", the second invariant, as an example, and tries in vain, based on Zevi's argumentation, to understand what it is that makes it "modern". Undoubtedly Zevi's argumentation is provocative, partly based on psychoanalytic theories. But finally, it is his sharp style that raises resistance, and gives impression that his main aim is to offend classicist and postmodernist architecture. Andrea Sauchelli⁶ criticises Zevi on his principles to prioritise space as the primary factor of architecture. However, Sauchelli reads Zevi from the vantage point of art historical methodology, whereas Zevi's aim is to develop architecture as an independent scientific discipline. These two approaches could meet better if Sauchelli had studied Zevi's two seminal books, "Towards an Organic Architecture"⁷ and "The Modern Language of Architecture,"⁸ alongside "Architecture as Space."⁹ These three texts together would have provided a wider picture of Zevi's ideas on the social substance of architectonic space.

Johanna Gullberg¹⁰ criticises Zevi's thinking on its inclination to define beforehand the evolving architecture. According to Gullberg, this is especially harmful, as Zevi has meant his invariants to be used in architectural education. The main reason for this kind of criticism lies in Zevi's habit to formulate his principles very concretely, avoiding abstractions, metaphoric expressions, and academic jargon. Manfredo Tafuri¹¹ claims that Zevi's effort is doomed to fail, since language as concrete and descriptive as this, equates to design. According to

4. D. Ricchi, *From Storia to History (and Back): Fiction, Literature, and Historiography in Postwar Italian Architecture* (Princeton, USA: Princeton University, 2016), 20-40, 54-67; Dean, *Bruno Zevi on Modern Architecture*, 1983), 35-49.

5. C. Jameson, "Review of The Modern Language of Architecture by Bruno Zevi," *Journal of the Society of Architectural Historians* 40, no. 1 (1981): 80-82.

6. A. Sauchelli, "On Architecture as a Spatial Art," *The Nordic Journal of Aesthetics* 43 (2012): 53-64.

7. Zevi, *Towards an Organic Architecture* (London: Faber & Faber, 1950).

8. Zevi, *The Modern Language of Architecture*, 1978).

9. Zevi, *Architecture as Space. How to Look at Architecture* (New York: Horizon Press, 1974).

10. J. Gullberg, "Voids and Bodies: August Schmarsow, Bruno Zevi and Space as a Historiographical Theme," *Journal of Art Historiography* 14 (2016): 1-20.

11. M. Tafuri, *Theories and History of Architecture* (London: Granada Publishing Limited, 1980), 106-107, 201-202.

Tafuri, purely textual criticism that examines its subject outside from the meta-level would succeed better.

The criticisms described above are well known and commenting on them is not the aim of this article. On the other hand, they are well justified, as they point out how Zevi undermines his own message by mixing his personal and political ideas into his theories. Yet, Zevi's provocative and polemical writing style should not prevent to utilise his basic ideas that could be extracted from his books. The aim of this article is to re-interpret Zevi's invariants into more practical and timeless forms, and simultaneously to analyse Alvar Aalto's Civic Centre in Seinäjoki, Finland, which is an under-scrutinised Aalto object from the standpoint of architectural theory.

To be precise, this study aims to update the seven invariants introduced in the book for being viable in our time by reflecting them to Zevi's former writings dealing with organic architecture. "Towards an Organic Architecture"¹² was Zevi's first remarkable publication on architectural theory. Without understanding the importance of this book, his seven invariants might remain partly cryptic. The invariants are: 1) Listing as Design Methodology, 2) Asymmetry and Dissonance, 3) Anti-perspective Three-dimensionality, 4) The Syntax of Four-dimensional Decomposition, 5) Cantilever, Shell, and Membrane Structures, 6) Space in Time, and 7) Reintegration of Building, City, and Landscape. On closer study "The Modern Language of Architecture" is deeply based on the principles found in Zevi's interpretation of organic architecture. To capture a good overall picture of his theoretical reasoning, these two books should be examined in parallel.

Methodology

In this study, the testbed for these invariants is Alvar Aalto's Civic Centre (1958-1987) (Figure 1) in Seinäjoki, Finland, complemented with the newer Apila library (2012) designed by architect Asmo Jaaksi. Aalto's church was completed 1960, town hall 1962, library 1965, parish centre 1966, office building 1968, theatre 1987, after Aalto's death, and the Apila library 2012.

Aalto's Civic Centre has been a subject of architectural analysis before, albeit quite rarely. Finnish architect Jaakko Penttilä's¹³ study draws on Dimitri Porphyrios' eclectic theory,¹⁴ which is one possible way to understand Aalto's approach, as he had a very distinctive repertoire of classic and "Mediterranean" motifs, like agoras and piazzas. However, eclectic methodology does not reach the deeper layers of architecture, the social, functional, and ethical. Penttilä's analysis

12. Zevi, *Towards an Organic Architecture*, 1950. The original book in Italian was published in 1945, "Verso un'architettura organica".

13. J. Penttilä, *Kaupungin kasvot* (Tampere, Finland: School of Architecture, Tampere University of Technology, 2009). Jaakko Penttilä's study is a master's thesis, but it is referenced here due to its high quality; it could easily be a licentiate work in most universities. Unfortunately, the study has been published only in Finnish, titled "Kaupungin kasvot", The face of a city.

14. D. Porphyrios, *Sources of Modern Eclecticism. Studies on Alvar Aalto* (London: Academy Editions, 1982).

focuses more on tracking different motifs and form elements, thus applying art historical methodology.

There is one quite frequently used concept found in analyses on Alvar Aalto's works: organic architecture. The choice is relevant, as Aalto himself tended to use the concept eagerly, albeit never defined it precisely. It seems to be a difficult challenge for the Aalto researchers as well, since too often the concept is left quite fuzzy with some references to nature's processes and morphology. Bruno Zevi took a different stance, as he highlighted the social aspect of organic, probably adopted from Walter Curt Behrendt's book "Modern Building – Its Nature, Problems, and Forms."¹⁵ Zevi also connects "social" and "spatial", thus providing new conceptual tools to better understand architecture's social dimension through multiple and constantly changing human practices. In other words, for Zevi, the actual material of organic architecture is social space ("Architecture as Space", Zevi 1974.¹⁶) It is fair to point out here that although Zevi is known in promoting space as a primary principle of architecture, he is not the first architectural theoretic to do that; August Schmarsow introduced the idea as early as the end of 19th century.¹⁷



Figure 1. *Seinäjoki Civic Centre Seen from the Roof of the Parish Centre. Aalto's Library on the Left, Town Hall on the Right Side. The Theatre and the Office Building on the Background*

Source: Ari Hynynen.

According to Zevi, to support ever-changing lifeforms by architectonic space, the designer ought to abandon all the stagnated conventions that might restrict emerging architecture. Without aiming for a precise definition, Zevi encapsulates

15. W. C. Behrendt, *Modern Building. Its Nature, Problems, and Forms* (London: Martin Hopkinson Limited, 1938).

16. Zevi, *Architecture as Space. How to Look at Architecture*, 1974. The original book in Italian was published in 1957, "Saper vedere l'architettura".

17. Gullberg, "Voids and Bodies: August Schmarsow, Bruno Zevi and Space as a Historiographical Theme," 2016, 1-20.

the idea of organic architecture as follows: “Architecture is organic when the spatial arrangement of room, house and city is planned for human happiness, material, psychological and spiritual. The organic is based therefore on a social idea and not on a figurative idea. We can only call architecture organic when it aims at being human before it is humanist.”¹⁸

The last sentence is noteworthy in that it is open to interpretation. If the basis of architecture is some “-ism”, then a doctrine already exists that is being followed. Here Zevi refers to the original principles of functionalism, according to which form follows function and changes with changed circumstances. However, it is essential to distinguish when “function” arises from some dogma or when it is based on the reality of life and its practices. To précis Zevi, visual form or aesthetics in themselves do not indicate the organicity of architecture, but rather one must assess the design approach, mentality, and method of the architect.¹⁹ Based on Zevi’s own writings and interviews,²⁰ it is fair to sum up that for him modern architecture, in its ideal form, applies organic principles.

The same kind of organic principle can be found as early as in Johan Wolfgang von Goethe’s (1749-1832) natural scientific writings, where the starting point is to develop theoretical formulations based on empirical contemplative investigation, not by trying to explain some phenomena based on existing theories. Central in Goethe’s scientific thinking is a phenomenon-centeredness that strives to understand totalities, retaining the study object within the perception of the senses. Transforming the study objects into mathematically measurable entities reduces their qualitative dimension to abstractions that can form entities only within the sphere of quantitative theories, but not within the human world of perception. According to Goethe, this leads to a break in man’s relationship with nature.²¹ Goethe himself did not use the concept of organic, but it is interesting that both Behrendt²² and Zevi²³ referred to his scientific or art philosophy.

Goethe’s scientific approach is a close relative to later philosophical and methodological systems, like Edmund Husserl’s (1859-1938) phenomenology, or grounded theory used in social studies.²⁴ These theories have been completely left out of the present study, since including them would have led to such areas of philosophy of science that would be beyond its scope. The philosophical

18. Zevi, *Towards an Organic Architecture* (London: Faber & Faber, 1950), 76.

19. *Ibid*, 71.

20. Dean, *Bruno Zevi on Modern Architecture*, 1983.

21. H. Bortoft, *The Wholeness of Nature. Goethe’s Way Toward a Science of Conscious Participation in Nature* (Edinburgh: Floris Books, 1996); Bortoft, *Taking Appearance Seriously. The Dynamic Way of Seeing in Goethe and European Thought* (Edinburgh: Floris Books, 2012).

22. Behrendt, *Modern Building. Its Nature, Problems, and Forms* (London: Martin Hopkinson Limited, 1938), 6, 127.

23. Zevi, *Towards an Organic Architecture*, 1950, 69.

24. B. G. Glaser and A. L. Strauss, *The Discovery of Grounded Theory: Strategies for Qualitative Research* (New Brunswick, London: Aldine de Gruyter, 1967).

relationships between Goethe, Aalto and Zevi have been noticed already in some earlier studies, albeit quite superficially and without proper analysis.²⁵

The conceptual framework described above helps us to appropriate the ideas presented in the book “The Modern Language of Architecture”. The book is built around seven invariants that, according to Zevi, are essential for modern architecture. The invariants will be tested and elaborated in empirical analysis of Aalto’s Civic Centre and linked conceptually together with a uniting storyline based on Zevi’s ideas on organic architecture. In practice, correspondences will be analysed between the seven invariants and the architectural solutions in the Civic Centre. The concrete operations include observations in site, as well as analysing drawings and photographs. The result of these operations will be a conceptual framework that helps us to better understand and use Zevi’s “language” in evaluations and criticisms of architecture, and, on the other hand, to also grasp Alvar Aalto’s architecture. In addition to these, the aim is to go a step further in developing the theory of organic architecture.

Results

Next, the invariants will be studied individually in their original order:

Listing as Design Methodology

The first invariant, titled “Listing as Design Methodology”, does not tell too much about its actual meaning. Yet, it introduces many key concepts as, according to Zevi, it lays the foundation for all the subsequent invariants. In fact, the term has a philosophical character in comparison with the following, much more concrete ones, as it captures a wide array of principles concerning architects’ basic attitude and approach towards built environment and its design. Further, in the very core of the invariant there is a built-in demand for modern architecture to be revolutionary. In Zevi’s reasoning, all historical eras have produced modern architecture in a sense, that modern is conceived as innovative and reformist, in other words: revolutionary.

According to Zevi, revolution is necessary, since the basic task of architecture is to produce spaces for constantly changing needs of human life, as well as to fulfil diverse emotional needs. On the base of this principle, Zevi’s societal program features not only a utilitarian political reform but, instead, its aim is to surpass daily practices and enhance individual happiness as well. The revolutionary

25. N. Ray, *Alvar Aalto* (New Haven and London: Yale University Press, 2005), 155; E. - L. Pelkonen, *Alvar Aalto. Architecture, Modernity, and Geopolitics* (New Haven and London: Yale University Press, 2009), 39; A. Hynynen, “A Deep Organic Re-Reading of Alvar Aalto’s Design Approach,” in *Proceedings of the 6th Annual Architectural Research Symposium in Finland 2014: Designing and Planning the Built Environment for Human Well-Being, October 23rd to 25th in Oulu, Finland: The 6th Annual Symposium of Architectural Research 2014 and The Annual NAAR Symposium 2014, October 23-25, 2014, Oulu, Finland* (pp. 28-39). Publications no. A61. Department of Architecture, University of Oulu.

aspect has also manifested in Zevi's idea to place architecture – at least partly – in the sphere of art: "...genuinely creative spirits have always started from the scratch."²⁶

It is exactly here, where the very core of the first invariant lies. For being able to start from scratch, an architect should unlearn all the professional substance that has been accumulated from past practices. "Listing..." means that an architect should be able to approach all his commissions open-minded without preconceptions and rulebooks, without simply repeating something already learned. Consequently, it is necessary to act without ready-made models, abstractions, theories, metaphors, dogmas, canons, as well as without a defensive shelter provided by the academic community. As we can notice, modern architects' mission outlined by Zevi is extremely demanding. As a representative of this kind of courage, he refers to Alvar Aalto, who was, in Zevi's mind, an augur of organic architecture in Europe.²⁷

Based on this introduction, how is the first invariant manifested in Aalto's Civic Centre in Seinäjoki? A good example of Aalto's way to start from scratch is the parish centre (Figures 2 and 3). In a classic sense, it is not an ordinary building and least of all an ecclesiastical building but, instead, it is more a landscape structure with a functional content. The parish centre surrounds the yard of the Lakeuden Risti church like a big retaining wall that holds the terraced land mass. The building does not manifest any convention typical of a church building, but it forms a zone of freely organised spaces to serve the parish's daily activities, as well as the landscape architecture of the whole building block of the Lakeuden Risti.



Figure 2. *Seinäjoki Parish Centre Seen from the Church Yard*

Source: Ari Hynynen.

26. Zevi, *The Modern Language of Architecture*, 1978, 8.

27. B. Zevi, *Towards an Organic Architecture*, 1950, 57-64; Zevi, "Kunnianosoitus Alvar Aallolle," in *Alvar Aalto ja Italia* (Rooma: 2RC, 1980).



Figure 3. *Seinäjoki Parish Centre Seen from the Square of the Civic Centre*
Source: Ari Hynynen.

Another elegant example of the invariant of “Listing...” is the new Apila library as a part of the Civic Centre. Alvar Aalto’s buildings have such authority that architects tend to respect them when they are forced to design in the nearby surroundings. This reaction can be seen at least in three different modes. The first mode strives to keep a polite distance from Aalto’s premises. In Seinäjoki, due to fear of possible bad solutions a certain ‘safety buffer’ in the urban tissue around the Civic Centre has clearly evolved. However, if there is no other option than to build very close to Aalto, the second mode tries to find design methods to submit to or blend into Aalto’s architecture. This is the case as regards to the new parish office building, which is located on the other side of street of the old parish centre (Figure 4). With its deliberate neo-functional design with white plastered surfaces, it makes a – perhaps unnecessary – concession to Aalto.



Figure 4. *Aalto's Parish Centre on the Left, and the New Parish Office on the Right Side*
Source: Ari Hynynen.

The third mode is well illustrated in the case of the new Apila library. The design process of it was extremely challenging due to its location in the very near proximity of the old library. The new library comes very close to Aalto's iconic fan-like reading room in the open landscape of the park. Surprisingly, the new building does not take this famous architecture as an ideal model or respect it as an authority. It does not imitate, submit to it, or flatter it by any means. The new Apila library does not align itself into any imaginary lines derived from Aalto's buildings. On the contrary, Apila stands boldly next to the old library, creating a vivid dialog between old and new by its totally different form, materials, and colour schemes (Figure 5). Although the co-existence of seemingly disparate buildings is somewhat tensed, it is fruitful and positive, as the visual difference provides independence and space for both in equal measure. The design solution is courageous; it starts from scratch par excellence. Apart from these, it would be a story of its own to tell how citizens have adopted the new library as a common living room in Seinäjoki.

When taking a closer look at "Listing..." it is quite easy to realise that it introduces the basic principles of Zevi's ideas on organic architecture as presented in his seminal book from 1945.²⁸ His aim is not to teach an explicit theory of organic architecture but, instead, open various views on what it could be. This kind of approach is suited well to Zevi, who avoids academic hair-splitting and semantic definitions. His statement "We can only call architecture organic when it aims at being human before it is humanist"²⁹ reflects this attitude. Perhaps Zevi's various standpoints could be encapsulated by stating that organic architecture always starts from the constituents of the sensory world and social reality with an aim to raise them towards their ideal state – not the other way around. Based on this idea, the real functionality of built environment extends beyond plain utilitarian goals towards ideals such as humane dignity.



Figure 5. *Old and New Libraries in Dialogue*

Source: Ari Hynynen.

28. Zevi, *Towards an Organic Architecture*, 1950.

29. *Ibid*, 76.

Asymmetry and Dissonance

If the starting point for architectural design is the needs of every-day human practices, there is no place for symmetry in designing spaces, volumes, or facades. Diverse functions located in different parts of the building produce, in a sense, their own spaces around them, if this is allowed. These spaces are very specific, when it comes to their character, dimensions, lighting, materials and so forth. Symmetry, as a design principle, tends to waste space if, for example, secondary spaces have the same room height as the primary living spaces.³⁰

Zevi goes beyond these kinds of simple functional aspects. Built environment, alongside daily needs, should also support psychological, emotional, and existential human needs. In this regard, according to Zevi, static symmetry represents aspirations to safe and secure life, a fear for indefinite and relative; in other words, a fear for real life and living things and beings. Tensions, contradictions, and incompleteness belong fundamentally to human existence, so it is only reasonable to let the built environment reflect them.³¹ Interestingly, the same theme is highlighted in Alvar Aalto's speeches, when he now and then refers to a "little man" and a "human error" as inherent aspects of human life.³²

Symmetry has a political dimension as well. Totalitarian power leans on symmetry and expresses itself always through symmetry. It is almost too easy to pick up examples from the history books of architecture. Pure ideal forms and symmetry belong to the world of abstract ideas. They resist change and dynamics, thus blocking the continuous flow of space and time, which are the necessities for ever-changing forms of human life and culture. Zevi illustrates this point by referring to the history of music, and especially to composer Arnold Schönberg, who abandoned the tonal centre when he tried to break free from restricting triad harmony. The result might sound dissonant, but the experience is dependent in cultural and historical contexts. Schönberg's idea was to create dynamics, tensions, and a sense of movement – the same effects as Zevi applied to the sphere of architecture. In this sense, dissonance does not equate to chaos but, instead, it opens a way to get rid of pure aestheticism and the stagnated conventions and rules of classicist architecture and allow modern design to be based on the social logic of the building.³³

30. Zevi, *The Modern Language of Architecture*, 1978, 15-17.

31. *Ibid*, 17.

32. G. Schildt (Ed.) *Näin puhui Alvar Aalto* (Helsinki: Otava, 1997), 280-282.

33. Zevi, *The Modern Language of Architecture* (Seattle: University of Washington Press, 1978), 21-22.



Figure 6. *Town Hall Seen from the Central Square. No Detectable Symmetry and Repetition whatsoever*

Source: Ari Hynynen.

Aside from elitist political power and aestheticism, there are still other sources for symmetry in architecture. Technological dominance is one of these, as it works through the repetition which is typical for industrial processes. When Aalto's Civic Centre in Seinäjoki was designed, the construction industry was taking its baby steps towards standardisation and prefabrication. Although Aalto was interested in new technology, and he was one of the first architects in Finland who developed standardisation with his humane ideas, he never let technology dictate his design. In Seinäjoki Civic Centre, it is impossible to find symmetry of any kind (Figure 6). For example, the long window lines in the Town Hall or the old Library could easily be repetitive, but Aalto created a rhythmic variation of window-casing for creating a sense of movement or used dense grills to cover the window line for giving it a consistent texture. Moreover, none of the individual buildings in the Civic Centre dominate the building complex. All the buildings deviate from each other by their architecture, thus avoiding repetition and symmetry, and creating dialogical tensions among them.

All this applies to new Apila library as well. In this sense, it could be considered a quite straightforward continuation to Aalto's modernist design in Seinäjoki. As mentioned before, Apila library's architecture is perfectly independent in relation to Aalto's buildings. However, it is just the lack of symmetry and dominating lines of the building complex that allow the new annex to join it as an equal member.

Despite the lack of a clear dominating element in the Civic Centre, there exist hierarchical relations among the buildings. For example, the 55 metres tall belfry of the Lakeuden Risti Church is located on the edge of the building complex. Instead of being a dominating structure, it stands more like a graceful landmark in a plain landscape. Another kind of hierarchy is created by the deep blue ceramic tile cladding in the façade of the Town Hall. The distinctive, solemn colour symbolises the dignity of the democratic decision-making of the Seinäjoki community. In contrast to the Town Hall, the State's Office building represents

more mundane design with its rectangular shapes, white colour, and its location in the background of the complex. On the other hand, it has an important role in the wholeness, as it creates a strong boundary wall for the whole building block.

Although the Civic Centre features various symbolic elements like these, there is no dominance or symmetry of any kind. There are no hidden grids, modular networks, or other kinds of hidden abstract systems that define the order of the building complex. Instead, the order is purely intuitive, and it reveals itself totally to human sensory perception. All the architecture that matters in this building complex can be experienced without intellectual or professional speculation.

Anti-Perspective Three-Dimensionality

The principle of Anti-perspective three-dimensionality is a continuation of the previous invariant, "Asymmetry and Dissonance". If the architect leaves the field free for citizens and users to make their own choices of how to observe and approach buildings, they can formulate their own personal conceptions of architecture. The plasticity of Aalto's Civic Centre does not offer any ready-made vantage points or main facades chosen by the architect. Instead, all directions of approach to the Centre and its individual buildings are equal in their attractiveness and architectonic quality (Figure 7). Although the piazza between the buildings has a clear centralising function, it does not suggest any central focus for the complex.



Figure 7. *The "Backyard" of the Town Hall*

Source: Ari Hynynen.

In classicist architecture, the main facades are prioritised by the architect, a professional who knows better how to look at buildings. Facades are two-dimensional projections of the physical built environment, abstractions that simplify complex real-world situations. The two-dimensional way of representing architecture is a professional method to manage construction projects. However, drawings do not usually allow non-professionals to experience architecture, as

they lack the key factor, architectonic space that brings buildings into the sphere of the sensory world.

The architectonic composition of Aalto's Civic Centre does not comply with a rectangular coordinate system. Instead, the lines of the buildings intersect each other freely in varying angles. Due to free composition and form-giving, the sense of three-dimensionality and stereoscopic effect are very strong, though not dramatic. A first-time visitor at the Civic Centre might wonder about the emptiness of the piazza, whereas the pedestrian flow is channelled to the new Apila library just behind the old library and Aalto's theatre building. Before the new library was built, the piazza was almost deserted. The reason for that is the slightly problematic location of the Civic Centre outside the main pedestrian flows of Seinäjoki city centre. Seinäjoki is a middle-sized Finnish city with 65,000 inhabitants, but only a couple of thousands of them are living in the city centre the rest of them inhabiting the rural areas and smaller centres of the city region. Also, the most important commercial services have moved to big shopping centres on the outer fringe of the urban area.

The Syntax of Four-Dimensional Decomposition

The fourth invariant describes the decomposition of the classicist box in quite concrete terms. Here Zevi refers to his favourite masterpieces of modern architecture: Frank Lloyd Wright's Falling Water, Mies van der Rohe's Barcelona Pavillion, and Gerrit Rietveld's Schröder House in Utrecht. The common feature in these three works is how the walls have been designed as separate board-like surfaces, detached from each other, thus avoiding box-like closed inner corners. By letting the walls to slide apart, large openings in facades are allowed, as well as free-flowing inner spaces instead of closed rooms.

Zevi's enchantment with these kinds of board-like design tactics is remarkable strong – insomuch that the more general aspect of the invariant "The Syntax of..." might fade out. According to Manfredo Tafuri,³⁴ this is exactly the problem with Zevi's reasoning: sometimes he acts more like a designer instead of an architectural theoretician or a critic. However, if we genuinely aim to understand his intentions, it is necessary to go patiently beyond his time-bound fixations and take them more like examples instead of clinging to his literal descriptions. This makes sense also if we want to use the invariants in analysing architectures of different eras, like Zevi has meant to.³⁵

For example, regarding the new Apila library, the four-dimensional composition has been realised excellently, although Zevi's invariant has not been applied literally. The inner walls that vary with their shapes, heights, and window openings, encounter each other at varying angles. They do not apply Zevi's board-like tactics, yet they create free and flexible flow of space both inside the building, and through the wall openings between inside and outside as well. By four-dimensionality Zevi refers to the temporal dimension that, in architecture, equals

34. Tafuri, *Theories and History of Architecture*, 1980, 106-107.

35. Zevi, *The Modern Language of Architecture*, 1978, 187-214.

to dynamic flow of space.³⁶ This comes true when the traditional closed envelope of a building is opened for daylight and freely flowing social life. According to Zevi, social life in space is explicitly movement.³⁷



Figure 8. *The Reading Hall of Aalto's Library*

Source: Ari Hynynen.

When compared to Apila library, the spaces in Aalto's library are more closed, but not in a classicist sense (Figure 8). This applies to all the buildings in Seinäjoki Civic Centre, as well as to other Aalto's works. It is remarkable that Zevi mentions the lack of four-dimensional decomposition as a deficiency in Aalto's architecture and, consequently, does not count him in the very small top team of the modern architects. On the other hand, Zevi respects Aalto as a leading master of organic architecture in Europe, whereas Frank Lloyd Wright holds a comparable status in America. However, it is highly questionable to downgrade Aalto's architecture on the base of the fourth invariant, as his spaces are not box-like closed or static envelopes. On the contrary, the flowing spatial configurations and varying floor levels, combined with carefully thought-out window openings and warm materials create dynamic but intimate interiors so specific to Nordic modernism.

In this regard, Aalto's library in Seinäjoki is an example par excellence. The floor level in the central part of the fan-like main hall has been dropped down some 1,2 metres for creating a peaceful space for intense reading. The space is lit by natural light streaming in through the upper windows, and it is reflected from the curvilinear, white-painted concrete wall. There are no enclosing box-like walls with closed corners, nor classic windows on those walls. On the contrary, the window opening comprises the entire upper part of the wall. In the outside of the

36. Ibid, 31.

37. Ibid, 47-53.

building, the wall-like character of the opening is highlighted by a unifying brise-soleil assembled over the whole window line.

Cantilever, Shell and Membrane Structures

Zevi's aim was to express the invariants in as concrete phrasing as possible. Obviously, he strived to avoid academic jargon and, instead, addressed his message to a much wider audience. The chosen strategy partially succeeds, as his illustrative language clearly helps non-professionals to dive deeper into the principles of modernist architecture – apart from the invariant titles – but, on the other hand, it leads to problems among academic readers. And problems can't be avoided if we focus literally and strictly on the level of construction technology or iconic architectonic imagery of some specific period. As stated before, the necessary key to follow Zevi's reasoning is to go beyond his time-bound, fanatic and sometimes politically coloured parlance.



Figure 9. *The Recent Renovation of the Library Respects Aalto's Ambition to Merge Technology as an Integral Part of Architecture*

Source: Ari Hynynen.

Consequently, the invariant “Cantilever, Shell, and Membrane Structures” can be understood as an illustration of how modern civil engineering enables modernist decomposition in architecture. However, construction technology and design tools are developing fast if we think, for example, of Zaha Hadid’s wildest works seen from the perspective of, say, the 1970s. Although Zevi named his invariant according to the technologies of the modernist heyday, he simultaneously prophesied that computer technology will regenerate the language of architecture. Evidently his basic idea was that by using the latest technology, architecture might become modern in the deepest sense of the concept. If we further continue Zevi’s reasoning, there are other new technologies that could inspire new architecture as well. For example, innovative large-scale timber architecture, or circulated and dismountable buildings already exist as manifestations of emerging technologies of bio and circular economy.³⁸

Alvar Aalto was very moderate in deploying the latest technology. There are no radical constructions, nor dramatic spatial effects created by technology-driven structures in his buildings. Yet, Aalto was not against technology. On the contrary, he was a forerunner in Finland in developing standardised housing and technologies for manufacturing modern furniture by using plywood. His aim was to harness technology to serve his own and unique form language that was, in turn, meant to support and strengthen the human essence of the users of his buildings. From the standpoint of technology, Aalto’s Civic Centre in Seinäjoki represents a very modest and subtle sample of solutions. All the technology is integrated in the overall architecture, although the church and the council chamber would have been favourable spaces for accentuating structures. This quality is gracefully respected in the recent renovation of Aalto’s library, where the new installations for air-condition were conducted and hidden inside the bases of the bookshelves (Figure 9).

Space in Time

According to Zevi’s core theory, the very essence of modern architecture is its social content. Consequently, spatial configurations of buildings and built environment should adhere to their social content. Social content might be a somewhat vague concept, but for Zevi it simply equates to human life in architectonic space. Life is not static, but it consists of continuous movement through the built space. Seen from the user’s point of view, space and time intertwine into one holistic experience of everyday life. The task for architectonic space is to support this dynamic life by letting the space flow freely and reflect the movement. Thus, the component of time of this holistic continuum concretises in movement.

The task of the four previous invariants is to enable the free flow of space. This gives birth to social space by breaking down the classicist box that is

38. See Ellen MacArthur Foundation, *Cities in the Circular Economy: An Initial Exploration* (Ellen MacArthur Foundation, 2017a); Ellen MacArthur Foundation, *Urban Biocycles* (Ellen MacArthur Foundation, 2017b).

composed by complying with aesthetic and abstract rules instead of preferring organic human life. If the first two invariants (“Asymmetry and Dissonance”, “Anti-perspective Three-dimensionality”) prepare the ground for the birth of social space, the next two (“The Syntax of Four-dimensional Decomposition”, “Cantilever, Shell, and Membrane Structures”) provide more concrete design and construction tools to finally operationalise the decomposition. Zevi emphasised that the invariants should be applied exactly in the specific order he introduced them in his book.³⁹ Considering the importance of the order, Space in time represents, finally, the birth of social space.

If we take this notion of order literally, each invariant is a precondition for successfully applying the following invariants to create true modern architecture. As we remember, Zevi criticised Alvar Aalto for lacking the four-dimensional decomposition. Logically, this shortage should result in Aalto’s buildings as static spaces that do not support and reflect vital everyday movement. It is true that the envelopes of his buildings are not so porous as, for example, in Mies van der Rohe’s Barcelona pavilion but, again, Aalto had a syntax of his own. Against the ideas of universal modernism, Aalto’s architecture was contextual, as it was adapted to topography, landscape and, most importantly, to climate conditions. In the harsh Nordic weather conditions buildings are, in the first place, shelters that should coexist and survive with nature. In these constraints, Aalto’s spaces flow freely and three-dimensionally, reflecting the functions and characters of the spatial program. Once again, the Seinäjoki library is a prime example of this.

Re-Integration of Building, City, and Landscape

The title of the seventh invariant indicates various meanings for integration. First, as referred to in the previous paragraph, the separate parts of an individual building should be integrated as a connected whole. This is not necessarily a matter of pure form-giving, but it relates to the programmatic level of a building as well. By integration, diverse functions could be combined to achieve a hybrid building, to use a trendy term. Moreover, by following Zevi’s reasoning on modernist time-space continuum, the functions might vary along the time axis as well. In practice, the daytime use of a building, or a part of a building, could differ from the functions in evenings. If built environment possess this kind of flexibility, it can better support continuously evolving human practices, movement, and communal needs.

Second, when moving towards the urban scale, we can analyse re-integration through the later stages of Aalto’s building complex. During the time the Civic Centre was built, it had to be located outside the existing urban structure due to land-ownership reasons. Alvar Aalto presented only some indicative sketches of how the Civic Centre should be integrated into the developing urban fabric of Seinäjoki. At present, the process of integration is still incomplete, as the only realised examples are the Apila library and the new parish office building.

39. Zevi, *The Modern Language of Architecture*, 1978, 71-76.

However, there are new plans in the pipeline, so the upcoming tactics remain to be seen. The integrative tactics applied in the Apila library complies with modernist ideals, but it is fair to point out that the chosen line is quite demanding. Genuine, mutual dialogue requires that the architectonic qualities are on a par with both buildings.

Third, Zevi questions the whole idea of a single, detached building. According to his reasoning, a building is usually a part of some urban, social, and technical system, or it belongs to nature's system. In this regard, Zevi uses the concept of *urbatecture*⁴⁰ to underline the systemic nature of the human built world. The concept is a close relative to one of the 1990s catchwords, *landscape urbanism*.⁴¹ According to it, it is no more reasonable to plan built areas, technical infrastructure, and unbuilt areas separately, as they form an increasingly intertwined system. Alvar Aalto's approach in Seinäjoki Parish centre represented a more conventional method of landscape architecture, where the building was embedded into an artificial embankment. This creates an impression of strong rootedness of the building. By the time of construction in the beginning of 1960s, the site was open field. It did not help to anchor the new building to the landscape, so Aalto chose a special tactic to handle the morphologies of the terrain and the building in an integral way.

Finally, Seinäjoki Civic Centre offers a good example to study Aalto's synchronic and diachronic tactics for integration. These two tactics can be related to time-space continuum in a way that the synchronic tactic aims at organic wholeness through spatial or morphological means, whereas the diachronic tactic connects architectonic design with some historical patterns. It can be assumed that Aalto used diachronic tactics to make his buildings and milieus more familiar and make them recognisable to a wider audience.⁴² The Mediterranean and classicist motifs, like piazzas, colonnades, and white plaster do their job in this regard, but they also indicate, in Aalto's reasoning, the cultural background behind modernist architecture. Dimitri Porphyrios pays so much attention to Aalto's diachronic tactics, that he considered it worthwhile to build a theory of Aalto's eclecticism.⁴³ Certainly, this is an acceptable way to explain Aalto's architecture, but it does not capture its relation to the deeper undercurrents of the modern movement.

Discussion

Finally, the seven invariants can be divided into three main groups under new, slightly more abstract design principles: 1) Organic strategy, 2) Tactics for spatial dynamics and decomposition, and 3) Back to wholeness. By doing so, they can be

40. Ibid, 76.

41. C. Waldheim, "Landscape as Urbanism," in *The Landscape Urbanism Reader* (ed.) C. Waldheim (New York: Princeton Architectural Press, 2006), 35-53.

42. Cf. S. Giedion, *Space, Time and Architecture. The Growth of a New Tradition*. 5th Revised and Enlarged Edition (Cambridge, Massachusetts: Harvard University Press, 2008/1941), 2-28.

43. Porphyrios, *Sources of Modern Eclecticism. Studies on Alvar Aalto*, 1982.

detached from the modernist dogmas and literal meanings that Zevi, somewhat paradoxically, lapsed into. For example, the principle “Organic strategy” represents Zevi’s first and the most important invariant, “Listing as Design Methodology”. In this regard, organic means a design strategy, or attitude, that puts aside all the dogmas, abstractions, theories, and ideal models of architecture. The aim is to elevate the reality towards ideal, not the other way around.

If “Listing...” poses a wide, general strategy for modern architecture, the next five invariants represent more practical tactics for implementing the overall strategy. Above all, the following list of tactics should be understood as a toolbox to help architects dissolve the dogmas and cultural stagnation that tend to paralyse creativity and free flow of space. Today’s practicing architects might wonder how familiar and axiomatic these tactics appear and, as a matter of fact, they come very close to the basic doctrine of architectural education of the 1970s, when Zevi’s book “The Modern Language...” was first published. Zevi’s purpose was to write a book for practicing architects, students, and lay people interested in architecture.⁴⁴ It was probably for this reason he wanted his architectural language to be as concrete as possible. However, due to this concreteness, it is necessary to go behind the phenotypes of the invariants and strive to understand their deeper meanings – especially as Zevi has meant his language to be used in analysing architecture of different eras, not only modern works.⁴⁵

In the second principle, “Tactics for spatial dynamics and decomposition”, the concept of spatial dynamics is a combination of the invariants “Asymmetry and Dissonance”, “Anti-perspective Three-dimensionality”, and “Space in Time”. Here the spatial dynamics can be understood as a certain design tactic of spatial composition and spatial configuration that makes the architectonic space flow and take forms freely, following daily practices of human life. Aalto’s and Jaaksi’s libraries are both real masterpieces in this respect. The latter part of the second principle, decomposition, is more concrete and it is based on construction technology, and it depicts two invariants, “The Syntax of Four-dimensional Decomposition”, and “Cantilever, Shell, and Membrane Structures”. In Zevi’s examples these two tactics are connected to concrete structural elements like walls and cantilevers. If the aim of “The Syntax...” is to slide the walls for eliminating closed corners and hole-like windows, its companion “Cantilever...” provides means to explode the entire classicist box by using the latest construction technology. However, despite their concreteness, the spatial dynamics and decomposition should be understood more like heuristic tools for architects to keep the space-shaping elements in flux during the design process. This kind of strategy prefers the social content of space instead of conventional design and building methods as determinants of spatial quality.

The classicist “box” should not be taken literally, but to be understood as a compilation of architectonic dogmas based on earlier technologies, design principles and societal paradigms. New design and construction technologies help

44. Dean, *Bruno Zevi on Modern Architecture*, 1983, 51.

45. Zevi, *The Modern Language of Architecture* (Seattle: University of Washington Press, 1978), 187-214.

to dissolve the dogma, but still the mere decomposition takes us only halfway, as functionality and intelligibility of built environment requires the integration of different physical⁴⁶ scales of design. The third principle, "Back to wholeness", highlights the important role of architecture as the art of wholeness. This role stems from the very practical and existential human needs for sensing, using, and dwelling in the built environment. From the organic standpoint, architectural design enables space that is more lived than thought, more wholistic than analysed and, thus, reduced into separate parts. Zevi has strived to point out the importance of the decomposition to create true modern architecture. However, it is as important to re-integrate the decomposed parts for finishing the design process and achieving organic wholeness. In architectural education it is a well-known doctrine to proceed from analytical working stages to synthesis, where the diverse components will be combined as a connected whole. For approaching the synthesis intuitively, Alvar Aalto used to leave his drawing board for a while and immerse himself in painting with oil colours. Through re-integration, architecture belongs genuinely to the sphere of art, as well as to the world of logical calculations.

Conclusions

All Zevi's principles are based on the idea of organic architecture that he developed through his whole career. According to him, the organic ethos was built in the fundamental ideas of modern architecture, but it gradually deteriorated as modern architecture declined into a functionalist dogma and a style. Zevi was talking about classicist box, but he made a remark that modern box is not impossible either. In addition to cultural conventions also technology and industrial production might duplicate easy and familiar sameness through their approved production platforms. Yet, by following Zevi's reasoning, if the modern architect finally ends up designing a truly modern box, it will have been through decomposition and re-integration.

Surprisingly, there can be found a box among Alvar Aalto's works as well. Zevi considered the well-known office building of Enso-Gutzeit in Helsinki a regrettable flaw in Aalto's otherwise brilliant career. However, there might be a chance that Zevi, in his uncompromising thinking, did not notice the possibility of decomposition and re-integration the building had gone through in the design phase. When analysing, in turn, the Seinäjoki Civic Centre, there is no doubt if its architecture is modern in the sense Zevi refers to. The Civic Centre is a rewarding object of study, as the other dimensions of organicity, apart from Zevi's, could be counted out. That is to say that Aalto used, in some of his works, a strategy that leaned strongly on landscape's morphology, giving grounds for calling it organic

46. And temporal as well, cf. Giedion, *Space, Time and Architecture. The Growth of a New Tradition*, 2008/1941, 2-28.

architecture. In Seinäjoki, the landscape and the construction site did not provide substantial morphological starting points, if not restrictions either, for form-giving.

In Zevi's reasoning, the essential dimension of modern architecture is its social and spatial organicity. Like this article strives to point out, the organicity of architecture is based primarily on the architect's overall approach and methods. The organic strategy is manifested in built environment by numerous ways, providing, at its best, well-being and happiness for its users and dwellers. From this standpoint, it is insignificant whether we categorise a building functionalist, modernist or organic. But if our aim is to find socially and culturally more sustainable ways to build the human habitat, we need to better understand our built environments for being able to choose alternative design strategies. Bruno Zevi's and Alvar Aalto's life works provide useful tools to revise our customary ways of making architecture.

Finally, for Zevi, modern architecture is revolutionary architecture. Its main task is to provide spatial support for constantly evolving societal reform. Although social life is at the core of true modern architecture, this kind of thought-model inevitably creates a split between "architecture" and mundane "building production". In this sense, Zevi's theory is explicitly a critical theory, as it puts pressure on achieving architectonic quality. In his book "The Modern Language...", he makes experiments in testing his invariants in the cases of classicist architecture as well. According to him, the best architecture in all eras has always been revolutionary, in other words: modern. Zevi's aim was to make the invariants applicable to analyse architecture over historical periods. For making this task easier, the level of abstraction should be lifted a bit higher – like introduced in this article. This notion also paves the way to further studies, where the cases will be selected from different eras.

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