

The Narratives of Architectural Scenarios: An Exploration of Cinema Composition

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Abstract

In the 20th century, the field of architecture underwent significant transformations, initiating interdisciplinary collaborations with various artistic domains such as painting, literature, and cinema. This departure from traditional design processes signifies a shifting perspective towards the essence of architecture, thereby creating opportunities for artistic interventions. Among these interdisciplinary intersections, cinema has emerged as a prominent subject of study within architectural education, owing to shared narrative exchanges and spatial organization principles. Both architecture and cinema evoke sensory experiences and emotional responses through their manipulation of spatial and temporal elements. Architects engage in narrative storytelling through spatial sequences, akin to filmmakers constructing scenes, blurring the boundaries between static structures and dynamic narratives. The reciprocal influence between cinema and architecture is evident. Fritz Lang's "Metropolis" exemplifies how architectural environments enrich cinema with depth and emotional resonance. Conversely, cinema inspires architectural design, particularly through montage techniques. Architects like Rem Koolhaas integrate cinematic narrative principles into their works, creating dynamic spatial sequences reminiscent of film editing. Under the influence of cinema and architecture, directors like Alfred Hitchcock and architects like Adolf Loos independently utilize similar spatial narrative concepts in their respective works.

Keywords: Architectural Scenarios, Cinema Scene, Cinema Composition, Visual Expression, Spatial Narrative

Literature Review

The reciprocal influence between architecture and cinema manifests in their mutual exploration of spatial narrative and aesthetic expression. Architects increasingly seek interdisciplinary connections with various artistic domains, including cinema, recognizing the potential of alternative modes of thinking to redefine architectural practice. This trend reflects a shift in traditional design processes towards more fluid and dynamic spatial organization methods. Cinema, with its ability to convey complex narratives through the manipulation of space and time, has become a noteworthy subject of study in architectural education. Examples such as Alfred Hitchcock's use of architectural elements to shape cinema narratives in "Vertigo" and Fritz Lang's incorporation of architectural themes in "Metropolis" highlight the transformative potential of architecture within the medium of cinema. Conversely, cinema also influences architectural design, inspiring architects like Rem Koolhaas to integrate cinematic narrative principles into their spatial compositions, influenced by techniques such as montage.

The exploration of the interplay between cinema and architecture in literature traces back to Sergei M. Eisenstein's "Montage and Architecture," published in 1989. Eisenstein delves into how the cinematic technique of "montage" is integrated into architectural design, drawing parallels between the montage sequences generated by the Acropolis and the rhythmic organization of architectural design.¹ Similarly, Juhani Pallasmaa's "The Architecture of Images: Existential Space in Cinema" examines how cinema utilizes architecture to express emotions. Through the analysis of various cinematic works, Pallasmaa investigates how scenes, cinematography, set design, and architectural elements collaborate to evoke distinct emotional responses.² Additionally, Gilles Deleuze's "The Explosion of Space: Architecture and the Filmic Imaginary" delves into how cinema influences our understanding of space and how architecture is portrayed and interpreted in cinema. Like Pallasmaa, Deleuze employs a range of cinematic works to analyze how images and camera angles shape the audience's perception and experience of space.³ Within his work, Deleuze discusses how cinema set design parallels the architectural manipulation of physical elements, utilizing lighting and scale to articulate spatial expression.⁴

¹ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 117-120.

² Juhani Pallasmaa, *The Architecture of Image Existential Space in Cinema* (Helsinki: Rakennustieto oy Helsinki, 2001), 22-27.

³ Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44, <https://doi.org/10.2307/3171214>, 46-48.

⁴ Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44, <https://doi.org/10.2307/3171214>, 46.

Existing literature primarily focuses on unilateral analyses of architecture's influence on cinema or cinema 's influence on architecture. This highlights a gap in the field regarding comprehensive analyses of the bidirectional influence between cinema and architecture. Therefore, this paper provides a comprehensive examination of the mutual influence between cinema and architecture, addressing the deficiency in integrated analyses in this area. The first chapter explores the influence of architecture on cinema, elucidating how architecture becomes a vital element in cinematic narrative through practical case studies and image analyses. For instance, the depiction of art deco and Bauhaus style architecture in Fritz Lang's "Metropolis" illustrates how architectural elements express the ambiance of the cinema. Subsequently, the second chapter discusses the influence of cinema concepts on architecture, analyzing examples of how cinema affects architectural design. For instance, architects like Rem Koolhaas integrate cinematic narrative principles into architectural design, creating dynamic and tension-filled spatial sequences through the application of montage techniques. Finally, the third chapter delves into how both cinema and architecture utilize spatial narratives to convey their respective stories. Case analyses include Alfred Hitchcock's "Vertigo" and Adolf Loos's Villa Muller, emphasizing the manipulation of space to shape audience emotions and evoke psychological responses.

Introduction

In the 20th century, there has been a notable trend within architecture towards seeking interdisciplinary connections with various other artistic fields, including painting, poetry, literature, sculpture, and even culinary arts.⁵ In recent years, cinema, as an art form sharing many similarities with architecture, has gradually been integrated into architectural education. This growing emphasis on the study of cinema in architectural education stems from the recognition of the many parallels between these two art forms. Both architecture and cinema share numerous similarities; besides conveying complex narratives rich in cultural, emotional, and intellectual significance, they also employ similar spatial organizational techniques to express their concepts. Through the manipulation of space, form, light, and narrative sequence, both architects and filmmakers strive to evoke rich sensory experiences and provoke audience thought and emotional resonance.⁶

“Architecture exists, like cinema, in the dimension of time and movement” argued Jean Nouvel.⁷ At a fundamental level, both architecture and cinema are concerned with the organization of spatial and temporal elements.⁸ They have the capacity to evoke a sense of place, memory, and atmosphere, transporting the viewer to imaginary realms or evoking emotional responses rooted in personal or collective experience. Individuals perceive and comprehend architectural environments through a sequence of experiences, akin to the viewer's engagement with successive scenes in a cinema. Just as a director crafts a cinema narrative by weaving together various scenes to create an immersive experience, the architect manipulates spatial elements to guide occupants through a journey within the built environment. This process involves the arrangement of architectural elements such as frameworks, openings, pathways, and vistas to shape the flow of movement and control the unfolding narrative of spatial experience.⁹ Moreover, by employing techniques in similar to those used in cinema, architecture becomes not merely a static object, but a dynamic and evolving medium through which narratives are enacted, experienced, and interpreted in the dimension of space and time.

In the cinematic and architectural history, numerous instances of influence between the two disciplines emerge. In the perspective of architecture influencing cinema, architecture

⁵ Juhani Pallasmaa, *The Architecture of Image Existential Space in Cinema* (Helsinki: Rakennustieto oy Helsinki, 2001), 11.

⁶ Juhani Pallasmaa, *The Architecture of Image Existential Space in Cinema* (Helsinki: Rakennustieto oy Helsinki, 2001), 31.

⁷ Maggie Toy, *Architecture and Film* (London: Academy Ed., 1994), 35.

⁸ Raagveen Kaur Sabharwal, *Architecture and Cinema: Spatial Narratives of Architecture through Cinematic Context*, no. 21 (June 2021), <https://doi.org/10.13140/RG.2.2.26057.31840>, 16.

⁹ Maggie Toy, *Architecture and Film* (London: Academy Ed., 1994), 35.

transcends its role as a mere backdrop and emerges as a multifaceted tool for narrative construction and atmospheric manipulation of cinema. Beyond providing visual context, the style, layout, and intricate details of architectural settings serve as narrative cues, enriching the plot with contextual depth and emotional resonance. The plot, in turn, shapes the characters' emotions, thus imbuing the cinema mood, which is often reflected in the spatial ambiance.¹⁰

In shaping the emotional tone of cinema narratives, the architecture and spatial elements depicted within cinema often play a crucial role in influencing the overall atmosphere. One notable example of architecture influencing cinema is Fritz Lang's *Metropolis*. In crafting the visual aesthetic of "Metropolis," Fritz Lang drew heavily from Art Deco movements, which characterized by sharp edged, stylized geometrical forms and linear appearance.¹¹ The cinema's sets and scenes are replete with bold geometric shapes, soaring skyscrapers, and vast, labyrinthine cityscapes, all of which evoke a sense of futuristic grandeur and technological marvel. These architectural elements serve not merely as backdrop but as integral components of the cinema's narrative and thematic resonance, symbolizing the dizzying heights of technological progress and the stark social divisions that accompany it.

In addition to serving as elements within the cinema to enhance the ambiance of scenes, architecture can also be leveraged to utilize the spatial dynamics within buildings to reflect the ebbs and flows of the plot. Alfred Hitchcock stands as a prominent figure in exemplifying this phenomenon. In his work "Vertigo," Hitchcock elevates the staircase beyond its utilitarian function to a symbolic spatial image, transcending its architectural essence. Here, the staircase emerges as a locus of crisis and tension, with its tilted perspective inducing a profound sense of unease in the audience. Indeed, the architectural space in "Vertigo" assumes a narrative significance that mirrors the climactic moments of the plot. As conveyed in interviews, the creation of suspense hinges upon a thorough understanding of the spatial dynamics within the cinema settings.¹² By fully realizing the spatial layout and strategically incorporating elements of tension, the director heightens the suspenseful effect, thus underscoring the pivotal role of architecture in shaping cinematic narratives.

¹⁰ Steffen Hven, "The Atmospheric Worlds of Cinema," *Enacting the Worlds of Cinema*, May 19, 2022, 41–66, <https://doi.org/10.1093/oso/9780197555101.003.0003>.

¹¹ JF Alfaya, "The Influence of the Art Deco Movement in Fritz Lang's *Metropolis*," *Decimononic*, June 9, 2014, <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>.

¹² Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44, <https://doi.org/10.2307/3171214>, 46.

From a different perspective, cinema have also influenced architectural design. The most classic example is the montage technique, which has inspired by many renowned architects in their designs. It was originally used in cinema editing, where clips from different locations, angles, and shots were assembled into a rhythmic cinema to achieve temporal and spatial freedom. Originally a cinema editing technique, montage involves assembling clips from different locations, angles, and shots to create a rhythmic sequence that offers temporal and spatial freedom. This technique was notably discussed by Sergei Eisenstein in his book "Montage and Architecture," in which he highlighted how architectural space can be understood as a montage of sequences, akin to the shots in a movie, disintegrating and reassembling dynamically.¹³ Architects such as Rem Koolhaas have drawn inspiration from this concept, incorporating montage principles into their architectural works. His adept integration of narrative parallels the storytelling intricacies found in cinema. Koolhaas's architectural spatial sequences emulate the fluidity of cinema camera editing, presenting spaces that are dynamic and interconnected. Experiencing his architecture feels akin to navigating through ever-changing cinema scenes, offering the audience a sensation reminiscent of watching a captivating movie. This fusion creates an immersive encounter, blurring the lines between the spatial and cinematic realms, allowing the audience to perceive Koolhaas's architecture through a cinematic lens.

In the mutual influence of architecture and cinema, both disciplines leverage spatial narratives to convey their respective stories. Architectural spaces and filmic environments undergo dynamic transformations, unfolding narratives along timelines while intricately manipulating spatial configurations. Alfred Hitchcock, renowned for his mastery of suspense in cinema, and Adolf Loos, a pioneer in spatial organization within architecture, exemplify this interplay between spatial narratives. Hitchcock adeptly manipulates filmic space through camera angles, lighting, and set design to elicit specific emotional responses, while Loos revolutionizes architectural design with his innovative Raumplan theory, emphasizing experiential spatial dynamics over mere structural aesthetics.¹⁴¹⁵

This paper aims to provide a historical analysis of the mutual influence between cinema

¹³ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 120.

¹⁴ Scott Myers, "Francois Truffaut Interviews Alfred Hitchcock," Medium, July 15, 2018, <https://gointothestory.blcklst.com/francois-truffaut-interviews-alfred-hitchcock-82624f1fda4c>.

¹⁵ Cynthia Jara, "Adolf Loos's Raumplan Theory," *Journal of Architectural Education* 48, no. 3 (February 1995): 185–201, <https://doi.org/10.1080/10464883.1995.10734640>, 185.

composition and architectural scenario in terms of visual expression and spatial narratives. To substantiate this relationship, I will examine the connection between several architecture movements and the cinema "Metropolis," as well as Rem Koolhaas's incorporation of cinematic narrative techniques in his spatial design. Through the analysis of architectural and cinema works, the paper seeks to validate the viewpoints emphasized by architects and directors in interviews, employing established principles to substantiate these influences. Additionally, a set of established principles will be employed to assess whether these influences adhere to specific criteria, thereby deepening our understanding of the relationship between architecture and cinema.

The discussion will divide to three chapters. In chapter one, it will delve into how art deco and Bauhaus architecture profoundly influenced Fritz Lang's direction of "Metropolis," showcasing resonances in visual elements. In chapter two, it will be given to how Rem Koolhaas leverages cinematic narrative techniques, integrating them into his spatial design in a unique and profound manner, thereby achieving an interactive relationship between architecture and cinema. In chapter 3, it will compare how Alfred Hitchcock and Adolf Loos use similar spatial organisation techniques in their respective works.

Chapter 1: How architecture influence the cinema scene in Movie Metropolis

1.1 Metropolis

According to *The darker side of Fritz Lang's Metropolis* by David Golding, the production context of "Metropolis" (1927) stemmed from the Weimar Republic era in Germany (1919-1933), characterized by profound political upheavals, economic crises, and societal transformations.¹⁶ Influenced by industrialization, modernization, and technological advancements, pertinent issues such as social stratification and technological progress were subject to intense scrutiny and debate. These prevailing intellectual currents culminated in the emergence of the cinema "Metropolis." Set in a futuristic, anti-utopian city, the movie narrated two people from different class fall in love, one is Freder, the son of the city's owner, and Maria who is from working class, attempting to break through the great divide between social classes.¹⁷ Within the fictitious metropolis depicted in the cinema, an anti-utopian society is divided between the luxurious upper class and the oppressed working class. The architectural design showcased in the cinema's scenes directly mirrors the stratified nature of society at the time. The upper-class architecture is characterized by opulent skyscrapers and grandiose, eccentric geometric forms, epitomizing the wealth and power of the ruling elite. Conversely, the architecture of the lower city, primarily inhabited by the labouring populace, prioritizes utility over aesthetics, featuring functional, unadorned structures, emblematic of efficiency over ornamentation. Embedded within the cinema's scenery are elements such as the towering contemporary Tower of Babel, tiered skyscrapers, or utilitarian underground factories, which reflect the director's nuanced understanding of prevailing European architectural trends.

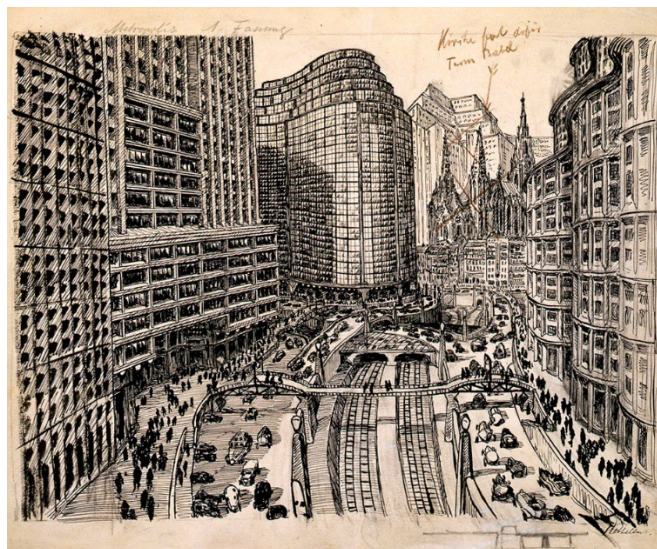
¹⁶ David Golding, "The Darker Side of Fritz Lang's Metropolis: Coloniality in Modernist Cinema," *Postcolonial Studies* 22, no. 3 (June 23, 2019): 303–24, <https://doi.org/10.1080/13688790.2019.1627855>.

¹⁷ Shira Wolfe, "Art Influences in Fritz Lang's Metropolis," *Artland Magazine*, April 17, 2023, <https://magazine.artland.com/fritz-langs-metropolis-how-the-iconic-silent-film-took-inspiration-from-art-movements/>.

1.2 The influence of Art Deco Movement in Fritz Lang's Metropolis

In an interview, Fritz Lang remarked, "This cinema was born when I first saw the skyscrapers of New York in October 1924."¹⁸ This indicates that the architecture depicted in the cinema scene was influenced by the skyscrapers of New York City. During the 1920s and 1930s, buildings with Art Deco Movement flourished in New York City, with colourful and ornate skyscrapers dominating the Manhattan skyline.¹⁹ Some of the most representative buildings include the Barclay-Vesey Building by Ralph Walker, the Graybar Building designed by Sloan & Robertson, and the Fred F. French Building.

In the movie "Metropolis," the influence of the Art Deco movement is evident in its visual aesthetic and architectural design. This is closely related to the involvement of production designer and set designer Erich Kettelhut, who served as the art director and was responsible for set design in "Metropolis," designing the cityscape to meet Fritz Lang's vision for the cinema's scenes.²⁰ From his sketches, the presence of Art Deco style is unmistakable. For instance, the smooth stone skyscrapers dominating the city skyline and the dazzling cityscape all exhibit characteristics of Art Deco architecture. These elements also serve as a metaphor for the opulence and wealth of the upper class.



Figures 1. Sketch by Erich Kettelhut for Metropolis²¹

Among these movie scenes, the Tower of Babel is one of the most iconic buildings. Its inspiration is derived from the biblical Tower of Babel (Genesis 11:1-9), where humanity

¹⁸ JF Alfaya, "The Influence of the Art Deco Movement in Fritz Lang's Metropolis," Decimononic, June 9, 2014, <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>.

¹⁹ Anthony Robins, *New York Art Deco: A Guide to Gotham's Jazz Age Architecture* (Albany: Excelsior Editions, an imprint of State University of New York Press, 2017), 2.

²⁰ Weinstein, Joan. *Journal of the Society of Architectural Historians* 53, no. 3 (1994): 347–50. <https://doi.org/10.2307/990942>, 347.

²¹ Erich Kettelhut, *Metropolis – Opening Cityscape v1 Sketch*, n.d., n.d., <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>.

attempted to build a tower to reach heaven, but God confused their language, leading to the dispersal of humanity across the world and the collapse of the tower.²² However, the symbolism of the Tower of Babel in "Metropolis" differs from the biblical account. In the cinema, it symbolizes the rulers' desire to attain godlike status through control of the city, but the tower's collapse is caused by societal class divisions.²³ To emphasize the towering image of the Tower of Babel, Fritz Lang utilized black-and-white contrast and depth of field effects to highlight its unique position in the cityscape. In Erich Kettelhut's sketches of the Tower of Babel, its towering structure with peculiar geometric roof shapes signifies the majestic architecture combined with Art Deco style to embody the symbol of the rulers' power.



Figures 2. Tower of Babel²⁴



Figures 3. Tower of Babel in Metropolis²⁵

²² Robert Graves and Raphael Patai, *Hebrew Myths: The Book of Genesis*. Random House, 2022, 315.

²³ Cesarm, "MT: From Babel to Metropolis," Trusted Translations, Inc., January 26, 2023, <https://www.trustedtranslations.com/blog/mt-from-babel-to-metropolis>.

²⁴ *Tower of Babel*, n.d., n.d., <https://www.idees-cadeaux-deco-du-mistigri.fr/tableau+la+tour+de+babel>.

²⁵ Fritz Lang, *Tower of Babel*, 1927, <https://www.youtube.com/watch?v=7jdetyaWhWA>.



Figures 4. Tower of Babel, sketch by Erich Kettelhut²⁶

The following compositional analysis extracts scenes from the cinema featuring skyscrapers to evaluate the extent to which architecture influences the elements within the cinema scenes. Within the skyscraper of "Metropolis," there is a towering Babel tower, with its architectural style identified as Art Deco through exterior decorations. Meanwhile, among the New York skyscrapers observed by Fritz Lang, the most famous Art Deco building is the Chrysler Building. From the images, it is apparent that both structures feature geometric decorative elements atop their towers. In the cinema, the Babel tower extends outward with four triangular decorations, while the Chrysler Building is adorned with saw-toothed decorations as its tower cladding. Despite the different geometric patterns, both buildings employ similar techniques to present their exteriors. Furthermore, both structures have densely populated open facades in their midsections, with different materials used for cladding, reflecting their opulence.



Figures 5. The left image is Chrysler Building, right Image is Tower of Babel in Metropolis^{27,28}

²⁶ Erich Kettelhut, *Metropolis — Turm Babel gouache on cardboard*, n.d., n.d., <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>

²⁷ *Chrysler Building 1930*, n.d., n.d., <https://jamesmaherphotography.com/new-york-historical-articles/chrysler-building/>.

²⁸ Fritz Lang, *Tower of Babel, 1927*, <https://www.youtube.com/watch?v=7jdetyaWhWA>.

1.3 The influence of Bauhaus Art in Fritz Lang's Metropolis

In addition to being influenced by the art deco architectural style of the movie scenes, the influence of Bauhaus art in Fritz Lang's "Metropolis" is evident in its architectural and set design, as well as visual expression.²⁹ This influence can be traced back to the era of Weimar Republic. During this time, the Bauhaus was an influential art school founded by architect Walter Gropius in 1919.³⁰ The school was known for its unique approach to design, which united artistic conception with mass production and functionalism.³¹ Bauhaus is characterized by simple geometries, the absence of elaborate ornamentation, and the rectangular character of the buildings.³²

Furthermore, the influence of Bauhaus extended across visual arts, architecture, interior design, graphic design, industrial design, and typography. In these domains, Bauhaus architecture or objects are characterized by fully simplified forms, designed from a rational and functional perspective.

Fritz Lang had a background influenced by Bauhaus through his architect father, a brief study in engineering courses, and connections with several Bauhaus artists.³³ Although this suggests that his family background may have influenced him in making the cinema Metropolis, from a visual expression perspective, it had more similarities with the work "Metropolis" by Paul Citroen.

Paul Citroen, a former Dadaist artist who lectured at the Bauhaus, created a series of photomontages titled *City of My Birth* in 1923, depicting a vibrant and ever-changing modern urban landscape.³⁴ This work combined approximately 200 image fragments from newspapers and postcards.³⁵ From the composition, a sense of street life is observed at the bottom, with numerous skyscrapers towering layer by layer until the entire image is filled. This parallels the poster of the movie "Metropolis," where the bottomless depths of the skyscrapers represent the dark life of the lower class, contrasting with the towering skyscrapers symbolizing the extravagance of the upper class, metaphorically portraying the class conflict of future society.³⁶

²⁹ Patrick McGilligan, *Fritz Lang: The Nature of the Beast* (University of Minnesota Press, 2013), 108-133.

³⁰ JF Alfaya, "The Influence of the Art Deco Movement in Fritz Lang's Metropolis," *Decimononic*, June 9, 2014,

³¹ Ian Chilvers, *The Oxford Dictionary of Art and Artists* (Oxford: Oxford University Press, 2015), 64-66.

³² Ekaterina Vasileva, "Ideal and Utilitarian in the International Style System: Subject and Object in the Design Concept of the 20th Century," *International Journal of Cultural Research* 4, no. 25 (August 2023): 72-80, https://www.researchgate.net/publication/374443683_Vasileva_E_2016_Ideal_and_utilitarian_in_the_international_style_system_subject_and_object_in_the_design_concept_of_the_20th_century_International_Journal_of_Cultural_Research_4_25_72-80.

³³ Shira Wolfe, "Art Influences in Fritz Lang's Metropolis," *Artland Magazine*, April 17, 2023, <https://magazine.artland.com/fritz-langs-metropolis-how-the-iconic-silent-film-took-inspiration-from-art-movements/>

³⁴ Herbert van Rheeden, "Metropolis, the 1920's Image of the City," *Metropolis*, January 1, 1988, 11-31, https://doi.org/10.1163/9789004449268_003.

³⁵ David Campany, "Metropolis Futures: Collage Constructions for a New World," *Architectural Review*, July 19, 2021, <https://www.architectural-review.com/essays/metropolis-futures-collage-constructions-for-a-new-world>.

³⁶ Herbert van Rheeden, "Metropolis, the 1920's Image of the City," *Metropolis*, January 1, 1988, 11-31,



Figures 6. *Metropolis (City of My Birth)* by Paul Citroen³⁷

Moreover, the underground city scenes in the cinema "Metropolis" also suggest that architectural elements in its cinematic setting were influenced by Bauhaus. In the story, the underground city is predominantly inhabited by the working class, who labour for the upper class, emphasizing industrialization and mass production efficiency. This atmosphere is reflected in the architectural elements of the cinema's underground city scenes. In contrast to the skyscrapers, the buildings in the underground city feature clean geometric lines and minimalist forms, embodying minimalism of Bauhaus, emphasizing system, order, simplicity and practicality. There are no reliefs on the doors and windows of the buildings, only rectangular openings accompanied by simplified architectural forms, symbolizing the labour class in the cinema's underground city, which prioritizes work efficiency and sacrifices aesthetic aspects.

https://doi.org/10.1163/9789004449268_003.

³⁷ Paul Citroen, *Metropolis*, n.d., n.d., <https://www.artsy.net/artwork/paul-citroen-metropolis>.



Figures 7. The Underground City of workers in Metropolis³⁸

The following compositional analysis extract scenes from the cinema featuring the minimalist architecture of the lower levels to evaluate the extent to which architecture influences the elements within the cinema scenes. The underground cityscape in "Metropolis" predominantly features Bauhaus minimalist architecture. In certain scenes of the cinema, the underground city is occupied by functional, minimalist buildings. During the Bauhaus era, under Meyer's leadership, five Laubenganghäuser were commissioned, which are apartment buildings with balcony access. From the provided images, it can be observed that these buildings share rectangular features in their volumes. Additionally, both have facades characterized by clean, undecorated openings. While both the architecture in the cinema and real-life social housing aim to fulfill societal needs for housing, a notable difference lies in the presence of balconies in Laubenganghäuser, highlighting the portrayal of the laboring class being deprived even of such amenities in the cinema scenes, emphasizing their exploited status.



Figures 8. Lanbenganghauser in Dessau³⁹

³⁸ *The Underground City*, n.d., n.d., <https://www.re-thinkingthefuture.com/rtf-architectural-reviews/a6188-an-architectural-review-of-metropolis-1927/>.

³⁹ *Flat Roof Houses in the Modern Style, in Row Construction*, 1930, 1930, https://www.hugo-junkers.info/junkers-pfad-laubenganghaeuser_eng.html.

Chapter 2: How cinema influence architecture - Rem Koolhaas's architectural design with cinematic narrative techniques

2.1 Rem Koolhaas

Rem Koolhaas is a renowned Dutch architect, urban planner, and architectural theorist, credited as a key figure in deconstructivism architecture. He is celebrated for his innovative designs and theoretical contributions. His design approach typically involves a thorough examination of urban spaces and a challenge to architectural conventions, resulting in practical yet imaginative spaces.⁴⁰

At the core of Koolhaas's design philosophy lies the belief that architecture is not merely about spatial expression but also a cultural and societal force. Embracing the complexities and contradictions of society, he seeks to create architecture capable of adapting to societal changes continuously.⁴¹ From his architectural philosophy, it is evidenced that he leans towards shaping urban fabric collaboratively with adjacent buildings and integrating cities into communities based on cultural traits and contextual backgrounds.

In his 1978 publication "Delirious New York," Koolhaas introduced the concept of cross-programming, advocating for the intentional introduction of unexpected functions in different types of buildings to stimulate new interactions and purposes.⁴² These unconventional design approaches and theories may stem from his academic background. Unlike traditional architects who pursue architecture degrees, Rem Koolhaas initially studied screenwriting at the Dutch Film Academy.⁴³ Later, he furthered his studies in architecture at the Architectural Association School of Architecture in London and pursued architectural studies at Cornell University for two years. He believed that his experience in screenwriting and journalism continues to influence his work to this day.

When Archdaily interviewed Rem Koolhaas and his son Tomas Koolhaas, they primarily discussed how their respective careers in architecture and filmmaking have influenced each other. The following is the statement he mentioned in the interview:

"For me, the similarity is that the architect, like a filmmaker, is stitching together episodes or fragments to create a larger whole. The discovery of montage, in filmmaking, I almost literally

⁴⁰ Roger W. Caves, *Encyclopedia of the City* (New York, NY: Routledge, 2013), 411.

⁴¹ "Rem Koolhaas," Rem Koolhaas | ArchitectureCourses.org, accessed April 18, 2024, <https://www.architecturecourses.org/learn/rem-koolhaas>.

⁴² Rem Koolhaas, *Delirious New York*, 1980, 155.

⁴³ "Rem Koolhaas," OMA, accessed April 18, 2024, <https://www.oma.com/partners/rem-koolhaas>.

apply to architecture; it is one of the cases of architecture, that there can be abrupt shifts in mood or in scale. So I would say my architecture depends to some extent on a number of devices, and procedures, that are learned in filmmaking.”⁴⁴

This indicates that techniques from filmmaking have influenced the theoretical development and design approach of Rem Koolhaas. He applied filmmaking techniques such as cinematography, editing, and set design to the narrative of his architectural works. By combining and arranging different elements, he transforms his designs into multi-layered and multifunctional spaces, turning them into more than just standalone buildings.

⁴⁴ Keshia Badalge, “Rem Koolhaas and Son Tomas Talk about the Years-Long Process of Shooting ‘Rem,’” ArchDaily, June 6, 2018, <https://www.archdaily.com/895878/rem-koolhaas-and-son-tomas-talk-about-the-years-long-process-of-shooting-rem>.

2.2 Montage

When considering the influence of cinema on architecture, the fundamental cornerstone of this relationship lies in the concept of Montage. It serves as a cinematic editing technique aimed at condensing spatial, temporal, and informational dimensions by orchestrating a succession of short clips.⁴⁵ The objective is to effectively convey a wealth of information to the audience within a truncated timeframe.⁴⁶ Filmmakers integrate a diverse array of short clips captured across various locations, distances, angles, and stylistic approaches to form a cohesive narrative.⁴⁷ Moreover, Montage sequences often integrate a profusion of abbreviated shots and specialized optical effects, such as façade, dissolves, split screens, and double and triple exposures, to seamlessly transition between scenes.⁴⁸ Within the theoretical discourse of cinematic Montage, Sergei Eisenstein emerges as a seminal figure. His seminal treatise, "Montage and Architecture," published in 1938, elucidates how the sequential arrangement of shots, as epitomized by the Acropolis, foreshadows the Montage technique in cinema, thus underscoring the intrinsic symbiosis between architectural forms and cinematic expression.

*"It is hard to imagine a stricter, more elegant, and more triumphant construct than this sequence. We will not go into the details of this here, but only remark that the length of these montage sequences is entirely in step with the rhythm of the building itself: the distance from point to point is long, and the time taken to move from one to the other is of a length in keeping with solemnity."*⁴⁹

The above description comes from *Montage and Architecture*, elaborated the confluence between the montage shots generated within the architectural ensemble of the Acropolis and the inherent rhythm of architectural design itself. This also suggests that the sequence of shots may have been derived from architecture. Within the book, an analysis is conducted on the various shots within the Acropolis, each with its unique characteristics, and describes how these shots coalesce into a series of dynamic visual sequences.

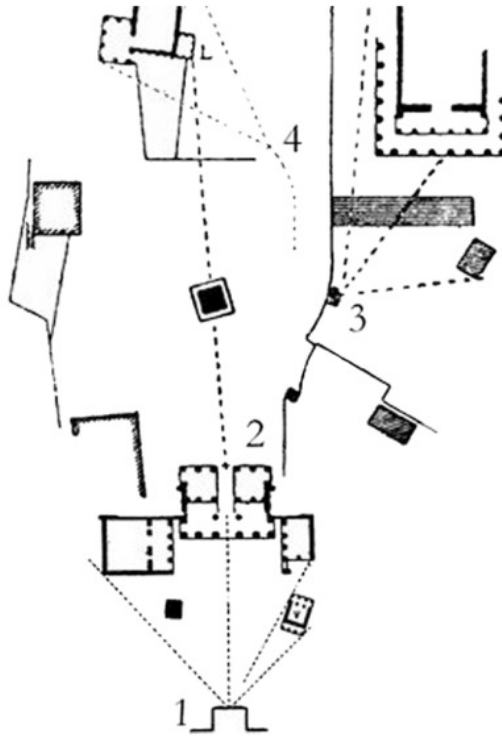
⁴⁵ Karel Reisz and Gavin Millar, *Technique of Film Editing* (New York: Focal Press, 2017), 87.

⁴⁶ Karel Reisz and Gavin Millar, *Technique of Film Editing* (New York: Focal Press, 2017), 87.

⁴⁷ Karel Reisz and Gavin Millar, *Technique of Film Editing* (New York: Focal Press, 2017), 88.

⁴⁸ Karel Reisz and Gavin Millar, *Technique of Film Editing* (New York: Focal Press, 2017), 87.

⁴⁹ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 120.



Figures 9. Floor Plan of Acropolis⁵⁰

The above diagram depicts the floor plan of the Acropolis of Athens, with marked locations indicating different viewpoints. At the first point of view, one can observe the centrally symmetrical structure along with two slightly asymmetrical wings.⁵¹ This composition forms a perfectly balanced whole; however, there exists subtle diversity between the left and right sides, even within the overall symmetry.⁵² The second viewpoint focuses on the statue of *Athene Promakhos* surrounded by surrounding temples.⁵³ It is noted in the book that from the spectator's perspective, *Erechtheion* is angled toward them.⁵⁴ This deliberate angling, compared to a frontal view, imbues a more picturesque and poetic ambiance.⁵⁵ Moving to the third viewpoint, observers can scrutinize *Erechtheion* from a closer distance.⁵⁶ Similarly, the fourth viewpoint serves a similar function to the third, allowing viewers to delve deeper into

⁵⁰ *Analysis of the Acropolis*, n.d., n.d., <https://straccitemporanei.tumblr.com/post/157936587135/onsomething-auguste-choisy-analysis-of-the>.

⁵¹ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 117.

⁵² Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 118.

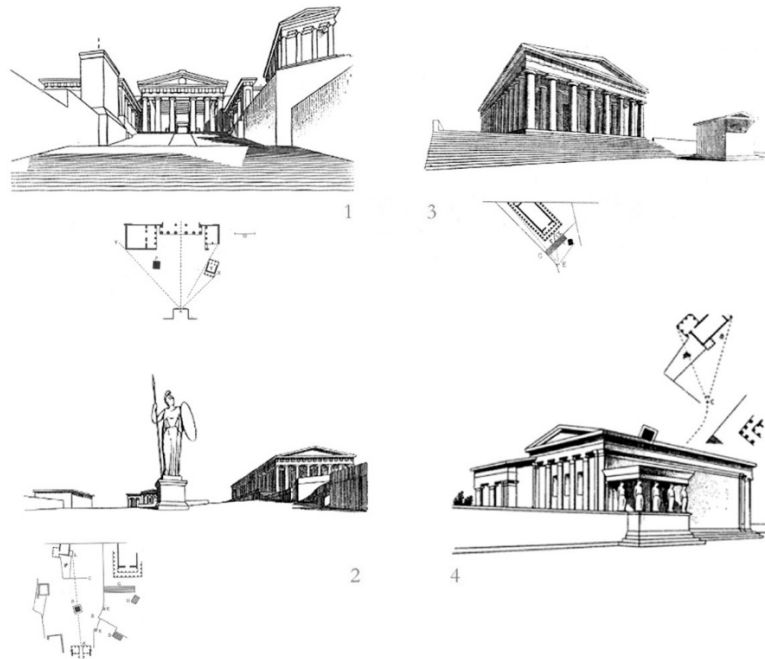
⁵³ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 118.

⁵⁴ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 119.

⁵⁵ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 119.

⁵⁶ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 120.

examining the architectural surroundings encasing the statue.



Figures 10. Four Perspectives of the Acropolis⁵⁷

Across these four shots, a commonality emerges: each features a striking focal point. For instance, when viewing the shots 2, attention is first drawn to the statue of *Athene Promakhos*, before gradually shifting to the surrounding architecture. This principle applies similarly to the shots 3. According to *Montage and Architecture*, Choisy explained that human recollection of a subject typically begins with the initial impression, prompting Greeks to focus on creating a favourable first impression in spatial design.⁵⁸ Furthermore, exploring the relationship between camera angles and spatial arrangements, shots 1 and 2 exhibit symmetrical composition but stand in opposition spatially.⁵⁹ Shots 3 and 4, employing a two-point perspective, serve to magnify the architecture surrounding the focal point in perspective 2.⁶⁰ When these four shots are combined, they form a continuous cinematic scene.⁶¹ This can be likened to the spectator's eyes serving as camera lenses, traversing the space and capturing scenes from different geographical positions, which are then assembled into a complete cinematic narrative. This narrative underscore that ancient designers, in crafting temples and sculptures, not only

⁵⁷ *Analysis of the Acropolis*, n.d., n.d., <https://straccitemporanei.tumblr.com/post/157936587135/onsomething-auguste-choisy-analysis-of-the>.

⁵⁸ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 120.

⁵⁹ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 120.

⁶⁰ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 120.

⁶¹ Sergei M. Eisenstein, Yve-Alain Bois, and Michael Glenny, "Montage and Architecture," *Assemblage*, no. 10 (December 1989): 110, <https://doi.org/10.2307/3171145>, 117.

considered the rhythm of overall spatial arrangement but also contemplated the architectural positioning and composition techniques within individual frames.

The Acropolis also served as a source of inspiration for Le Corbusier's architectural theories. In the book *Towards a New Architecture*, Le Corbusier introduced the Acropolis to explore the relationship between axes (movement lines) and lines of sight.⁶² He described how each axis leads to a focal point, signifying the gaze directed towards a scene ahead, whether it be a wall or a space.⁶³ He argued against aligning buildings along the same axis, likening it to multiple people speaking simultaneously, making it difficult to discern the focal point.⁶⁴ According to his analysis, temples in the Acropolis complex skilfully avoid forceful axes.⁶⁵ This understanding led him to grasp the concept of dynamic visual flow, which subsequently informed his theory of architectural promenades. In *Villa Savoye*, he incorporated a ramp between the ground floor and rooftop garden, establishing a continuous flow throughout the building.⁶⁶ This internal circulation bears resemblance to the handling of movement in the Acropolis, guiding the viewer's gaze through motion.

⁶² Le Corbusier, *Towards a New Architecture* (New York: Brewer, Warren & Putnam, 2014), 187.

⁶³ Le Corbusier, *Towards a New Architecture* (New York: Brewer, Warren & Putnam, 2014), 189.

⁶⁴ Le Corbusier, *Towards a New Architecture* (New York: Brewer, Warren & Putnam, 2014), 189.

⁶⁵ Le Corbusier, *Towards a New Architecture* (New York: Brewer, Warren & Putnam, 2014), 189.

⁶⁶ Andrew Kroll, "Architecture Classics: Villa Savoye / Le Corbusier," ArchDaily, October 27, 2010, <https://www.archdaily.com/84524/ad-classics-villa-savoye-le-corbusier>.



*Figures 11. Ramp to the rooftop of Villa Savoye*⁶⁷

In *Delirious New York*, Rem Koolhaas argued that there is no inherent relationship between floors in skyscrapers, advocating for a blurred approach to dissolve the concept of distinct floors.⁶⁸ This blurring is achieved by incorporating ramps between floors, allowing viewers to transition from one floor's view to another through movement lines.⁶⁹ From the above discussion, it's evident that whether in the theory of Montage itself or in architectural theories inspired by Montage, there are parallels with Rem Koolhaas's design philosophy.

⁶⁷ Le Corbusier, *The Outside Ramp Leading to the Roof of Villa Savoye with the Caption Promenade Architecturale, Villa Savoye, 1931*, photograph, 1964.

⁶⁸ Rem Koolhaas, *Delirious New York*, 1980, 155.

⁶⁹ Smithsonian Magazine, "The Unbuilt High-Rise Designs of Rem Koolhaas and Oma," Smithsonian.com, August 23, 2012, <https://www.smithsonianmag.com/arts-culture/the-unbuilt-high-rise-designs-of-rem-koolhaas-and-oma-31406521/>.

2.3 Kunsthal Rotterdam

In Rem Koolhaas' urban planning and architectural projects, a series of montage techniques such as dynamism, assemblage, and deconstruction are imbued. Analogous to a director orchestrating scene, Koolhaas meticulously designs the movement of people within his buildings. His designs resemble carefully choreographed sequences, guiding visitors to specific perspectives and experiences. Consider in the Kunsthal Rotterdam, for instance, where due to the limited museum space accommodating various functions, inclined surfaces and a series of tightly organized large ramps were introduced to connect different areas. This allows the museum to offer diverse visual experiences to visitors.

Situated on the edge of the serene Museum Park and Westzeedijk, with the other side facing a bustling highway, the architecture needs to assimilate atmospheres from two different areas. Envisaged as a plaza intersected by two routes, one running east-west and the other north-south, the building connects different zones.⁷⁰ This division results in the building being segmented into four parts, posing the challenge of ensuring that these four components can exist independently while still maintaining connections between them.⁷¹



Figures 12. Kunsthal Rotterdam Exterior View from the Park⁷²

⁷⁰ "Kunsthal," OMA, accessed April 10, 2024, <https://www.oma.com/projects/kunsthal>.

⁷¹ "Kunsthal," OMA, accessed April 10, 2024, <https://www.oma.com/projects/kunsthal>.

⁷² *Kunsthal Exterior View from the Park*, n.d., n.d., <https://www.kunsthal.nl/en/about-kunsthal/building/>.

The way Koolhaas describes it in his book *S M L XL* is akin to a photomontage layout.

*Approach the building from the boulevard. Enter the ramp from the dike. It slopes down from the park. Halfway down enter the auditorium. It slopes in the opposite direction. A curtain is drawn blocking out daylight. At the bottom see a projection screen. Walk down. Turn the corner. Enter the lower hall, facing the park. It is dark, with a forest of five columns. To the right, a slender aperture opens to a narrow gallery. Look up. Rediscover the ramp you used to enter. Walk up. A glass wall separates the people outside. At the top ...turn left. Enter the second hall. It is bright, with no columns. Look back. Exit under the balcony. See the auditorium, but don't walk that far. Instead, turn and take a third ramp. Halfway up, grope through a small dark room ...*⁷³

The above exposition narrates the visual experiences elicited as visitors traverse through the museum. In a comparison, the architectural encounter engendered by Kunsthall Rotterdam parallels that of the Acropolis in Athens, both embodying a mode wherein individuals position themselves from a certain viewpoint (akin to a cinematic lens), visually apprehending scenes (analogous to a screen), to interconnect various elements within space.⁷⁴ This engenders a visual encounter commensurate with cinematic montage. However, diverging from the realm of cinema, architects meticulously orchestrate spatial sequences within a building, crafting a series of vistas, while visitors explore the museum's contiguous arrangement through pedestrian perambulation.

Moreover, visitors predominantly navigate through distinct spaces via ramps, with these architectural features yielding visual effects reminiscent of cinematic transitions. As visitors traverse the ramps, the transition between one spatial realm to another becomes effaced, mirroring the gradual obscuring and emergence characteristic of cinematic transitions. From the visitor's perspective, during ascension, lower-level spatial domains progressively recede from view, while upper-level spaces gradually unfold.

⁷³ Rem Koolhaas and Bruce Mau, *S M L XL*: OMA, 1993.

⁷⁴ UFO Themes, "Space of Montage: Movement, Assemblage, and Appropriation in Koolhaas' Kunsthall," *Civil Engineer Key*, August 11, 2021, <https://civilengineerkey.com/space-of-montage-movement-assemblage-and-appropriation-in-koolhaas-kunsthall/>.



Figures 13. Intersection of Staircase and lecture Theatre at Kunsthal Rotterdam⁷⁵

In essence, the architectural experience furnished by Kunsthal Rotterdam, akin to the Acropolis, transcends mere physicality to evoke a narrative unfolding, wherein spatial arrangement and traversable pathways engender an immersive journey of exploration. Through the strategic integration of design element such as ramps, architects brought the physical sensations experienced while watching the cinema into the real physical space.

⁷⁵ *The Intersection of Theatre and Staircase*, n.d., Marco Cappelletti, n.d., <https://www.marcocappelletti.com/projects/kunsthal/>.

2.4 Casa da Musica

Beyond Kunsthal Rotterdam, Rem Koolhaas extends the principles of montage into various other projects, with Casa da Musica standing as one of his seminal works, exemplifying the application of montage techniques to architectural design. Casa da Musica, located in Porto, Portugal, revolutionizes the conventional paradigm of concert halls by redefining the relationship between its volumetric interior and exterior spaces.⁷⁶ The building's asymmetrical polyhedral form, viewed from different angles, undergoes morphological transformations, enticing observers to circumnavigate and fully immerse themselves in its spatial complexities.⁷⁷



Figures 14. Casa da Musica from the Street View⁷⁸

The genesis of this polyhedral form traces back to an unrealized residential project, the Y2K House.⁷⁹ At the time, Koolhaas proposed a concept of a solid polyhedron to satisfy the client's demand for spatial order. The central premise involved a void at the heart of the building, surrounded by residual zones filled with ancillary spaces interconnected by circulating pathways.⁸⁰ This conceptual framework draws inspiration from the cinematic montage technique, where the collision of functionalities engenders innovative outcomes.

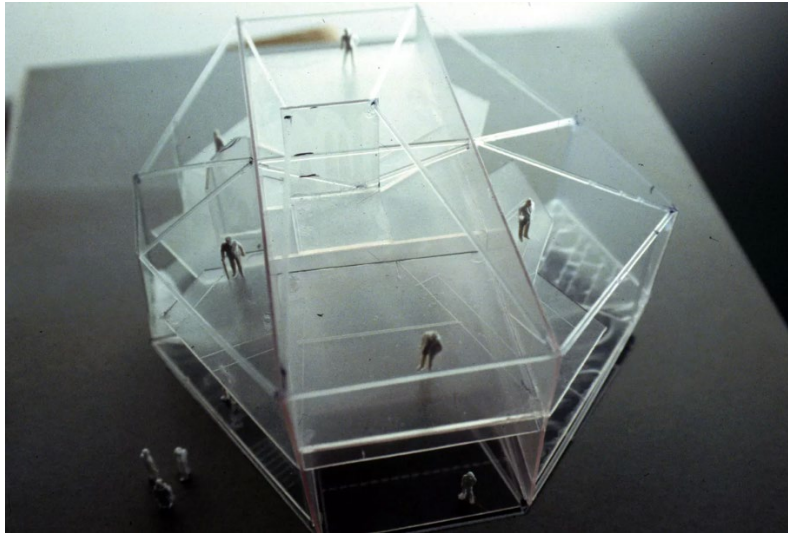
⁷⁶ "Casa Da Musica," OMA, accessed April 18, 2024, <https://www.oma.com/projects/casa-da-musica>.

⁷⁷ Jerry Elengical, "Casa Da Musica, Porto by Rem Koolhaas: The Asymmetrical Polyhedron - RTF: Rethinking the Future," RTF | Rethinking The Future, May 11, 2023, <https://www.re-thinkingthefuture.com/case-studies/a3154-casa-da-musica-porto-by-rem-koolhaas-the-asymmetrical-polyhedron/#04c3c487e31a5f0924b8f0d109912af3a75ea442#202460>.

⁷⁸ *Exterior of Casa Da Musica*, n.d., n.d., <https://www.oma.com/projects/casa-da-musica>.

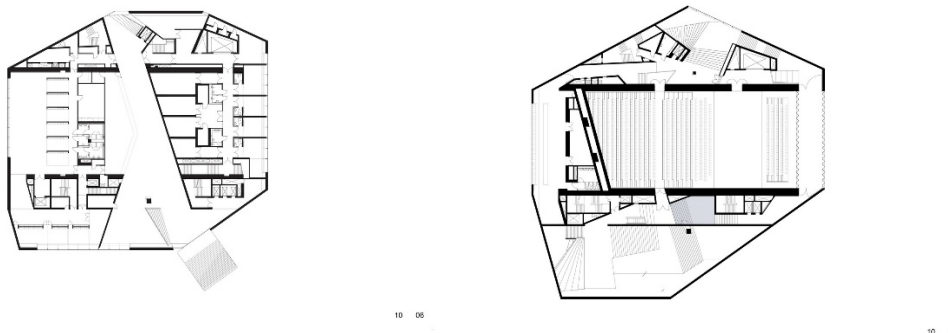
⁷⁹ José Cabral Dias, "Space-Time Experience as a Resource to Dialogue with the Place; the Example of Álvaro Siza's Saya Park Art Pavilion and Rem Koolhaas' Casa Da Música," *Time and Space*, October 25, 2023, 175–82, <https://doi.org/10.1201/9781003260554-25>.

⁸⁰ Jerry Elengical, "Casa Da Musica, Porto by Rem Koolhaas: The Asymmetrical Polyhedron - RTF: Rethinking the Future," RTF | Rethinking The Future, May 11, 2023, <https://www.re-thinkingthefuture.com/case-studies/a3154-casa-da-musica-porto-by-rem-koolhaas-the-asymmetrical-polyhedron/#04c3c487e31a5f0924b8f0d109912af3a75ea442#202460>.



Figures 15. Model of Y2K House⁸¹

The implementation of the solid polyhedron concept operates at varying scales. In the floor plan of Casa da Musica, the central public area on the lower floor, juxtaposed with the surrounding remaining space housing service functions like restaurants and terraces, manifests a physically contiguous relationship through staircases and other passages.⁸² Similarly, on the floor housing the concert hall, the central space accommodates the hall itself, while the peripheral areas house rehearsal rooms, soloist rooms, and the building core, all interconnected by a series of staircases.⁸³ These circular routes form continuous public pathways, offering glimpses of Porto's cityscape or other interior spaces as visitors traverse between public and private realms.



Figures 16. Floor Plan of Casa da Musica⁸⁴

⁸¹ *Y2K Model*, n.d., n.d., <https://www.oma.com/projects/y2k-house>.

⁸² "Casa Da Musica," OMA, accessed April 18, 2024, <https://www.oma.com/projects/casa-da-musica>.

⁸³ "Casa Da Musica," OMA, accessed April 18, 2024, <https://www.oma.com/projects/casa-da-musica>.

⁸⁴ *Floor Plan of Casa Da Musica*, n.d., *Archdaily*, n.d., https://www.archdaily.com/619294/casa-da-musica-oma?ad_source=search&ad_medium=projects_tab.



*Figures 16. Staircase in Casa da Musica*⁸⁵

In summary, the overarching concept encapsulates the notion that a holistic spatial experience is achieved through movement.⁸⁶ Visitors navigate meticulously arranged spaces, akin to what Koolhaas terms as "architectural adventure."⁸⁷ The sequential arrangement of spaces parallels a director's arrangement of scenes in a cinema, whereby spaces or scenes amalgamate to form a narrative. Additionally, each space offers a unique experiential quality, be it in terms of size, lighting, or sightlines, reminiscent of the composition and ambiance created within filmic landscapes.

⁸⁵ *Staircase in Casa da Musica*, n.d., n.d., <https://www.oma.com/projects/y2k-house>.

⁸⁶ José Cabral Dias, "Space-Time Experience as a Resource to Dialogue with the Place; the Example of Álvaro Siza's Saya Park Art Pavilion and Rem Koolhaas' Casa Da Música," *Time and Space*, October 25, 2023, 175–82, <https://doi.org/10.1201/9781003260554-25>.

⁸⁷ José Cabral Dias, "Space-Time Experience as a Resource to Dialogue with the Place; the Example of Álvaro Siza's Saya Park Art Pavilion and Rem Koolhaas' Casa Da Música," *Time and Space*, October 25, 2023, 175–82, <https://doi.org/10.1201/9781003260554-25>.

Chapter 3: The intersection of spatial art in architecture and cinema

3.1 Spatial narratives in architecture and cinema

In the confluence of cinema and architecture, both disciplines employ spatial narratives to convey their respective stories. They coexist within the dimensions of time and motion, with narratives unfolding along timelines while spaces undergo dynamic transformation through different settings.⁸⁸ A shared structural feature between them lies in their narrative frameworks, wherein both begin by establishing overarching narrative structures, proceed to delineate spatial configurations, and culminate in the meticulous arrangement of space through deliberate elements.

Within the realm of narrative construction, both cinema and architecture necessitate a coherent storyline to embody the concepts they seek to convey. In cinema, a storyline is typically established to provide a contextual backdrop, with scenes evolving in accordance with the ebb and flow of the plot. Similarly, in architecture, a narrative is crafted to elucidate the spatial behaviours of users, thereby guiding architects in the strategic arrangement of space.

Following the delineation of narrative frameworks, attention turns to defining the emotional resonances to be conveyed within each space or scene, a task often achieved through the perceptual manipulation of spatial elements. These perceptual modalities can evoke sensations ranging from expansiveness to confinement.

Subsequent to the delineation of spatial perceptions, the physical construction and articulation of each space or scene ensue. While architects specialize in the physical manifestation and organization of architectural space, filmmakers demonstrate a comparable prowess in crafting their own architectural constructs through the deft manipulation of lighting, scale, and motion.⁸⁹

The cinema "The Cabinet of Dr. Caligari" exemplifies a series of cinematic spatial phenomenology, such as the office corridors, nocturnal streets, and the attic.⁹⁰ For instance, the attic is imbued with an ambiance of crime and squalor.⁹¹ Its overall composition evokes a

⁸⁸ Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44, <https://doi.org/10.2307/3171214>, 46.

⁸⁹ Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44, <https://doi.org/10.2307/3171214>, 46.

⁹⁰ Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44, <https://doi.org/10.2307/3171214>, 46.

⁹¹ Anthony Vidler, "The Explosion of Space: Architecture and the Filmic Imaginary," *Assemblage*, no. 21 (August 1993): 44,

chiaroscuro cone, with the darkness engendered by the sloping roof juxtaposed against sunlight streaming through windows, thus engendering a stark black-and-white contrast. Moreover, the scene leverages the inherent darkness of the attic to accentuate its depiction as a locus of criminal activity.



Figures 17. *Criminal Scene in the Attic*⁹²

Through the lens of the attic example, the synergistic interplay between architectural space and cinematic mise-en-scène becomes apparent. Subsequent discourse delineates how architects and directors alike utilize a shared structural framework to engender specific spatial atmospheres. Within the realms of architecture and cinema, there exist practitioner's adept at crafting spatial ambiance and narrative, exemplified by figures such as Adolf Loos and Alfred Hitchcock. Hitchcock, known for his adeptness in crafting tense and suspenseful spaces, contrasts with Loos, renowned for his innovative organization of interior spatiality.⁹³⁹⁴ Despite the absence of direct thematic correlations between their respective oeuvres, both Loos and Hitchcock emphasize the strategic manipulation of space as a means to shape audience perceptions and evoke psychological responses.

<https://doi.org/10.2307/3171214>, 48.

⁹² *Murder Scene in Attic*, n.d., n.d., Analysis of the Acropolis. n.d. <https://straccitemporanei.tumblr.com/post/157936587135/onsomething-auguste-choisy-analysis-of-the>.

⁹³ David Sterritt, *The Films of Alfred Hitchcock* (Cambridge University Press, 1993), 1-2.

⁹⁴ Panagiōtes Turnikiōtēs, Marguerite McGoldrick, and Adolf Loos, *Adolf Loos* (New York: Princeton Architectural Press, 2002), 92.

3.2 Alfred Hitchcock on the perception of spatial ambience in cinema

Renowned as the master of suspense in cinema, Alfred Hitchcock exhibited a profound aptitude for utilizing architectural elements to cultivate tension and suspense within his cinemas. His cinematic style entails simulating the viewer's perspective through editing and camera movements, thereby immersing the audience in the role of voyeur and utilizing composition to heighten anxiety and fear to the fullest extent. The cinema critic Robin Wood wrote that the significance of Hitchcock's cinemas is manifested in his filming techniques and the progression from one shot to another.⁹⁵ Hitchcock's cinemas are organic entities, where each detail implies the whole, and every detail is interconnected with the entirety.⁹⁶

This can be attributed to Hitchcock's cultivated attention to detail in set design. Donald Spoto, in "The Dark Side of Genius: The Life of Alfred Hitchcock," noted that Hitchcock remained intricately involved in set design until he transitioned to directing his own films.⁹⁷ He possessed a mastery of depicting scenes with meticulous precision and would meticulously storyboard before filming.⁹⁸

Within Hitchcock's cinematic realm, architectural spaces transcended their roles as mere backdrops, emerging as active participants in narrative progression, evolving alongside characters and plot developments. François Truffaut, in his 30-hour interview with Alfred Hitchcock, he mentioned that the imperative of understanding spatial layouts of shooting locations to evoke suspense and manipulate audience emotions effectively.⁹⁹ Suspenseful techniques, integral to Hitchcock's films, served as crucial devices to maintain audience engagement, functioning as pivotal junctures between action and consequence.¹⁰⁰ Additionally, they operated as psychologically rooted mechanisms, guiding audience consciousness through the film's dynamic narrative.

Alfred Hitchcock's acute understanding of how architectural spaces shape narrative dynamics finds tangible expression in iconic works such as "Vertigo." Through techniques like zooming

⁹⁵ Robin Wood, *Hitchcock's Films Revisited*, 2nd ed. (New York: Columbia University Press, 2002), 62.

⁹⁶ Robin Wood, *Hitchcock's Films Revisited*, 2nd ed. (New York: Columbia University Press, 2002), 62.

⁹⁷ Donald Spoto, *The Dark Side of Genius: The Life of Alfred Hitchcock* (New York: Ballantine Books, n.d.).

⁹⁸ Donald Spoto, *The Dark Side of Genius: The Life of Alfred Hitchcock* (New York: Ballantine Books, n.d.).

⁹⁹ Scott Myers, "François Truffaut Interviews Alfred Hitchcock," Medium, July 15, 2018, <https://gointothestory.blcklst.com/francois-truffaut-interviews-alfred-hitchcock-82624f1fda4c>.

¹⁰⁰ Michelle Park, *The Aesthetics and Psychology Behind Horror Films*, 2018, 7.

and skewed angles, Hitchcock engendered a sense of vertigo in audiences, immersing them in the protagonist's disorienting experience. In "Vertigo," for instance, the protagonist, Scottie Ferguson, afflicted with acrophobia, is hired to trail the wife of a client, Madeleine Elster.¹⁰¹ As a journey into the depths of the psyche, Hitchcock employed a set design featuring spiral staircases and window elements to create an atmosphere of uncertainty and suspense, provoking psychological turmoil in the audience. Moreover, this narrative device encapsulates the concept of transitional space, as the protagonist ascends the tower, symbolizing a transition from the mundane world to the supernatural realm, each step akin to a passage into the unknown.



Figures 18. The cinema scene in Vertigo, the detective reached the top of the tower through spiral staircases¹⁰²

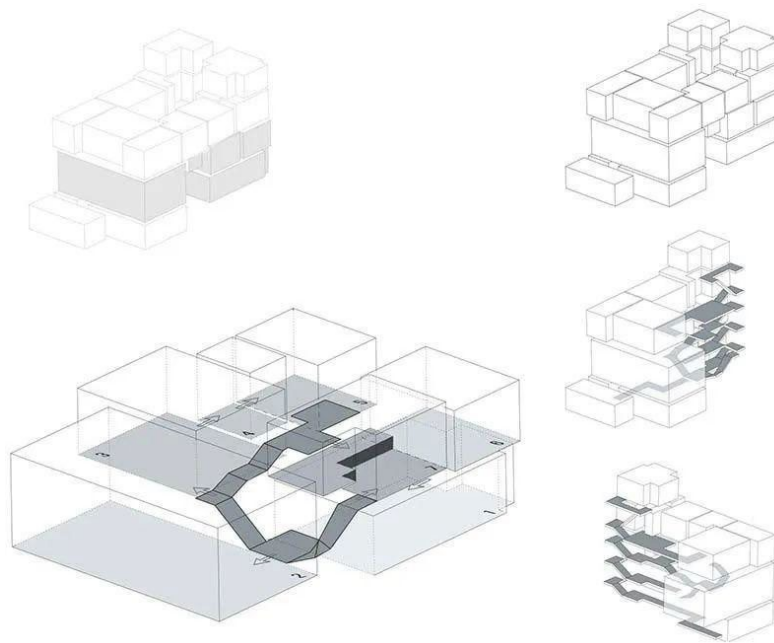
Similar techniques pervade Hitchcock's other cinemas, whether it be the oppressive confines of a terrifying apartment or the expansive interiors of a grand hall. Every architectural setting in Hitchcock's cinemas brims with symbolic significance, contributing to the overall narrative mood and atmosphere.

¹⁰¹ *Vertigo* (United States: Paramount Pictures Corp., 1958).

¹⁰² *Vertigo* (United States: Paramount Pictures Corp., 1958).

3.3 The Raumplan Methodology: Adolf Loos's Innovative Approach to Spatial Organization in Modern Architecture

When analyzing the recent history of architectural spatial sequencing, Adolf Loos and his innovative approach to spatial organization emerge as an inevitable subject of discussion. Loos formulated a design theory known as Raumplan, which revolutionized traditional architectural design methods by directly incorporating three-dimensional spatial sequences rather than beginning with two-dimensional plans and subsequently spatializing them vertically.^{103 104}



Figures 19. Spatial Massing Analysis of Villa Muller¹⁰⁵

Raumplan involves arranging rooms across different floors, each space assigned its own height based on its function and significance.¹⁰⁶ The size, proportions, colors, materials, features, decorations, and lighting of each space are unique, contributing to a richly varied spatial experience. Through the connectivity provided by staircases, Raumplan fosters a continuous flow of interconnected spaces, emphasizing experiential spatial dynamics rather than mere structural aesthetics.

¹⁰³ Ludwig Münz, Gustav Künstler, and Gustave Künstler, *Adolf Loos, Pioneer of Modern Architecture* (New York: Frederick A. Praeger, 1966), 25-27.

¹⁰⁴ Cynthia Jara, "Adolf Loos's Raumplan Theory," *Journal of Architectural Education* 48, no. 3 (February 1995): 185-201, <https://doi.org/10.1080/10464883.1995.10734640>, 185.

¹⁰⁵ *Spatial Massing Analysis*, n.d., n.d., <https://hariwibowoisdesigner.wordpress.com/2014/09/16/7/>.

¹⁰⁶ Ludwig Münz, Gustav Künstler, and Gustave Künstler, *Adolf Loos, Pioneer of Modern Architecture* (New York: Frederick A. Praeger, 1966), 139.

This revolutionary spatial organization method finds embodiment in Adolf Loos's work, particularly exemplified in Villa Muller. Despite the modest impression conveyed by the building's four façades, the richness of the interior spaces is unexpected.¹⁰⁷ The entrance, situated on the southeast side of the residence, defies conventional scale expectations. Upon entry, visitors encounter narrow green tile walls flanking the foyer, which initially may not appear spacious. However, as one progresses through the foyer, they transition into brighter and more expansive spaces, culminating in the double-height living room.



Figures 20. Foyer with green tile wall on the both sides of corridor¹⁰⁸



Figures 21. Living Room of Villa Muller¹⁰⁹

Throughout the spatial sequence from entrance to living room, the contrasts in scale, colour, materials, and lighting of each space create an illusion of greater size and

¹⁰⁷ Leslie Van Duzer and Kent Kleinman, *Villa Müller: A Work of Adolf Loos* (New York: Princeton Architectural Press, 1997).

¹⁰⁸ *Lobby of Villa Muller*, n.d., n.d., https://en.wikiarquitectura.com/mueller_corredor-2/.

¹⁰⁹ *Living Room of Villa Muller*, n.d., n.d., <https://adolfloos.cz/en/villa-muller>.

brightness upon arrival in the living room. Each space within Villa Muller exhibits distinct elements. For instance, the living room, being the largest space in the residence, features soaring ceilings and employs expensive marble as a decorative material, symbolizing its centrality within the home. Additionally, from the living room, visitors can view the dining room behind marble columns, connected by an open staircase, contributing to a rich and coherent spatial structure.

A distinctive feature of Villa Muller is its visually layered experience, achieved through the three-dimensional arrangement of spaces, resulting in varying heights between them.¹¹⁰ Furthermore, the openness of sightlines encourages glimpses across spaces, fostering movement and exploration among visitors. This emphasis on experiential spatial dynamics underscores the significance of Loos's Raumplan theory in shaping the architectural landscape of its time.



Figures 22. Viewpoint from the living room¹¹¹

¹¹⁰ Leslie Van Duzer and Kent Kleinman, *Villa Müller: A Work of Adolf Loos* (New York: Princeton Architectural Press, 1997).

¹¹¹ *The Perspective from Living Room in Villa Muller*, n.d., n.d., <https://adolfloos.cz/en/villa-muller>.

3.4 A comparison of Alfred Hitchcock and Adolf Loos' approaches to spatial narratives

The approaches of architecture and cinema as spatial narratives mediums has been exemplified by two masters in their respective fields: Alfred Hitchcock in cinema and Adolf Loos in architecture.

While their works may lack direct correlation, the thematic resonance between their respective oeuvres is undeniable. They possess a nuanced understanding of the profound impact of space on the human psyche, whether manifested in architectural form or cinematic expression.

Both auteurs underscore the psychological potency inherent in spatial configurations. For Hitchcock, the manipulation of filmic space through camera angles, lighting, and set design serves as a conduit for eliciting specific emotional responses from the audience. He recognizes the power of constrained spaces, unseen elements, and the viewer's imagination in amplifying suspense within his cinemas. Similarly, Loos's architectural spaces engender an illusion of grandeur and luminosity through a spectrum of variations in scale, color, materials, and illumination. The meticulous arrangement of each stage (room) and the transitions between spaces are meticulously crafted to orchestrate a journey for the inhabitants, akin to the carefully constructed narrative arcs that guide viewers through watching a cinema.

In juxtaposing Hitchcock's utilization of architectural space in cinema with Loos's innovation in spatial organization within architecture, it becomes evident that both luminaries harness spatial elements to evoke emotions and cultivate immersive experiences. While Hitchcock manipulates cinema sets to craft suspenseful narratives, Loos revolutionizes architectural design with his pioneering approach to spatial organization. Despite employing disparate mediums, Hitchcock and Loos both demonstrate a profound comprehension of the role of space in storytelling and emotional manipulation.

Conclusion

Throughout history, the realms of cinema composition and architectural design have exhibited a symbiotic relationship, mutually influencing each other's approaches and compositions. From the monumental cityscapes of "Metropolis" to the immersive spatial experiences crafted by Rem Koolhaas, the interplay between cinema and architecture has been evident across various contexts and eras. It can be argued that cinema composition and architectural scenario have historically interacted with each other in terms of visual expression and spatial narratives. Architecture and cinema share a dynamic relationship wherein each influences the other: architecture shapes the visual narratives of cinema, while cinema, in turn, informs architectural design. Moreover, there are instances where they employ analogous spatial design methodologies to articulate their respective narratives.

In Chapter 1 delved into the architectural influences and visual symbolism in Fritz Lang's "Metropolis," particularly focusing on the Art Deco and Bauhaus movements. Through meticulous visual composition, the cinema uses architectural styles as metaphors for societal structures and tensions, aligning with real-life architectural principles and landmarks to underscore its thematic exploration of class conflict and societal stratification. In Chapter 2, the urban planning and architectural projects of Rem Koolhaas exemplify the application of montage techniques to create immersive spatial experiences akin to cinematic narratives. By imbuing his designs with narrative complexity and experiential richness, Koolhaas blurs the boundaries between architecture and storytelling, inviting occupants to embark on immersive journeys of exploration within the built environment. In Chapter 3 compares Alfred Hitchcock's approach to spatial narratives in cinema with Adolf Loos's innovative methods in architectural spatial organization. Both showcase a nuanced comprehension of space as a narrative tool, underscoring its significance in storytelling and emotional manipulation across cinema and architecture.

Through the comprehensive analysis presented, it becomes apparent that the influence between architecture and cinema extends far beyond modern times, with traces of mutual impact dating back to antiquity. This suggests that the foundational elements of cinema and architecture may be inherently similar, both leveraging space for narrative purposes, with similarities evident in their application of spatial sequences.

Bibliography

- Alfaya, JF. "The Influence of the Art Deco Movement in Fritz Lang's Metropolis." Decimononic, June 9, 2014. <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>.
- Badalge, Keshia. "Rem Koolhaas and Son Tomas Talk about the Years-Long Process of Shooting 'Rem.'" ArchDaily, June 6, 2018. <https://www.archdaily.com/895878/rem-koolhaas-and-son-tomas-talk-about-the-years-long-process-of-shooting-rem>.
- Campany, David. "Metropolis Futures: Collage Constructions for a New World." Architectural Review, July 19, 2021. <https://www.architectural-review.com/essays/metropolis-futures-collage-constructions-for-a-new-world>.
- "Casa Da Musica." OMA. Accessed April 18, 2024. <https://www.oma.com/projects/casa-da-musica>.
- Caves, Roger W. *Encyclopedia of the city*. New York, NY: Routledge, 2013.
- Cesarm. "MT: From Babel to Metropolis." Trusted Translations, Inc., January 26, 2023. <https://www.trustedtranslations.com/blog/mt-from-babel-to-metropolis>.
- Chilvers, Ian. *The Oxford Dictionary of Art and Artists*. Oxford: Oxford University Press, 2015.
- Corbusier, Le. *Towards a new architecture*. New York: Brewer, Warren & Putnam, 2014.
- Dias, José Cabral. "Space-Time Experience as a Resource to Dialogue with the Place; the Example of Álvaro Siza's Saya Park Art Pavilion and Rem Koolhaas' Casa Da Música." *Time and Space*, October 25, 2023, 175–82. <https://doi.org/10.1201/9781003260554-25>.
- Duzer, Leslie Van, and Kent Kleinman. *Villa Müller: A work of Adolf Loos*. New York: Princeton Architectural Press, 1997.
- Eisenstein, Sergei M., Yve-Alain Bois, and Michael Glenny. "Montage and Architecture." *Assemblage*, no. 10 (December 1989): 110. <https://doi.org/10.2307/3171145>.
- Elengical, Jerry. "Casa Da Musica, Porto by Rem Koolhaas: The Asymmetrical Polyhedron - RTF: Rethinking the Future." RTF | Rethinking The Future, May 11, 2023. <https://www.re-thinkingthefuture.com/case-studies/a3154-casa-da-musica-porto-by-rem-koolhaas-the-asymmetrical-polyhedron/#04c3c487e31a5f0924b8f0d109912af3a75ea442#202460>.

- Golding, David. "The Darker Side of Fritz Lang's *Metropolis*: Coloniality in Modernist Cinema." *Postcolonial Studies* 22, no. 3 (June 23, 2019): 303–24. <https://doi.org/10.1080/13688790.2019.1627855>.
- Graves, Robert, and Raphael Patai. *Hebrew Myths: The Book of Genesis*. Random House, 2022.
- Hven, Steffen. "The Atmospheric Worlds of Cinema." *Enacting the Worlds of Cinema*, May 19, 2022, 41–66. <https://doi.org/10.1093/oso/9780197555101.003.0003>.
- Jara, Cynthia. "Adolf Loos's *Raumplan* Theory." *Journal of Architectural Education* 48, no. 3 (February 1995): 185–201. <https://doi.org/10.1080/10464883.1995.10734640>.
- Koolhaas, Rem, and Bruce Mau. *S M L XL: OMA*, 1993.
- Koolhaas, Rem. *Delirious New York*, 1980.
- Koolhaas, Rem. *Delirious New York*, 1980.
- Kroll, Andrew. "Architecture Classics: Villa Savoye / Le Corbusier." ArchDaily, October 27, 2010. <https://www.archdaily.com/84524/ad-classics-villa-savoye-le-corbusier>.
- "Kunsthall." OMA. Accessed April 18, 2024. <https://www.oma.com/projects/kunsthall>.
- Magazine, Smithsonian. "The Unbuilt High-Rise Designs of Rem Koolhaas and OMA." Smithsonian.com, August 23, 2012. <https://www.smithsonianmag.com/arts-culture/the-unbuilt-high-rise-designs-of-rem-koolhaas-and-oma-31406521/>.
- McGilligan, Patrick. *Fritz Lang: The nature of the beast*. University of Minnesota Press, 2013.
- Münz, Ludwig, Gustav Künstler, and Gustave Künstler. *Adolf Loos, pioneer of Modern Architecture*. New York: Frederick A. Praeger, 1966.
- Myers, Scott. "Francois Truffaut Interviews Alfred Hitchcock." Medium, July 15, 2018. <https://gointothestory.blcklst.com/francois-truffaut-interviews-alfred-hitchcock-82624f1fda4c>.
- Pallasmaa, Juhani. *The architecture of image existential space in Cinema*. Helsinki: Rakennustieto oy Helsinki, 2001.
- Park, Michelle. *The Aesthetics and Psychology Behind Horror Films*, 2018.
- "Rem Koolhaas." OMA. Accessed April 18, 2024. <https://www.oma.com/partners/rem-koolhaas>.

“Rem Koolhaas.” Rem Koolhaas | ArchitectureCourses.org. Accessed April 18, 2024.
<https://www.architecturecourses.org/learn/rem-koolhaas>.

Reisz, Karel, and Gavin Millar. *Technique of film editing*. New York: Focal Press, 2017.

Rheeden, Herbert van. “Metropolis, the 1920’s Image of the City.” *Metropolis*, January 1, 1988, 11–31. https://doi.org/10.1163/9789004449268_003.

Robins, Anthony. *New York Art Deco: A guide to gotham’s jazz age architecture*. Albany: Excelsior Editions, an imprint of State University of New York Press, 2017.

Sabharwal, Raagveen Kaur. *Architecture and Cinema: Spatial Narratives of Architecture through Cinematic Context*, no. 21 (June 2021).
<https://doi.org/10.13140/RG.2.2.26057.31840>.

Spoto, Donald. *The Dark Side of Genius: The Life of Alfred Hitchcock*. New York: Ballantine Books, n.d.

Sterritt, David. *The Films of Alfred Hitchcock*. Cambridge University Press, 1993.

Themes, UFO. “Space of Montage: Movement, Assemblage, and Appropriation in Koolhaas’ Kunsthall.” Civil Engineer Key, August 11, 2021.
<https://civilengineerkey.com/space-of-montage-movement-assemblage-and-appropriation-in-koolhaas-kunsthall/>.

Toy, Maggie. *Architecture and Film*. London: Academy Ed., 1994.

Turnikiōtēs, Panagiōtes, Marguerite McGoldrick, and Adolf Loos. *Adolf Loos*. New York: Princeton Architectural Press, 2002.

Vasilieva, Ekaterina. “Ideal and Utilitarian in the International Style System: Subject and Object in the Design Concept of the 20th Century .” *International Journal of Cultural Research* 4, no. 25 (August 2023): 72–80.
https://www.researchgate.net/publication/374443683_Vasileva_E_2016_Ideal_and_utilitarian_in_the_international_style_system_subject_and_object_in_the_design_concept_of_the_20th_century_International_Journal_of_Cultural_Research_4_25_72-80.

Vertigo. United States: Paramount Pictures Corp., 1958.

Vidler, Anthony. “The Explosion of Space: Architecture and the Filmic Imaginary.” *Assemblage*, no. 21 (August 1993): 44. <https://doi.org/10.2307/3171214>.

Weinstein, Joan. *Journal of the Society of Architectural Historians* 53, no. 3 (1994): 347–50. <https://doi.org/10.2307/990942>.

Wolfe, Shira. "Art Influences in Fritz Lang's Metropolis." Artland Magazine, April 17, 2023. <https://magazine.artland.com/fritz-langs-metropolis-how-the-iconic-silent-film-took-inspiration-from-art-movements/>.

Wood, Robin. *Hitchcock's Films Revisited*. 2nd ed. New York: Columbia University Press, 2002.

"Week 2_filmic Imaginary Kester Rattenbury – Echo + Narcissus." Alesha Quam, December 13, 2011. <https://quam16.wordpress.com/2011/09/01/kester-rattenbury-echo-narcissus/>.

Image Reference

- Analysis of the Acropolis*. n.d. <https://straccitemporanei.tumblr.com/post/157936587135/onsomething-auguste-choisy-analysis-of-the>.
- Chrysler Building 1930*. n.d. <https://jamesmaherphotography.com/new-york-historical-articles/chrysler-building/>.
- Citroen, Paul. *Metropolis*. n.d. <https://www.artsy.net/artwork/paul-citroen-metropolis>.
- Corbusier, Le. *The outside ramp leading to the roof of Villa Savoye with the caption Promenade Architecturale, Villa Savoye, 1931*. 1964. Photograph.
- Exterior of Casa Da Musica*. n.d. <https://www.oma.com/projects/casa-da-musica>.
- Flat roof houses in the modern style, in row construction*. 1930. https://www.hugo-junkers.info/junkers-pfad-laubenganghaeuser_eng.html.
- Floor Plan of Casa Da Musica*. n.d. *Archdaily*. https://www.archdaily.com/619294/casa-da-musica-oma?ad_source=search&ad_medium=projects_tab.
- Kettelhut , Erich. *Metropolis – Opening cityscape v1 sketch*. n.d. <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>.
- Kettelhut , Erich. *Metropolis – Turm Babel gouache on cardboard*. n.d. <https://www.decimononic.com/blog/the-influence-of-the-art-deco-movement-in-fritz-langs-metropolis>
- Kunsthall Exterior View from the Park*. n.d. <https://www.kunsthall.nl/en/about-kunsthall/building/>.
- Lang, Fritz. *Tower of Babel*. 1927. <https://www.youtube.com/watch?v=7jdetyaWhWA>.
- Living Room of Villa Muller*. n.d. <https://adolfloos.cz/en/villa-muller>.
- Lobby of Villa Muller*. n.d. https://en.wikiarquitectura.com/mueller_corredor-2/.
- Murder Scene in Attic*. n.d. *Analysis of the Acropolis*. n.d. <https://straccitemporanei.tumblr.com/post/157936587135/onsomething-auguste-choisy-analysis-of-the>. .
- Spatial Massing Analysis* . n.d. <https://hariwibowoisdesigner.wordpress.com/2014/09/16/7/>.

Staircase of Casa Da Musica. n.d. *Archdaily*.
https://www.archdaily.com/619294/casa-da-musica-oma?ad_source=search&ad_medium=projects_tab.

The interesection of Theatre and Staircase. n.d. *Marco Cappelletti*.
<https://www.marcocappelletti.com/projects/kunsthall/>.

The Perspective from Living Room in Villa Muller. n.d. <https://adolfloos.cz/en/villa-muller>.

The Underground City. n.d. <https://www.re-thinkingthefuture.com/rtf-architectural-reviews/a6188-an-architectural-review-of-metropolis-1927/>.

Tower of Babel. n.d. <https://www.idees-cadeaux-deco-du-mistigri.fr/tableau+la+tour+de+babel>.

Vertigo. United States: Paramount Pictures Corp., 1958.

Y2K Model. n.d. <https://www.oma.com/projects/y2k-house>.