

Designing Architecture In Between Scales

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Abstract

The purpose of the paper is to discuss scale as not only a representative but also a creative and imaginative tool. By using the method of conceptual analysis, the paper discusses concepts which are used to define scale in architecture. These analyses reveal the changing theoretical framework of scale. The argument of the paper is that this is the change of scale from being a representational to a self-representational tool, suggesting that when scale is freed from the dimensional or proportional qualities of the object it represents, it only represents itself in architecture. Although scale is usually defined by the concepts of size, dimension, measurement and proportion, it has many other definitions, as it is relational and perceptual. The relational and perceptual nature of scale makes it an imaginative tool in architectural design. It is also a creative tool that encourages designers to think and imagine in an interdisciplinary context in architecture. Scale, therefore, cannot be understood only as a technical tool that represents the size of a design object. As a contribution to the literature, the paper reconceptualises scale as a self-representational tool that does not necessarily represent a specific size or object. The paper conceives of scale as a tool for designing in between scales in architecture.

Keywords: Architecture, Architectural Design, Interdisciplinarity, Scale, Scaling

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Mimariyi Ölçekler Arasında Tasarlama

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Özet

Makalenin amacı, ölçeği sadece temsili değil aynı zamanda yenilikçi bir araç olarak tartışmaktır. Makalede kavramsal analiz yöntemi kullanılmakta; mimaride ölçeği tanımlamak için kullanılan kavramlar analitik olarak tartışılmaktadır. Analizler, ölçeğin değişen kuramsal çerçevesini ortaya koymaktadır. Söz konusu değişim, ölçeğin temsil ettiği nesnenin boyutsal ya da oransal niteliklerinden kurtulduğunda yalnızca kendini temsil edebilme potansiyeline sahip olduğunu göstermektedir. Ölçek genellikle büyüklük, boyut, ölçü ve oran kavramlarıyla tanımlansa da ilişkisel ve algısal olması nedeniyle başka birçok tanıma sahiptir. Ölçeğin ilişkisel ve algısal doğası, onu mimari tasarımda yenilikçi ve yaratıcı bir araç haline getirir. Ayrıca ölçek, mimari tasarımcıları disiplinlerarası bir bağlamda düşünmeye ve hayal etmeye teşvik eden bir araç olarak görülebilir. Dolayısıyla ölçek, yalnızca bir tasarım nesnesinin boyutunu temsil eden teknik bir araç olarak düşünülememektedir. Bu makalenin literatüre olan katkılarında biri, ölçeği belirli bir boyutu ya da nesneyi temsil etmesi gerekmeyen, bunun yerine kendini temsil eden bir araç olarak yeniden kavramsallaştırmayı denemesidir. Bu nedenle makalede ölçek, mimaride ölçekler arasında tasarım yapmayı mümkün hale getiren bir araç olarak değerlendirilmektedir.

Anahtar Kelimeler: Mimarlık, Mimari Tasarım, Disiplinlerarasılık, Ölçek, Ölçeklendirme.

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INTRODUCTION

Scale is a fundamental design tool in architecture. It is usually associated with the concepts of size, dimension, measurement and proportion. These concepts lead scale to be known and understood as a quantitative tool in architectural design. But scale is also a qualitative tool for all design disciplines, including architectural design. It cannot be limited to its dimensional or proportional qualities. This paper conceptualises scale as both a concept and a tool, not limiting it to its quantitative meanings. Furthermore, the paper discusses that scale is not only a representational tool by focusing on its latent potential to blur the boundaries between architectural design and other design disciplines. When designers discover and harness this potential, scale becomes a self-representational tool for designing in between scales. This paves the way for architects to design not only in between scales but also in between disciplinary fields.

The discussion of the paper goes beyond scaling practices in architecture. Scaling is commonly used practice by designers to see changes in material and immaterial qualities in architectural models. But the paper rather discusses scalability, which leads to scalar ambiguity in the discipline of architecture. Because of this ambiguity, we may not know exactly whether the object, or the image of the object, we are looking at is an architectural object, let's say a building, a habitable space, etc., or not. Scalability enables architects to think and imagine their designs as objects in between scales. It is called scalar ambiguity in the paper.

Scalability, or scalar ambiguity, refers to a design practice that is worth discussing in architecture. It differs from scaling up or scaling down practices. Nevertheless, scalability is usually overlooked in architecture. But, in his brief introduction to Lynn's study, Carlo (2013) mentions the scalability of the blob through the architect's blobistic and eccentric teapot design for Alessi. He argues that the transfer of non-standard technologies from the small scale of fabrication (a teapot) to the large scale of construction (a building) becomes a major design issue early in the 21st century. It opens up a new discussion about designing in between scales in architecture. While it is worth discussing, scalability is not a major issue today, since environmental issues bring other design approaches, such as ecology and sustainability, to the forefront of architecture. The paper therefore aims to elaborate on the discussion by promoting scalar ambiguity in architecture. This discussion will hopefully highlight the importance of questioning the disciplinary boundaries of architecture through designing in between scales. It will be helpful to enhance the scalar imagination of architects.

Scalability points to the use of scale as a design tool for imagination, manipulation and speculation. It is not just about changing the scale of designs but freeing them from the constraints of scale. In this way, they become design objects that are also freed from the limits and constraints of the site. Scaleless and siteless objects are not new to architecture, but the paper introduces an original discussion by considering these objects through a design approach called scalability, as scalar ambiguity defines a new path for architects and allows them to focus on designing in between scales. However, 'designing in between scales' is not simply 'scaling'. To understand exactly what 'designing in between scales' is, we need to understand what 'scale' and 'scaling' mean in architecture.

SCALE IN ARCHITECTURE

Scale is used to mean size, dimension and proportion in architecture. As Ching (1979) states, proportion refers to the harmonious relationship between one part

and another, or between a part and the whole. But scale refers to the size of an object in relation to a reference point, which is typically a human being. This is called as the human scale. Architectural space and its elements, such as doors, windows, stairs and corridors, are usually sized and proportioned according to the human scale. They have standard sizes and proportions to fit the dimensions of the human body. These dimensions also determine the dimensions of a space, a building or, in general, an architectural object.

Inan (2016) suggests that scale indicates the certain size of an object, revealing its exact proportions, or a tool enabling the amount of zooming in and out to the object, and therefore recalls for a specific calibration with a measuring system. But the role of scale is more crucial. Likewise, Munch (2012) says that we reserve the concept of scale to apply simply to size, but the most important point is that we have to think in terms of several scales, and it is the considerations based on these scales that are crucial.

In architecture, however, scale is often related to size, particularly the size of the human body. Le Corbusier's Modulor Man (Figure 1) is one of the most popular studies illustrating that scale is derived from the human size and proportions but not limited to their exact measurements (Inan et al., 2023). In this regard, Weber et al. (2008) discusses that there are three emerging scales in architecture: human scale, which is related to the size of people; contextual or outer scale, which is related to the context of the building, and inner scale, which refers to the relation between a building's individual architectural elements and its whole. But, on the other hand, architecture is moving from the physical categories of the human body to the categories of the human perception and comprehension. Instead of the dimensions of the human body, the new proportioner refers to the dimensions of the human comprehension (Krstic & Kordic, 2016).

Scale has no clear definition in architecture. There are many uses of the concept of scale, varying according to the source of comparison, human, monument, etc. (Halabi, 2021). There is no consensus on what exactly scale means. In this context, Lukinbeal (2016) suggests that scale has two histories: in the first one, scale is a mental and conceptual tool, which is strongly associated with values, beliefs, social conditions and politics. In the second one, scale is a technical tool that allows for the transcription of three-dimensional objects into two-dimensional representations. We generally rely on scale to make sense of these representations in relation to how we understand things such as near/far, small/large, light/heavy and slow/fast. For Simitich et al. (2014), scale is fleeting or even imaginary, relational or perceptual. It is fleeting as a building can simultaneously belong to multiple scales. In any case, scale is a different concept from size, because size is how big something is, its actual dimension; however, scale is relative; it can only be defined in relation to something.

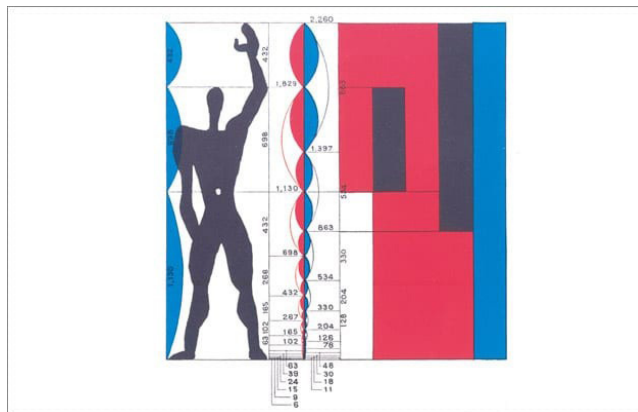


Figure 1. Modulor Man, Le Corbusier (Icon, 2009).

Figure 2. TA collage published on Rethinking the Future's digital media platform entitled Elements of Contemporary Architecture. It is challenging to understand the exact proportions or dimensions of the buildings through these partial images (Re-thinking the Future, 2025).



Halabi (2021) emphasises that scale and size are two different concepts, presenting scale as a relative size and an important tool of manipulation. Our understanding of scale in architecture is changing, especially with the development of new technologies. There are two fundamental changes in our understanding of architectural scale over the last few decades. First, the growing medialisation of the discipline of architecture, as well as its popular reception, distances us from actual size relationships (Figure 2). Second, the computers minimise scale differences in design, and they distance the architectural object from the actual size of elements in its environment (Figure 3). They privilege architecture by freeing it from site-specific considerations (Adler, 2013).

Nevertheless, scale is often seen as an essential tool in providing the right setting for buildings (Figure 4). It works on the physical and psychological outcome of human encounter and well-being, controlling the spectrum between intimacy and monumentality (Halabi, 2021). Koolhaas and Mau (1998) promote the monumental scale in their popular book *S, M, L, XL*. They believe that a big building has its own integrity, its own clarity and its own monumental or architectural quality. Almost all buildings beyond a certain scale possess a kind of beauty in their overwhelming presence. These buildings are usually referred to as out-of-scale monuments (Figure 5). But they are welcomed by Koolhaas and Mau, who admire bigness and scaleless buildings in architecture and cities. On the other hand, scale is sometimes deliberately distorted for effect. A common example is increasing the size of columns, entrances, and the like to convey importance, thereby creating a monumental scale (Porter, 2004). But buildings are not always designed as monuments to make an impact or a statement. They are designed as big and monumental buildings to meet functional requirements as well. As Elliott (1963) discusses, some buildings are big only for functional reasons. He describes the size relationship between building and its graphic representation as graphic scale, the size relationship between building and observer as personal scale, the size relationship between building and people as building scale, and the relationship between building and its meaning as conceptual scale.

Figure 3. In today's architecture, an architectural object is usually designed in the virtual environment of the computer, separated from the real environment. Therefore, it looks like it is designed in a space without any scalar or environmental references (Virtuosity, 2025).

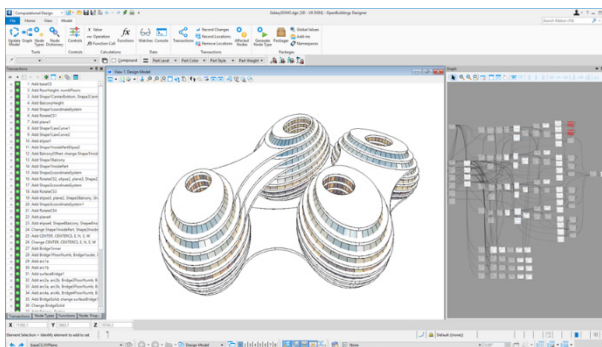




Figure 4. Therma Vals, designed by Peter Zumthor, is appreciated by other architects, architectural critics and architectural media for its reciprocal relationship with its site. The scale of the building reinforces this relationship by allowing it to be embedded in the sloping topography of the site (Arkitektur, 2025).



Figure 5. Rem Koolhaas's vision of The City of the Captive Globe illustrates his passion for bigness and monumental buildings in cities (Weimar, 2014).

For Boudon (1999), it is the view angle which determines the size of an object (Figure 6). In architecture, this means optical scale, or else certain relevance within a potential multiplicity of cases. We therefore discuss that scales as the possible relevances are multiple. Our sense of scale depends on position, including positions between objects and between the observer and the objects of observation. So, physical and perceptual scales are essentially different. The former is an understanding of scale based on the differences in the measurements of objects being compared, while the latter refers to the diversity of the visual perceptions of environment (Setiawan & Welty, 2023).



Figure 6. The Pyramid of the Louvre, designed by Pei in Paris, has become one of the most popular destinations for tourists, who want to be photographed in front of this iconic structure as if they were touching its highest point (The Wolf Will Travel, 2014).

The perceptual aspect of scale relies on the eye to do the measuring, to make a relationship. It involves making a connection between the size of what is seen and the size of something known. As it is mentioned above, one of the most known scalar references is the human body, as a whole or its parts. Since humans try to make sense of their surroundings and to orient themselves, architects try to create environments with the human scale (Porter, 2004). Whether human scale or monumental scale, the concept of scale cannot be known and understood only in terms of size, dimension or measurement. Hence, Gausa (2003) asserts that scale is not dimension but capacity for relation. The dynamic systems that govern our universe and the complex geometries of the structures associated with them do not conform to any scale. These configurations alter the idea of scale, not size. He defines it as a-scalarity, which means scalar ambiguity. Scalar ambiguity means that scale is not static but a dynamic tool that cannot be reduced to size. It goes beyond being a static numerical value or a technical issue in architecture. It refers to establishing a dynamic relationship between things or to comparing and positioning them. By this relationship, scale becomes a tool that stimulates our imagination.

As Emmons (2005) suggests, scale is a tool for the mind to imagine buildings. When scale is not limited to size, measure or dimension, it becomes possible for architects to imagine and design buildings as any other design object. In the paper, this practice is called as 'designing in between scales'. Such a design practice frees architects from the constraints of scale. We are not referring to architects like Mies, who create designs in different disciplines, such as industrial and architectural design (Figure 7, 8). Rather, we are referring to architects like Lynn, who attempt to create designs that could be either architectural or industrial objects. This is discussed throughout the paper as the practice of designing in between scales in architecture (Figure 9, 10).

It is a fact that scale is crucial to our experience. If the scale is changed, many other aspects are changed as well (Munch, 2012). Scale is experiential, and imagination is required to make a change in scale (Hedges, 2010). It is not merely a change in the size of a design object; it is also a change in our experience, perception and imagination. Scale is therefore not only a representative but also a creative, imaginative and perceptive tool. It promises more than conventional tools, methods and practices, such as scaling up or down in the discipline of architecture.



Figure 7. Glass Skyscraper by Mies, 1922 (Drawing Matter, 2025).

Figure 8. Barcelona Chair by Mies, 1929 (Walsh, 2019).



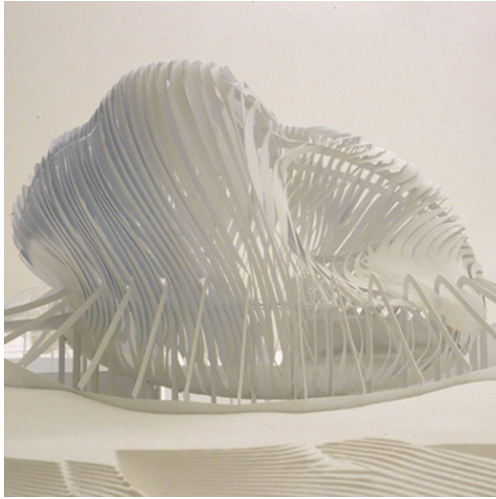


Figure 9. Embryological House by Lynn, 1999 (Greg Lynn Form, 2025).

Figure 10. 3DI Chair by Lynn, 2011 (Greg Lynn Form, 2025).

SCALING IN ARCHITECTURE

Scaling usually refers to scaling up and down practices in architectural models. Studying models at different scales conventionally enables architects to identify new relationships between interior and exterior spaces. Scaling also makes details more visible to architects, clients and commissioners (Figure 11). However, 'scaling in architecture' and 'designing architecture in between scales' are not the same practices. The latter involves creating a design that can adapt to multiple scales (Figure 12). Rather than being a conventional scaling practice, it is a design strategy that encourages architects to question disciplinary boundaries by designing objects in between scales.

As Inan, Ucar and Yuncu (2023) emphasise, scale(ing) is one of the major practices of architecture. Scaling up and down practices are among the conventional methods for responding to possible needs and requirements in architecture. In this context, Yaneva (2005) suggests that architects can only enter into a dialogue with materials and forms by focusing on operations such as scaling up, jumping the scale and scaling down. After several transitions between small and large models, the building emerges and becomes visible, material and real. These transitions, or scale operations, are an integral aspect of architectural practice.

In this regard, Foote (2013) discusses that scale is a mode of thinking that facilitates the transference between large and small. Such a transference occurs through an awareness of how the object is situated within its context of large and small. For example, furniture allows the architect to perform at a small scale. The chair is primarily a device of human accommodation. Scale facilitates the fluidity between the chair and the building in architecture. This perspective enables us to see scale as a tool that paves the way for architects to design in an interdisciplinary context. But it still limits scale to size and dimensions. In other words, when a chair or a building is designed with its own specific dimensions, the scale cannot be freed from the object. It is bound to the object. So, it is not exactly the practice of designing in between scales. Nevertheless, it is worth discussing these practices that enhance the interdisciplinary nature of architecture and encourage architects to design at multiple scales. But it is much more interesting to see and understand scale as a tool that is not limited to the design of a particular object and that leads architects to imagine and design objects as either a chair or a building. This is a new practice that is discussed conceptually throughout the paper as not 'scaling' but as 'designing in between scales' in architecture.

Figure 11. A Scaling Practice in an Architectural Model (Alves, 2020). This is the same model, but at different scales, to show the level of detail.

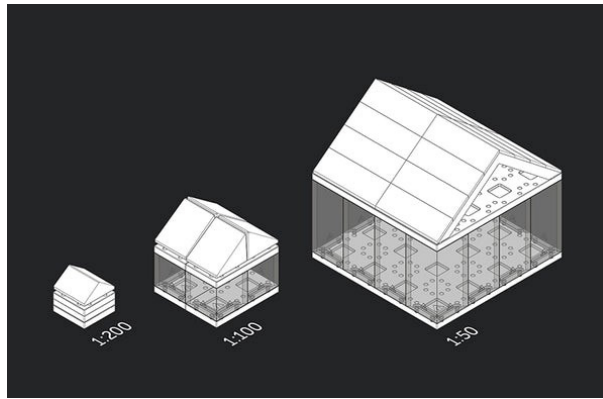


Figure 12. Alessi Tea & Coffee Towers by Lynn, 2003 (Interior Furniture Design Magazine, 2023). Lynn imagines this design as both a teapot and a tower. He designs it in between scales, but at different scales, to show the level of detail.



METHODOLOGY

The paper uses the method of conceptual analysis within the discussion. This is a commonly used method in the discipline of architecture and many other disciplines, including philosophy, criticism, journalism, science and sociology. It is a method of inquiry that improves our understanding of how particular concepts are, or could be, used to communicate ideas within a given discipline. Conceptual analysis treats concepts as classes of objects, events, properties or relationships (Furner, 2004). This methodology is used in the paper to discover the relationships of concepts, which are used to define and discuss the concept of scale within an interdisciplinary context. It helps us to understand how scale is conceptualised in architecture (Figure 13, 14). Furthermore, conceptual analysis leads us to see and understand the existing categorisations of scale, such as technical, optical, relational and perceptual, pointing out the multi-dimensional nature of scale in different disciplines. It eventually reveals the specific nature of scale in the discipline of architecture by discussing it through 'scaling practices' (scaling up and down) and 'designing practices in between scales' (scalar ambiguity) (See Figure 14).

Conceptual analysis in practice concerns distinguishing terms, analysing the understandings they refer to, and representing this. Concepts themselves create a framework for understanding (Myburgh & Tammaro, 2013). The conceptual analysis of scale in the paper reveals the changing theoretical framework of scale in architecture. However, this is not only a theoretical but also a practical discussion on scale, as it also covers architectural designs that are considered as 'scaling practices' and 'design practices in between scales'. The discussion of the paper and its conceptual analysis pave the way for us to reconceptualise scale as 'representational' and 'self-representational' scale in contemporary architecture. This reconceptualisation highlights the fact that, when scale

represents a particular site or object, it is limited to the site-specific conditions or the size limitations of the object. But, when it represents only itself, it is freed from these conditions and limitations (Figure 15). The conceptual analysis of the paper therefore enables us to question the limits of scale. It also encourages us to question the disciplinary limits of architecture.

FINDINGS

Although scale is usually defined by the concepts of size, dimension, measurement and proportion, it has many other definitions, as it is relational and perceptual. The relational and perceptual nature of scale makes it an imaginative, speculative and manipulative tool in architectural design. Moreover, it is a creative tool with the potential to encourage designers to think and imagine in an interdisciplinary context. Hence, scale cannot be conceived only as a technical tool that represents the size of a design object. Lukinbeal (2016) argues that conceptualising scale as size is an oversimplification, and there is a need to conceive of scale as relational. In the paper, scale is reconceptualised as self-representational, not representing any particular size or object in architecture. The paper argues that when a scale refers only to itself, it can be freed from its constraints. This allows architects to design scaleless and siteless objects. These can be either architectural or other design objects. It is called 'scalar ambiguity' in the discipline of architecture. Today, in the virtual environment of the computer, architects are even freer to design objects without the constraints of scale or site-specific references. Furthermore, images of these objects published in the media lead us to see and imagine them regardless of their actual sizes. While media and computers are changing our perceptions and relationships with design objects, it seems relevant to reconceptualise scale as a self-representational tool in contemporary architecture (Figure 13, 14 and 15).

DISCUSSION

The paper discusses that scaling practices do not correspond to designing practices in between scales. Scale determines how we perceive objects and relate to our environment. It changes our perceptions. This means that architects design not only buildings as objects but also the perceptual world with the objects around us. However, the paper argues that it is not the scaling up or down practices in architectural models that are being discussed as the designing practices that can free both architects and architecture from the constraints of scale. Rather, it is designing in between scales. This designing practice is different from conventional scaling practices in architecture. Nonetheless, scaling practices are also important for architects to realise the changing spatial, functional and environmental relationships, but scale becomes only a representational tool when it is used to reflect and represent these relationships. When scale is used as a design tool that is not bound to particular objects or their relationships, it can be adapted to any object in architecture. Thus, scale becomes objectless and defines a scaleless and siteless designing practice. Although scaleless and siteless objects are often criticised on the grounds that they are not able to create meaningful spaces, architects are always in search of designing new relationships between objects and their environments. These are design experiments to free architectural objects not only from their environments but also from their formal, spatial, dimensional and functional rules and requirements. These experiments are significantly important for architects to improve the ways of thinking and designing without the constraints of site or scale. They also bridge the gap between design disciplines by blurring disciplinary boundaries. This means that architects become free to design buildings, or objects, regardless of their sizes, dimensions and site

conditions. Scale as a self-representational tool enables them to design self-representational objects in architecture. As Carpo (2013) discusses, scale is a mediator between objects of different sizes. Whether it is a teapot or a building, architects, who rely especially on computer technologies to design scaleless and siteless objects, have the opportunity to imagine them as design objects that can be adapted to any scale.

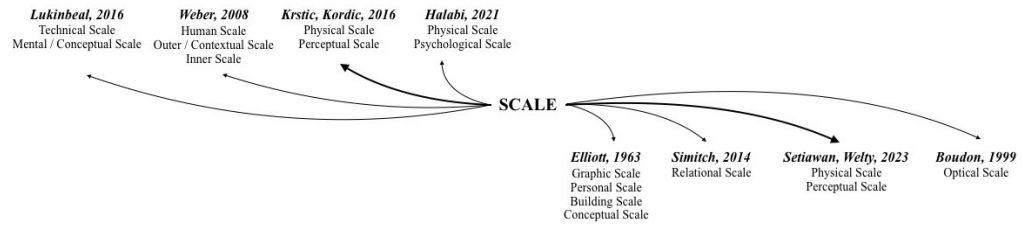


Figure 13. The conceptual analysis of scale I (created by the author).

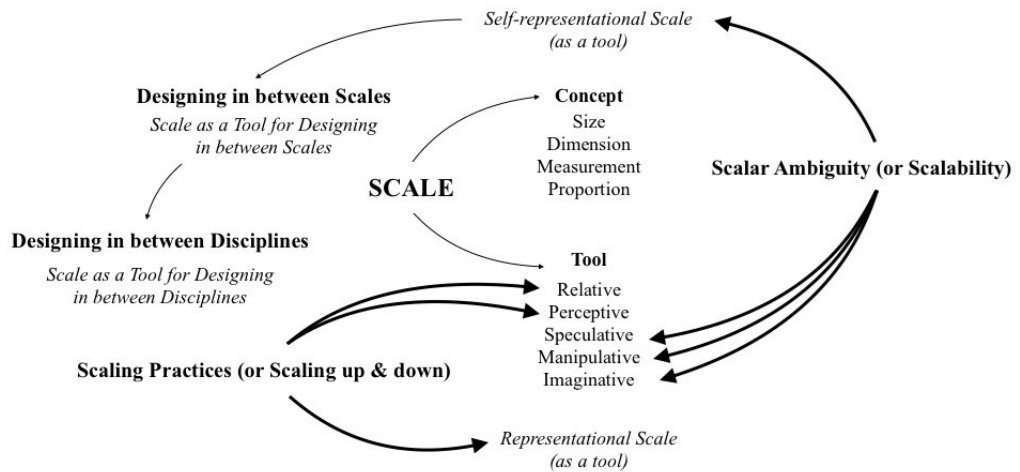


Figure 14. The conceptual analysis of scale II (created by the author).



Figure 15. The conceptual analysis of scale III (created by the author).

It is discussed throughout the paper as the practice of designing in between scales. By this practice, scale turns into a creative tool for thinking, imagining and designing without reducing it to be a particular size or dimension. Thus, it becomes possible to discuss 'scalar ambiguity' in architectural design. Focusing on the differences between 'scaling practices' and 'designing practices in between scales', the paper introduces an original discussion of the latter, which means not designing teapots, chairs or buildings in their own specific dimensions, but designing them as scaleless objects freed from the constraints of scale and adaptable to different sizes. This discussion will hopefully expand the scalar imagination of architects. Designing without the limits of scale will also encourage them to interrogate the disciplinary limits of architecture. A new interdisciplinary design approach can only be developed beyond these limits, freeing architecture from its fundamental constraints such as site and scale.

CONCLUSION

The main argument of the paper is that scale cannot be limited to the concepts of size or dimension. Besides, the conceptual analyses of scale in the paper reveal that it cannot only be a representational tool in architecture. Scale is rather a self-representational tool that has the potential to be used to design objects that can be adapted to any scale in the discipline of architecture. It

therefore enables architects to practise in an interdisciplinary field, designing objects without the constraints of site and scale. This is discussed as the practice of designing in between scales throughout the paper. 'Designing in between scales' differs from 'scaling practices' in architecture. It does not refer to scaling up or down and zooming in or out practices. Instead, it refers to designing a 'scaleless object' that can be either an architectural or any other design object thanks to its adaptable nature. This adaptability is called as 'scalar ambiguity' in the paper.

Whether it is called as 'adaptability', 'scalability' or 'scalar ambiguity', the paper emphasises that scale cannot only be described through the dimensional qualities of an object in architecture. Because of its ambiguity, it can be an imaginative, speculative and creative design tool for architects who are willing to design objects without the limits of scale. It differs from designing a chair or a building with its own specific dimensions. There are many examples of this practice, such as the famous chairs and glass buildings designed by Mies in modern architecture. But designing in between scales is a different design practice. This practice encourages designing a scaleless object, whether a chair, a teapot or a building, in contemporary architecture.

These are siteless and scaleless objects that can be designed for any particular site or scale. The paper promotes the practice of thinking, imagining and designing without the constraints of scale. It therefore defines and discusses scale as a design tool for imagination. Scale enhances the scalar imagination of architects when it is not limited to size and dimension. Perhaps, we need to focus on designing in-between scales, especially in this era when our perceptions are already distorted by scaleless images published in digital and social media. We are used to designing objects in the virtual environment of computers as if they were scaleless objects. Today, it seems relevant for architects to create designs in between scales.

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