



WRITTING IMAGES

PICTURING TEXT AND JULIANE BESEMS

Hence the challenge for the composer, who refrains from making use of all the resources of his art until he developed in Valéry's story of Amphion's touch. The same is true for architecture, which at first was to be presented more as a simple exercise of movements and combinations than of structure or composition. In the same way that music retrospectively reflects itself in its own architecture, architecture projects itself in its own generative, not to say musical, process.[Noah's Ark: Essays on Architecture, Hubert Damisch; Anthony Vidler (ed.), 2016] In this sense, Derrida is right to say that "from its ancient beginnings, the most basic concept of architecture has been constructed."10 However, I would add that since it is an architecture, it is suggested by the lovely formula that insists that there is an "architecture of architecture?" It is not only because the architectural culture—which entered the French language soon after the distinction was made between architects and engineers—has to be handled with caution, signifying (if I am to believe the Petit Robert dictionary) "construire avec rigueur." Rather, the text should be sought on a deeper level, so as to approach the heading "architectural culture": architecture as a fact of culture, culture as inhabited by architecture, culture informed by architecture as much as it informs architecture.[Noah's Ark: Essays on Architecture, Hubert Damisch; Anthony Vidler (ed.), 2016] These strategies build on different premises and imply different research methods. In my view, we should not be too puritanic in the use of these research logics, as they are complementary rather than mutually exclusive. Chapter 5 discusses the main elements of a research design. A research design is defined as a plan for how to organise the project in order to get from questions to answer. Two elements are essential in such a plan: First, the purpose of the project has to be clarified as well as—connected to it—the research questions [Designing Social Science Research, Oddbjørn Buake, 2018] We'd left Japan so abruptly that I had completely forgotten to bring any books. I read two novels I'd picked up at the airport, *Death of a Salesman* and *Death of a Salesperson*, and brought along. I read them all twice. To cater to tourists, the kiosk at the harbor stocked a few English paperbacks, but nothing caught my eye. Reading was my passion, and I'd always imagined that if I had free time I'd wallow in books, but, ironically, here I was—with all the time in the world and nothing to read. Izumi started studying Greek.[Murakami, Haruki "Blind Willow, Sleeping Woman". Vintage, 2007.] Life went on. I drifted away from my very lovely twenty-year-old girlfriend and packed for a cross-country road trip. I'd recently purchased a small cottage in the Hollywood Hills and figured I'd winter out west in the California sunshine. This was the trip where the ambivalence, trouble and toxic confusion I'd had volcanically bubbling for thirty-two years would finally reach critical mass. The Trip It was a '69 Ford XL with a white ragtop, sea green and Cadillac long.[Springsteen, Bruce "Born to Run". Simon & Schuster, 2016.] I knew better than to mention that to my strict Christian mother. But I loved music and craved it, especially Bo Diddley, Motown, and salsa. I often danced in front of my mirror for six hours at a clip. Diddley had fused a 3-2 clave with rhythm and blues, and rock and roll. A Bo Diddley beat was a clave-based motif, clave being the name of the patterns played on two hardwood sticks in Afro-Cuban music ensembles. This syncopated accent on the "off beat" was perfect for the click-and-slip of my pelvis as I bopped around my bedroom dance floor in my early teens.[Rowlands, Penelope "The Beatles Are Here!: 50 Years After the Band Arrived in America, Writers, Musicians & Other Fans Remember". Algonquin Books, 2014.] Now the Young Lion added an American-Indian concha belt, cowboy boots and a black gangster hat (complete with a metal skull-and-crossbones motif), all of which he wore with a complete lack of irony. He also bought a solid-gold microphone which he liked to carry from gig to gig. His clothes, like his lyrics, were full of allusion and metaphor – chic, uncompromising and sexy. Today it is commonplace for pop stars to use their music as a vehicle for indulging their ego.[Jones, Dylan, and Jim Morrison "Mr. Mojo: a biography of Jim Morrison". Revised edition. United States: Bloomsbury Publishing, 2015.] I baptized myself in Parisian blood. Felt glamorous history in the air, got to know the vivid legends: Josephine Baker becoming such a decadent, amoral diva, dancing the Charleston at the Folies Bergère in the 1920s, wearing a banana tutu designed by Jean Cocteau; the cabaret, the glorious excess of the nightife; the honking, sizzling Paris jazz; the boys dressed as girls; the dazzling dancing girls loving to show themselves off and be treated as artists, not tarts. The great French singers Jacques Brel, Juliette Gréco, Édith Piaf, and Serge Gainsbourg were all melancholy and melodramatic romantics, but also geniuses at representing erotic sensuousness through music.[Jones, Grace, and Paul Morley "I'll never write my memoirs". Array, United States: Gallery Books, 2015.] Then it was Zaghloul's turn. Zaghloul was a real dancer: slim and lithe as a cat. He undid the grey scarf that he usually kept knotted around his skullcap and tied it tightly around his waist. Someone was beating a difficult rhythm on the dihot now, slowly to begin with. The first line of a song rang through the courtyard – dalla' ya'áris, ya ab lása nylo – and everyone roared their approval, for what better song could there be to sing for Zaghloul with his youth and his fine, bright face than one which told of the joys of bridegrooms? [Ghosh, Amitav "The Circle of Reason". Mariner Books, 2005.] She stared, unable to move. One of the hooded faces turned toward her as his enormous horse, its hooves sparking fire, cleared her potato rows. The rider's face was gaunt, his hair in many long braids, their ends secured around clattering bones. He wore a crown of gold; its great jewel reflected fire the color of a splash of blood. White moons in the rider's eye sockets flashed at Leto; he opened his jaws wide like a wolf and laughed.[Hartwell, DG, and K Cramer "Year's Best Fantasy 5". Eos, 2005.] Today, it was "Singing Through the Pain." It had been unwise to jiggle braless for seven hours. Everything hurt. That was when I heard someone else singing, and snapping his fingers, too. Every once in a while there was a little shuffling sound, like someone practicing a soft-shoe. "Chupa, chupa," sang the voice. I was not sure what that meant. "Chupa la paleta, chupa la, chupa la paleta, chupa la..." I turned around. My serenader was five foot zero, whitehaired, and Latino. He looked like a doll, costumed in a fancy pleated-and-embroidered guayabera shirt, pressed slacks, and a dapper straw hat.[Headley, Maria Dahvana "The Year of Yes". Hyperion, 2006.] The emergence of architecture as a professional class seems to have at least some relationship to emergent complexities themselves. One hundred fifty years ago, it was the requirement of literacy that could distinguish an architect from a common mason. In more recent history, it was a literacy in complex code and building systems that could distinguish the architect from his associates in the building trades. When technology surges, the role of the architect is validated. The last twenty-five years stand as an exception to the historical rule.[Cesal, Eric J. "Down Detour Road: An Architect in Search of Practice". The MIT Press, 2010.] Printing and the advent of comparative linguistics were far from the sole challenges to architecture's cultural significance, but the questions of means and meaning inherent to these two metaphors touch on the most pressing issues that architects faced then, and still struggle with today. Cockerell's conception of ornaments effectively challenges the static interpretation of these metaphors, and this chapter traces how a passive reading of the building as text can lead to an active experience mediated by the building's ornaments at work.[Bordeleau, Anne "Charles Robert Cockerell, Architect in Time: Reflections Around Anachronistic Drawings". New edition. Ashgate Pub Co, 2014.] The idea of "architecture for architecture's sake" that we hear from Hans Hollein and Arata Isozaki has much in common with this logocentrism. The architecture with a capital "A" that Isozaki advocates, architecture as form, Noam Chomsky's deep linguistic structure and universal grammar are all examples of logos-centrism and the universality that characterized the age of the machine.[Kurokawa, Kisho "The Philosophy of Symbiosis". 2nd, 1994.] The process of symbolic representation involves a 'double function'. That is, Kam says, reflective judgment first must find the aesthetic idea (the concept of a sensible object that will serve as the rule or guide for reflection) and second, it must transfer the rule for reflecting upon that manifold sensible intuition to reflection upon the rational idea. The resulting reflection does not of course, determine the rational idea, bringing the object of that idea into existence, but it does represent it in sensibility in a variety of new ways.[Huehn, Helmut "Symbol and Intuition: Comparative Studies in Kantian and Romantic-period Aesthetics". Routledge, 2013.] If all art is in essence poetry, then the arts of architecture, painting, sculpture, and music must be traced back to poesy. That is pure arbitrariness. It certainly is, as long as we mean that those arts are varieties of the art of language, if it is permissible to characterize poesy by that easily misinterpretable title. But poesy is only The Origin of the Work of Art § 71 one mode of the lighting projection of truth, i.e., of poetic composition in this wider sense. Nevertheless, the linguistic work, the poem in the narrower sense, has a privileged position in the domain of the arts.[Poetry, Language, Thought , Martin Heidegger, 2001] The three activities are strictly simultaneous and have only incommensurable relationships. The creation of concepts has no other limit than the plane - they happen to populate; but the plane itself is limitless, and its layout only conforms to the concepts to be created that it must connect up, or to the personae to be invented that it must maintain. It is as in painting: there is a taste according to which even monsters and dwarves must be well made, which does not mean insipid but that their irregular contours are in keeping with a skin texture or with a background of the earth as germinal substance with which they seem to fit.[Deleuze, Gilles, Felix Guattari, Hugh Tomlinson, and Graham Burchell "What Is Philosophy?". Columbia University Press, 1996.] There is something stony in a work of architecture, wooden in a carving, colored in a painting, spoken in a linguistic work, sonorous in a musical composition. The thingly element is so irremovably present in the art work that we are compelled rather to say conversely that the architectural work is in stone, the carving is in wood, the painting in color, the linguistic work in speech, the musical composition in sound. "Obviously," it will be replied. No doubt, what is this self-evident thingly element in the work of art? [Poetry, Language, Thought , Martin Heidegger, 2001] Amongst tools and methods of reflective design are information technologies that are defined not only in terms of raw data but also as semantic and meaning-making technologies that open up spaces for representation and reflection. These technologies can support a design practice that consists of stepping back to gain a different perspective, looking at alternative options, and discovering the embedded values. Here information and communication technologies (ICT) are not only considered as a field that is being shaped by multiple actors, but as design tools, and somehow a metaphor for the design goal: to "denaturalize" activities and formats to be able to lay new foundations for a design project.[The In-Discipline of Design: Bridging the Gap Between Humanities and Engineering, Annie Gentes (auth.), 2017] From this perspective, the "idea" – that is the starting point in most design models – is obtained at the end, after the confrontation of media and the use

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From this perspective, the "idea" – that is the starting point in most design models – is obtained at the *after* in confrontation of media and the use of multiple tools and not at the beginning. This is an important aspect of a model of design as a plane of composition. Through confrontation, designers engage in a dialog with previous artifacts as sources for the composition. The contrasting semiotic analysis as well as the constellation of tools, but also moodboards,⁶⁴ or materiautheques⁶⁵ are a deliberate organization of the composition space, a net to catch the elements that might lead to a new design.[The In-Discipline of Design: Bridging the Gap Between Humanities and Engineering, Anne Gentes (auth.), 2017] In the drawing, the metaphor of the project is based on a semantic polyvalent matrix. The matrix contradicts the model of design thinking that starts with an abstract idea that is gradually implemented through iteration; we process this classic model dating back to Aristotle's vision of architecture, does not account for the fact that design/conception and design/practice are bringing together materials in unexpected ways without necessarily following a defined plan. However, it is indeed interesting to analyze how composition is a projective abductive practice.[The In-Discipline of Design: Bridging the Gap Between Humanities and Engineering, Anne Gentes (auth.), 2017] Should an architect draw a one-to-one correspondence between design and the new formal principles dictated by computer technologies? Or, should s/he search for the reconstruction of architecture itself, and ask, what is architectural in architecture of the now of the present? More importantly, is it correct to reactivate the residue of "dream work" of the near past, the emancipatory forms of construction emanating in the nineteenth century, as a recipe for current architectural problems?[Hartoonian, Gevork *Walter Benjamin and architecture*. London, New York: Routledge, 2010.] Play and life are the key concepts connecting Wittgenstein and Nietzsche: life should play in language just as it does in nature or history. Philosophy, then, as a meta-language that describes and refines the "natural" language, is aimed at the "true" language and the "play" of language as its own language game with an increasing intensity. Language as a game contains in itself the refutation of pure analyticism and presents philosophy with a new task of synthesis.[Epstein, Mikhail, and Igor E. Klyukinov *The transformative humanities : a manifesto*. New York: Bloomsbury Publishing, 2012.] Conversely, architecture as a discipline focuses on the permanence of the architectural object and the myth of its perfectability. DeLanda's synthetic understanding of cities is inherently destabilizing to architecture because it elevates material factors to the same level as cultural production. The current fascination with fluidity may serve as a catalyst toward a new understanding of architectural processes. However, the preoccupation with representations of fluidity as built form restricts us to rigidly conventional architectural discourse.[James, Vincent, and Jennifer Yoo *VJAA: Vincent James Associates Architects*. Princeton Architectural Press, 2006.] Architecture has tended to conceive of itself as an art, a science, or a mechanics for the manipulation of space, indeed probably the largest, most systematic and most powerful mode for spatial organization and modification. Space itself, the very stuff of architectural reflection and production, requires and entails a mode of time, timeliness, or duration. Indeed, space must always involve at least two times, or perhaps two kinds of time. The first is the time of the emergence of space as such, a time before time and space, a temporalization/spatialization that precedes and renders the organization or emergence of space as such and time as such and thus emerges before any scientific understanding of a space-time continuum. 1 This is the space-time of difference, of *differance* (Jacques Derrida discusses *differance* as precisely the temporization of space and the spatialization of time), or differentiation (in Deleuzian terms, differing from itself), which is a precondition of and prior to the space and time of life, of understanding, of science. [Grosz, Elizabeth *Architecture from the Outside: Essays on Virtual and Real Space (Writing Architecture)*, 2001.] The task before us is not simply to make things or to resolve relations into things, more and 182–183 The Thing more minutely framed and microscopically understood; rather, it may be to liberate matter from the constraint, the practicality, the utility of the thing, to orient technology not so much to knowing and mediating as to experience and the rich indeterminacy of duration. Instead of merely understanding the thing and the technologies it induces through intellect, perhaps we can also develop an acquaintance with things through intuition, that Bergsonian internal and intimate apprehension of the unique particularity of things, their constitutive interconnections, and the time within which things exist. 22 The issue is not, of course, to abandon or even necessarily to criticize technologies, architecture, or the pragmatics of the thing, but rather, with Bergson, to understand both their limits and their residues.[Grosz, Elizabeth *Architecture from the Outside: Essays on Virtual and Real Space (Writing Architecture)*, 2001.] This counterposition concerns the very substance of the architectural endeavor as what Loox calls a "thinking in space. "What are the specifics of this space? Is this making-space an endeavor that establishes places? And are these places a "collection", a mutual belonging of things and dwelling? Or is this making-space an Ent-ortung, an annihilation of the places, an arranging of the land as an empty and uniform space at the disposal of the new project? This radical choice remains unquestioned as long as one limits oneself to emphasizing the specifics of architecture as being thinking in space.[Cacciari, Massimo, Stephen Sartarelli (transl.), and Patrizia Lombardo (introduction) *Architecture and Nihilism: On the Philosophy of Modern Architecture*. Yale University Press, 1995.] project. A series of conceptual shifts in scale were. This generated an open-ended set of strategies that generated, with each aspect of the project capable of integrated landscape, architecture, and art, being the interior or exterior of the other, creating a The first strategy played upon the clarity and spatial effect much like that of Russian dolls where stability of "picturesque" nature as framed in Mies's living spaces are contained one within another. These perspectival collages. Artists like Isaac Julien and interior spaces also contained an exterior room within.[James, Vincent, and Jennifer Yoo *VJAA: Vincent James Associates Architects*. Princeton Architectural Press, 2006.] The space of memory, the space of stories, the space of writing, and the space of our everyday experience contain signifiers, which depend in their meaning not only on a specific referent, but also on their place among other elements. Space, as Kern points out for modernity, is no mere emptiness, but a 334 A. Niebisch product that conserves as a multi-dimensional matrix, knowledge, codes, and practices.[(auth.), Gary Backhaus, Gary Backhaus, and John Murungi (eds.) *Symbolic Landscapes*. Springer Netherlands, 2009.] Architecture becomes a dynamic process rather than a fixed object, responsive to the environment, and an event to be activated. An architectural understanding that resonates with Ricoeur's very notion of metaphor; "to present all things 'as in act' – such could well be the ontological function of its new metaphorical discourse, in which every dormant potentiality of existence appears as blossoming forth, every latent capacity for action as actualized."34 198 B. Muller As I have attempted to argue: (1) by employing metaphors in the design process, consciously or not, architects frame an awareness of certain conditions that influence the direction of future explorations, and (2) "green" metaphors invite greater environmental attunement and therefore are helping reshape practice for the better.[(auth.), Gary Backhaus, Gary Backhaus, and John Murungi (eds.) *Symbolic Landscapes*. Springer Netherlands, 2009.] Bell, Bryan and Wakeford, Katie (eds.). (2008). Expanding Architecture: Design as Activism. New York: Metropolis Books. ISBN 1-93304578-7. Expanding Architecture presents a new generation of creative design carried out in the service of the greater public and the greater good. Questioning how design can improve daily lives, editors Bryan Bell and Katie Wakeford map an emerging geography of architectural activism—or "public-interest architecture" — that might function akin to public-interest law or medicine by expanding architecture's all too often elite client base.[Waldrup, Lee W. *Becoming an Architect: A Guide to Careers in Design*. 2nd ed. Wiley, 2009.] It is not used solely to build an argument or rationalize form but to disturb our process of design and expose unique social, environmental, and cultural issues embedded in the initial constraints of each project. As a design evolves, we renegotiate its conceptual framework through a process that is inherently fluid, adaptive, and self-critical. We use research to undermine many assumptions about architecture as a discipline, such as the fixity of building type, the hierarchy of facade and entry, the rigid nature of program, and the universal and global character that modern architecture has put into place.[James, Vincent, and Jennifer Yoo *VJAA: Vincent James Associates Architects*. Princeton Architectural Press, 2006.] Whether internally, within the logic of form, for example, or externally, within that of form and use, these disjunctive levels break apart any possible balance or synthesis. In their individual state, objects, movements, events are simply discontinuous. Only when they unite do they establish an instant of continuity. Such disjunction implies a dynamic conception posed against a static definition of architecture, an excessive movement that brings architecture to its limits. Notation [INPUT: Tschumi - 1994 - The Manhattan transcripts.pdf] This new condition of textualization within Internet language, and the layers of translation and transit required in online communication, reroute my discussion back to an earlier debate on the transformation of natural languages and the mutation of alphabetic writing into moving, animated, and ultimately postalphabetic forms of textual communication. Text moves not only because it can be animated, however, but because the language behind this written representation is also moving, shifting, alternating from one language domain to another.[Sutil, Nicolás Salazar *Motion and Representation: The Language of Human Movement*. The MIT Press, 2015.] In the area of Architecture the fundamental object of study, i. e. architecture, is sometimes described as: "(1) the relations between materials in the first sense, and 2) as the relation between these materials and humans in the second sense" (Oosterhuis, 2007). In a similar way we could thus introduce this third perspective in which we address interaction as 3) a phenomena arising from the orchestration of computational resources in action, in which we're interested in this orchestration of different computational materials in the first sense as to understand how one such orchestration forms a basis for interaction.[Wiberg, Mikael *Interactive Textures for Architectural Landscapes, Images, Networks and Technologies*. Electronic Science Reference, 2010.] The computational choice of the formal enterprise (1 a, d) remains unchanged also for a more comprehensive, semantically and historically conscious account of language. The experience of the generative program, in combination with developing cognitive studies of multiple denominations, has shown that duplicate modes of understanding, formal and functional, monadic and social, are extremely fruitful and thus indispensable in any reformed linguistic picture. Yet the considerable theoretical divergence between formalism, psychologically anchored cognitivism, functionalism, and social interaction, indicates right away that the resulting comprehensive theoretical architecture for language will necessarily be composite.[Wanner, Dieter <TEAR HERE FOR COVER OF CHOICE>

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The computational choice of the formal enterprise (1 a, d) remains unchanged also for a more comprehensive semantically and historically conscious account of language. The experience of the generative program, in combination with developing cognitive studies of multiple denominations, has shown that duplicate modes of understanding, formal and functional, monadic and social, are extremely fruitful and thus indispensable in any reformed linguistic picture. Yet the considerable theoretical divergence between formalism, psychologically anchored cognitivism, functionalism, and social interaction, indicates right away that the resulting comprehensive theoretical architecture for language will necessarily be complex. [Wanner, Dieter *The Power of Analogy. An Essay on Historical Linguistics*. Mouton de Gruyter, 2006.] So, contrary to this, I suggest an interact architecture agenda that is open for technological explorations while at the same time integrating use of essential concepts from architecture in new innovative texturation processes of information technologies in physical spaces. fRoM ARchiTecTuRe To enviRonMeNTs N o w , do we need to locate the new textures available to the concept of buildings and not only can we rely on architectural thinking when introducing digital elements and technologies in physical spaces. [Wiberg, Mikael *Interactive Textures for Architecture and Landscaping: Digital Elements and Technologies*. Engineering Science Reference, 2010.] First, the implicit power of formal generalizations does not show up in a correspondingly streamlined linguistic output. Second, the projected complexity of language acquisition is troubling if compared with its apparent ease and phenomenal rate of effective success. A unique focus on formal properties, as widely practiced in linguistic thinking, cannot hope to explain this constellation short of projecting much of language onto a comprehensive, but opaque plane of universal, hard-wired invariability. [Wanner, Dieter *The Power of Analogy. An Essay on Historical Linguistics*. Mouton de Gruyter, 2006.] A work of art has a twofold existence. For every work of art is a πόλεμος (polemos), a contention between two impulses—on the one hand and again on the other. [Brennan, Ernesto, Leslie Boldt, and Corrado Federici *Silence and the Silenced: Interdisciplinary Perspectives*. New York: Peter Lang Publishing Inc, 2013.] The twentieth century saw the golden age of the railway being supplanted first by that of the automobile and then of the aeroplane, forcing yet another re-evaluation of the bridge. New social ideologies and philosophies, new psychological and artistic paradigms emerged around and through the bridge. New paradigms of design and computation, new construction practices and new materials evolved within the shifting contexts of economics, planning and organization, patterns of everyday life and changing global relationships. [Bishop, Peter *Bridge (Reaktion Books - Objekt)*. 2008.] Indeed, one comes to understand the most profound implications of art only by contemplating its immaterial, Utopian content: "If thought is in any way to gain a relation to art it must be on the basis that something in reality, something back of the veil spun by the interplay of institutions and false needs, objectively demands art, and that it demands an art that speaks for what the veil hides." [14 The hidden side of reality is art's promesse du bonheur, the suggestion of a world without social antagonism, material want, or prescribed needs. [Kolbas, E. Dean *Critical Theory and the Literary Canon*. 2001.] The confusion about the potential of computational tools can be traced back to one essential misconception that has carried over from the historical notion of 'mechanical objectivity': the impression that machine processing endows results with a higher epistemological status. The mathematician Hao Wang 10. 1057/9780230371934 - Understanding Digital Humanities, Edited by David M. Berry Digital Methods 73 counters this flawed idea wittily by referring to machines as 'persistent plodders' (Wang 1963: 93). [Berry, David M. *Understanding Digital Humanities*. Palgrave Macmillan, 2012.] It was this subversive image that Wittgenstein sought to expel from language, which the behaviorists sought to purge from psychology, and which contemporary art-theorists have sought to cast out of pictorial representation itself. The modern pictorial image, like the ancient notion of "likeness," is at last revealed to be linguistic in its inner workings. Why do we have this compulsion to conceive of the relation between words and images in political terms, as a struggle for territory, a contest of rival ideologies? [Mitchell, W. J. T. *Iconology: Image, Text, Ideology*. University Of Chicago Press, 1987.] A sensed structural schema of this sort can be made concretely visible, as when a stick figure drawing or a pipe cleaner sculpture is shaped to correspond to such a posture. But one does not concretely see such a schema when looking at the person—one only senses its presence. The Marrian abstractions (Marr 1982) that represent a human figure in terms of an arrangement of axes of elongation provide one theorization of this sensed level of cognition. A comparable sensing of structure can occur for an array of objects. [P., Bloom, Peterson M.A., Nadel L., and Garret M.F. (eds.) *Language and Space*. 2017.] Contrasting, for example, record and circle, we notice that circle is part of the shape information in record, which relieves, however, on knowledge explaining sound storage (in varying degrees of detail), while nothing (beyond mere geometry) is explained by circle. For almost trivial reasons, the distinction of rich and spare concepts relates to (but is not identical with) the distinction between extrinsic and intrinsic spatial concepts, as opposed to strictly spatial concepts. [P., Bloom, Peterson M.A., Nadel L., and Garret M.F. (eds.) *Language and Space*. 2017.] 2 4 DEDRE GENTNER AND BRIAN BOWDLE Notes 1 2 3 4 5 6 Although structure-mapping is best known as a theory of analogy, metaphor has been a focus of the work from its inception (e.g., Gentner, 1982). Structure-mapping theory assumes the existence of structured representations made up of entities and their attributes, functions that map entities to dimensions or to other entities, relations between objects, and higher-order relations between relations. This discussion is taken chiefly from structure-mapping theory (Gentner, 1983 ; Gentner & Markman, 1997) and its computational model, SME, the structure-mapping engine (Falkenhainer, Forbus, & Gentner, 1989; Forbus, Gentner, & Law, 1995 ; Forbus & Oblinger, 1990). [Jr., Raymond W. Gibbs *The Cambridge Handbook of Metaphor and Thought*. New York: Cambridge University Press, 2008.] Thus, meanings are discovered, coming out of this particular kind of engagement, and places come into being through being involved with the activity itself. This approach differs from one that takes meaning to be overlaid upon the physical world, as if it were possible to take yourself out of it, and to place yourself above its surface. As an anthropologist, I have been working alongside generalists, art historians, architects, artists, students and teachers as part of a larger interdisciplinary project, Learning Is Understanding in Practice: Exploring the Interrelations between Perception, Creativity and Skill. 1 The research project combines approaches from art and anthropology to examine the interrelations between perception, creativity and skill, through a study of the knowledge practices of fine art. [ed.], Cristina Grasseni *Skilled Visions: Between Apprenticeship and Standards*. Berghahn Books, 2007.] 1988, 300-01] Using the work of Mathew Jones, I have shown how a single art work can function as a determinable multiplicity. The dynamic territories that we find in his work draw together the pre-individual singularities of percepts and affects such that new subjectivities and existential territories might individuate themselves. The singularities provide an intensive consistency of differences in which new formations crystallize. [ed.], Gary Genosko *Deleuze and Guattari: Critical Assessments of Leading Philosophers. Volume II: Guattari*. Routledge, 2001.] While theorists and commentators of digital writing may have observed the "slip" to which Andrews refers, mainstream scholarship is persistently focused on linear, alphabetic, natural language texts. One of the ways in which this phonetic-linear inertia is being challenged, however, is through calls for a renewed emphasis on production or invention over the traditional concern for critique and analysis. As techniques and technologies for the production of texts SCRIPTED WRITING 81 become increasingly available and as a generation of influential voices in the humanities focuses on methods of invention over representational critique, there is a rising trend in current scholarship to blur the disciplinary lines that conventionally separate text from code. [Hawk, Byron, David M. Rieder, and Ollie Oviedo *Small Tech: The Culture of Digital Tools*. Univ Of Minnesota Press, 2008.] Each word as it appears on paper takes on a fresh meaning, a literal meaning that is often unnoticed when dropped from the lips in careless conversation. I had a good command of language; I worked with the spoken language every day. To convey spoken ideas is very simple. If you don't know the exact words, a gesture will sometimes take the place of the word you need, and the listener will get the gist of your idea. But on paper, the exact word is needed, and I meant to get through. . . The next ten hours were the most gratifying hours, and the hardest hours I ever worked. [Willeford, Charles *The Woman Chaser*. Thunder's Mouth Press, 2001.] This last notion follows a univocalization of mimesis, indeed a univocalization of being, in which image and original are congealed into a too fixed one-to-one correspondence. Mimesis is a relation, and hence has a dynamic of relating at work in it. The complexity of the relation has to do less with some univocal visual mirroring than a balanced relativity between an image and an original. That relation is double rather than univocal, indeed plurivocal in that an openness is necessarily inserted between original and image. [Desmond, William *Art, Origins, Otherness: Between Philosophy and Art (Paperback) - Common*. Albany: State University of New York Press, 2003.] The problem-solving approach to architecture is exemplified by a "third generation" design method based on Popperian falsification: if one is interested in a problem then attempt to solve it by making a tentative assertion and devise a test to appraise that assertion critically. A number of different models form the basis for data generation, hypothesis testing and theory generation, but within an architectural context, design practice may be seen as a matter of generating design proposals and then testing them and modifying and improving them where necessary. [auth.], H. H. Rosenbrock, and Dr Paul Arthur (eds.) *CADCAM in Education and Training: Proceedings of the CAD ED 83 Conference*. Springer US, 1984.] Artifacts and representations carry different sorts of meanings simultaneously, and activities are caught up in many dour_ch06. On Page 167 Thursday, May 24, 2001 11:43 AM Moving Toward Design 167 different tasks at the same time. This analytic perspective clearly has consequences for design, too. Systems or artifacts supporting embodied interaction need to be designed with an awareness of the multitude of meanings that may be conveyed through them. [Dourish, Paul *Where the Action Is: The Foundations of Embodied Interaction (Bradford Books)*. The MIT Press, 2001.] In Japan, from the beginning, Architecture with a capital A never existed. When Karatani's Architecture as Metaphor was published in Japan, I was extremely interested in the fact that this book located the place of Architecture, the presence I felt behind textuality; and then I was struck by the procedures it uses to deconstruct the processes through which architecture is employed as metaphor. I think that Architecture as Metaphor, rather than remaining just a title, will begin to function as a double metaphor for architecture today: while it is still burdened with its old metaphorical power, it is now



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Julian Besems

In Japan, from the beginning, Architecture with a capital A never existed. When Karatani's *Architecture as Metaphor* was published in Japan, I was extremely interested in the fact that this book located the place of Architecture, the presence I felt behind textuality; and then I was struck by the procedures it uses to deconstruct the processes through which architecture is employed as metaphor. I think that Architecture as Metaphor, rather than remaining just a title, will begin to function as a double meant for architecture today; while it is still burdened with its old metaphorical power, it is now confronting the new crisis and oriented toward an unforeseen problematic formation.[Karatani, Kōtarō and Shūji Kishi. "Architecture as Metaphor." *Language, Nation and Memory: Writing Against Structure**. The MIT Press, 1995.] Information is thus halfway between pure chance and absolute regularity. One can say at form, conceived as absolute spatial as well as temporal regularity, is not information but a condition of information; it is what receives information, the 190 a priori that receives information. Form has a function [selectivity]. But information is not form, nor is it a collection ensemble of forms; it is the variability of forms, the influx of variation with respect to a form. It is the unpredictability of a variation of form, not pure unpredictability of all variation.[Simondon, Gilbert, and Cecile Malaspina *On the Mode of Existence of Technical Objects*. Paperback. Univocal Publishing, 2017.] Architects design by translating concepts into two dimensional graphics that which ultimately imply a multidimensional future reality. He or she tests the horizontal and vertical space finding accommodation and commonality of adjacency, connectivity and inclusiveness. It is the commonplace and not the abstract necessity that communicates more readily. The architect is challenged to imbue in the design a more subtle analogy than the obvious. [35] The "interaction view" of metaphor where metaphors work by applying to the principle (literal) subject of the metaphor a system of "associated implications" characteristic of the metaphorical secondary subject.[Fez-Barrington, Barie, and Edward L. Goveia. *Metaphor: Theory and Practice*. Cambridge Scholars Publishing, 2012.] Today, iconographers Space and sculpture in the Classic Maya city acknowledge more readily that the association between image and text in Mesoamerica did not necessarily parallel that of Europe (Miller 1989: 177). "Mesoamerica[n] . . . systems [of communication] do not allow for an easy distinction between pure text or pure image" (Baddley 1983: 56), as suggested by the Nahuatl word *tlacuiloitzli*, which means both "to paint" and "to write" (Boone 1994: 3). Some scholars have sought a "reformation of the definition of writing that considers both verbal and nonverbal systems of graphic communication" (Boone 1994: 4). [Parrington, Alexander *Space and Sculpture in the Classic Maya City*. Cambridge University Press, 2011.] Aldo van Eyck has said: "Architecture should be conceived of as a configuration of intermediary places clearly defined. This does not imply continual transition or endless postpone- ment with respect to place and occasion. On the contrary, it implies a break away from the contemporary concept (call it sickness) of spatial continuity and the tendency to erase every articulation between spaces, i. e. , between outside and inside, between one space and another (between one reality and another).[INPUT: Venturi - 1996 - Complexity and contradiction in architecture.pdf] As mentioned earlier set theory provides a general conceptual framework for mathematics. Now, since category theory, through the notion of *topos*, has succeeded in axiomatising set-theory, the outcome is an entirely new categorial foundation of mathematics! The category- theorists attitude that "function" rather than "set membership" can be seen as the fundamental mathematical concept has been entirely vindicated. The pre-eminent role of set theory in contemporary mathematics is suddenly challenged.[Goldblatt, Robert *Topoi: The Categorical Analysis of Logic*. Revised. Amsterdam ; New York ; North-Holland ; New York, N. Y: Elsevier, 1984.] Objects try to make sense of each other through the qualities and logics they possess. When one object caricatures another, the first grasps the second in abstract, enough for the one to make some sense of the other given its own internal properties. A caricature is a rendering that captures some aspects of something else at the cost of other aspects. 16 The mechanism that facilitates this sort of alien phenomenology is not Nagel's objective instrument—one that clarifies foreign perception by removing distortion—but instead a mechanism that welcomes such distortion.[Bogost, Ian *Alien Phenomenology, or What It's Like to Be a Thing*. University of Minnesota Press, 2012.] The contrast, therefore, lies 94 deeper, and can be characterized exhaustively only by introducing the concept of an objectively valid regularity. The sensations produced by objects are private, and vary from one individual to another. But the world picture, the world of objects, is the same for all human beings, and we may say that the transition from the sense world to the world picture amounts to a replacement of a disordered subjective manifold by a constant objective order, of chance by law, and of variable appearance by stable substance.[Planck, Max *Scientific Autobiography And Other Papers*. Planck Philosophical Essays in English P2P Custom Ed V5 [UL]. Williams & Norgate, 1950.] The visualization of this new transcendental field of pure effects in architecture involves both the critique of architecture and the renunciation of certain formal procedures that condition architecture for the subject. This latter conditioning is typical of the manner in which architecture is complicit in forming representational orders that further control and channel the purely immanent field of its productive agency.[Brott, Simone *Architecture for a Free Subjectivity: Deleuze and Guattari at the Horizon of the Real*. Ashgate Publishing, 2011.] This means that computers of today are about two million times more powerful than the machines available to the Wrst MT researchers in the early 1960s. Second, there is now a huge amount text available in many languages, and a not inconsiderable amount of translated text, as well as resources such as bilingual dictionaries, language analysis tools (parsers, part-of-speech taggers), and so forth.[Sproat, Richard *Language, Technology, and Society*. 2010.] Writing ceases to be a mirror. It will constitute itself, strangely, as an absolute of writing and of voice. A "mute written orchestration" Mallarme will say: time and space united, a successive simultaneity, an energy and a work wherein energy gathers (*energeia* and *ergon*): a tracing wherein writing breaks always in advance with what is written. Born of this pressure, beyond the book, is the project of the Work, in its very realization always yet to come; a Work without content since always going beyond what it seems to contain and affirming nothing but its own outside, that is to say, affirming itself—not as a full presence but, in relation to its absence, the absence of (a) work, worklessness.[Blanchot, Maurice *The Infinite Conversation*. University of Minnesota Press, 1993.] But this immediacy is only apparent through the mediated temporal and spatial chain to which the newly emergent thing attaches itself. This conclusion leads us to the second, so far inadequately heeded, aspect of non-identical repetition. It concerns the monadological fashion in which each new repetition not only repeats a series of items (stretching back indefinitely), but repeats the process of repetition itself, like the Crunluath a Mach, or fourth movement, invoked by Kirsty Gunn. In this way, it microcosmically represents the process, in a new sense of 'representation' which is less one of mirroring, and more akin to the symbolic and personal 'standing for' which one associates with political representation.[Pickstock, Catherine *Repetition and identity : the literary agenda*. Oxford: Oxford University Press, 2013.] Like other media, prose can view scenes from anywhere in the physical world, but it also adds subjective angles within a character's mental world. Once the prose writer makes a choice of person (first, third, or the eccentric second), her eye moves from that angle like a spotlight. The author holds our perception in her fist. As we follow her sentences, she takes us where she wishes: through the places, times, and societies of her world; or into a single character's thought-filled depths, there to witness rationalizations, self-deceptions, and dreams; or deeper yet, into the character's subconscious to reveal her raw appetites, nightmarish terrors, and lost memories.[McKee, Robert *Dialogue: The Art of Verbal Action for Page, Stage, and Screen*. Twelve, 2016.] This is the power of an open text, as Eco points out in *The Role of the Reader*: 'An open text is a paramount instance of a syntactic-semantico-pragmatic device whose foreseeable interpretation is a part of its generative process' (Eco (1994a: 3)). Even in its creation the author anticipates and invites interaction. An open work summons collaboration between the reader and the text to create meanings. These meanings will no doubt be various and disparate but they cannot be without limitations.[Bourne, Craig, and Emily Caddick Bourne *The Routledge Companion to Shakespeare and Philosophy*. Routledge, 2018.] In other words, as soon as the textual form is translated into the graphical form, new observation and analysis methods become applicable. Thus the translation has the flavor of associating with the language a more expressive concurrent semantics. In the book, a clear choice is made about which models to handle: process description language CCS and Place/Transition (P/T) Petri nets, with various syntactic restrictions to yield the expressiveness hierarchy. Only the top level, Nonpermissive nets, is an extension of P/T nets: the extension is needed to achieve Turing completeness.[Gorrieri, Roberto *Process Algebras for Petri Nets: The Alphabetization of Distributed Systems*. Springer, 2017.] Thus, with regard to the economy of research resources, it may be more productive to spend more time on expanding the corpus of primary data rather than to use it for writing a descriptive grammar. In short, then, the difference between the basic and the extended formats as conceived of here is one between different formats or "styles" for the inclusion of analytical insights in a documentation. In the basic format, analyses are included in the form of scattered annotations and crossreferences between sessions (and, of course, indirectly also by the fact that for topics for which little or no data can be found in the recordings of communicative events, elicited primary data are included).[Himmelman, Nikolas P., Jost Gippert, and Ulrike Mosel *Essentials of Language Documentation (Trends in Linguistics. Studies and Monographs Tlsm)*. Mouton de Gruyter, 2006.] The message may or may not be temporally divorced from "the original circumstances of its formulation", but it is no longer divorced from its writer, which means that the writer becomes "the authenticating source of the message" and that this fact effectively inhibits the tendency towards regarding "meaning as residing in the words themselves" (Harris 2000: 360). The motivation of texts that do not have a computer-related communication introduces a "responsoring" of the written text and that, when participants interact textually on these premises, they may reclaim language from the "autoglottic" space into which writing previously relocated it.[Duncker, Dorthie *The Reflexivity of Language and Linguistic Inquiry : Integrational Linguistics in Practice*. New York : Routledge, 2019.] Coding is thus an intersubjective process in which (ideally) the interlocutors converge on the same interpretation. At a given moment, a speaker is capable of invoking any portions of a vast conceptual universe, including both new and established conceptions, as well as new ways of apprehending the latter. Content that is activated and exploited for linguistic purposes represents the maximal scope of awareness for the



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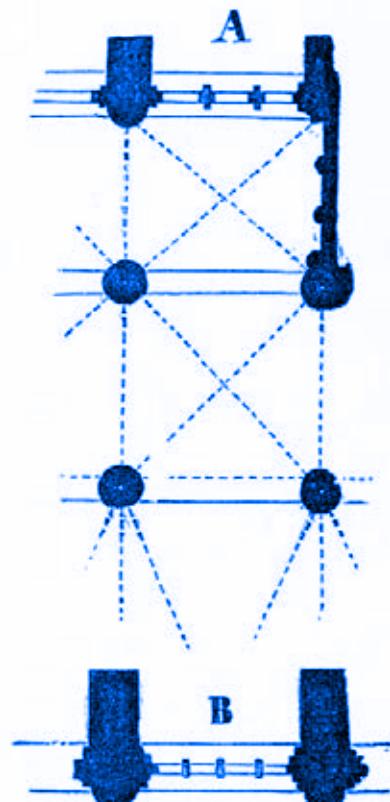
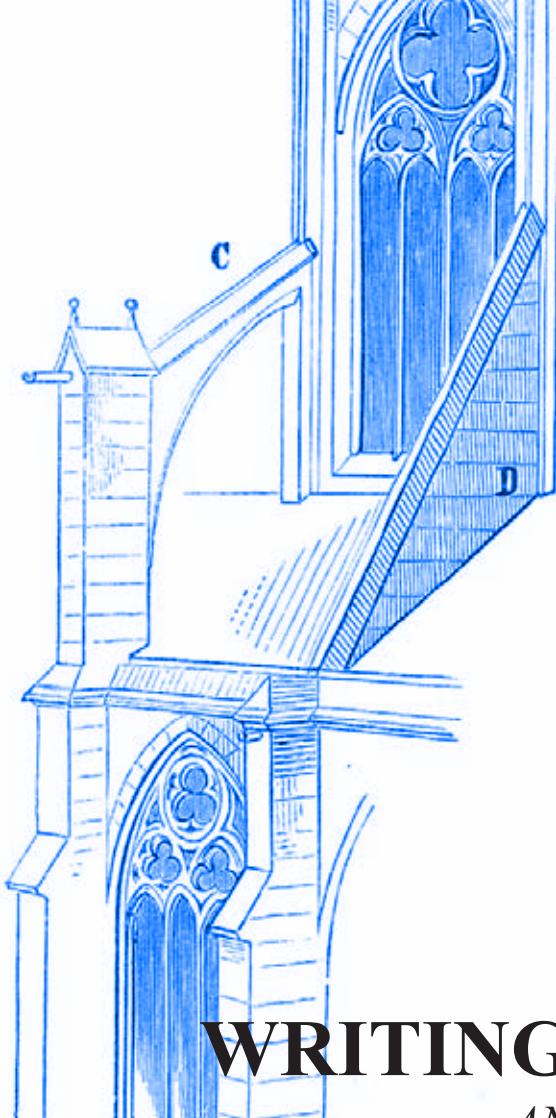
AND

PICTURING TEXT

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Coding is thus an intersubjective process in which (ideally) the interlocutors converge on the same interpretation. At a given moment, a speaker is capable of invoking any portions of a vast conceptual universe, including both new and established conceptions, as well as new ways of apprehending the latter. Content that is activated and exploited for linguistic purposes represents the maximal scope of awareness for the expressions that result. An essential aspect of this awareness is the ongoing discourse itself: prior expressions, the present usage event, and the projection of further expressions, all centered on the speaker-hearer interaction.[Li, Thomas Fuyin *Compendium of Cognition: Linguistics, Semiotics, & Cognition*, 2014.] The interaction may have an infinite number of forms in different fields and in different historical periods. In the context of modern academic science, the forms of the interaction range from causal gatherings, like seminars to discourses, authorship, and to such relatively institutionalized forms of interaction as the publication of a special journal, the establishment of separate scientific associations (as in the various psychological schools or the Prague Linguistic Circle), or the organization of scientific meetings and conventions.[auth.], Olga Amsterdamska *Schools of Thought: The Development of Linguistics from Bopp to Saussure*. Springer Netherlands, 1987.] So, contrary to this, I suggest an interact architecture agenda that is open for technological explorations while at the same time making use of classical concepts from architecture in new innovative texturization processes of information technologies in physical spaces. fRoM ARchiTecTuRe To enviroNMenTs Not only do we need to relate these new textures available to the concept of buildings, and not only can we rely on architectural thinking when introducing digital elements and technologies in physical spaces.[Wiberg, Mikael *Interactive Textures for Architecture & Urban Learning: Digital Elements and Technologies*. Engineering Science Reference, 2010.] In this view, the design process builds information into the structure of the molecule. But this view would not make sense if we consider that a molecule is really a discrete and bounded entity. For if molecules were simply discrete entities, how could one then distinguish between a molecule which embodies little information and the 'same' molecule with the same structure of elements that embodies a great deal of information?In Whitehead's and Stengers' terms it is possible to give a different and more precise meaning to the idea of a material object being rich in information.[Fraser, Mariam, Sarah Kember, and Celia Lury *Inventive Life: Approaches to the New Vitalism*. SAGE Publications Ltd, 2006.] This point is even more poignant if we consider that most of these elements making a building are not designed by architects themselves and their assembly is performed by other professionals. This analogy could also hold true for designing with CAD, as this process can be accomplished by combining architectural elements existing both as textual and as graphic information, as it happens in Building Information Modeling (BIM). 1 Here too hierarchy of information plays a crucial role to produce coherent designs accessible to the various professions participating in the construction process.[Bottazzi, Roberto *Digital Architecture Beyond Computers: Fragments of a Cultural History of Computational Design*. Hardcover. Bloomsbury Visual Arts, 2018.] Computational media can make information relevant to the task at hand thereby (1) reducing the information overload problem and (2) the need for decontextualized learning. They provide the foundation for all "on demand" notions (such as learning on demand, using information on demand, detail on demand). Intertwining Problem Framing and Problem Solving DODEs are significant not only as technical achievements in computer science, but also as examples of principled analyses of helping humans to cope with complex design problems.[Arias, Ernesto G., Hal Eden, and Gerhard Fischer *Environment and Discovery Collaboratory*. Morgan & Claypool Publishers, 2015.] Otherwise, possession of it would be no advantage. Therefore, information must be something that can be stored, owned, lost, and found. It must be capable of being priced. It must be transformable—and possible to speak of as differentially distributed across a population. If everybody has it—then it is not new—not information. It must also be possible to speak of it as having a private or a public, or an anonymous, or an identified character, and so on. Several of the characteristics Garfinkel lists relate to completeness of information. And, I think here he is being sensitive to a fundamental contradiction in the conventional theories of information. A rational actor with complete information is assumed—and yet information is the unknown—the new—the anomaly. In actual practice, actors never have complete information—and yet are capable of handling and recognizing information. In order to overcome this contradiction, information must be capable of being incomplete, or lost, or changed.[Garfinkel, Harold, and Anne Rawls (ed.) *Toward a Sociological Theory of Information*. Paradigm, 2008.] Particularly for architecture, machines like sophisticated drawing instruments—and, by extension, digital drawing devices—play unique roles as transdisciplinary interfaces to mathematics itself. As new machines like ellipsographs, conchoidographs, and planimeters began to encode the knowledge required to perform certain architectural drawing procedures, an epistemological distinction between design knowledge and instrumental knowledge emerged. On the one hand, we might define design knowledge as the architect's trained intuition of formal organization principles such as the relationship of parts to a whole, the ranges of material effects, and the appropriate use of geometry. 6 Instrumental knowledge is the narrower understanding of the procedures to successfully manipulate a certain type of technique or technology, which would include the ability to operate an instrument, a device, a machine, a process, or a software to intended effect. 7 In addition to its expedient use to accomplish a particular design, instrumental knowledge facilitates the creation of systems of interrelated technologies to systematically realize design agendas.[INPUT: AndrewWitt-Formulations.pdf] Bay side and ocean side: two very different experiences for me from the very beginning. Later on, rereading Proust, I would almost think of them as Marcel had thought of two paths he'd taken as a child in Combray. Not that these cotes were socially distinct as the Guermantes Way had been from Swann's Way. No, rather I thought of them as being distinctive in two main ways, the first atmospheric, the second emotional. The bay side was fragrant, heavily wooded, nocturnal, obscure, somewhat bewildering, a place filled with unclarities of location, not to mention relationship.[Picano, Felice *A House on the Ocean, a House on the Bay (a memoir)*. Faber & Faber, 1998.] Now, continuity of motions is a feature of action by contact, on which the localizability of causal interactions is grounded, but it is also a feature of time. As mentioned above, one of the reasons why the dynamical approach presents itself as essentially different from, and more adequate than, connectionism is that it makes reference to continuous time, whereas networks and their learning algorithms are indexed by discrete time, which is not the time of natural phenomena, if not by the mere fact that the "clock" pace varies for different systems.[Editor], Alberto Peruzzi *Mind and Causality*. John Benjamins Publishing Company, 2004.] It seems clear, therefore, that everyday language is bound up with two different traditions: one the tradition of linguistic communication (which requires an attention to the functionality of information), the other the tradition of information technology focused on processes of transforming, coding, and decoding. These telecommunicative processes have a structure, but that structure does not have to be linguistic, meaningful, or capable of being true or false. ON THE AGE OF CONTRADICTION The myths and icons of naturalized information we have seen so far might seem to suggest that the newly germinating disciplines of the twentieth century—c ybernetics or the mathematical theory of information, or their borrowings in biology, chemistry, and physics—a re 10 Information and Myth fundamentally responsible for this interesting ambiguity in ordinary speech.[Janich, Peter, Eric Hayot, and Lea Pao *What Is Information?*. Univ Of Minnesota Press, 2018.] Zarathustra worries at this point about receivers being able to stand the signification of new knowledge, nor in the least about how to transmit a message put in a different way. The philosopher wants to address individuals concerned with their collective becoming, not a population rounded up for yet another communications campaign or only wanting to hear the good news. This brings us to another of Simondon's concepts, and one that functions along similar lines: transduction. Simondon uses it in a specific and very extensive way throughout his work.[Mellapham, Dan, Nandita Biswas Mellapham, Babette E. Babich, Horst Hutter, Manabratna Guha, Gary Shapiro, and Julian Reid et al. *The Digital Dionysus: Nietzsche and the Network-Centric Condition*. New York: Punctum Books, 2016.] The symbolic, as such untranslatable, while translating itself is hereby however not completely transferred into the technical. It differentiates itself in relation to itself, i. e. it "specifies" itself in an operative model that remains symbolic-referential. The relation of the place-value-like arrangement of the symbols denies itself to both itself and any definite model of its own function. This way only it becomes legible as the primary origin which enables the origin of communication technology to be determined, i. e.[INPUT: Hostestadt und Bühlmann - 2014 - Domesticating symbols metallithum. II.pdf] Leontes sees, as we have begun to see, that the instability of meaning and uncertainty of reference he is experiencing first-hand—what I have generally termed linguistic indeterminacy—is not simply a function of expression but of interpretation as well. It arises, that is, not only out of an imperfection in the medium or the speaker's use of it, but out of the radical subjectivity of the listener or interpreter. For this reason, it is doubly inescapable, a condition that prevents us from ever arriving at certain or complete understanding in human affairs.[Hartman, Geoffrey H., and Patricia A Parker *Shakespeare and the Question of Theory*. New edition. 1986.] are not themselves objects, any more than ideas or concepts are objects. We see or recognize a Gestalt, not in the sense that we see a physical object, but in the sense that we see or recognize a likeness. This distinction is centrally important, but because Gestalt, Urphänomen, Urplante etc. are all nouns, and we can talk of seeing and recognizing them, is easily lost sight of. Thus, in his discussion of aspect-seeing in the Investigations, Wittgenstein begins with a masterfully clear statement of the distinction: Two uses of the word 'see'. 61 The one: 'What do you see there?' – 'I see this' (and then a description, a drawing, a copy).[Monk, Ray *Ludwig Wittgenstein: The Blue & Brown Books*. Cambridge University Press, 1973.] Additional signs for concepts; concepts, however, are more or less definite image signs for often recurring and associated sensations, for groups of sensations. To understand one another, it is not enough that one use the same words; one also has to use the same words for the same species of inner experiences; in the end one has to have one's experience in common. Therefore the human beings of one people understand one another better than those belonging to different peoples even if they employ the same language; or rather when human beings have long lived together under similar conditions (of climate, soil, danger, needs, and work), what results23 from this is people who "understand24 one another"—a people.[Nietzsche, Friedrich *Beyond Good & Evil*. Knopf

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22 Words are acoustical signs for concepts; concepts, however, are more or less definite image signs for differing feelings and associated sensations, for groups of sensations. To understand one another, it is not enough that one use the same words; one also has to use the same words for the same species of inner experiences; in the end one has to have one's experience in common. Therefore the human beings of one people understand one another better than those belonging to different peoples even if they employ the same language; or rather when human beings have long lived together under similar conditions (of climate, soil, danger, needs, and work), what results²³ from this is people who "understand each other more easily". [Fischer, J., ed.: *The Word Good & Evil*. London: Penguin Publishing Group, 2010.] Further, it is also possible to insert into the text in practically endless ways not only syllables but especially words; of these systems one of the most effective consists in taking a book of poems or prose, or composing a fake letter to <someone> who is intimate, into which apt words and expressions are scattered in a suitable position. So constitute the poem by identifying and collecting by the friend far away, these words have to be evidenced by means of some precise signs agreed upon by convention. [INPUT: Williams et al. - 2010 - The Mathematical Works of Leon Battista Alberti.pdf] But it does not only delight the ear. In classical Chinese, compound ideographs are combined to create words. Thus two ideographs meaning 'tree', placed side by side, mean a grove, while three, two above and From Vegas to Vega: American Moon 221 one below, mean a forest. The ideograph for 'sun' placed next to the ideograph for 'moon' means bright. This writing system allows the poet to play with a second layer of meaning through visual associations, and Li Po (or Pai) was a master of such subtleties.[Attlee, James *Nocturne: A Journey in Search of Moonlight*. University Of Chicago Press, 2011.] It is not a conceit. Indeed, it is not even a word. In an essay on 'Difference', Derrida demonstrates that the term he has invented on the basis of the French homonym is also an instance of deconstruction, and a kind of index of the *différance* that surrounds us. In speech, he reiterates, to use the term without explicitly invoking the spelling. You cannot, he insists, hear the difference between 'difference' and 'diference' (or difference and 83 difference). The only way to make the distinction evident in speech is to say 'difference (with an a)' [Belsey, Catherine *Poststructuralism: a very short introduction*. Oxford University Press, 2002.] There is a certain playful kind of poetic form in such an equation: all to say, by way of experiential methodology and extended metaphor, that context determines text, as wave pattern shapes particle in position. A given minim of any joke is meaningless out of sequential context, or so Mary Douglas extends Freud to show the cultural continuum of a given joke. 25. Vine Deloria, Jr., letter to author, 16 June 1988. 26. See Friedrich Nietzsche, *The Gay Science: With a Prelude in Rhymes and an Appendix of Songs*, trans. [Lincoln, Kenneth *Indi'n Humor: Bicultural Play in Native America*. 1993.] We are all, in a sense, cheap knock-offs of ourselves. This sounds like a metaphor at best, madness at worse. A dancing cow onscreen is what it is because it participates in an abstract data structure or resource—a file on some hard disk or server, saved as dancingcow.jpg. That makes sense. But a real cow doesn't work like that. Cows come from cows, not some abstract Form of Cow-ness. What would it even mean to assert the contrary? The geometry example makes a certain sense in its own terms. But everything isn't like geometry.[Holbo, John, and Belle Waring *Reason & Persuasion: Three Dialogues by Plato: Euthyphro, Meno, Republic, Book 1*. 3rd ed. Pearson Education, 2010.] For example, the Oxford English Dictionary has accumulated a great mass of valuable data but presents it in an entirely atheoretical manner, producing a jungle with no paths leading from A to B, no clear signposts, and no consistent system of semantic analysis that would allow either insiders or outsiders to find their way. By contrast, the approach taken in this book follows the way of the bee in that it gives close attention to the meanings of words gathered from the gardens of literature and modern linguistic corpora and then transforms them by means of a coherent semantic methodology—NSM.[Wierzbicka, Anna *Experience, evidence, and sense : the hidden cultural legacy of English*. Oxford, Toronto: Oxford University Press, 2010.] These experiences show us that color and images generally "may be there where the thing seen is not" (pp. 4-5). The image seen by reflection in a glass "is not any thing in or behind the glass." "The image and color" "is but an apparition to us" of the motion of object and nerves. Thus again, two senses of light are distinguished: motion in and from the object, and the appearance or image. We should perhaps guard against crediting too strong a psychological content to these various words used by Hobbes.[Yolton, John W. *Perceptual Acquaintance from Descartes to Reid*. 1984.] With regard to the former, a semantic relation obtains between certain Forms and particulars such that certain particulars bear the same name (eponymazein) as the Forms, such as the equal particulars that have the same name as the form of Equality. 46 The justification for the linguistic connection is provided by the idea of participation, or sharing, a relationship of similarity between particulars and Forms based on their common character.[Ward, Julie K. *Aristotle on Homonymy: Dialectic and Science*. 2010.] I edited the bookshelf one shelf at a time, just looking for the least favorite book on each shelf. I was able to identify a book on each shelf that was less appealing than any other book on that particular shelf. This made it easier for me. Taking all the books off all the shelves and sorting them would have been much more effort. I would have gotten more distracted. I may not have been willing to get rid of as many books. The books I get rid of get taken to my local bookstore. There, they have the chance of being read by someone who needs them and not held hostage on my shelf, hoarded for that day that may never come.[Johnson, Jennifer *A Little Book On Happiness*. 2017.] The same may be done in all our complex ideas whatsoever; which, however compounded and decompounded, may at last be resolved into simple ideas, which are all the materials of knowledge or thought we have, or can have. Nor shall we have reason to fear that the mind is hereby stinted to too scanty a number of ideas, if we consider what an inexhaustible stock of simple modes number and figure alone afford us. How far then mixed modes, which admit of the various combinations of different simple ideas, and their infinite modes, are from being few and scanty, we may easily imagine.[Locke, John *Complete Works of John Locke*. Delphi Classics, 2017.] There is another possible book that contains all that is not in this one. In that book, other habits take center stage, other unfamiliar experiences are recorded, and the jokes are told all the way to the end. That book's disadvantage, though, would be its exclusion of what is published here. It would omit these gathered experiences in favor of others. That other book might have a different tenor: it might perhaps be more critical in tone, be more analytical in approach, contain more argumentative opinion.[Cole, Teju *Known and strange things: Essays*. Random House, 2016.] This synthesis of the manifold of sensible intuition, which is possible and necessary a priori, can be called figurative (synthesis speciosa), as distinct from that which would be thought in the mere category in regard to the manifold of an intuition in general, and which is called combination of the understanding (synthesis intellectus); both are transcendental, not merely because they themselves proceed a priori but also because they ground the possibility of other cognition a priori. Yet the figurative synthesis, if it pertains merely to the original synthetic unity of apprehension, i. e. , that transcendental unity, which is thought in the categories, must be called, as distinct from the merely intellectual combination, the transcendental synthesis of the imagination.[Immanuel Kant, Paul Guyer (Editor, Allen W. Wood (Editor Translator), and Translator) *Critique of Pure Reason*. Cambridge University Press, 1998.] The latter problem also arises frequently, and may be looked upon as a special case of the former, the objects under comparison here being ideas. But the comparison is undertaken in the way that has just been described. But since an idea is quite different from its object, it should come as no surprise if the comparison of ideas reveals completely different similarities and differences than those obtaining between their objects. Thus the ideas "equilateral triangle" and "equiangular triangle" differ, but the objects they represent are the same.[Bolzano, Bernard *Theory of Science*. Oxford University Press, 2014.] It is all a matter of context, dependent on from what perspective we are approaching the object or, in the language of the Sophist, how we speak of it: whether we mean something in one way or in a different way. But even the general idea of contextualizing concepts—meaning that in order to avoid explicit contradiction when dealing with contrary qualities we must differentiate when the referent is "spoken of in one way" as opposed to being "spoken of in a different way"—was not the breakthrough in composing a logos some associate with the Sophist 114—unless we 113 Sophist, 250e6□[Parmenides., Plato., Parmenides., Sylvana Chrysakopoulou, and Arnold Hermann *Plato's Parmenides : text, translation & introductory essay*. Las Vegas: Parmenides Publishing, 2010.] The problem is that habits, dispositions, and aptitudes all seem to have extra-perceptual existence. Leibniz's most common metaphor for innate ideas – veins in marble – also suggests that innate ideas are outside perception. The latter is, however, a metaphor, and the question is how strongly to take it. A block of marble is used metaphorically by Leibniz in another telling sense – as an example of a being by aggregation, thus not a real substance. The metaphor of veins in marble, or spatial patterns in an aggregate, can only be loosely applied to a simple being that has no parts, is a true unity, and is not extended.[Perkins, Franklin *Leibniz and China: A Commerce of Light*. Cambridge University Press, 2004.] We do normally and naturally suppose that there is a deep causal resemblance between cases of modes falling into this intermediate class. It would be something of a surprise to learn, for example, that two or three very different mechanisms share the responsibility for phenomenally indistinguishable human pains, or for memories of past experience; or that several physically quite distinct kinds of light are seen as the same shade of brown. Yet such discoveries (which do sometimes occur and could in principle occur more generally) do not undermine the use of the concepts in question.[Ayers, Michael *Locke (Arguments of the Philosophers)*. New edition. Routledge, 1993.] Such spatial representation of spatial relationships is pictorial in a quite straightforward way. Few cases, however, are as simple as this. If the sentence were spoken instead of written, it would be a temporal relation but nevertheless it creates a spatial relationship in the space that would represent the relationship between the cities. But this in turn is possible only because the spoken sequence and the spatial array have a certain abstract structure in common. According to the Tractatus, there must be something which any picture must have in common with what it depicts.[Kenny, Sir Anthony *An Illustrated Brief History of Western Philosophy*. [Illustrated ed.]. Malden, MA: Wiley-Blackwell, 2006.] Finally, in Plato there is yet another element that is a necessary supplement to the deficiency in both the great forces. This is the mythical and the metaphorical. The first kind of dialectic corresponds to the first kind of irony, the second kind of dialectic to the second kind of irony; to the first two corresponds the mythical, to the last two the metaphorical.



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Finally, in Plato there is yet another element that is a necessary supplement to the deficiency in both the real voice. This is the mythical and the metaphorical. The first kind of dialectic corresponds to the first kind of irony, the second kind of dialectic to the second kind of irony; to the first two corresponds the mythical, to the last two the metaphorical—yet in such a way that the mythical is not indispensably related to either the first two or the last two but is more like an anticipation engendered by the one-sidedness of the first two or like a transitional element, a *confinium* [border territory], that actually belongs neither to the one nor to the other. [Kierkegaard, Søren, Friedrich Wilhelm Joseph von Schelling, Socrates, B. Johnson, H. Arendt, K. Kierkegaard, and Howard V. Hong (translators), with continual reference to Socrates : together with notes of Schelling's Berlin lectures*. Princeton, NJ: Princeton University Press, 1989.] Derrida questions that cultural construction such as an idea of value for a sentence can be disassembled, or taken apart, and decoded—it parts examined for "meaning." The parts can be reassembled into another whole, at a different time, taken on different meaning. The rearrangement of the parts into various wholes opens a way of exploring the complex nature of signs and moves communications into the complicated landscape of multimeaning, layered contexts, thus marking a shift from binary, yes-no signification to a more subjective, multidimensional interpretation of meaning.[Heller, Steven *Design Literacy: Understanding Graphic Design*. 2nd. 2004.] To suggest the hegemony of a specific style of visual experience is not to exclude the other senses, but to perhaps suggest that they are increasingly defined in relationship to the visual and its associate technologies in the contexts discussed here—film image and themescape. The transfer of a visual logic onto the nonvisual reduces other sensuous geographies to visual-like ones and so hides their distinctive contribution to the multi-sensual nature of geographical experience and understanding.[Rodaway, Paul *Sensuous Geographies*. 1994.] The brilliance of Klingemann's identification of the content of the illustrations lies in its analysis on the basis of a combination of approaches. He employs multiple data clustering algorithms alongside a manual clustering of image training sets organised using human vision. The most prevalent method for making image content searchable, though, does not so much involve 'vision' as text. It is the spectral presence of words that haunt these various techniques, from the 'Bag of Words' model, and the textual metadata that underpins the pictures 3 SEARCHABILITY 39 retrieved from Google Images, to the crowdsourced tags in ImageNet that have been used in recent deep-learning experiments. 15 This dependence on words is a key component of large-scale databases containing illustrations that do not rely on computer vision, but instead use the surrounding text to 'explain' and return relevant images, whether this is the OCRed text (sometimes including the image caption), bibliographic and other metadata, or an amalgamation of different textual information.[auth., Julia Thomas *Nineteenth-Century Illustration and the Digital: Studies in Word and Image*. Palgrave Macmillan, 2017.] But the genius of a Papuan, that is of a six-year-old child, is of no use to humanity' (OC 184). Form and ornament are products of the subconscious collaboration of all members of a particular culture. Art is the complete opposite. Art is the product of the genius going his own way. His commission comes from God. 9 To waste art on objects of practical use demonstrates a lack of culture. Ornamentation means added labor. The sadism of the eighteenth century, burdening one's fellows with superfluous work, is alien to modern man.[Loos, Adolf *Ornament and Crime*. Penguin Books Ltd, 2019.] First, let us list the ornamentation used at the time, either in the form of paint or recovered paste. Everywhere you look are winged, rounded female forms (Victories, Muses, Graces, etc.), busts of Minerva, garlands of flowers and fruits, palmette crowns, incense tripods, sacrificial alters, bucranes, foliage, thyrsuses, vases, inset portraits painted in monochrome or on porcelain, quivers, arrows, bows, caduceuses, scales, cornucopia, sphinx, birds, swans, crickets, chimaeras, mermaids, lightning under imperial eagles, all within bronze and gilded brass frames, applying white on light blue, light yellow, Sienna yellow, with imitation silk draperies in blues, pinks, yellows, etc., a renaissance of Raphael's arabesques, reworked and corrected... Dressing table, First Empire.[Bayard, Émile *The ABC of Style*. Parkstone International, 2012.] Earthenware vessel with modeled net ornament (Toscane) The more a form is aesthetically satisfying in itself, the less it will need the aid of ornamental attributes for the completion and fulfillment of its expression. Ornaments, however, are often needed to correct a certain indeterminateness or even transgressions of the limits of pure form, or to bring into sonorous accord those dissonances that are unavoidable, even inevitable, in high artistic endeavors. Just as the luxuriant abundance of a youthful head of hair becomes even more attractive when restrained and confined with a golden net, a bulging vessel will seem even larger but also more secure when ornamented with a braided pattern.[INPUT: Semper_Style_in_the_Technical_and_Tectonic_Arts_or_Practical_Aesthetics.pdf] The notion of literacy, of course, employs and uses of Indo-European written language sentations of texts may be understood as literacy as the structural measure; other visual representations—only to the extent that they resemble Indo-European written language. Consideration of pictographs is a step along an evolutionary path, however, obscures their significance as a complete and purposeful communicative system. 6 4 When characterized simply as less than a written language, pictographs always fall short of their purpose.[Penney, David W *Art of the American Indian frontier - the Chandler-Pohrt Collection*. University of Washington Press, 1992.] Skin metaphors are ubiquitous in contemporary art and architectural theory. Not only are "skins" of artworks and buildings frequently referred to, but the metaphors and mechanics of skin as the body's surface are applied to artworks—the skin's self-regulation, its ability to adapt to changing environments, its permeable surface, as well as skin's organic nature. Artists and architects are drawing upon a long history of examining the relationship of, and distinctions between, façade and building, surface and depth.[Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.] In contemporary Fiji the practice of tattooing has changed, but the focus on the body's social meanings continues. Observing that in Nahigatoka Fijians are preoccupied with commenting on other people's bodily shapes, Becker suggests, "Body morphology is a primary lexicon of social processes, not a means of self-representation; it is a matter of social, not personal, concern." 51 Becker's assessment founds her study of the way Fijian culture shapes the experiences and meanings of embodiment: it also returns us to the insight that tattooing, as a way of making the body legible in culture, has meanings that are as much social as personal.[Ellis, Juniper *Tattooing the World: Pacific Designs in Print and Skin*. Columbia University Press, 2008.] In particular, it allows skin to be understood as a form of clothing, and clothing as a form of skin. In other words, skin can be understood as a canvas to be dressed up (as in ornamentation practices such as The Metaphor of Nudity as tattooing), and clothing can be understood as a second skin. Skin is thus a crucial border site in the shifting relation between nudity and clothing—a bodily site with great cultural, psychological and phenomenological import. Its cultural functions include acting as a marker of racial identity, regulating the opposition between the "inside" and "outside" of the body and, metaphorically, acting like a kind of shell or clothing, holding the body in place.[Barcan, Ruth *Nudity: A Cultural Anatomy*. Berg Publishers, 2004.] Mapping is a motif frequently invoked in writing on gender, race, and performance—skin as a text provides a particular type of terrain. Skin, as a tactile organ, is also a means of communication. One of the reasons that skin is such a rich site to explore, we believe, or one of the reasons that artists use skin, is that skin "signs" are coded in different ways, and sometimes in more ambiguous ways than traditional literary texts. Skin can be visually perceived as can any map, yet it can also be touched and penetrated.[Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.] Many even display accurate knowledge of the location and functioning of the muscles under the skin, so that the muscles and their actions are represented on the surface of the skin pictorially or rather graphically using systems of lines—a very remarkable phenomenon that demonstrates they have grasped and correctly understood ornament in its structural and symbolic sense. Does this justify the conclusion that this conception of ornament is the most original? Or should it rather appear to be a sign of a secondary cultural condition of the people among whom it occurs?[INPUT: Semper_Style_in_the_Technical_and_Tectonic_Arts_or_Practical_Aesthetics.pdf] Architecture Architecture is not only essential as shelter for people, livestock, and crops but is the most public of all folklike expressions, revealing, to those able to "read" the cultural landscape, clues about the background of the builders and how they responded to a locale's physical environment. 24 A folk building's tradition is expressed in its design and construction, the design resulting not from plans by a school-trained architect but from the builder's knowledge of an area's architectural repertoire as evolved over many generations.[Burris, John A. *Roots of a Region: Southern Folk Culture*. University Press of Mississippi, 2007.] Is skin all we have? In Re:skin, the authors conduct a multidisciplinary inquiry into such boundaries and borders of surfaces, of skin, by incorporating and implicating the metaphor, the physical—Introduction ity, and cultural narratives of skin. Skin is a metaphor for borders. Is skin surface or interior? Donna Haraway, for one, rejects the boundary condition established by such a binary: "Why should our bodies end at the skin or include at best other beings encapsulated by skin?" (1991, 178). In its complicated formulations, skin is both boundary and surface, a place where identity is both revealed and concealed.[Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.] The skinned body is less a body even than a skeleton, which we find it easier to reclode in flesh (there are plenty of dancing skeletons in story and ritual, but very few skinned bodies). The skin always takes the body with it. The skin is, so to speak, the body's face, the face of its bodiliness. The skinned body is formless, faceless, its face having been taken off with its skin. Where a leg, a liver or a heart remain what they are once removed from the body and may be imagined as continuing to function apart from the body which has formed them, the skin itself is no longer a skin once it is detached.[Connor, Steven *The Book of Skin*. 2009.] § 12 On Surface Figuration In Necropolis we find a close connection between the remains of the dead to illustrate how the principles of symmetry and proportion apply to vertical wall surfaces and hanging curtains—surface dressings with figures or designs. As already demonstrated, the principle of surface ornamentation arises from the basic idea of the surface as such and accordingly reaffirms it. At the same time, however, it follows from the uniformity of what the dressing encloses as a unity and a whole. The cover cannot present itself as undisturbed if the ornamentation on the enclosing surfaces seemingly prevents it from being a continuous spatial enclosure. [INPUT: Semper_Style_in_the_Technical_and_Tectonic_Arts_or_Practical_Aesthetics.pdf] 3. It can often take an inordinate amount of thought and effort to do things simply. And a highly developed

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3. It can often take an inordinate amount of thought and effort to do things simply. And a highly developed aesthetic theory: the more highly developed the aesthetic sense, the more subtle and simple the style, and the more arcane the code. 5. Style and taste are particular sorts of intelligence. 6. The style of studied nonchalance is the psychological triumph of grace over order. 7. In matters of taste, if you can see the trees well enough, you don't have to see the forest.[Boyer, G. Bruce *True Style: The History and Principles of Classic Menswear*. Basic Books, 2015.] One of the key issues of our time for all avant-garde designers, both Eastern and Western, is the reconciliation of art and the market, and how to do this without losing the integrity of the former. In one instance, for example, 'computer-driven mechanized looms are routinely interrupted so that tiny elements, like feathers or paper, can be inserted by hand.'[McClay 1998] By doing this, designers embed the meaningful matter of the hand with the poetic in their work.[English, Bonnie *Japanese Fashion Designers: The Work and Influence of Issey Miyake, Yohji Yamamoto and Rei Kawakubo*. Brown Journals Academic, 2015.] Not insignificantly, these newly constituted subjects made their debut within a new visual mode of recording observation. The visual technology and styles Burgkmair used to express these particularities also reflect the markers that tagged other contemporary expressions of empirical investigation. This style also established the rhetoric of empirical observation—even for circumstances where this was not the case. His mixture of empirically observed and non-empirically observed particulars suggests the makings of a visual technology that applied across the board.[auth.], Stephanie Leitch *Mapping Ethnography in Early Modern Germany: New Worlds in Print Culture*. Palgrave Macmillan US, 2010.] It is a change that has forced designers to explore other approaches to design, to look at the ways that design can be used to communicate the purpose and the meaning of an object, rather than to treat design primarily as a question of solving mechanical and technical problems. There is, however, one area of design that may still be considered to be in decline. The way that the functional model has maintained its grip. To ask about how an object can be made and used in ways that will minimize energy consumption and carbon emissions has allowed a new generation to rediscover the moral certainty of functionalism.[Sudjic, Deyan *B is for Bauhaus, Y is for YouTube: Designing the Modern World from A to Z*. Rizzoli Ex Libris, 2015.] It has taken longer to find a way to accommodate flat screens to the domestic environment. Hanging them like pictures on the wall with a dangling power cord is somehow too intrusive. The impact of digitalization in many areas of technology has been to diminish the traditional role of the designer as a sculptural shape-maker. Design has turned into something that involves a sequence of images on a flat screen, and developing a logical way to move through them.[Sudjic, Deyan *B is for Bauhaus, Y is for YouTube: Designing the Modern World from A to Z*. Rizzoli Ex Libris, 2015.] In the real world, pens and pencils don't necessarily represent cultural systems and values, but I believe that computers do. Computers run by relying upon zeros and ones, ons and offs, hard drives gridded out in block parcels, software constructed in distinct hierarchies. Computers contain nested structures within structures, each drawing from a different discipline: engineering to design, architecture to literature. Once we are faced with a paradigm, however, the underlying assumptions [1] 307 | Mary Flanagan | 1308 | Figure 15, 3 | Local New York design partners on which it has built become invisible.[Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.] It highlights the potential sexiness of the dress, which through being merely suggested and then immediately withdrawn, comes across as all the more enticing and addictive. Helmut Lang's fashion work shows skin at the expense of figure. It plays upon the theme of fabric as second skin. The received view of the sexiness of clothes rests upon an intentional exposure of skin as a clearly defined part of a clearly silhouetted figure. Clothes make people sexy by imparting significance to what is otherwise sensually meaningless, by transferring bare flesh into a code.[Vinken, Barbara *Fashion Zeitgeist: Trends and Cycles in the Fashion System*. 2005.] PAGE 2 FLOOR . . . staking the claim of civilization on the raw ground, encoding usage and assuming decoration, the floor then accrues complexity in its section while simplifying its surface details. . . . FLOOR PAGE 3 relative floor International Space Station — Domino House — No Stop City, Continuous Monument — Floor Area Ratio (FAR) false floor — Raised floor systems [INPUT: floor_elements_of_architecture_koolhaas.pdf] The textural details of previous occupants are kept intact 4. There is a map-like pattern on the concrete floor 5. It is a space of pure white 6. Different areas have different lightings 1. ████ 2. ████ 3. ████ 4. ████ 5. ████ 6. ████ 5 2 3 3 6 230 - 231 1. Reception 2. Waiting area 3. Cutting area 4.[Chang, Catherine *Beauty Salons*. LiaoNing Science & Technology Publishing House, Profession Design Press, 2011.] The primary concern of this text is space planning, not design presentation. Despite this, the language of space planning is the floor plan, and its graphic qualities cannot be entirely ignored. One of the premises of the planning methodology presented here is that the transition from the rough floor plan to the preliminary or presentation floor plan is part of the planning process, not just a graphic refinement.[Karlen, Mark, and Rob Fleming *Space Planning Basics*. 4th ed. Wiley, 2016.] Whenever a floor plan arrangement emerges in any stage of the planning process, some form of three-dimensional sketch, no matter how rough or tentative, can be useful. It is not necessary to debate here whether a solidly functional floor plan is more important than a visually satisfying space; both are crucial to well-designed and sustainable interiors.[Karlen, Mark, and Rob Fleming *Space Planning Basics*. 4th ed. Wiley, 2016.] "Thinking about how you move in and through a space is the key." Reorienting a layout can deliver great gains such as creating a dual-use for a storage room or maximizing storage, says Sydney interior designer Natasha Levak. "With a clever floor plan, you can ensure no space is wasted and the general feeling of the interior becomes not only practical but aesthetically pleasing." Levak recently remodelled an Art Deco apartment in Sydney's east.[*Australian House & Garden* 2017.] The above reconstruction of the iconic program and associations inside and outside the Golden Pavilion, to a great extent, is prompted by the architecture of the three-story building. As one moved from floor to floor, the iconography seems to have been the constitutive, rather than coincidental, part of the architecture, and together, they transform the building [Lin, Wei-Cheng *Building a Sacred Mountain: The Buddhist Architecture of China's Mount Wutai*. University of Washington Press, 2014.] And when I stepped onto the area of clean fresh floor in the art gallery I was concerned that I had maybe stepped onto something that did not have the same solid firmness as the proper floor.[Unwin, Simon *Doorway*. Routledge, 2008.] . . . the floor. That's right. The floor. It's typically the largest horizontal surface in the room and undeniably the most used. It's important to choose flooring that fits your taste, lifestyle, and budget.[Farris, Jerri *Kitchens & Baths for Today & Tomorrow Ideas for Fabulous New Kitchens and Baths*. Cool Springs Press, 2008.] 2. 1. Structure To provide a flat, horizontal surface on which desired human activities can take place, all buildings contain at least one floor. In primitive buildings, the ground may be used as the floor. In better buildings, the floor may be a deck laid on the ground or supported above ground on structural members, such as the joist indicated in Fig.[Merritt, Frederick S., and James Ambrose (auth.) *Building Engineering and Systems Design*. Springer US, 1989.] The walls are a large "plane." The sofa is a large "plane." The floor coverings and floor are large planes. My apartment might be a fun example to analyze . . . Our dining room and living room have zany painted floors—a deep beige color coupled with a crisp white to make a wild, but not too wild, checkerboard floor. The walls pull from the white in the floor—a quiet "plane" in contrast with the "pop" of the painted floors.[Salway, Christina, and Monica Pedersen *Home improvement projects for the busy & broke: how to get your \$hit together and live like an adult*. Skyhorse Publishing, 2016.] Different planes BLOCK PLane 27 his "project" is actually just a challenge: How Long and perfect a shaving can you make with a bLOCK plANE? ALL you need is a plANE and a nice clear piece of wood. But since controlling the board while pushing the plANE along one edge can be a challenge (particularly for a young carpenter), consider building the quick support we've described here.[Robertson, Craig, and Barbara Robertson *The Kids' Building Workshop: 15 Woodworking Projects for Kids and Parents to Build Together*. 2004.] For example, a marble runner within a wooden floor could form a 'pathway' through a hall and into a living space, perhaps continuing to the fireplace or window; or in a kitchen, dark wood set into a poured-resin floor could be echoed by a worktop or cabinets of the same wood. One of the joys of introducing contrasting runners is that it allows you to use luxury materials that in large quantities would blow the budget.[Huppen, Kelly *House of Huppen: A Retrospective*. Jacqui Small, 2016.] That said, it should be remembered that arbitrarily eliminating as many interior walls as possible will not necessarily result in a better space. While floor area and elbow room are inevitably gained, wall space is lost. This may affect the possibilities for furniture placement and storage options. Open-concept layouts are great so long as they truly correspond with the necessities at hand.[Shafer, Jay *The Small House Book*. Tumbleweed Tiny House, 2009.] Three-Dimensional Reality This text has focused and will continue to focus on the development of floor plan solutions. Do good floor plans always make for well-designed interiors? Obviously not. Yet planners often have a strong inclination to get so involved in the space planning process and its two-dimensional, jigsaw-puzzle-like qualities that the resulting three-dimensional qualities of the space become an afterthought.[Karlen, Mark, and Rob Fleming *Space Planning Basics*. 4th ed. Wiley, 2016.] Throw the covers on the floor or replace them with leather or satin. BEST POSITION Try them all and then learn some more. PROS The privacy of your home and the sky's the limit. CONS Beware of getting complacent and doing the same thing all the time. This is a sure recipe for boredom. 46. On the Bedroom Floor The floor is hard and cold even if you have carpet, yet it's incredibly erotic.[Hunt, Jennifer, and Dan Baritchi *1,001 best places to have sex in America : a when, where, and how guide*. Avon, Mass: Adams Media, 2010.] BEST POSITION Missionary or Doggy Style PROS You can do this one every day, CONS Don't slip on the wet floor, 165. On the Bedroom Floor (Yours or Someone Else's) The bedroom floor, yours or someone else's, is a great place for a quickie. Having sex on the floor always implies that you just couldn't wait for the bed, . . . □ JJJ & BEST POSITION Missionary or Doggy Style PROS Sex on the floor adds an extra layer of excitement.[Hunt, Jennifer, and Dan Baritchi *1,001 best places to have sex in America : a when, where, and how guide*. Avon, Mass: Adams Media, 2010.] The floor acts as a large radiator storing heat at night and releasing it during the day. This approach is expensive to run, particularly in poorly insulated buildings. It is also difficult to control and maintenance costs can be high if it requires

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The floor acts as a large radiator storing heat at night and releasing it during the day. This approach is *Ancient to In*, particularly in poorly insulated buildings. It is also difficult to control and maintenance costs can be high if it requires repair. CONST HOUSES FOUNDRYB/TEST 256 5/5/06 11:08 am Page 256 THE CONSTRUCTION OF HOUSES Electric floor heating also presents problems with the choice of floor covering. [MBEng, Duncan Marshall BSc MCIOB, and Derek Worthing BSc Mphil MRICS *The Construction of Houses, Fourth Edition*. 4th ed. Estates Gazette Ltd, 2006.] à terre [ah tehr]—On the floor; refers to movements performed with the working leg touching the floor as opposed to the air [see *Ground*]. [Citeographie : Histoire de l'art en images, 2013.] [107] either or the accompanist provides transitional music to allow groups to move in and out of the dancing space. *Mouvement*—on the floor. When you move across the foot cover by yourself, in a line, or with a group, you must be safe and courteous. Performing as an individual, the goal is to move across the floor either in one or two repetitions of the combination, passing [giving] a beginning point [champagne]. IL: *Juquin in Kinetics*, 2013.] Conclusions The wall is showing its age, but is generally in satisfactory condition. The face of the wall is vertical, indicating tipping has not occurred. Five problems occur to various degrees along the length of the wall. These are: Spall of the concrete from the face of the wall, spall of the concrete at the joints, deterioration of the cap of the wall, alkaliaggregate reaction and subsidence of the sidewalk behind the wall. [Editors], Paul A. Bosela 7 Norbert J. Delatte *Forensic engineering : proceedings of the 4th congress, October 6-9, 2006, Cleveland, Ohio*. Cleveland, Ohio, Reston, Va: American Society of Civil Engineers, 2007.] How the lapse of time affects ownership and usage of the wall. [auth.], Besim S. Hakim *Mediterranean Urbanism: Historic Urban / Building Rules and Processes*. Springer Netherlands, 2014.] The hanging wall has an apparent descent compared to the foot wall. [Gatscher, Jeffrey A., AIA Gary L. McGavin, and Philip J. Caldwell *Earthquake Protection of Buildings in the United States Using the Implementation Gap*. American Society of Civil Engineers (ASCE), 2012.] There is pattern. It has coherence. And even as a generalisation, it makes sense. Summerson's introductory remarks have always struck me as one of the more important aspects of his book. London was no longer an amorphous conglomeration spreading across the landscape, lost to its own history and to comprehension. Instead, one could read into it a patterning which — whether it was essentially true of not — helped one to understand what was going on, how the new intruded upon the old, what existed accommodated itself to change, and how that aged fabric once enjoyed layered horizons of relevance, one upon the other and all of it awaiting disentanglement on one's own terms. [Allinson, Kenneth *London's Contemporary Architecture, Fourth Edition: An Explorer's Guide*. 4th ed. Architectural Press, 2006.] He argued that structure is there within the wall, but the importance of the wall is the visible spatial enclosure. [Baydar, Gilsum *Negotiating Domesticity Spatial productions of gender in modern architecture*. 2005.] Practically, however, the two modes of action are always in some sort united. Again, the weight to be borne may either act generally on the whole wall surface, or with excessive energy on particular points: when it acts on the whole wall surface, the whole wall is generally supported; and the arrangement becomes a continuous rampart, as a dyke, or bank of reservoir. [Ruskin, John *The Stones of Venice: The foundations*. Smith, Elder, and co., 2013.] Where structure is not exposed but concealed, perhaps hidden within wall cavities, screened by suspended ceilings or undifferentiated from partition walling, it possesses very limited opportunities to enrich architecture. In these situations, where the architecture must rely on other devices and elements for its qualities, any skeletal, wall-like or expressive structural qualities remain latent — structure cannot be read. [Charleston, Andrew *Structure As Architecture: A Source Book For Architects And Structural Engineers*. Architectural Press, 2005.] To the interior, smooth wall inside-surfaces create pure interior space, while to the city, smooth wall outside-surfaces definite clear open spaces. So the designer abandoned all decoration on both sides of wall, try to create the atmosphere of pure spaces, in order to highlight the art works at the same time. [Yu, Jasmine *Museum Display Design*. Design Media Publishing Limited, 2012.] The museum was designed to show to best advantage its pictures —not itself. Goodwin and Stone entice visitors in with, instead of the usual awesome flight of steps followed by a puzzling series of closets for pictures, a glimpse of a garden behind an all-glass wall, and then surround them with art before they know it. Moreover, this pioneering building — fortified by a series of electrifying exhibitions — was to make "Modern" architecture (and art, design, and photography) acceptable, even fashionable. [Smith, George Everard Kidder *Source Book of American Architecture: 500 Notable Buildings from the 10th Century to the Present*. Princeton Architectural Press, 1997.] The significance of a wall's threshold qualities notwithstanding, a wall is empirically also a screen, or cover; a function of particular importance to medieval and premodern urban Arab-Muslim culture, with its traditional enclaustration and veiling of women. [O'Meara, Simon *Space and Muslim Urban Life: At the Limits of the Labyrinth of Fez (Culture and Civilization in the Middle East)*. 2007.] slate set in slate, is ; between the wall and the ground facing, which may serve as a passage round the building, and afford access to cellars outside, or the space may be formed into areas, presenting a convex wall to the earth, and abutting against the wall at the springing. Openings must be made through these abutments for the areas to communicate with each other, and to diminish the surfaces in contact. [The Decorator's assistant.* W. Gibbs, 1847.] From this perspective, structure is potentially an important architectural element — both as a source of light, where light passes through it or illuminates it, and also as controller of how and where light enters a space. When stone and masonry load-bearing wall construction dominated previous periods of architectural history, openings for light could be considered the absence of structure. [Charleston, Andrew *Structure As Architecture: A Source Book For Architects And Structural Engineers*. Architectural Press, 2005.] Chapter 8 investigates the relationship between structure and light, both natural and artificial. It illustrates structure's dual roles, as both a source and modifier of light, and introduces a number of different strategies designers use to maximize the ingress of light into buildings. Chapter 9 reflects on the symbolic and representational roles structure plays. [Charleston, Andrew *Structure As Architecture: A Source Book For Architects And Structural Engineers*. Architectural Press, 2005.] Whether you are going up or going down, a staircase takes you to another level and to somewhere new, so it is important that its design should both reflect and generate a sense of anticipation and excitement. Here, an elegantly curved staircase of moulded dark-stained timber and glass panels seems to flow through this London townhouse. The lighter wood treads and risers are covered with a runner of taupe wool carpet, edged with a darker shade of taupe for definition. [Hoppen, Kelly *House of Hoppen: A Retrospective*. Jacqui Small, 2016.] The elevated moving stairs and exciting lifts create a new art form (Figures 3. 18a and 3. 18b). The success rests upon the innate curiosity of people to ascend and move to brighter elements in the interior. Vertigo is combated by tinted glass balustrades, ledges and high-level handrailing. 3. 2 Accommodation stairs Accommodation stairs are de ned as additional or amenity stairs in excess of means of escape provisions. [Blanc, Sylvia, and Alan Blanc *Stairs, Second Edition*. Architectural Press, 2001.] How dull, in contrast, are intact stairs who stand with ease, paying no attention to the perfect state of their matter. Such stairs rise despite their steps. The function transcends the material. The material is instrumental to an overriding activity that pursues its goal without noticeable difficulty. A flight of stairs is but of fleeting interest, unless it is a new and remarkable form. [Ginsberg, Robert *The Aesthetics of Ruins: Illustrated by the Author*. Rodopi, 2004.] Our body's matter mounts upon the stairs' matter. We are both worn. We rise by some internal persistence that corresponds to the intemality of the function that keeps the stairs in perpetual tension. The stairs are ready for us. Their readiness draws us to them. We are ready for the stairs. Our readiness opens them to our participation. Since we have the potentiality of climbing stairs, and an intention to do so, the stairs give The Ruin as lunction PI. [Ginsberg, Robert *The Aesthetics of Ruins: Illustrated by the Author*. Rodopi, 2004.] Such stairs could be used as a way of asserting the separation between the gods and mortal men. They could, however, also be used in some instances as a method of human sacrifice, the victim pushed from the top providing a grisly reminder that stairs are as potentially deadly as they are useful. Stairs still hold cultural references. In films, characters attending parties usually arrive descending a set of stairs. [Campbell, James W. P., and Michael Tutton *Staircases: History, Repair and Conservation*. Routledge, 2014.] While approaching the top step, fire is lighting up over your head, and you see the firefighter victim within 3 ft of your reach. Whether a hoseline is available or not, the conditions can turn fatal at any second. It is at this point that the rescuing firefighter will grab any part of the victim, pull toward the stairs, and slide or tumble down the stairs to outrun the dropping heat. [Kolomay, Richard, and Robert Hoff *Firefighter Rescue And Survival*. Tulsa, Okla: PennWell, 2003.] They descended single-file, even though the stair was empty when they entered, so that anyone that attempted to come up the stair could pass them. Around the 10th floor, the person with her offered her part of his shirt to block out the strong smell of jet fuel in the stair. They then had to ascending up three levels due to further passage in that stair being impossible; the second stair had the same result of starting to descend before having to return to a higher floor and change stairs. [Hoskins, Bryan L., and James A. Milke (auth.) *Study of Movement Speeds Down Stairs*. Springer-Verlag New York, 2013.] The stairs and the human being, each in its way, has conquered servitude. [Ginsberg, Robert *The Aesthetics of Ruins: Illustrated by the Author*. Rodopi, 2004.] It was barely light the next morning when my stomach woke me and sent me stumbling down the stairs to the Alaq's cement water closet, my insides all knotted up. I passed a pair of miserable days in that hotel before I could force myself out of bed onto a bus back to Marrakesh, and quite a few days more before I was back in western civilization, with my beads, feeling like my old self. [Schweid, Richard *The Cockroach Papers: A Compendium of History Inv. Inc.* Bain Books, Inc., 1991.] Waking from dreams of long, winding tunnels, of the search for an opening that never appeared, tearing at stones with bare hands, lying prone in the clammy earth amidst worms and maggots, queer thoughts came uninvited. Waking from a nightmare race, thrashing the blankets, cursing, sweating and gasping for breath, fleeing for life, always his uphill, with the Jerries close behind; hearing their shouts merge into the crescendoes of the proselytising preacher in the echoing courtyard, then melt away into silence; no I not peaceful silence, but another sound, travelling upwards through the windows, along the searchlight beams, the pad pad pad of the enemy on his beat; at such a time a time men wondered if they were sane. [Reid, P.R. *Escape from Colditz : the two classic escape stories*. Philadelphia:

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"AND AWAY WE GO"

WRITING IMAGES

PICTURING TEXT AND Julian Besems

Waking from dreams of long unending tunnels, of the search for an opening that never appeared, tearing at stumps with bare hands, lying prone in the clammy earth amidst worms and maggots, queer thoughts came uninvited. Waking from a nightmare race, thrashing the blankets, cursing, sweating and gasping for breath, fleeing for life, always his uphill, with the Juries close behind; hearing their shouts merge into the crescendos of the proselytising preacher in the echoing courtyard, then melt away into silence; no I not peaceful silence, but another sound, travelling upwards through the windows, along the searchlight beams, the pad pad pad of the enemy a sentry on his beat; at such a time a time men would die if they could not be held? [H. L. Cappon, "Conditions and Obstacles to the Adoption of Glass in America," in *Architectural Record*, 1952.] We were suddenly buried in a slew of new questions that had us trying different ways to open the upstairs door to slam it such as opening and closing the exterior door with the static door opened and then closed. Though our efforts to replicate the door slamming event did in fact get the upstairs door to move nothing produced a result that came close to the door-closing we caught on video. [Old JeI Scott, *Costly Encounters: Confessions of a Paranormal Investigator*. Skyhorse Publishing, 2015.] A deadbolt turned, foot-steps faded; silence fell.[Praeger, Dave, and Paul Provenza *Poop Culture: How America Is Shaped By Its Grossest National Product*. Feral House, 2007.] This is particularly evident from the balcony, where the open window allows an unexpected view of the landscape from a vantage point within it. In all of this the window serves as the prop for discovering new and unexpected relationships between the inside and outside. This window, like any other, relies on mechanisms of operation, instruments of opening and closure.[Leatherbarrow, David, and Mohsen Mostafavi *Surface Architecture*. 2002.] Fundamentally, glass is hard, yet fragile and brittle.[Yglesias, Caren *The Innovative Use of Materials in Architecture and Landscape Architecture: History, Theory and Performance*. McFarland, 2014.] The polished surface receives the gaze and, through its invisibility, reflects fleeting images of the "other" world outside. Even with perfectly clear glass, the extent of this view is bounded because most glass panels require a frame. The neutral frame isolates the glass and what may be seen through it from its context (Ortega y Gasset 1986: 24). The frame turns the view into a "picture" and alters the nature of the spectator's gaze. In an essay called "Fear of Glass: The Barcelona Pavilion," the author says that glass allows eternal special currents to flow through space (Quetglas 2001).[Yglesias, Caren *The Innovative Use of Materials in Architecture and Landscape Architecture: History, Theory and Performance*. McFarland, 2014.] An ingenious device to siphon daylight deeply into a building, this glazed opening serves also to share illumination between rooms demanding acoustic separation, so as to spread light in a peaceful way, free of disrupting noise. Dining Room Window onto Kitchen Stair Church Family Dwelling House Hancock, Massachusetts Window between Kitchen Stair and Dining Room Church Family Dwelling House Hancock, Massachusetts Window onto Landing of Stair Spin Shop Canterbury, New Hampshire Closet Window Center Family Dwelling House Pleasant Hill, Kentucky DOUBLE WINDOW By guiding a portion of daylight directly across an intervening space, the double window illuminates two different rooms at once, ordinarily a perimeter stair and a room further inside.[Plummer, Henry *Stillness and Light: The Silent Eloquence of Shaker Architecture*. Indiana University Press, 2009.] To block out an undesirable view, use a stained glass panel the size of the window; to focus attention on the view, select a rectangular or curved stained glass frame around clear glass. Clear glass mixed at random with colored glass in a single panel gives a feeling of depth. A glass bird or foliage pattern complements houses plants or enriches a garden view. If your window has many small panes, consider replacing only a pane or two for a colorful splash of light. For a room with a double-hung or horizontally sliding window, you can create an especially rich feeling by designing each sash with different colors.[Windows & Skylights* Menlo Park, Calif: Lane Pub. Co., 1982.] Left: Dramatic window accents can be beautiful, but if too much light enters a room, furnishings can take a beating.[Stoehr, Kathleen S., and Charles T. Randall *The Window Decorating Book*. Charles Randall, Inc., 2009.] Le Corbusier decided to place different types of glass in these openings: clear glass, coloured glass, and glass painted with simple motifs, some of which bear inscriptions of praise to the Holy Virgin. The architect's decision to use clear glass and to splash only a few precise places with touches of colour corresponds to his wish to keep a tight rein on the use of light – a primordial element in the definition of the interior volumes. The colours employed are the same as those for the door: blue, red, yellow, green and violet.[Pauly, Danièle *Le Corbusier: the Chapel at Ronchamp*. Birkhäuser Architecture, 2008.] In designing architecture, you are not only designing a non-human, non-organic space; you are also dealing with a physiological, biological space. The interior atmosphere of a space affects us greatly, and if we don't get enough light, we fall ill. Our intention for the project was to shift our view of architecture from a non-organic, almost Cartesian one, to something more atmospheric. Anyone inside a given space is biologically entangled in that surrounding. Our starting point is that space isn't ÂØempty at all, but, invariably, has a particular atmosphere with its own biological, electromagnetic and chemical qualities.[Roessler, Sascha, and Madlen Kobi *The Urban Microclimate as Artifact: Towards an Architectural Theory of Thermal Diversity*. Birkhäuser, 2018.] The fact that the colour on the walls alters when a cloud passes over the sun and looks different throughout the day or even across the seasons is what makes the paint feel alive. It is this quality that gives an interior a unique sense of depth and atmosphere. Second, it is preferable to look at the colour in the correct light. If you are decorating a space used exclusively at night, such as a dining room, you may want to view the colour by candlelight. Third, it is often useful to see the colour in relation to the decorative scheme of an adjoining space – these subtle tones are best perceived in context rather than in isolation.[Studholme, Joa, and Charlotte Cosby *Farrow & Ball How to Decorate: Transform Your Home with Paint & Paper*. Mitchell Beazley, 2016.] But even under dullyovercast conditions the light has an incandescent quality, seemingly brighter than intuition would allow. Artificial light is not regarded as a merely functional night-time substitute for daylight and sunlight. From all viewpoints the interior is punctuated by hand-made, clear glass lamps, suspended from the vaults or spaced upon the walls. These are lit at most times, regardless of the quantity of natural light, and with their pin-point brightness, add a further dimension to the nature and meaning of the interior.[Hawkes, Dean *The Environmental Imagination: technics and poetics of the architectural environment*. Routledge, 2008.] The condition is exacerbated when the building's windows are glazed in tinted glass. Light and colour God created the heavens and the Earth in the very beginning..(and) God said 'Let there be light' (Genesis 1:1, 3) We shall do well then to consider this potential and beautiful principle of light and its concomitant colours, for the more deeply we penetrate into its inner laws, the more would it present itself as a marvellous storehouse of power to vitalise, heal, refine and delight mankind. Few realise that they are walled in by the limitations of the sense perceptions.[Saunders, Thomas *The Boiled Frog Syndrome: Your Health and the Built Environment*. 2002.] Light is one. It only appears multiple and diverse because of the intervention of darkness which lacks intrinsic reality. Without light there is pure nothingness. Yet according to another point of view, darkness is the state of differentiation (at 'iima). Correspondingly, light is the principle of manifestation. There is a Hadith: "I was a hidden treasure, and as I wished to be known, I created the world." Now I wish to offer an additional remark as to the definition of the symbol. We have to distinguish clearly between the sign which is a simple indication and the symbol which involves great complexities of meanings.([Editor], Jonathan G. Katz *Architecture as Symbol and Self-Identity*. Aga Khan Award for Architecture, 1980.) In his analysis of Husserl's The Origin of Geometry, Derrida invokes Ricoeur's analysis of Husserl to note that the root of this contrariness lies in the distinction, and clear but tense relationship, between intention and intuition [Derrida 1978: 140, n. 167]. Intuition operates without intention. However, its own grasping ghosts the very same serial mode of encounter and relaying of significance that is hoped for by the methods of fulfilling intention. 4 That is to say, the instrumentality of intention more often than not requires a series of moves to convey such intent; this is akin to intuition in that it too operates by grasping things in series.(auth.), Robert Kirkbride, and Robert Kirkbride (eds.) *Geometries of Rhetoric*. Birkhäuser Basel, 2010.] This study has provided an initial attempt to open the door. Acknowledgements This chapter is based on a presentation with Chris Cléirigh at the Semiotic Margins conference at the University of Sydney in December 2007. I extend my utmost appreciation to him for his help and contributions to earlier drafts of this chapter.[Edited by Shoshana Dreyfus, Marec Stenglin, and Susan Hood *Semiotic Margins: Meaning in Multimodalities*. Continuum, 2011.] The element to which Tschumi turned was time. In the Parc de la Villette project, especially, the grid and follies upon which the park is based do not represent a dispersion of the body via a decentering of modernist form so much as an attempt to create events in space: At a conceptual level, randomness can be better applied to events, actions, and programs than to physical form itself. So at La Villette the system of physical forms is there to allow the random—the event—to take place. 71 Tschumi's notion of architecture as "space, event, and movement" is an extension of Johnson's claim that architecture exists in time, not space.[Waldrup, Shelton *The Dissolution of Place: Architecture, Identity, and the Body*. Ashgate Pub Co, 2013.] But the new medium does not necessarily facilitate reading. One of the major obstacles hypertext creates for the activity of reading is to be found in its effect of decontextualization, when this effect is not mediated by the text or by the reader's cognitive activity. Indeed, there can only be reading if the elements to be decoded are subjected to the test of comprehension. And, as we have seen before, to comprehend a piece of information implies that one can relate it to a context of reception so as to look at it in light of what is already known.[Vandendorpe, Christian *From Panvum to Hypertext*. Urbana: University of Illinois Press, 2009.] Their co-presence announces both the site and the project of architectural theory. The way for the interconnection to be established and thus to link through mobility and to describe it through it and to do form. Digital reproducibility within design opens an importantly new domain of activity. Design now has a relationship to the potentially within software programmes. Design now has modelling abilities—abilities that encompass everything from urban topology to the structural capacity and Plus ça change, Plus ça change 29 possibility of space frames—which it had not had hitherto.[Benjamin, Andrew *Writing Art and Architecture*. 2010.] The space so expressed is not one internal to a frame or closed system - such conceptions of space always lead us back to an image of a static or firmly bounded system, from which nothing escapes and in which everything is firmly anchored in place (contained in co-ordinates) and subject to illumination and observation (the

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DISS. ETH NO. 31803

WRITING IMAGES AND PICTURING TEXT

An Architectonic Playground Between Digital Multimodalities

A thesis submitted to attain the degree of

DOCTOR OF SCIENCES

(Dr. sc. ETH Zurich)

presented by

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ABSTRACT

Plans, sections, elevations, perspectives, diagrams, renders, animations. All modes of communication familiar to architects, all conveying complementary aspects of a design. How do we engage this multimodal reasoning onto the interplay between digital multimodalities? This thesis stages an experiment in turning architectural method onto the digital by making the writing of the thesis its method; images and texts are handled as materials; the editor as an instrument that makes their multimodal relations workable. Proportion is set as its operative measure; distances between modalities are kept and spanned through casting, projecting, indexing, and composing rooms of attention. In this setting, associations and content accrue by arranging differences, holding them in view, and positioning them across contexts. Every page is both the record and the result of continuous multimodal negotiation.

Central to this instrument is a public–personal scale distinction. Public, generic corpora of millions of books and images provide capacious image and text screens to project onto; personal, deliberately small multimodal corpora, constructed as authored series, situate a viewpoint, proportioning the public field through curation. Films are adopted as the principal multimodal construct because they natively hold image and text together without presuming equivalence; time-coded frames and subtitles offer a ready-made support for proportionate projections. Rather than seeking semantic alignment between image and text, the work embraces their structural non-equivalence as the architectonic condition in which the instrument cultivates tuned correspondences that keep unlike things working together. Computation furnishes the numeric substrate; architectural method composes limits so relations become legible constraints rather than opaque scores. Throughout the writing process, the editor continuously replies: suggested passages (text) and resonant figures (image) appear alongside the draft, making abundance playable rather than merely searchable and keeping context immediately at hand. When writing pauses, projections from the current text to the image corpus activate, sustaining a continuous exchange between modalities. The content kept from its replies maintains a trace to the context from which they were chosen, opening up the process to the reader. The included material acts as a digital ornament, a communicative surface where procedure and choice are visible together.

Within this playground of information, the thesis unfolds in two movements. One articulates the instrument, its screens, indices, and projection chain, and frames a practice for keeping abundance close to the act of writing. The other performs with it, carrying invariants across casts to show how figures and paragraphs re-proportion one another. Together the work sets out to make multimodal machine learning discussable from within architectonic process, introducing interior structure into compressed informational spaces; and maintaining traceable subjectivity. Architecture, taken as method, thus recovers its multimodal intelligence in the digital, articulating how public projections are shaped through personal curation and how these relations constitute the work’s continuous interaction.

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My deepest thanks go to Professor Ludger Hovestadt for exposing me to a new set of ideas and a stance towards architecture that has made the last several years exciting, at times daunting, but always engaging and inspiring. I would not have been able to approach this research in this way without his support, enthusiasm, and encouragement to explore ideas. I also wish to thank my co-supervisor, Associate Professor Roberto Bottazzi, for rich advice and new perspectives through patient exchanges, and for supporting me in conducting this research alongside teaching at The Bartlett. I am grateful to Professor Vera Bühlmann for opening up a new world of theory to me.

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Thanks to Joe for always being a great friend and for the final, last-minute proofreading. I am especially grateful to Lili, for generous readings of many drafts and for companionship through the stressful stretches. Finally, I would like to thank my father, Thijs, and my mother, Gerry, for their unwavering support throughout this journey, and always offering a listening ear.

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PREFACE

The PhD thesis presented here revolves around the process of writing it itself. Not because the writing simply reports three years of research, but because the culmination of the research is the process of writing this. The particular interest is in the writing as an operation. From an architectural research perspective, this parallels an interest in designing as a mode of thinking rather than in the object alone. The reason for mentioning this at the outset, is that the text editor in which this thesis was written is designed and developed itself, as a response to the journey of engaging with the PhD research. What follows is simultaneously an account of that work and material produced by it; the reader is asked to engage this relation, where text is both explanation and outcome. Closer to walking through a building than receiving its plans in advance.



writing — iterate,cataloguing,twittering,curating,housekeeping,editor,furnishing

This prompts the next disclaimer which is to say that even though this is very much a thesis that situates itself within the discourse of architecture, it will not primarily discuss architecture as is. It is instead more interested in understanding architectural ways of thinking and transferring these to how we approach computational processes. It seeks to apply architectural methods to computational entities instead of using computational means on architecture. In this process **text** and **images** are the principal materials.



3 — telephone,doorbell,calling device,router

"Hence the challenge for the composer, who refrains from making use of all the resources of his art until they are developed in Valéry's story of Amphion's touch. The same is true for architecture, which at first was to be presented more as a simple exercise of movements and combinations than of structure or composition. In the same way that music retrospectively reflects itself in its own architecture, architecture projects itself in its own generative, not to say musical, process."¹



architecture — monstrance, theological, cassock, royalty, religious, crown, risen, priesthood, benediction, pontificating

"In this sense, Derrida is right to say that "from its ancient beginnings, the most basic concept of architecture has been constructed." However, why would one not add (and why did Derrida not add) that this concept had been architectured, as is suggested by the lovely formula that insists that there is an "architecture of architecture?" It is not only because the verb architecturer—which entered the French language soon after the distinction was made between architects and engineers—has to be handled with caution, signifying (if I am to believe the Petit Robert dictionary) "construire avec rigueur: " Rather, the reason should be sought on a deeper level, somewhat approaching the heading "architectural culture": architecture as a fact of





culture, culture as inhabited by architecture as much as it inhabits architecture, culture informed by architecture as much as it informs architecture.”²

Another attitude that I should address is the use of AI in this thesis. The entire work is written inside its own text editor, an instrument explicitly designed to incorporate and rely on AI, so it will not be surprising that much of the thesis was written in conjunction with various AI tools. ChatGPT was used as well, but as an outside companion, more like a (slightly sycophantic) friend that's once in a while asked for editorial support (e.g. review text, check spelling, grammar and phrasing), in contrast to the co-writing relation in which the other tools have been engaged with. This is also immediately a way to say that throughout the work you will constantly find ways to contextualise what is presented, almost like a digital foldout page that opens by clicking the quote or image. This stands in contrast to the world of ChatGPT where these contextualisations are not immediately present; yes now there are links (sometimes), but these show where the rephrased context comes from. Instead here the context is not a justification of what is there, it shows the environment from which it was chosen and observed. For an architectural gesture this feels more natural, and fits within the advocacy of a multiplicity, which forms a major thread in this thesis. Throughout the thesis the colour **RED** denotes the text/writing/conversation domain, and **BLUE** denotes the image/figurative/visual domain. In more detail, **red** quotes are citations that were kept from suggestions based on content, **magenta** (the modern digital friend of **red**) marks quotes selected from suggestions based on a generated text continuation (that we never see itself - the reverse of GPT); **blue** captions indicate the images provided based on content.

Throughout the thesis, these quotes and images are included based on a personal curation, choices I made from presented contents based on the state of the writing at that moment. In the majority of the writing, they are treated as a commentary on the text, a stream of resonant information from the digital plenty, sometimes a counterpoint, other times a compatible statement, or simply a context in which the argument feels at home. This role of a digital ornamentation is how they are given a place throughout chapters 1, 2, 3 and 5. In the following chapter 0 and chapter 4 this relation is turned around. Here the playground of this information is grounded, and forms the material that shapes the content. In chapter 4 in particular the writing activity is instead only a navigation to shape these materials. For a more in-depth description on these methods, chapter 3 will describe the editor's setup in detail, here I just indicate how to read it.

In each later chapter the input texts change, curated by me to shape the contexts of references. These choices are included as a footnote at the bottom right of each chapter, with in the footnote a link to the full spectrum of references, like this:



3 — scribbling, collaborator, tagging, painter, collecting

Finally, a short word about the layout you have in front of you. It is the direct export of the editor's last code addition, still in part underdeveloped. There are odd moments (a caption separated from its image on the previous page, a stray blank page) that testify to this 1:1 correlation with the working screen of the past months. These can be refined; for now they remain visible in the form that almost directly mirrors the editor, so that the reader can share in the process that produced the work.

"These strategies build on different premises and imply different research methods. In my view, we should not be too puritanic in the use of these research logics, as they are complementary rather than mutually exclusive."⁴



1. *Noah's Ark: Essays on Architecture, Hubert Damisch; Anthony Vidler (ed.), 2016.*



2. *Noah's Ark: Essays on Architecture, Hubert Damisch; Anthony Vidler (ed.), 2016.*



3. The input pdfs for this chapter are pieces of my own writing: An abstract submitted for a conference presentation at *UNLEARNING; The Image Act: Art An Mathematics*. in Buti Italy; A Paper submitted to *Frontiers of Architectural Research*; The Doctoral Research Plan I submitted after the first year of the PhD - [Book Context Link](#)



4. *Designing Social Science Research, Oddbjørn Bukve, 2018.*



0 OF TEXT AND IMAGES

Adopting the stance of applying architectural method to data, I begin with a small demonstration of how the included associations that stem from this approach can be read. The two modes of information that stand central, and dominate today's informational landscape, especially with the rise of AI, are **text** and **images**. The methods in turn revolve around the acts of *writing* and *picturing*. Throughout the thesis, this interplay between domains runs alongside the text. In this chapter, I situate the instrument directly within these domains to show how it moves between them, aiming to give a sense of how the included writings and picturings throughout the thesis can be understood.

Throughout the thesis the primary multimodal cast is constructed from 216 films, which also affords the possibility to draw frames from their figurative contents. In chapter 3 this is explained further.

The two subsections that follow show that cross-domain associations are contextual and associative, rather than descriptive. I do this first through a non-theoretical lens, before the theoretical writing that follows. Because this chapter is in part on *writing*, the text context of this entire chapter is curated through two inputs chosen for my personal affinity to the *writing* by these authors: *Chronicles* by Bob Dylan and *Norwegian Wood* by Haruki Murakami. The motivation for this choice differs from other chapters where the selection is concerned primarily by **what** the contents of the input are, instead of **how** they're written.

[1](#)

-
1. The input pdfs for this chapter (including 0.1 and 0.2) are: Murakami, Haruki. *Norwegian Wood*. Vintage, 2003. ; Dylan, Bob. *Chronicles: Volume One*. Simon & Schuster UK, 2005. - [Book Context Link](#)



0.1 Writing

To take a look at how writing operates, I start with the word *writing* itself. Within the multi-modal cast of the editor (the 216 films), the word *writing* sits amongst these textual and figurative indices¹:

writing, write, writer, wrote, read, novel, could, started, finish, editor, like, thought, honest, ask, day, missed, important, since, story, changed, nothing, hunger, year, travel, first, dare, tear, manage, husband, today



Figure 0.1:1 - Projection of the word **writing** onto the text domain of 216 films (Click to enlarge)

obstetrician, interpreter, complicity, flamenco, chatty, gynaecologist, diagnosis, swatch, domesticated, checkup, ophthalmologist, clinical, mirrored, enrolled, bypass, ceramicist, signora, hora, wallpaper, receptionist, pathological, clad, dentist, iris, dermatologist, aromatherapist, gynecologist, tonsillectomy, organise, overhearing



Figure 0.1:2 - Projection of the word **writing** onto the figurative domain of 216 films (Click to enlarge)

One choice from the passages offered by the text editor on *writing*'s textual indices, drawn from a collection of books curated through the input books for this sub-chapter:

"We'd left Japan so abruptly that I had completely forgotten to bring any books. I read two novels I'd picked up at the airport, and a copy of Aeschylus' tragedies Izumi had brought along. I read them all twice. To cater to tourists, the kiosk at the harbor stocked a few English paperbacks, but nothing caught my eye. Reading was my passion, and I'd always imagined that if I had free time I'd wallow in books, but, ironically, here I was—with all the time in the world and nothing to read. Izumi started studying Greek."²

Then projecting this text onto images and film frames provides the following figurative context:



0 — oeuvre, organizing, literate, booklet, conservatoire, manifesto, bookcase, collecting, correspondence



1 — carryall, strapping, monogrammed, handling, zipper



2 — poem, reunited, admirer, communication, communicating, newsletter, domesticity



3 — tram, cabstand, leaving, suitcase, plainclothes, shelter, walking





book — rereading, pyjama, bookcase,
bedstead, book, chartreuse, notebook,
squeezebox, paperback, studying, styling,
signora

3



station — backroom, three, newsman,
laboratory, loft, cooperate, station, secretary,
coordinate, bureau

4

Now continuing from the quote above, and selecting another quote based on how writing might continue from there:

"Life went on. I drifted away from my very lovely twenty-year-old girlfriend and packed for a cross-country road trip. I'd recently purchased a small cottage in the Hollywood Hills and figured I'd winter out west in the California sunshine. This was the trip where the ambivalence, trouble and toxic confusion I'd had volcanically bubbling for thirty-two years would finally reach critical mass. The Trip It was a '69 Ford XL with a white ragtop, sea green and Cadillac long."⁵



critical — curved, grand, edged, founded,
narrow



fictional — sailboat, melange, harbour, ferried,
yacht, maritime, seaport, ashore, sailing,
docked, moored, sailor, ahoy, navy, sail



trip — plainclothes, driveway, detour,
neighborly, pedestrian, hereditary, cornering,
hairpin



0 — launderette, referenced, quarantine,
apartment, entrance, elevator, nonparallel,
contamination

6



1 — thirsty, juicer, poured, glass, seltzer,
tasting

7



2 — gargle, sleeveless, drunk, sneeze,
tearfully, sip, smoker, tequila

8



3 — pedestrian, shortcut, scenery, junction,
jog, detour, indicated

9



4 — cuddle, lesbian, hug, chemistry, teenager,
teen, cuddled, elope, casually, promotional,
fond, hugging, reuniting, domesticity, hugged

10

- - -

Clicking each quote reveals what the search was based on and, in the case of the magenta quote, what suggestion was generated (in italics) given the selected inputs.

This contextualisation to the figurative domain is performed in two ways:

- *Paragraph → Figurative Scenes* : The entire paragraph activates the figurative screen from which multiple *scenes* are distinguished, numbered according to prominence

- *Keywords → Figurative Scenes*: The central words each activate the figurative screen, each then selecting one *scene* that has affinity to the other keywords.

For each scene I chose one image, but clicking on the image offers an insight into the full collection of choices. The first passage by Murakami was projected through paragraph to images, and by words to film frames, and the other way around for the following magenta passage by Springsteen.

Notice that the last image of Murakami has *station* as the textual keyword word even though the paragraph does not mention a station. This is because one of the central words in the passage, *kiosk* doesn't occur in the multimodal textual vocabulary, so therefore the editor replaces *kiosk* with *station*, the most related word within the chapter's book references.

1. The figurative blue tags of images could have been numbers. They are not precise translations; they are an alphabet of a few thousand recurring indices through which images can be traced, re-found, and argued. Their value is mnemonic and navigational rather than ontological. And when they are wrong in the translational-semantic sense, that wrongness often mirrors the wrongness of the source labelling; traceability cuts both ways.



2. [Murakami, Haruki *Blind Willow, Sleeping Woman*. Vintage, 2007.](#)



3. *Dark Habits (Entre tinieblas)*, Directed by Pedro Almodóvar (Tesauro, 1983), Blu-ray. — 37:45



4. *Tokyo Story*, Directed by Yasujiro Ozu (Shochiku, 1953), Blu-ray. — 1:03:56



5. [Springsteen, Bruce *Born to Run*. Simon & Schuster, 2016.](#)



6. *The Man Without a Past*, Directed by Aki Kaurismäki (Sputnik, 2002), DVD. — 1:03:14



7. *Match Point*, Directed by Woody Allen (BBC Films, 2005), Blu-ray. — 9:26



8. *Fear and Loathing in Las Vegas*, Directed by Terry Gilliam (Universal Pictures, 1998), Blu-ray. — 6:30



9. *Pierrot le Fou*, Directed by Jean-Luc Godard (Les Productions Georges de Beauregard, 1965), Blu-ray. — 1:16:00



←

10. *Requiem for a Dream*, Directed by Darren Aronofsky (Artisan Entertainment, 2000), Blu-ray. —
1:08:06

←

0.2 Picturing

For picturing I start from an image rather than a word:



Figure 0.2:1 - Photograph by Tim Walker for British, Mexican & Latin American Vogue, 2019 [L](#)

The figurative and textual indices that it primarily resonates with are:

matador, bullfighting, bullfighter, flamenco, castanets, bolero, gyrating, choreography, outfit, salsa, pose, decor, adorned, bacchanal, adore, collaborator, liaison, vase, decorate, menorah, strut, shimmy, belladonna, catwalk, carousel, knickknack, mambo, dance, banner, decorating



Figure 0.2:2 - Projection of the image in Fig. 0.2:1 onto the figurative domain of 216 films
(Click to enlarge)

love, enough, worry, leg, look, dare, alone, free, let, cry, promise, act, like, together, day, learn, make, tell, tear, worse, brought, woman, give, happy, hope, forget, strong, turn, bring, fall





Figure 0.2:2 - Projection of the image in Fig. 0.2:3 onto the text domain of 216 films (Click to enlarge)

First we look at the associations the image makes within the figurative domain (image to image projections are not integrated in the text editor, so the images are not individually clickable):

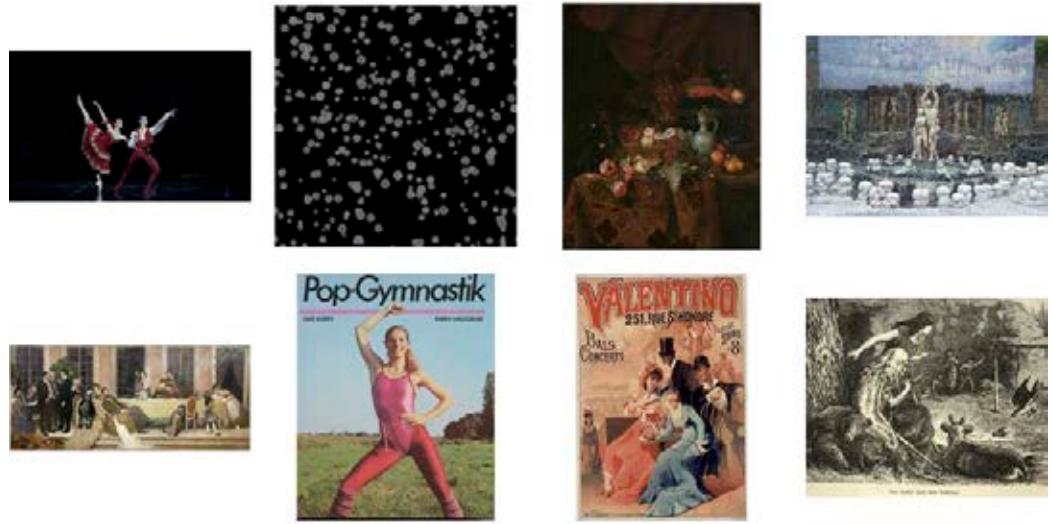


Figure 0.2:2 - Images from the PD12M domain associated to Fig. 0.2:1 through the following label combinations: 0. bolero, castanets, dancer, flamenco, conservatoire, matador 1. accumulating, bubbling, hemoglobin 2. jewellery, pomegranate, decorate, hamper 3. unravel, rapture, bacchanal, homage 4. peacock, rendezvous, thanksgiving, tapestry 5. gymnastic, jumpsuit, kinky, whipping 6. harem, opera, bullfighting, monsieur, parlor, corset 7. grotto, summoning, sorceress, elf (Click to enlarge)

Now from the textual indices the following is a selection of passages that are presented as conversations suitable in the context of the given image:

"I knew better than to mention that to my strict Christian mother. But I loved music and craved it, especially Bo Diddley, Motown, and salsa. I often danced in front of my mirror for six hours





*at a clip. Diddley had fused a 3-2 clave with rhythm and blues, and rock and roll. A Bo Diddley beat was a clave-based motif, clave being the name of the patterns played on two hardwood sticks in Afro-Cuban music ensembles. This syncopated accent on the “off beat” was perfect for the click-and-slip of my pelvis as I bopped around my bedroom dance floor in my early teens.*²



*"Now the Young Lion added an American-Indian concha belt, cowboy boots and a black gangster hat (complete with a metal skull-and-crossbones motif), all of which he wore with a complete lack of irony. He also bought a solid-gold microphone which he liked to carry from gig to gig. His clothes, like his lyrics, were full of allusion and metaphor – chic, uncompromising and sexy. Today it is commonplace for pop stars to use their music as a vehicle for indulging their ego."*³



*"I baptized myself in Parisian blood. Felt glamorous history in the air; got to know the vivid legends: Josephine Baker becoming such a decadent, amoral diva, dancing the Charleston at the Folies Bergère in the 1920s, wearing a banana tutu designed by Jean Cocteau; the cabaret, the glorious excess of the nightlife; the honking, sizzling Paris jazz; the boys dressed as girls; the dazzling dancing girls loving to show themselves off and be treated as artists, not tarts. The great French singers Jacques Brel, Juliette Gréco, Édith Piaf, and Serge Gainsbourg were all melancholy and melodramatic romantics, but also geniuses at representing erotic sensuousness through music."*⁴



*"Then it was Zaghloul's turn. Zaghloul was a real dancer: slim and lithe as a cat. He undid the grey scarf that he usually kept knotted around his skullcap and tied it tightly around his waist. Someone was beating a difficult rhythm on the disht now, slowly to begin with. The first line of a song rang through the courtyard – dalla'ya'áris, ya abu lása nylo – and everyone roared their approval, for what better song could there be to sing for Zaghloul with his youth and his fine, bright face than one which told of the joys of bridegrooms?"*⁵



*"She stared, unable to move. One of the hooded faces turned toward her as his enormous horse, its hooves sparking fire, cleared her potato rows. The rider's face was gaunt, bony, his hair in many long braids, their ends secured around clattering bones. He wore a crown of gold; its great jewel reflected fire the color of a splash of blood. White moons in the rider's eye sockets flashed at Leta; he opened his jaws wide like a wolf and laughed."*⁶



*"Today, it was "Singing Through the Pain." It had been unwise to jiggle braless for seven hours. Everything hurt. That was when I heard someone else singing, and snapping his fingers, too. Every once in a while there was a little shuffling sound, like someone practicing a soft-shoe. "Chupa, chupa," sang the voice. I was not sure what that meant. "Chupa la paleta, chupa la, chupa la paleta, chupa la..." I turned around. My serenader was five foot zero, whitehaired, and Latino. He looked like a doll, costumed in a fancy pleated-and-embroidered guayabera shirt, pressed slacks, and a dapper straw hat."*⁷

1. <https://www.timwalkerphotography.com>



2. Rowlands, Penelope *The Beatles Are Here!: 50 Years after the Band Arrived in America, Writers, Musicians & Other Fans Remember*. Algonquin Books, 2014.



3. Jones, Dylan, and Jim Morrison *Mr. Mojo: a biography of Jim Morrison*. Revised edition. United States: Bloomsbury Publishing, 2015.



4. Jones, Grace, and Paul Morley *I'll never write my memoirs*. Array, United States: Gallery Books, 2015.



5. Ghosh, Amitav *The Circle of Reason*. Mariner Books, 2005.



6. Hartwell, DG, and K Cramer *Year's Best Fantasy 5*. Eos, 2005.



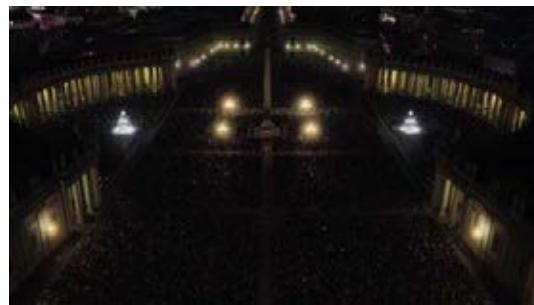
7. Headley, Maria Dahvana *The Year of Yes*. Hyperion, 2006.



1 INTRODUCTION

"The emergence of architecture as a professional class seems to have at least some relationship to emergent complexities themselves. One hundred fifty years ago, it was the requirement of literacy that could distinguish an architect from a common mason. In more recent history, it was a literacy in complex code and building systems that could distinguish the architect from his associates in the building trades. When technology surges, the role of the architect is validated.

The last twenty-five years stand as an exception to the historical rule."¹



architecture — massive, billion, arena, marched, protesting

2



computer — enterprise, cockpit, automated, microprocessor, computing, electronics, microchip, altimeter, teleprinter, programmed, code, reactor, projectionist, spacecraft

3

This thesis is written from within architectural discourse, but it does not take buildings as its primary object. It asks how architectural modes of mediation, working across registers, scales, and representations, are being reshaped by the way the digital currently hosts architectural information. The critique that follows is therefore not a dismissal of practice, but a diagnosis of what the dominant digital construct privileges, and what it relegates elsewhere. A first step is to trace the varieties of information architects have historically engaged with, and how these are currently hosted within the digital; in terms of encoding and interaction. If computation now carries part of architecture's literacy, what would it mean to design computational instruments that extend architectural operations rather than merely modelling architectural objects?

"Printing and the advent of comparative linguistics were far from the sole challenges to architecture's cultural significance, but the questions of means and meaning inherent to these two metaphors touch on the most pressing issues that architects faced then, and still struggle with today. Cockerell's conception of ornaments effectively challenges the static interpretation of



*these metaphors, and this chapter traces how a passive reading of the building as text can lead to an active experience mediated by the building's ornaments at work."*⁴



7 — steelworker, stepladder, substructure, ironwork, chained, rigging
5

*"The idea of "architecture for architecture's sake" that we hear from Hans Hollein and Arata Isozaki has much in common with this logoscentrism. The architecture with a capital "A" that Isozaki advocates, architecture as form, Noam Chomsky's deep linguistic structure and universal grammar are all examples of logos-centrism and the universality that characterized the age of the machine."*⁶



1

-
1. Cesal, Eric J. *Down Detour Road: An Architect in Search of Practice*. The MIT Press, 2010.



2. *The Young Pope S01E02*, Directed by Paolo Sorrentino (Wildside, 2016), Blu-ray. — 45:30



3. *Blade Runner*, Directed by Ridley Scott (The Ladd Company, 1982), Blu-ray. — 44:20



4. Bordeleau, Anne *Charles Robert Cockerell, Architect in Time: Reflections Around Anachronistic Drawings*. New edition. Ashgate Pub Co, 2014.



5. *Ikiru*, Directed by Akira Kurosawa (Toho, 1952), Blu-ray. — 2:17:36



6. Kurokawa, Kisho *The Philosophy of Symbiosis*. 2nd. 1994.

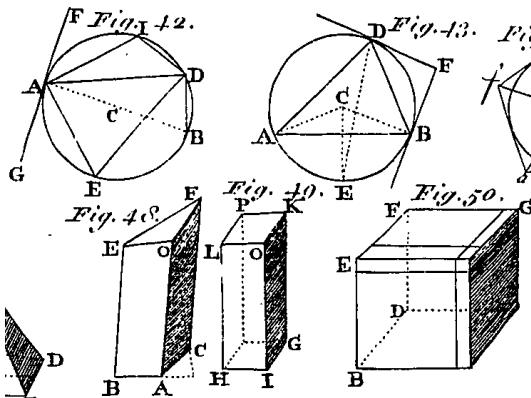


7. The input pdfs for this chapter are: Valéry, Paul. *Collected Works of Paul Valery, Volume 4: Dialogues*. Princeton University Press, 1989. ; Koolhaas, Rem. *Delirious New York: A Retroactive Manifesto for Manhattan*. New Ed edition. Monacelli Press, 1994.- [Book Context Link](#)



1.1 CHALLENGE

“Nothing inevitable links the concavity of my nose with the convexity of my forehead. And yet your hand is no longer free to stray about on the wall; now ‘you will’ something and impose upon your drawing this law from without: that it must reproduce a given form.”-Valéry¹



nose — pie, figuring, placing, calculate, flat

The internalisation of architectural design within computational models has facilitated the linear connection between models of architectural communication. As such the communications (plans, sections, scale models) are increasingly routed through a single, coordinated definition, rather than negotiated by the designer across partial media. This results in a compulsory simplicity that through ever more added details gives the suggestion of complexity. What looks like the accumulation of complexity is often a complexity of specification, not of thought. The point is not that these other registers disappear from practice, but that they rarely persist as first-class objects inside the coordinated model: they survive as briefs, meetings, annotations, references, and tacit judgement. They remain attached to the project, yet weakly encoded and therefore hard to carry forward, compare, or replay. This pipeline privileges what can be discretised and verified in a single model while relegating modes of architectural reasoning that operate atmospherically, culturally, historically, and theoretically to secondary media, present but not operable. In Revit or ArchiCAD, design decisions tend to appear as parameter choices within a coordinated model; construction phasing, energy performance, and clash detection are integrated, but the model’s very coherence marginalises sketching, misalignment, and contradiction as noise. An atmospheric intent is often developed through reference images, fragments of text, film stills, and material tests. These can accompany a BIM model, but they are not native objects of it: they do not update with the model, do not participate in its constraints, and are difficult to preserve as an operative part of decision-making. In other words, the model has become the law “from without,” and the project is too often asked to reproduce its given form.

The process of symbolic representation involves a ‘double function’. That is, Kant says, reflective judgment first must find the aesthetic idea (the concept of a sensible object that will serve as the rule or guide for reflection) and second, it must transfer the rule for reflecting upon that manifold sensible intuition to reflection upon the rational idea. The resulting reflection does





not of course, determine the rational idea, bringing the object of that idea into existence, but it does represent it in sensibility in a variety of new ways.²



computer — stratosphere, blastoff, futuristic, sputnik, technological, futurism, reactor, spacecraft

Of course it is important to recognise that this internalisation is not simply a loss. As Mario Carpo notes on the "*digital revolution*" in architecture: "*digital technologies, now ubiquitous, have already significantly changed the way architecture is designed and made.*"³ The Cartesian 3D model, coordinated through CAD and later BIM, realises in an unprecedented way the modern ambition to treat architecture as a notational practice: a design that can be transmitted, replicated and fabricated at a distance. In Carpo's terms, "*Contemporary cad-cam technologies have simply obliterated the notational gap that for centuries kept design and construction apart. Each cad file contains the precise and univocal denotation of the position in space of each geometrical point that composes a building*" and "*architecture may have finally attained full allographic status*".⁴ This chapter is therefore not a rejection of the 3D CAD model as such, but the risk that its success as a geometric notation is mistaken for completeness: that the calculable becomes conflated with the architectural.

When Vitruvius talks about the education of the Architect, he characterises architecture through its inherent multifaceted nature:

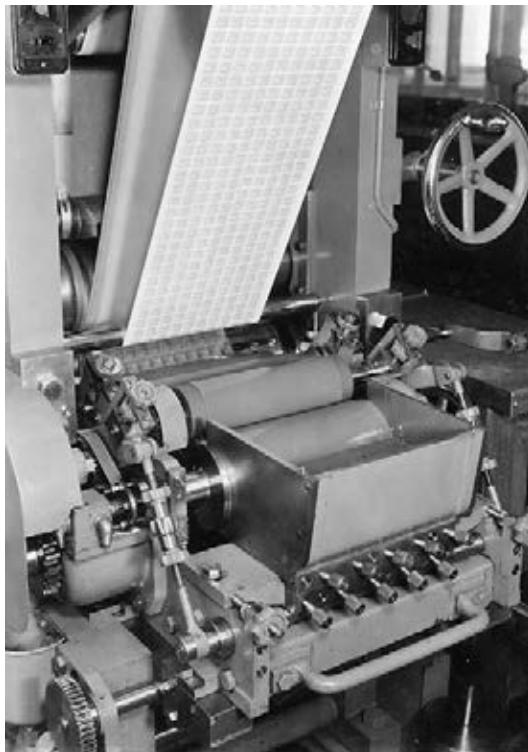
"Let him be educated, skilful with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists, and be acquainted with astronomy and the theory of the heavens." - Vitruvius, Ten books of architecture⁵

Yet the prevailing computational encoding habits tend to confine mediation to geometry, letting the non-geometrical dimensions of architecture fall through the digital cracks. It does not natively support the integration of the theoretical, cultural, literary, atmospheric, philosophical and associative dimensions of architectural design or for the flexibility of the design as an idea when mediated by the designer. The consequence of this is not just representational; it is epistemic. Architecture risks forgetting how its media think.

If all art is in essence poetry, then the arts of architecture, painting, sculpture, and music must be traced back to poesy. That is pure arbitrariness. It certainly is, as long as we mean that those arts are varieties of the art of language, if it is permissible to characterize poesy by that easily misinterpretable title. But poesy is only one mode of the lighting projection of truth, i. e. , of



*poetic composition in this wider sense. Nevertheless, the linguistic work, the poem in the narrower sense, has a privileged position in the domain of the arts.*⁶



computer — computing, technological, code, database, printer

In his essay on translations from drawing to building, Robin Evans speaks of the two roles drawings can play within the architectural process: "*The two options, one emphasizing the corporeal properties of things made, the other concentrating on the disembodied properties in the drawing, are diametrically opposed: in the one corner, involvement, substantiality, tangibility, presence, immediacy, direct action; in the other, disengagement, obliqueness, abstraction, mediation and action at a distance.*"⁷ Evans's polarity, corporeal involvement versus disembodied abstraction, maps neatly onto our contemporary dilemma. The prevailing toolchain is exceptional at the first (the tangible model and its deliverables), while the second (abstraction as mediating intelligence) remains under-instrumentalised in computational practice. Rightly so, Evans does continue to state that although they are "*opposed*" they are not "*necessarily incompatible*". The challenge, then, is to find this compatibility of the corporeal and the abstracted within the digital. To recover the disembodied capacities as operations that relate unlike domains such as drawing, narrative, atmosphere, and code without collapsing them into sameness. Therefore the thinking of architectural modes of media is proposed to be brought into the computational before we can consider how it can be returned onto architecture itself. In contrast to the computational geometrical model in architecture, in digital contexts, "space" need not be a three-dimensional container at all, but an n-dimensional arrangement of features where relations are learned as proximities and projections (further defined in §1.2)^{8,9}. The crucial step is the encoding that makes such spaces operable, an encoding that can (and I will argue should) include cultural and contextual signals beyond 3D geometry.



*The three activities are strictly simultaneous and have only incommensurable relationships. The creation of concepts has no other limit than the plane · they happen to populate; but the plane itself is limitless, and its layout only conforms to the concepts to be created that it must connect up, or to the personae to be invented that it must maintain. It is as in painting: there is a taste according to which even monsters and dwarves must be well made, which does not mean insipid but that their irregular contours are in keeping with a skin texture or with a background of the earth as germinal substance with which they seem to fit.*¹⁰

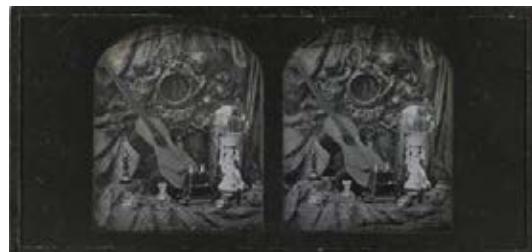
As Michel Serres discusses on the use of mathematical models in Leibniz's work to discuss philosophical mediations: "it is clear that strong adherence to a unique model naturally leads to dogmatist temptation; on the contrary, the almost infinite plurality of fine connections to variable models draws complicated diagrams in the infinite differentiation of the real: to each labyrinth its Ariadne's thread."¹¹ We follow this reasoning in that the cultural aspects are not as such completely separated from the geometric either, they form another plurality in the possibility of discussing the architectural project. As such the architectural might not be understood as a neatly broken down construct that has geometric, material, cultural, narrative, theoretical aspects, but instead all of these are intricately interconnected. If we adopt that view, then working on architecture within the digital means confronting a specific difficulty: how to accommodate this plurality of concepts in computational terms without flattening it into a single dominant model.

Read through Carpo's historical contextualisation, Alberti's peculiar "digitising" tactics form a precedent for what the coordinated model later normalises: the idea that architectural communication can travel as code. Alberti counters the instability of images by "*replacing pictures with a list of numbers and a set of computational instructions, or algorithms*"¹². In this light, the contemporary 3D model (and later BIM) presents itself as one powerful instance of a more general possibility: that architectural communications can be encoded, transmitted and variably instantiated as digital script. The argument here is not *against* the BIM model, but against its monopolisation of architectural thinking. The question becomes how to extend this paradigm of encoding beyond strictly geometrical parameters, so that qualitative, theoretical and atmospheric aspects can also enter the space of digital variability without being forced into the same metric.



architect — playful, install, spontaneous

In *Writing Images and Picturing Texts* the response is aimed at finding an active manner of navigating these encodings. Throughout attempting to instrumentalise a shift from translation (one-to-one sameness across media) to projection and proportion (calibrated relations that keep differences productive).



abstract — violinist, stereo, instrument, instrumental, guitarist, tambourine, studio, strum

*There is something stony in a work of architecture, wooden in a carving, colored in a painting, spoken in a linguistic work, sonorous in a musical composition. The thingly element is so irremovably present in the art work that we are compelled rather to say conversely that the architectural work is in stone, the carving is in wood, the painting in color, the linguistic work in speech, the musical composition in sound. "Obviously," it will be replied. No doubt. But what is this self-evident thingly element in the work of art?*¹³



14

1. Valéry, Paul. *Collected Works of Paul Valéry, Volume 4: Dialogues*. Princeton University Press, 1989.



2. Huehn, Helmut *Symbol and Intuition: Comparative Studies in Kantian and Romantic-period Aesthetics*. Routledge, 2013.



3. Carpo, Mario. *The Alphabet and the Algorithm. Writing Architecture*. MIT Press, 2011. pp. ix: Preface



4. Carpo, Mario. *The Alphabet and the Algorithm. Writing Architecture*. MIT Press, 2011. pp.78



5. Vitruvius. *The Ten Books on Architecture*. Translated by Morris Hickey Morgan. With Herbert Langford Warren. Dover Publications inc., 1960.



6. *Poetry, Language, Thought , Martin Heidegger, 2001.*



7. Evans, Robin. ‘Translations from Drawing to Building’. *AA Files 12* (1986): 3–18.



8. The use of *projection, proportion, architectural modes of communication, cast, resonance* and *architectonic instrument* as core terms within this thesis is further defined in §1.2



9. Russell, Stuart J., and Peter Norvig. *Artificial Intelligence: A Modern Approach*. 2nd edition. Prentice Hall, 2003.



10. Deleuze, Gilles, Felix Guattari, Hugh Tomlinson, and Graham Burchell *What Is Philosophy?*. Columbia University Press, 1996.



11. Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007. (translated with GPT4)



12. Carpo, Mario. *The Alphabet and the Algorithm. Writing Architecture*. MIT Press, 2011. 2011. pp.54



13. *Poetry, Language, Thought , Martin Heidegger, 2001.*





14. The input pdfs for this chapter are: Valéry, Paul. *Collected Works of Paul Valery, Volume 4: Dialogues*. Princeton University Press, 1989. ; Evans, Robin. *Translations from Drawing to Building*, AA Files 12 (1986): 3–18.; Bühlmann, Vera, and Ludger Hovestadt, eds. *Applied Virtuality Book Series Printed Physics* — Metalithikum I. Springer Vienna, 2013.; Vitruvius. *The Ten Books on Architecture*. Translated by Morris Hickey Morgan. With Herbert Langford Warren. Dover Publications inc., 1960.; Sautoy, Marcus du. *The Creativity Code: How AI Is Learning to Write, Paint and Think*. Fourth Estate, 2019. - [Book Context Link](#)



1.1.1 THE MIRAGE OF THE DIGITAL TWIN

Before turning towards what such an instrument might look like, this chapter first offers a more in-depth discussion on the current state in which the digital hosts architecture. The dominant computational model in architecture currently falls within the category of a 3D CAD model, and in many practices especially that of the integrated BIM model¹. In turn these models mediate the other modes of architectural communication. They directly propagate plans, sections, renders and diagrams from which the idea of the architectural design is understood. In this condition the 3D model can be seen as a universal model that connects all representations. This connection is defined by means of the Cartesian coordinate system through linear projection, dictated by the axioms of Euclidean geometry. Euclidean geometry as presented in *Elements* is an abstraction of physical space and, historically, was bound to three dimensions.² Through the CAD/BIM stack's prominent position as the digital platform for architecture, the discipline in turn inherits this geometric definition, even as mathematics has long since generalised the axioms of *Elements* to n dimensions. The Cartesian coordinate system serves as one means of an encoding of this space by being able to refer to specific points in space through a set of orthogonal coordinates. An alternative to encode the euclidean space is for instance polar coordinates. The linear connection from 3D model to a plan, section or even render is calculated based on these orthogonal coordinates by projecting them onto a single plane. By connecting all modes of communication, it could be argued that through the 3D model the architectural object has been internalised into the Cartesian system in its entirety. In such a framework, to *exist operatively* in the project is to be enumerable as coordinate plus attribute; whatever cannot be discretised in this way remains off-model. Singular, and with no abstraction, the architecture is internalised within computation. Further development in this direction is that of the digital twin³, where the digital seeks to be identical to the physical manifestation of the architecture.



encompasses — dusted, astounding, undulating, dune

Amongst tools and methods of reflective design are information technologies that are defined not only in terms of activities but also as semiotic and meaning-making technologies that open new spaces for representation and reflection. These technologies can support a design practice that consists of stepping back to gain a different perspective, looking at alternative options, and discovering the embedded values. Here information and communication technologies (ICT) are not only considered as a field that is being shaped by multiple actors, but as design tools, and somehow a metaphor for the design goal: to “denaturalize” activities and formats to be able to lay new foundations for a design project.⁴

The issue is that the architectural project has never been exhausted by geometry alone. From the outset of architectural theory, geometry appears as one register among others, not as the whole of the discipline. Vitruvius's triad of *firmitas*, *utilitas*, and *venustas* already binds structural stability, use, and delight into equal hierarchy⁵. Delight very clearly being one register that falls outside geometry's scope, even if function can be argued to be represented. Alberti extends this position when he distinguishes the *lineamenta*, the mathematically describable relations of a project, from their material realisation, insisting that architecture is conceived through a symbolic script that must always be interpreted anew in construction and use.⁶ An interpretive connection that is strongly sought to be diminished with what we now face with the digital BIM model. In the twentieth century, Bernard Tschumi's insistence that there is “*no architecture without event*” places movement, program and social situation on equal footing with form, staging architecture as a dispositif for unpredictable encounters rather than a static object.⁷ Tadao Ando's *Garden of Fine Arts* in Kyoto demonstrates this sense of cultural engagement through the very nature of the architecture itself. The project exemplifies how architectural placement, materiality, and referential depth create a space beyond its geometric confines. By recontextualizing reproductions of canonical artworks in a spatial arrangement that could only exist outside a museum, Ando demonstrates how significance can emerge not just from originality, but from the resonance between works, site, and architectural framing. The works are not originals, but porcelain reproductions, distributed in an architectural setting designed to elevate their presence. This project materialises the role of cultural reference in architectural design (Figure 1.1.1:1). This is exactly the kind of ‘off-model’ significance that can exist in the digital, but is rarely encoded as operable material within the dominant model.





Figure 1.1.1:1 - Garden of Fine Arts by Tadao Ando. A number of reproductions are visible: on the left the Last Judgement by Michelangelo, on the top right the Toba Sojo "Choju Giga" scroll, on the bottom right the Zhang Zeduan "Qingming Shanghe tu" scroll

For Koolhaas, the project likewise becomes a script within broader urban and cultural operations. In his work for Prada, the store is no longer treated as a neutral container for commodities, but as a multi-programmed environment in which shopping, display, research, archiving and spectacle fold into one spatial apparatus; “customers” are reconsidered as researchers, students, museum-goers and patients rather than mere consumers.⁸ Junya Ishigami, in turn, proposes *another scale of architecture* in which architecture is no longer a shelter separating natural from artificial, but a continuous ambiguous environment that spans and negotiates multiple scales, from subatomic to planetary, as the boundary between natural and

artificial environments becomes ambiguous. In his words, “*architecture thus created will melt into the new environment now emerging and, simultaneously, give form to a new environment. That new environment = architecture. This is another scale of architecture; the new image for architecture.*”⁹ Across very different epochs and practices, these *masters* (not an exhaustive list) know, demonstrate and affirm that architecture operates across heterogeneous registers: social, narrative, atmospheric, technical. The mirage of the digital twin lies in forgetting this composite nature and treating geometry as the whole.

Not only does this come across in the writings of such prominent figures, or the final projects themselves, but it is also conveyed when given an insight into their working process. In one example that Koolhaas narrates under the title **Copy and Paste**: “*Casa de Musica began its life as a house for a Dutchman. Its ‘recycling’ is an allegory for the unstable relationship between form and use, a mixture of psychology, scientific investigation, and naked opportunism.*”¹⁰ Commenting on this, Villa stresses the value of physical models lingering in the studio, being re-seen, re-handled, and re-interpreted across time: “*Thus, the abandoned and temporarily forgotten model of the private house came up to the office and re-entered the cycles of design. Lingered on the tables of models for months, it was finally taken with new assumptions, reshaped, refreshed and adjusted*”¹¹. The effortless observation of these models presents new opportunities for reinterpreting the ideas that lie in them: “*Here the image (eikōn) provided by the project prevails over any possible destination and transcends it*”¹¹. These models are as such more than just form variants, they are instances of media that sustain an ongoing associative operation. Here exemplified through an act of association which is birthed from a navigation through abundance, allowing for such productive opportunism to take place.

*“From this perspective, the “idea” – that is the starting point in most design models – is obtained at the end, after the confrontation of media and the use of multiple tools and not at the beginning. This is an important aspect of a model of design as a plane of composition. Through confrontation, designers engage in a dialog with previous artifacts as sources for the composition. The contrasting semiotic analysis as well as the constellation of tools, but also moodboards, or materiautheques are a deliberate organization of the composition space, a net to catch the elements that might lead to a new design.”*¹²



3 — pantry, cupboard, nightstand, playpen, stepladder, inventory, jumble

If being internalised in the computer, it does not have this potential because a digital 3D model requires direct interaction to become spatial. This difference in perception is phrased by Merleau-Ponty as follows when he talks about film: “*This is because the screen has no horizons. In normal vision, on the other hand, I direct my gaze upon a sector of the landscape, which comes to life and is disclosed, while the other objects recede into the periphery and become dormant, while, however, not ceasing to be there.*”¹³ Architectural apprehension likewise

depends on peripheral and atmospheric registers that a discretised model does not spontaneously deliver.



0 — reporter, hostessing, loudspeaker, zipper, camera

In an attempt to introduce flexibility to the otherwise static 3D model, parametric tools have provided means to define a multitude of outputs based on a coded base system¹⁴. At the level of implementation, these systems expose the internal data structures of the 3D model (vertices, edges, surfaces) as parameters, building components become variables in a network of predominantly linear algebraic constraints. In Marinčić’s terms, the parametric model is “*an ensemble of geometric elements governed by a network of parameters*” in which constraint equations continuously restore “*equilibrium*” of the model after every change¹⁵. What appears as fluid variation is therefore premised on keeping a single configuration internally consistent.

From within this paradigm, the ambition exceeds geometric control, and strives to draw ever more aspects of the project into the parametric field. Patrik Schumacher’s account is one clear articulation of this ambition: parametric diagrams derive their recognisable self-identity from the possibility to “link” or “associate” parameters by defining correlations (dependencies) between them, and he celebrates this as a means for “*the organisation and articulation of social complexity*.”¹⁶ In other words, any element that can be given a parameter, be it spatial, performative, economic or social, can, in principle, be woven into the same correlation network and tuned towards a crystalline equilibrium. Read charitably, this is a bid to extend the notational power of the model beyond form; read critically, it also clarifies the price of that extension, namely that whatever enters the system must do so as a dependency that can be stabilised. Complexity, here, is the internal consistency of a continuously recalibrated system of dependencies.

At this point, at the distinction between what can be parameterised and what can only be negotiated, Ishigami's insistence on the simultaneity of base and output becomes relevant. If the base is treated as prior and the output as derivative, the model risks converting architectural work into the maintenance of a system. Ishigami instead argues that base and output have to be built together:

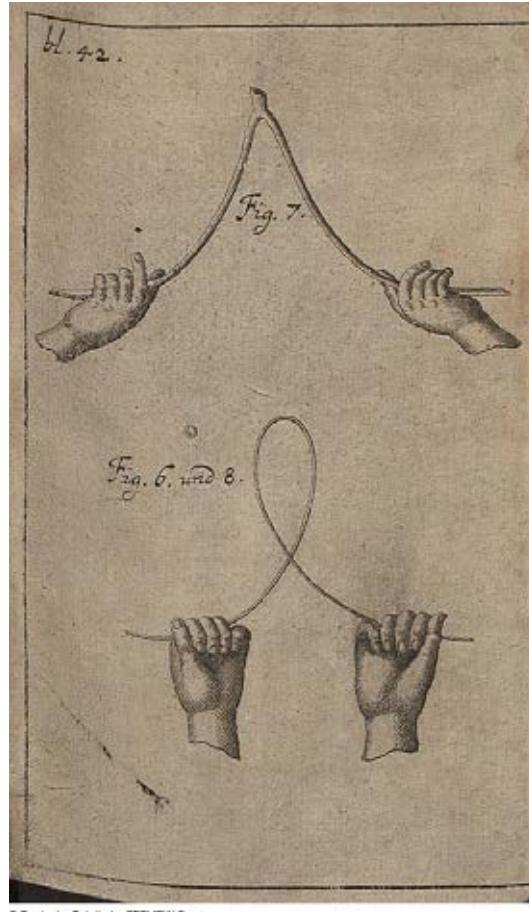
"F | So to you, computerization or an information-oriented world, things like that aren't reasons to try creating a new base.

*I | I guess I don't think it can be done. Not meaning of course that there isn't going to be a base. I just think since the base and the output have to be working simultaneously, they naturally ought to be built at the same time."*¹⁷

In line with the instability of Ishigami's base, Jorge Orozco Esquivel sharpens this tension by a reading of the parametric project outlined by Schumacher in *The Autopoiesis of Architecture: A New Framework for Architecture* as "*the philosophical negative of the global condition*" of the web.¹⁸ Where Schumacher's autopoiesis presents an impressive single, coherent system of 60 theses "*defined, and worked out with a precision that a white coat scientist would celebrate,*" the global network Orozco describes has "*no unique truths or fixed definitions,*" and "*does not define objects; it is characterised from many indexes*" rather than enclosed in one framework, or as Ishigami puts it, one pre-conceived base.¹⁸ On the global network, "*what is measured is probabilities*" and stabilities are articulated by "*meters that are rooted in a symbolization within probability space—by meters that are outside linguistic understandings, outside right and wrong, beautiful or ugly.*"¹⁸ This contrast matters here because it names two different ways of handling multiplicity: one by deepening coherence, the other by operating across indexical plurality. It is this multi-indexed, probabilistic condition that underpins the multimodal, non-geometrical communications the thesis sets out to address as part of digital architecture.

Seen from this angle, the limitation of the parametric extensions of the 3D model is not that they multiply parameters, but that they tend to keep multiplicity confined within a logicist, equilibrium-seeking system. Through its system-based control over the output, parametric design, in Ludger Hovestadt's words, "*reduces to numbers, the infinites and self-reflections.*"¹⁹ The result can be a certain stillness: the operation of architecture, its associative travel across texts, drawings, atmospheres, and references, gets immobilised inside a pipeline.

Finally, a caution against the idea that the digital is capable of becoming a true and comprehensive mirror to the real, as some ambitions of digital twins seem to strive towards. On the topic of the world-model, and the attempt of equivalence of encoding to the real, Böhme and Böhme refer to Plato: "*According to Plato, strict science cannot apply to the sensible world, since it is only a more or less accurate copy of eternal being. [...] What truly matters in understanding the sensible world, according to Plato, is discovering the model—or, in modern terms, the blueprint—after which the world was fashioned by the Demiurge, the divine craftsman.*"²⁰ This distinction between being a copy, or a manner for understanding, encourages the attitude to engage with the digital not a means of representing the physical manifestation of an architecture, but instead an instrument that allows for a discovery of understanding.



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1 — gesture, windpipe, scissors, bondage, hand

Rather than using the metaphor of the project, I look at the metaphor of the matrix. The matrix contradicts the model of design thinking that starts with an abstract idea that is gradually implemented through an iterative process. This classical model dating back to Aristotle's vision of architecture, does not account for the fact that design/conception and design/practice are bringing together materials in unexpected ways without necessarily following a defined plan. However, I find interesting to analyze how composition is a projective abductive practice.²¹



Taken together, these observations suggest that the linearisation of the architectural project through its internalisation within Cartesian space and the rhetoric of code diminishes the realm of association and communication between domains and objects. It takes the operation away and renders it still, non-spatial. In such a regime, the project appears as a closed file rather than an open, negotiable idea: there is code, but no encoding of architectural thought.

This section traced the dominant digital paradigm in architecture, CAD/BIM and its digital-twin extensions, and indicated how its promise of exhaustive control rests on a narrow encoding of architectural reality. The digital twin, taken literally, mistakes the copy for the model; it promises exhaustive representation where we need instrumented understanding. If the mirage lies in treating a geometrical model as exhaustive, the next section asks what operations architecture actually demands of its media beyond geometry.

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1.1.2 SCALES OF ARCHITECTURE BEYOND GEOMETRY

“Does it ever occur to us that the language that architects read and write can itself be altered and rethought?... Might not the limits of the spatial notation currently in use impose limits on the architecture that architects are capable of creating?”¹

This reflection, posed by doubleNegatives Architecture after echoing Wittgenstein’s famous assertion that “*The limits of my language mean the limits of my world*”², forms the terrain of this section. The previous section described how the CAD/BIM and digital-twin regime elevates Cartesian geometry into the primary carrier of architectural information. If the limits of an architect’s digital language are shifting toward this geometrical centre, then we must ask what modes of architectural thinking are being excluded. This is not merely a philosophical worry; it is a practical and epistemic concern.

Wittgenstein’s own trajectory is instructive. In the *Tractatus*, language is pictured as a logical mirror of the world: a proposition represents a possible state of affairs³. The later *Philosophical Investigations* re-evaluates this picture in favour of “language-games,” where meaning is what words do in use, embedded in “forms of life”. A BIM model belongs very clearly to the first stance: it is a picture of a building, articulated as a totality of facts. Architectural practice, however, behaves much more like Wittgenstein’s later language-games: drawings, models, texts, films and conversations do not simply mirror a building; they continuously renegotiate what it is, as it is designed, discussed, and inhabited³. The question is thus not whether geometry is necessary, of course it is, but what happens when an entire digital ecology is organised as if architecture were only what can be pictured in this way.

“Should an architect draw a one-to-one correspondence between design and the new formal principles dictated by computer technologies? Or, should s/he search for the reconstruction of architecture itself, and ask, what is architectural in architecture of the now of the present? More importantly, is it correct to reactivate the residue of ‘dream work’ of the near past, the emancipatory forms of construction emanating in the nineteenth century, as a recipe for current architectural problems?”⁴



From its origins, architecture has demanded a synthetic intelligence; one that navigates and negotiates between modes of thinking, drawing, modelling, scripting, narrating. As we have seen in the work of Vitruvius, Alberti, Tschumi, Ando, Koolhaas and Ishigami, architecture arises through the tensions and resonances between different kinds of concerns, interests and domains of content. Studio practice relies on a navigation through abundance: models, drawings, texts and references linger, are re-seen and re-read over time. This multimodal capacity sustains architecture’s discursive and speculative scope. In the contemporary digital condition, this abundance is amplified by the global network Jorge Orozco Esquivel describes: information circulates “ad infinitum” and objects are “characterized from many indexes” rather than by single definitions.⁵ What are the consequences when the qualitative, the speculative, and the non-geometric dimensions of architecture lose their footing in computational discourse?

*"Play and life are the key concepts connecting Wittgenstein and Nietzsche: life should play in language just as it does in nature or history. Philosophy, then, as a meta-language that describes and refines the "natural" language, is aimed not at the "truthful" analysis of language, but at playing its own language game with an increasing intensity. Language as a game contains in itself the refutation of pure analytism and presents philosophy with a new task of synthesis."*⁶



0 — conservatoire, cramming, manuscript, painter, collecting, correspondence

*"Conversely, architecture as a discipline focuses on the permanence of the architectural object and the myth of its perfectability. DeLanda's synthetic understanding of cities is inherently destabilizing to architecture because it elevates material factors to the same level as cultural production. The current fascination with fluidity may serve as a catalyst toward a new understanding of architectural processes. However, the preoccupation with representations of fluidity as built form restricts us to rigidly conventional architectural discourse."*⁷



If computational architecture concludes with functional analysis and optimisation, it risks severing its connection to this open-ended, playful dimension. As Brian Eno states in his book *What Art Does*, “*The art engagement begins where the functional engagement ends.*”⁸ His framing is not a definition of art, but an inquiry into what art does; how it operates, resonates, and affects. This operational perspective parallels Timothy Gowers’s observation that “*a mathematical object is what it does*”⁹. These positions suggest that both art and mathematics (fields architecture has always negotiated closely) are constituted by actions and effects, not static definitions. Applied to architecture, this implies that its capacity to think and feel through space resides less in formal analysis alone than in the way its media operate across modalities, often through affect, ambiguity, and non-linear intuition.

Eno further writes, “*Feelings are known as fuzzy, hard to pin down, impossible to measure... In a technical culture like Western culture things you can't count, don't count*”⁸. And we recall the complementary condition Orozco describes on the web, cited in 1.1.1, in which the measure sits outside of correctness, beauty or linguistic understanding, but is rooted in symbolic probability. Both point to a domain of operations that are neither simply subjective nor simply logical, but nevertheless structure how things matter. In such a context that privileges what can be counted, architecture should remain attuned to what resists straightforward quantification, and to the “soft”, process-based, atmospheric meters by which buildings and projects actually start to count.

"Architecture has tended to conceive of itself as an art, a science, or a mechanics for the manipulation of space, indeed probably the largest, most systematic and most powerful mode for spatial organization and modification. Space itself, the very stuff of architectural reflection and production, requires and entails a mode of time, timeliness, or duration. Indeed, space must always involve at least two times, or perhaps two kinds of time. The first is the time of the emergence of space as such, a time before time and space, a temporalization/spatialization that precedes and renders the organization or emergence of space as such and time as such and thus emerges before any scientific understanding of a space-time continuum. 1 This is the space-time of difference, of différence (Jacques Derrida discusses différence as precisely the temporization of space and the spatialization of time), or differentiation (in Deleuzian terms, differing from itself), which is a precondition of and prior to the space and time of life, of understanding, of science."¹⁰



0 — nightstand, dresser, frame, inventory, correspondence, collector, drawer, collecting

"The task before us is not simply to make things or to resolve relations into things, more and 182 – 183 The Thing more minutely framed and microscopically understood; rather, it may be to liberate matter from the constraint, the practicality, the utility of the thing, to orient technology not so much to knowing and mediating as to experience and the rich indeterminacy of duration.

Instead of merely understanding the thing and the technologies it induces through intellect, perhaps we can also develop an acquaintance with things through intuition, that Bergsonian internal and intimate apprehension of the unique particularity of things, their constitutive interconnections, and the time within which things exist. 22 The issue is not, of course, to abandon or even necessarily to criticize technologies, architecture, or the pragmatics of the thing, but rather, with Bergson, to understand both their limits and their residues."¹¹

Michel Serres, writing about Leibniz, notes that *"The image is, here, richer than it was in Pascal: to optical and mechanical values are added infinitesimal, analytical, perspective, logical, physical and metaphysical meanings."*¹² The challenge of digital architecture can be

read in similar terms: the 3D model reliably encodes the “*optical and mechanical values*” of a project; architecture, however, operates with additional analytical, logical, physical, conceptual and symbolic layers that are not reducible to this encoding. Architectural computation therefore must create space for what does not count in the numerical sense, but which counts precisely because it resists reduction, because it is enacted through language-games, atmospheres, references and uses.



0 — booklet, publication, journal, strut, frame, guidebook

*"This counterposition concerns the very substance of the architectural endeavor as what Loos calls a "thinking in space. "What are the specifics of this space? Is this making-space an endeavor that establishes places? And are these places a "collection", a mutual belonging of things and dwelling? Or is this making-space an Ent-ortung, an annihilation of the places, an arranging of the land as an empty and uniform space at the disposal of the new project? This radical choice remains unquestioned as long as one limits oneself to emphasizing the specifics of architecture as being thinking in space."*¹³



Rather than enumerating *non-geometrical aspects* in an abstract sense, the following examples will foreground how, in specific projects, such operations beyond geometry become architecturally decisive, at least according to my personal reading of them. They will serve as demonstrations of how discipline, history, materials, politics and use operate at scales that do not fit neatly inside the 3D model, yet remain inseparable from what we recognise as architecture.

Multi-register notation

A first, perhaps counter-intuitive, example is Mies van der Rohe’s Neue Nationalgalerie in Berlin. The building is regularly treated as a late, canonical statement of modernism: an almost abstract glass pavilion on a granite plinth, its upper hall conceived as a single, open “*universal space*”.¹⁴ In Mies’s own terms, however, this formal clarity is the outcome rather than the goal. In his aphorisms he writes that “*Architecture is the will of an epoch translated into space; living, changing, new... Not yesterday, not tomorrow, only today can be given form*” and, crucially, “*Form is not the aim of our work, but only the result. Form, by itself, does not exist. Form as an aim is formalism; and that we reject.*”¹⁵ Even at the heart of modernism, then, form is cast as the outcome of other operations: an expression of an epoch, its tasks, its art.

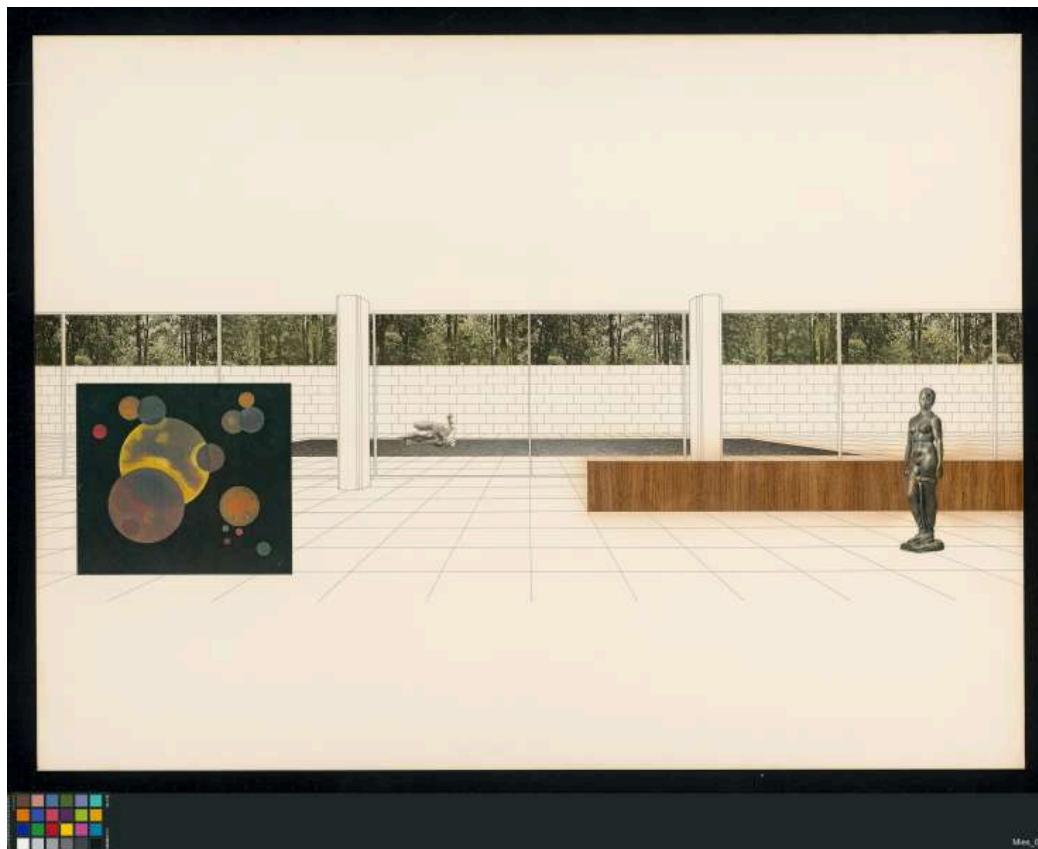


Figure 1.1.2:1 - Innenraum-Entwurf, 1962-1965, Neue Nationalgalerie. Credit: Staatliche Museen zu Berlin, Nationalgalerie / Fotograf unbekannt // Ludwig Mies van der Rohe, Innenraum-Entwurf, 1962-1965 © VG Bild-Kunst, Bonn, 2025

This split between geometric result and other considerations becomes especially visible in the preliminary interior perspective drawings that were developed during the design for the project, such as the one in Figure 1.1.2:1. In these Innenraum-Entwurf sheets Mies's office draws the geometry itself as a minimal, precise construct in fine lines: columns, ceiling and the terrazzo floor are held in a clear grid that continues the paving of foyer and garden.¹⁶ Onto this restrained framework are inserted photographic reproductions of artworks and sculptures from the collection (Kandinsky's Schwere Kreise, Lehmbruck's figures, Maillol's La Rivière) together with black-and-white photographs of a forest, filtered green and running as a dense band beyond the garden wall.¹⁶ As Caspary notes, these collages were meant "*den Charakter und Geist dieses Bereiches sowie seine Beziehung zum Garten klarmachen*": to clarify the character and spirit of the lower exhibition hall and its relation to the garden.¹⁷ In other words, the drawing communicates in different modes at once: geometry is kept abstract and technical, while art and nature are given full tonal and material presence. This manner of drawing the space shows a deliberate decision about what should be carried by geometry and what must be articulated in other, non-geometric languages.



garden — slumber, diary, trio, bedchamber, manuscript, haggling, extramarital

"This generated an open-ended set of strategies that generated, with each aspect of the project capable of integrated landscape, architecture, and art. being the interior or exterior of the other, creating a The first strategy played upon the clarity and spatial effect much like that of Russian dolls where stability of "picturesque" nature as framed in Mies's living spaces are contained one within another. These perspectival collages. Artists like Isaac Julien and interior spaces also contained an exterior room within."¹⁸



The drawings thus establish a differentiation of communication rather than a single pictorial register: geometry is kept abstract and technical; art and landscape are given another kind of presence, scaled up to act as walls, figures or distant rooms. Even here, at the most "pure" edge of modernism, architecture is conceived and communicated through multiple modes at once, so that form appears as the result of operations that already exceed geometry.

Associative contrasts

Where Mies suspends art in a neutral frame, OMA's Kunsthall in Rotterdam begins from a relatively simple figure of ramps and halls but loads it with material contrasts that are as much economic and cultural as they are tactile. The official description of the building explicitly underlines the mix of "*expensive, classic materials such as marble and parquet*" with "*cheap, 'common' materials such as corrugated plastic, bare concrete, galvanised steel gratings and rough tree trunks,*" noting that each exhibition space has "*its own character and atmosphere, use of material and format.*"¹⁹ The ramps and volumes are easily recoverable in a CAD model; what is harder to encode is this deliberate juxtaposition of welfare-state finishes and low-cost, almost provisional elements, and the way it turns the building into a section through different economic registers. Tibor Pataky describes how, from 1989 onwards, the "*binary character of the façades*" was blurred "*through an almost excessive diversification of materials, colours, and fenestrations,*" and how the project became a "*collage of largely autonomous screens,*" its structure and claddings diversified without technical necessity but as a conscious exaggeration of fragmentation.²⁰

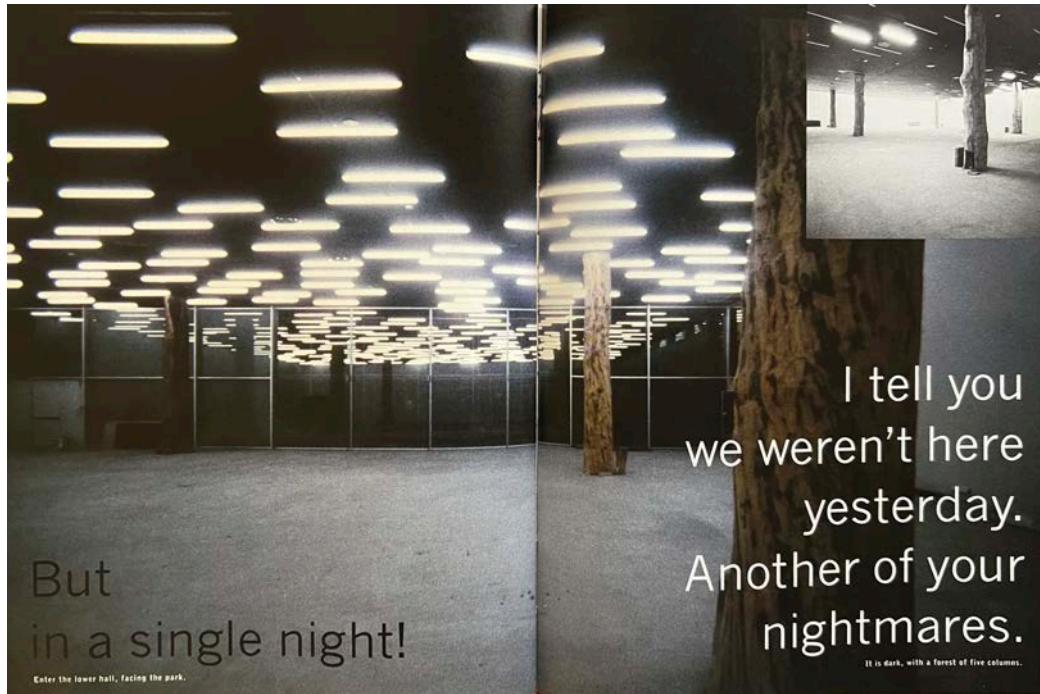


Figure 1.1.2:2 - Spread from S,M,L,XL, displaying one of the pages on the Kunsthall in Rotterdam. The image showing the space is not described or discussed; instead, it is accompanied by a narrative, a voice recounting events.²¹

This logic of contrast carries over into how the Kunsthall is communicated. In *S,M,L,XL* the project is unfolded in a sequence of spreads that read less like conventional documentation and more like a storyboard: fragments on Rotterdam as a “city that makes no demands,” the Museum Park as a chain of situations, and the Kunsthall as “*Life in the Box?*” are intercut with photographs and short textual episodes.²² Figure 1.1.2:2 is one of these: the lower hall facing the park appears as a pair of photos, grainy, fluorescent with rough tree-trunk columns, one colour the other black and white overlaid on top of the first. Overprinted with a narrative line: “*But in a single night! ... I tell you we weren't here yesterday. Another of your nightmares. (It is dark, with a forest of five columns).*”²¹ The space is staged as an episode more than described as a type or analysed as a diagram. Geometry functions as the backdrop for a series of material, economic and narrative operations that script how the box can be read and inhabited, rather than as the primary bearer of the project’s content.



trunk — drinker, hustler, schnook, sloshed, assassination

"The space of memory, the space of stories, the space of writing, and the space of our everyday experience contain signifiers, which depend in their meaning not only on a specific referent, but also on their place among other elements. Space, as Kern points out for modernity, is no mere emptiness, but a product that conserves as a multi-dimensional matrix, knowledge, codes, and practices."²³



Architecture as a movement

A final example shifts scale from single buildings to an architectural act that is itself a movement. In Project Japan Koolhaas describes Metabolism as "*the last movement that changed architecture,*"²⁴ and on its primary figure he notes:

*"Architecture is a deeply contradictory profession. Its actions intersect with a huge range of unrelated domains; at the same time, its essence— to build—is so complex that it requires extreme focus and concentration. Sadly therefore, it is largely inhabited by two human typologies, 'builders' and 'thinkers,' united in mutual disdain. Kenzo Tange was both."*²⁴



builder — relax, slacker, nonchalant, surrogate



contempt — penthouse, cantilever, centerfold, interior, patio, modernist

Koolhaas and Obrist underline that the Metabolists were “*a group of architects who saw their country and its transformation as a project,*” working together in a “*strategic alliance*” that mobilised “*a vast range of other disciplines,*”²⁴ amplified by bureaucracy, business and media. Some protagonists would in fact become more influential in these arenas than through their built oeuvre, finding leverage in planning committees, expo organisations, advisory boards, broadcasting and even electoral politics. Their architectural thinking reappears there as spatial policy, national branding, and the programming of new publics rather than as singular objects. Kisho Kikutake describes the book Metabolism 1960 not as a single dogmatic statement but as “*a compilation of things we’d each done,*” more “*give and take about methodology than a declaration of principle,*” held together by critic Noboru Kawazoe, who asked “*what unique qualities and ideas Japan could bring to the world.*” In this view, the movement is less a closed manifesto than a platform for coordinated but heterogeneous experiments.²⁵

"Architecture becomes a dynamic process rather than a fixed object, responsive to the environment, and an event to be activated. An architectural understanding that resonates with Ricoeur's very notion of metaphor; "to present all things 'as in act'—such could well be the ontological function of its new metaphorical discourse, in which every dormant potentiality of existence appears as blossoming forth, every latent capacity for action as actualized." ³⁴ 198 B. Muller As I have attempted to argue: (1) by employing metaphors in the design process, consciously or not, architects frame an awareness of certain conditions that influence the direction of future explorations, and (2) “green” metaphors invite greater environmental attunement and therefore are helping reshape practice for the better.²⁶

Obrist characterises Metabolism as an avant-garde whose members “*held out for the idea of the flexible manifesto, up for continual renegotiation,*” operating in “*a constant flow of proposals, buildings, and a ceaseless production of texts.*”, fitting for a movement that underlines adaptability to changes.²⁷ In this sense, the architectural work of Metabolism resides as much in conferences, manifestos, drawings, masterplans, television performances, bureaucratic manoeuvres and policy experiments as in its famous capsules and megastructures. What matters for this thesis is less nostalgia for a lost avant-garde than the kind of architectural agency this configuration models: an architecture that acts through public policy, media, large-scale speculation and a continuous public talk as much as through individual buildings. These registers of the public face of architecture clearly exceed the mere presence of a built object in the public



domain. Whatever counts as a digital architectural instrument should therefore be able to register and work with such conversations and projections, not only with their geometrical traces.

"Expanding Architecture presents a new generation of creative design carried out in the service of the greater public and the greater good. Questioning how design can improve daily lives, editors Bryan Bell and Katie Wakeford map an emerging geography of architectural activism—or "public-interest architecture"—that might function akin to public-interest law or medicine by expanding architecture's all too often elite client base."²⁸



0 — keepsake, booklet, bookmark, ballot, collecting, correspondence, publication, guidebook, voucher

These examples show that architectural “scale” is not only dimensional but medial and discursive. The next step is to ask what concept of form, text, and code could register this, without collapsing it back into a single, exhaustive model.

Language Games

In all these cases, geometry is necessary but not sufficient. The CAD model can specify the grid of columns in Berlin, the slope of the Kunsthall ramps, the modularity of metabolist pods, but their architectural status depends on operations that exceed geometric representation: disciplinary memory, material and cultural referencing, choreographies of movement, political ideology, economic registers, integration of art and building, the slow inscription of use and discourse. A BIM model can host tags and metadata about these things; it cannot encode their interplay. The “soft” and operative dimensions of architecture, its narratives, atmospheres, and

mis-readings, behave less like closed geometric objects and more like open-ended language-games.

*"It is not used solely to build an argument or rationalize form but to disturb our process of design and expose unique social, environmental, and cultural issues embedded in the initial constraints of each project. As a design evolves, we renegotiate its conceptual framework through a process that is inherently fluid, adaptive, and self-critical. We use research to undermine many assumptions about architecture as a discipline, such as the fixity of building type, the hierarchy of facade and entry, the rigid nature of program, and the universal and global character that modern architecture has put into place."*²⁹



3 — directing, hairstyle, fanatic, proofreader

At the same time, it would be a mistake to ignore that form plays a central role in architecture as a whole, including in the manifestation of the aspects beyond geometry discussed above. For an architect's account of architecture's inherent relation to form, we turn to Eisenman. His early attempt to clarify architecture's relation to form in *Towards an Understanding of Form in Architecture* is of interest precisely because it reads like a bid for an agreed language of the discipline. He argues that "*formal considerations are basic to all architecture regardless of style, and that they alone can help us to develop an agreed language both for criticism and for design.*"³⁰ Architecture, for him, is "*in essence the giving of form ... to intent, function, structure, and technics,*" with form occupying "*a position of primacy in the hierarchy of elements.*"³⁰ He distinguishes a "*generic*" form, close to a Platonic or structural template, from "*specific*" form, the concrete configuration that realises a particular intent and function. The temptation, from a contemporary modelling perspective, is obvious: if architecture can be formalised as a stable syntax of relations, why wouldn't a sufficiently detailed digital model, with parametric rules, layers and schedules serve as a workable proxy for its essence?



context — dope, blooded, laced, drip



Yet even here, Eisenman's primacy of form is not a claim for autonomy. Form is positioned as the organiser of intent, function, structure, and technics, but the “*end product can only be a synthesis of form with all the other elements of the equation.*”³⁰ The ambition is to stabilise a disciplinary language, not to replace architecture with geometry.

Read within the context of the 1960s, Eisenman’s position resonates with structural linguistics and early generative grammar: an underlying structure affords infinitely many well-formed sentences. Generic form plays the role of such a unifying structure; specific buildings are its instantiations. The proposal is that architecture can be articulated as a system of relations, with form as the code that mediates between intent, function, structure and technics. Although Eisenman does frame these remarks as prolegomena within this text, noting: “*The detailed nature of this language, its grammar and syntax, cannot, owing to limitations of space, be entered into here.*”³⁰

Jorge Orozco Esquivel characterises this ambition as an “*architectural logic based on form,*”³¹ where “*the giving of form is far more than the making of shapes*”³⁰ and becomes a way of presenting order at both building and environmental scales. In Orozco’s reading, Eisenman’s synthesis of intent–function and structure-technics addresses both the ideal and the real, the generic and the specific, the semantic definitions and symbolisations through which architecture communicates.³¹ Form is not mere appearance; it is the medium through which architecture is made communicable.



encoded — amphetamine, nodding, paracetamol, injected, binge

At the same time, this project arises from a very specific anxiety. Eisenman writes in a moment when “*our social, economic, and technological environment has become so overwhelmingly distended that no significant order can be perceived by the individual,*” and therefore “*we must establish a basic priority in architecture.*”³⁰ For him that priority is formal clarity, anchored in “*some well-understood archetypal solid*” and in a conceptual whole the observer can grasp. Jorge explicitly contrasts this with our own situation, remarking that today “*our paradigm revolves about the probable and the unknown.*”³¹ In other words, Eisenman’s structural

formalism is already a response to an overload of information, but it responds by tightening form into a stable code.

Seen from the contemporary digital condition and in particular with regards to machine-learning, this move is double-edged. On the one hand, it subverts older notions of form as detached from function or atmosphere: for Eisenman, form is precisely the place where intent, function, structure and technics are synthesised, not something added afterwards.³⁰ On the other hand, it still assumes that such synthesis can be stabilised as a generic structure. Large language models, for instance, complicate that assumption: their generativity does not rely on an explicit deep grammar in the Chomskyan sense, but on high-dimensional statistics of use. They operate closer to Wittgenstein’s “meaning is use” than to an a priori structural code. This suggests that an all-encompassing formal encoding, whether in a theory or in a BIM model, will struggle to keep pace with architectures that materially participate in such probabilistic, multimodal environments.

"Whether internally, within the logic of form, for example, or externally, within that of form and use, these disjunctive levels break apart any possible balance or synthesis. In their individual state, objects, movements, events are simply discontinuous. Only when they unite do they establish an instant of continuity. Such disjunction implies a dynamic conception posed against a static definition of architecture, an excessive movement that brings architecture to its limits.

Notation ³²



order — craftsmanship, reaching, hand, physique, interconnected, genesis

Eisenman’s own later *Architecture as a Second Language* already begins to unfasten the earlier stance from within. In this essay, “text” is no longer the representation of a story, but the representation of its structure; more radically, text “*is no longer something complete, enclosed in a book or its margins, it is a differential network, a fabric of traces referring endlessly to something other than itself.*”³³ For architecture, this implies that meaning is produced not by a single, ordered form but by an open set of relations and dislocations. The architectural text “refuse[s] any single authoritative reading” and “does not symbolize use, shelter, or structure”; instead, “*the architecture is between the signs.*”³³

Orozco reads this shift as Eisenman’s attempt to articulate an architecture beyond form or physical experience, open to interpretations and non-linear stories whose indexes point from outside the artifact’s temporality and form.³¹ Text, in this sense, becomes a code against fixed



codes: a way to connect an architectural work to other times, narratives and media without reducing it to any one of them. Eisenman's "second language" is thus both a continuation of his earlier ambitions and a partial break with them: the structural grid is reinterpreted as an endless, dislocating network.

From the vantage point of CAD/BIM, this second language is deeply inconvenient. A BIM model is well suited to Eisenman's early synthesis of form with structure, technics and function; it has no native concept of a differential network of traces, of dislocating events that put origins and authorities in motion. At best, these appear as external annotations attached to an otherwise stable object.

At this point, the distance to the contemporary digital condition described by Hovestadt becomes clear. In the introduction to *Atlas of Digital Architecture* he insists that information technology "*touches, it infuses, inhabits, everything,*" and that "*absolutely everything we do and have today is in one way or another possessed of digitality.*"³⁴ "Today," he writes, "*we have an abundance of images, indexes, references,*" such that the real challenge is not growing complexity but an overwhelming simplicity in which "*it's not us who understand computers any longer, it's computers that understand us,*" leading to saturation rather than scarcity.³⁴ In such a saturated, generic field, architectures, models and images circulate as part of a shared, indexed background. The projects we recognise as masterpieces do not prefigure this condition, but they show why a purely geometric encoding is insufficient: each already depends on disciplinary memory, narrative, atmosphere and use in excess of its measurable form. These extra-geometric operations are precisely what allow such works to persist, to be re-read and re-indexed within today's digital abundance. In this sense, digital architectural encodings dealing with the non-geometrical cannot rely only on a structuralist idea of form as total code; they must also register the fluid, indexical and sometimes misaligned operations through which architecture participates in this digitally saturated field. The emphasis thus shifts from what is modelled to how we think with models: what kinds of games, stories, projections and mis-readings our digital instruments permit.



 indexed — replaced, capital, relocated, monument

In this sense, the digital architectural encodings dealing with the non-geometrical should be closer to Wittgenstein's later understanding of language as an activity than to his early picture theory. As he puts it in the Philosophical Investigations: "*I shall also call the whole, consisting of language and the activities into which it is woven, a 'language-game'.*"² The point is not that architecture becomes "mere language," but that its digital models must accommodate the language-games that extend beyond form: the ways they stage, distort and extend architectural conversations across media, times and publics.

In this thesis the aim is not to encode all these non-geometrical dimensions directly into a single, comprehensive model. Instead, they are treated as a field of possibilities and domains against which a digital architectural instrument has to be positioned. If architecture is partly constituted by what it does across media, it must accept that some of its crucial operations live in probabilities, atmospheres, and misalignments.

 "*This new condition of textualization within Internet language, and the layers of translation and transit required in online communication, reroute my discussion back to an earlier debate on the transformation of natural languages and the mutation of alphabetic writing into moving, animated, and ultimately postalphabetic forms of textual communication. Text moves not only because it can be animated, however, but because the language behind this written representation is also moving, shifting, alternating from one language domain to another.*"³⁵



 algebra — sleep, nymphomania, unconscious, wakefulness, exhumation

 36

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1.1.3 COMPUTATION AND THE NON-CALCULABLE

The previous section argued that architecture cannot be reduced to geometry alone: disciplinary memory, atmospheres, narratives and public discourse all operate at scales and in registers that exceed the 3D model. If digital tools increasingly mediate architectural work, the question becomes how computation has addressed such non-geometric, often non-calculable content. This section sketches a short, selective trajectory: from early conceptions of computation as an abstract “science of operations,” through architectural attempts to formalise design knowledge, to contemporary models that learn patterns across text and image. The aim is to delineate how different paradigms have enlarged, and sometimes constrained, what can be encoded architecturally beyond geometry.

From number to "other things besides number"

At the inception of digital computation, Ada Lovelace already suggested that a programmable engine “*might act upon other things besides number*” if their relations could be expressed in an “*abstract science of operations*,”¹ and famously speculated that, if the relations of pitched sounds in harmony could be so expressed, “*the Engine might compose elaborate and scientific pieces of music of any degree of complexity or extent*.”² We can take Lovelace’s point as more than a prediction that machines might one day write music: crucially, it suggests that computation can manipulate structures wherever relations can be formalised, irrespective of whether the immediate domain is numerical, sonic or symbolic. Computation, in this sense, appears from the outset as a general technology of abstraction.

"In the area of Architecture the fundamental object of study, i. e. architecture, is sometimes described as: "1) the relations between materials in the first sense, and 2) as the relation between these materials and humans in the second sense" (Oosterhuis, 2007). In a similar way we could thus introduce this third perspective in which we address interaction as 3) a phenomena arising from the orchestration of computational resources in action, in which we're interested in this orchestration of different computational materials in the first sense as to understand how one such orchestration forms a basis for interaction."³



This stance is sharpened when read against her background. As Richard Holmes notes, Lovelace was Byron’s only legitimate child, but she redirected the “*rebellious spirit*” she inherited toward science, declaring: “*I do not believe that my father was (or ever could have been) such a Poet as I shall be an Analyst (& Metaphysician); for with me the two go together indissolubly.*” Lovelace aims for what she later calls “Poetical Science”: mathematics as “*the language of the unseen relations between things*,” a formulation that binds analytic rigour and imaginative projection. Her “Notes” to Menabrea’s paper on the Analytical Engine go beyond describing a calculating machine; they recast it as an instrument for weaving “*algebraic patterns just as the*

Jacquard-loom weaves flowers and leaves," capable in principle of handling any domain whose relations can be symbolically articulated.²

Vera Bühlmann, also referencing Lovelace, develops this reading of mathematical language as a medium for articulating the universal. In her essay *Arché, Arcanum, and Articulation*, she expresses this relation as follows: "*we associate the universal with the mathematical; and (!) no one is, properly speaking, 'native' to that realm of the mathematical. To put it in other words: anyone who wishes to enunciate a mathematical notion of universality must en-familiarize herself with it through intellectually appropriating the customs of this realm.*"⁴ Mathematics, within this view, operates as a language for the universal precisely because it is nobody's mother tongue: it demands continual intellectual work and unfolds on a stage of abstraction furnished by algebraic and logical symbolisation.⁴ Lovelace's "*abstract science of operations*" can be seen as an early, technically specific idea on such a language: a way to address structures (numbers, sounds, symbols) from a non-local, non-intuitive vantage point, where what matters are the relations that can be inscribed into a formal calculus.

This shift from arithmetic to operations creates, at least in principle, room for encodings of architectural knowledge beyond geometry: if the *fundamental relations* of spatial organisation, use or perception can be expressed in some operational form, they too become computable. What is at stake in architectural encodings is therefore not only the step from drawing to model, but the prior decision about which relations are treated as operational.

Formal languages and architecture

One early avenue through which computation becomes legible as a medium for architectural thought passes through formal language theory. At a general level, formal languages underlie programming itself: they specify an alphabet and a grammar so that strings of symbols can be unambiguously parsed and manipulated by machines. Leibniz's project of a *characteristica universalis* already sought such a symbolic idiom in which reasoning could, at least in part, proceed by calculation.⁵ Chomsky's work on formal grammars and generative syntax extends this to natural language, distinguishing between the rule-based generative structure of a language and the surface strings it produces.⁶

On top of such general formalisms, domain-specific languages (DSLs) facilitate computation in particular fields of interest, narrowing the alphabet and grammar so that machine operations can address specific types of entities and relations. Christopher Alexander's *A Pattern Language* can be read as a loose architectural analogue to such a DSL. The book proposes 253 patterns, from regions down to construction details, and insists that "*all 253 patterns together form a language.*"⁷ Each pattern names a recurrent problem and outlines a solution in verbal form: a way for people to design towns and buildings by composing patterns, rather than by deriving forms from first principles.⁷ Although Alexander does not define his system in the formal notation of computer science, the underlying gesture is comparable: to identify a finite, reusable repertoire of "constructs" that can be combined into indefinitely many designs. It is not coincidental that this work later inspired software design patterns in object-oriented programming, where recurring problems in code structure are likewise documented as reusable

patterns, making Alexander a rare example of a modern architect to be a core reference in a canonical book for computer science.⁸



0 — inspected, conspiratorial, typewriter, administrative, confidential, calculating, astrophysicist

[9](#)

From a more explicitly formal standpoint, Stiny and Gips' shape grammars translate this grammatical paradigm into operations on shapes.¹⁰ Here, lines, polygons or solids play the role of "words," and rules rewrite one configuration into another. Mitchell and Stiny's later work takes Chomsky's definition of a language as *the set of all possible valid sentences* to argue that what they define as a style can be described as the set of forms generated by a particular shape grammar, and thus language. As Marinčić underlines, such recursive/grammatical models promise efficiency, complex families of forms from a small rule set, but they tend to concentrate on the mechanics of geometric transformation, unfortunately "*ignoring the mathematical basis of [Chomsky's] procedure*" and leaving broader architectural notions under-specified.¹¹ For a more exhaustive technical placement of pattern languages, shape grammars and related approaches within the history of architectural computation, I refer to Marinčić's overview of rule-based design models.¹²



Example 1: Connected Cubes
prooftree

To keep the tree somewhat readable abbreviations will be used. The exact version will be made explicit in a few lines later on.

The purpose of the text is to show that the proof trees in the image to the right is a valid instance of the protocol demonstration below.

This follows from the following tree:

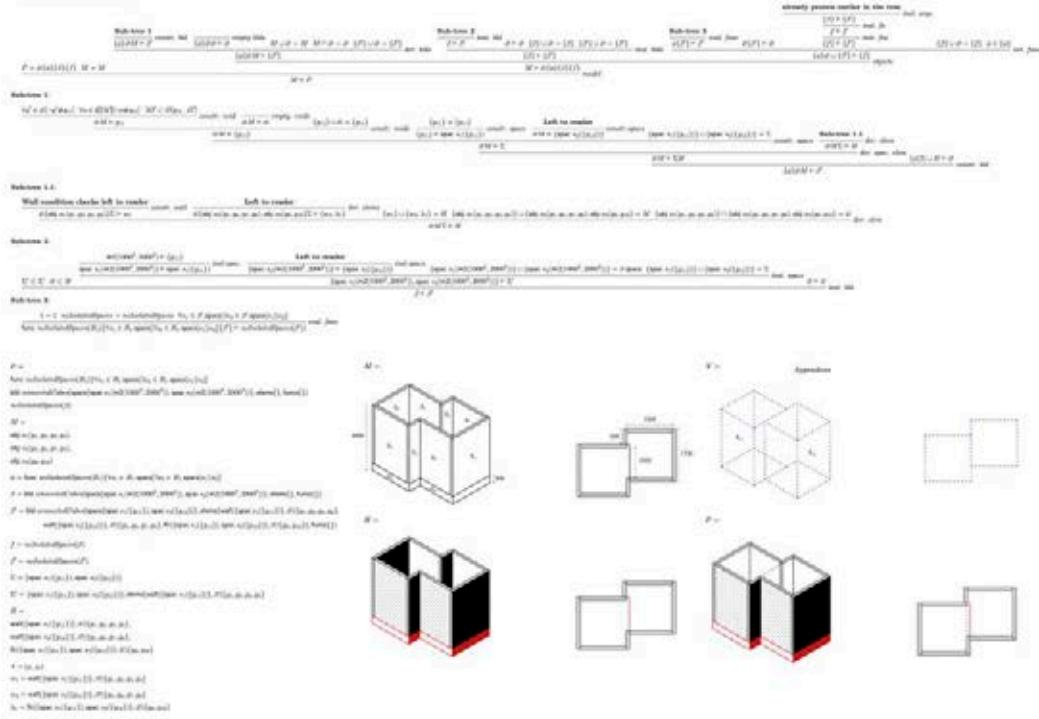


Figure 1.1.3:1: Proof tree of the adjacency of two rooms in a DSL for architectural relations of space [13](#)

In earlier research by the author, as part of a bachelor thesis in Computing Science, this notion of a domain-specific language was tested on a different target: instead of focussing on bounding geometries, a formal syntax and semantics were formulated to describe relations between architectural spaces.¹³ Adjacency, containment and connectivity are specified in a formal grammar, and proof trees establish whether a given configuration satisfies a set of spatial constraints (Fig. 1.1.3:1).¹³ In contrast to Alexander's verbal patterns, this DSL adheres to the specifications of formal languages in computer science. Its limitations, however, become immediately evident: even relatively simple declarations lead to a rapid combinatorial explosion in the proof trees, a direct consequence of the predicate-logic basis shared by such languages. The language is precise, but its very precision produces an opacity of its own.



0 — panelling, dresser, confession, doorway, frame, painter

For the purposes of this thesis, the value of these formal and pattern-based approaches lies in the way they extend what counts as computable architectural content. Alexander's patterns encode social and spatial situations in textual form; shape grammars encode stylistic families as rule-based geometric transformations; the domain-specific language encodes spatial relations as logical predicates.

*"The computational choice of the formal enterprise (1 a , d) remains unchanged also for a more comprehensive, semantically and historically conscious account of language. The experience of the generative program, in combination with developing cognitive studies of multiple denominations, has shown that duplicate modes of understanding, formal and functional, monadic and social, are extremely fruitful and thus indispensable in any reformed linguistic picture. Yet the considerable theoretical divergence between formalism, psychologically anchored cognitivism, functionalism, and social interaction, indicates right away that the resulting comprehensive theoretical architecture for language will necessarily be composite."*¹⁴

Soft architecture machines and participatory encodings

Alongside these rule-based approaches, a different strand of architectural computation emerged around Nicholas Negroponte's *The Architecture Machine* (1970) and *Soft Architecture Machines* (1975). Rather than encoding a style or a set of patterns, Negroponte asks what it would mean to build an "architecture machine": a design partner endowed with artificial intelligence, capable of learning, "groping" and "fumbling" with problems that neither human nor machine fully understands in advance.¹⁵ He frames this as a project of "humanism through machines," seeking a "symbiosis that is a cohabitation of two intelligent species."¹⁵ The machine is expected to recognise context, to handle missing information, to understand "gestures, smiles, and frowns," and to transform "noise" into information through continuous dialogue with the designer. It is a historical attempt to encode design intelligence / negotiation rather than form.

In *Soft Architecture Machines*, this stance is taken further with the following provocation: "*in most cases the architect is an unnecessary and cumbersome (and even detrimental) middleman*" between changing needs and their incorporation into the built environment, proposing instead "*a*



new kind of architecture without architects."¹⁶ Here the design process is reimagined as an ongoing conversation between inhabitants and an intelligent, responsive environment. Experiments such as SEEK, where a robotic arm continually reorganises blocks in response to the activities of a colony of gerbils¹⁷, stage architecture as the management of mismatches between the machine's internal model and a volatile physical reality.¹⁸



1 — identifies, trio, mirrored, parallel, painting, referenced

Marinčić situates Negroponte's work within the category of "intelligence-based design models," rooted in early artificial intelligence research and inspired by Minsky and Turing.¹⁹ Technically, these systems often reduce to rule-based spatial allocation or heuristic search, and their implementations remain relatively simple compared to their philosophical ambitions.¹⁹ Yet for the purposes of this thesis, their importance lies elsewhere: they mark an early architectural attempt to encode not just form, but design intelligence itself; preferences, negotiations, and feedback, as computational material. They extend the historical horizon of architectural computation beyond geometric modelling to participatory, communicative processes, even if their AI paradigm and autonomy-driven ambitions differ markedly from the probabilistic, multimodal models discussed in the remainder of this work.

*"So, contrary to this, I suggest an interact architecture agenda that is open for technological explorations while at the same time making use of classical concepts from architecture in new innovative texturation processes of information technologies in physical spaces. Not only do we need to relate these new textures available to the concept of buildings, and not only can we rely on architectural thinking when introducing digital elements and technologies in physical spaces."*²⁰



From explicit formalisms to statistical language

If formal languages and soft machines represent attempts to articulate computation as explicit structure, either through grammars of well-formed expressions or through conversational rules, contemporary machine learning complicates both. On one side, it realises Lovelace's prediction that engines could act on "*other things besides number*": large language models, recommender systems and vision models operate on speech, text, image and behaviour without relying on hand-crafted symbolic codes. On the other side, they no longer primarily depend on explicit grammars or pattern libraries. Instead, they learn high-dimensional statistical representations from large corpora of examples.

In distributional semantics and large language models, words and tokens are embedded as vectors based on patterns of co-occurrence. Meaning is not stored as a fixed entry in a lexicon, but emerges from position in a field of differences. This non-formalist stance extends to multimodal models like CLIP, where images and captions are mapped into a shared vector space and associated by proximity.²¹ Such systems work not by following specified rules about what an "architectural façade" or a "public square" is, but by internalising a vast, probabilistic sense of how such phrases and images tend to appear together.

Mario Carpo has argued that digitally made objects are increasingly identified not by visual resemblance, but by "*the recognition of hidden patterns, on computational algorithms, or on other nonvisual features.*"²² In his example of credit cards, visual inspection gives way to algorithmic verification; authenticity becomes a function of a numerical sequence rather than an image. This shift from surface resemblance to encoded pattern is precisely what contemporary multimodal models operationalise. They do not simply store a geometric model or a textual description; they internalise correlations across billions of tokens and pixels. Architectural drawings, texts and photographs become points in such a space, linked by similarities that often exceed what a designer consciously specifies.



0 — exit, room, doorway, annotated, frame

Where formal languages promise symbolic transparency at the cost of combinatorial tractability, and soft machines promise adaptability at the cost of explicit structure, contemporary models offer powerful pattern-recognition at the cost of interpretability. Their "knowledge" takes the



form of distributed statistical structure, accessible only indirectly through prompts, projections and probes.

*"First, the implicit power of formal generalizations does not show up in a correspondingly streamlined linguistic output. Second, the projected complexity of language acquisition is troubling if compared with its apparent ease and phenomenal rate of effective success. A unique focus on formal properties, as widely practiced in linguistic thinking, cannot hope to explain this constellation short of projecting much of language onto a comprehensive, but opaque plane of universal, hard-wired invariability."*²³



Digital architectonics



0 — annotated, vermouth, delirium, cafeteria, scribbling

The outline above sketches a broad trajectory of computational encodings in order to clarify the historical space in which this thesis is situated. This section in turn briefly outlines the immediate local context within which this work was developed: the Chair for Digital Architectonics at ETH Zürich. The chair sets out from the principle of treating architecture and information technology as mutually informing practices rather than separate domains. In *EigenArchitecture: Computability as Literacy*, Ludger Hovestadt characterises it as “*an interplay between two species similar in kind, neither of them being in the least disciplinal: both affect everything, both are arts of gathering things.*”²⁴ introducing a stance in which architects learn to operate with eigenvectors, populations and symbolic abstractions rather than single ideal objects. In the first volume of *On Digital Architecture*, Hovestadt similarly presents the work as a “*body of thinking*” that gives the public a face and calls on architects “*to learn to read and write... to become literate in the digital, not primarily to get fluent in using digital tools, but to be able to talk about the digital profoundly.*”²⁵ Within this environment, computation is approached as a way of thinking with information and of constructing architectonic instruments that can hold together heterogeneous scalarities.

*"A work of art has a twofold existence. For every work of art is a πόλεμος (polemos), a contention between two impulses—one towards form and against form."*²⁶



Past doctoral research at the chair has investigated a broad variety of concrete modalities of such informational thinking. A first example, in *Play Among Books*, Miro Roman (with the AI collaborator Alice_ch3n81) develops a model in which coding becomes a “*new literacy of*

information" and the library itself is treated as a computational milieu where the constructed instrument forms a new way of reading. This performance of "a play, among books" seeks "to talk about architecture and information on a level that is adequate to the abstractness, speed, and breadth of today's information technologies".²⁷ Nikola Marinčić's *Computational Models in Architecture: Towards Communication in CAAD* likewise shifts attention from computation as a generative engine to a means for communication between different domains. From a mathematical and linguistic theoretical framing, a self-organising model is applied "*to the problem of similarity between spaces, on the basis of their architectural representation*": from a large collection of floor-plan images, "*a finite collection of elementary geometric expressions*" is extracted and "*a symbol attached to each instance,*" forming an alphabet "*by means of which, any plan created by the same conventions, can be described as the writing of that alphabet.*" Each floor plan is then "*represented as a chain of probabilities... forming an individual expression of a written language,*"²⁸ In different ways, these two works treat libraries, alphabets and probabilistic chains as computational media in which architecture and information co-articulate, extending computation from a design tool towards a medium for organising, indexing and communicating architectural discourse.



0 — stairwell, balcony, foyer, elevator, referenced, campaign, escalator

This orientation is also present in the chair's design teaching through Studio Meteora²⁹ invites students to work with custom search instruments and machine-learning–driven libraries as design companions: ask.alice_ch3n81³⁰ to navigate textual corpora, panoramasofcinema³¹ to traverse filmic space, and search.0more³² to query three-dimensional models. Rather than treating these platforms as neutral providers of data, the teaching emphasises how architectural projects emerge from learning to question, curate and support architecture through the playing of these instruments. A related pedagogical approach underpins Research Cluster 11 (RC11) at The Bartlett, UCL³³, where computation is used to navigate and construct epistemic structures through which images, texts, narratives and cultural information are made to communicate in order to infer spatial proposals. Students assemble small multimodal datasets around particular obsessions and questions, cast computational instruments from these curated biases, and learn to



treat computability itself as a form of literacy, echoing Hovestadt's call for architects to develop their own ways of reading and writing with code.

*"The twentieth century saw the golden age of the railway being supplanted first by that of the automobile and then of the aeroplane, forcing yet another re-evaluation of the bridge. New social ideologies and philosophies, new psychological and artistic paradigms emerged around and through the bridge. New paradigms of design and computation, new construction practices and new materials evolved within the shifting contexts of economics, planning and organization, patterns of everyday life and changing global relationships."*³⁴



2 — respirator, smoked, chemistry, debriefing, counterpart

³⁵

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1. Menabrea, Luigi Federico, and Ada Lovelace. *Sketch of the Analytical Engine Invented by Charles Babbage, Esq.* Translated by Ada Lovelace. RICHARD AND JOHN E. TAYLOR, 1843.



2. Holmes, Richard. 'Computer Science: Enchantress of Abstraction'. *Nature* 525, no. 7567 (2015): 30–31. <https://doi.org/10.1038/525030a>.



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11. Marinčić, Nikola. *Computational Models in Architecture: Towards Communication in CAAD: Spectral Characterisation and Modelling with Conjugate Symbolic Domains*. Applied Virtuality Book Series, vol. 12. Birkhauser Verlag, 2019. p. 81



12. Marinčić, Nikola. *Computational Models in Architecture: Towards Communication in CAAD: Spectral Characterisation and Modelling with Conjugate Symbolic Domains*. Applied Virtuality Book Series, vol. 12. Birkhauser Verlag, 2019. p. 80-85



13. Besems, Julian. ‘A Specification Language and Semantics for Architectural Design’. Radboud University, 2020.



14. Wanner, Dieter *The Power of Analogy: An Essay on Historical Linguistics*. Mouton de Gruyter, 2006.



15. Negroponte, Nicholas. *The Architecture Machine: Toward a More Human Environment*. 2. print. MIT Pr, 1972. pp.3-6



16. Negroponte, Nicholas. *Soft Architecture Machines*. The MIT Press, 1975. p.1



17. The fate of the gerbils however is a rather bleak illustration of the limitations of the experiment, as SEEK tended to kill them. See: Wright Steenson, Molly. ‘Architecture Machine Group: Artificial



Intelligence Meets Architecture'. In *The Other Architect: Another Way of Building Architecture*, First edition, edited by Giovanna Borasi and Canadian Centre for Architecture. Canadian Centre for Architecture, 2015.



18. Negroponte, Nicholas. *Soft Architecture Machines*. The MIT Press, 1975. pp. 10-15



19. Marinčić, Nikola. *Computational Models in Architecture: Towards Communication in CAAD: Spectral Characterisation and Modelling with Conjugate Symbolic Domains*. Applied Virtuality Book Series, vol. 12. Birkhauser Verlag, 2019. p. 77-80



20. Wiberg, Mikael *Interactive Textures for Architecture and Landscaping: Digital Elements and Technologies*. Engineering Science Reference, 2010.



21. Radford, Alec, Jong Wook Kim, Chris Hallacy, et al. 'Learning Transferable Visual Models From Natural Language Supervision'. arXiv:2103.00020. Preprint, arXiv, 26 February 2021.



22. Carpo, Mario. *The Alphabet and the Algorithm*. Writing Architecture. MIT Press, 2011. p.4



23. Wanner, Dieter *The Power of Analogy: An Essay on Historical Linguistics*. Mouton de Gruyter, 2006.



24. Hovestadt, Ludger, and Vera Bühlmann, eds. *EigenArchitecture: Computability As Literacy*. Birkhäuser, 2014. p.9



25. Hovestadt, Ludger. *On Digital Architecture. Volume 1: Books 1-3 / Ludger Hovestadt*. Applied Virtuality Book Series, vol. 19. Birkhäuser, 2023.



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30. Roman, Miro. 'Ask Alice'. Accessed 1 January 2026. <https://ask.alice-ch3n81.net/>.



31. Orozco Esquivel, Jorge. 'Panoramas of Cinema'. Accessed 1 January 2026. <https://panoramasofcinema.ch/>.



32. Roman, Miro, and Jorge Orozco. 'Search O More'. With Adil Bokhari. Accessed 1 January 2026. <https://search.0more.net/>.



33. RC11 is an urban design teaching studio within the 12-month B-Pro UD MArch programme at The Bartlett, UCL. I have taught in the cluster as design tutor over the last five years: first with Philippe Morel, then for one year with Alexander Borrell, and currently with Andrew Porter.



34. Bishop, Peter *Bridge (Reaktion Books - Objekt)*. 2008.



35. The input pdfs for this chapter are: Bottazzi, Roberto. *Digital Architecture beyond Computers: Fragments of a Cultural History of Computational Design*. Paperback edition. Bloomsbury Visual Arts, 2020.; Alberti, Leon Battista. *On the Art of Building: In Ten Books*. 7. print. Translated by Joseph Rykwert, Neil Leach, and Robert Tavernor. MIT Press, 1997.; Wittgenstein, Ludwig, and G. E. M. Anscombe. *Philosophical Investigations*. 3nd ed., Repr. Blackwell, 1989. - [Book Context Link](#)



1.2 AMBITION

“But the arts of which we speak should, on the contrary, by means of numbers and relations of numbers, engender in us not a fable, but that hidden power which makes all fables.” - Paul Valéry, Dialogues^L



0 — shroud, breathing, sleepwalker, mourner, delirium, dissolving, beneath

The previous chapter 1.1 has outlined the challenge of facilitating architectural thought within the digital beyond geometrical encoding. The current geometry-forward digital 3D model is powerful, yet prone to monopolising architectural process by over-identifying architecture with its most readily computable register. The ambition here is to work from the opposite direction: to attend to the *operations* that make architectural communication relate across domains. What matters is not just what computation can represent and produce, but what information technologies can stage: how it can host the registers through which architecture persists as culture, atmosphere, discourse, and discipline.

“Indeed, one comes to understand the most profound implications of art only by contemplating its immaterial, Utopian content: “If thought is in any way to gain a relation to art it must be on the basis that something in reality, something back of the veil spun by the interplay of institutions and false needs, objectively demands art, and that it demands an art that speaks for what the veil hides.”^{m2}



This thesis therefore explores how a manner of architectural thinking can be applied within the digital by cultivating an instrumented space of constant interaction, a sort of informational playground, where architectural processes remain active, and where modalities do not collapse into a single, sovereign axis. The aim is therefore not another translation of architecture into

data, but an architectural engagement with dominant digital modalities (most insistently: text and image), treating their difference as a productive constraint rather than a gap to be *aligned away*.

Bühlmann's reconstruction of Serres helps to fix the propositional stance. For Serres, models are not primarily representative or explanatory, but instrumental and operative: they "realise" a phenomenon and are themselves active, endowed with a kind of mentality or character.³ Models are not mirrors but devices: they create conditions under which relations can appear, be measured, and be transformed. Measurement still matters, but it may run along axes of probabilities, proximities, and indices, rather than along classical notions of correctness or exactitude. The ambition pursued here is to treat digital models in precisely this way: as architectonic instruments that facilitate reading, and re-reading, relations between heterogeneous communications.

*"The confusion about the potential of computational tools can be traced back to one essential misconception that has carried over from the historical notion of 'mechanical objectivity': the impression that machine processing endows results with a higher epistemological status. The mathematician Hao Wang counters this flawed idea wittily by referring to machines as 'persistent plodders' (Wang 1963: 93)."*⁴



1 — parallel, monument, elevator, frame, strut, plaza

The persistent difference between text and image is treated as an architectonic obstacle that can structure thought, akin to the way perspective constructs a view by lawful distortion, always dependent on position. Throughout machine learning is relied on to establish projections between domains, with emphasis on the non-linear but contingent nature of such projections⁵, while resisting the temptation to "align away" difference.

Methodologically, the work draws on computer science, mathematics and architectural theory to prototype alternative encodings and projections: algebraic rather than purely logicist; communicative rather than solely procedural. This stance situates architectural computation within a broader, contemporary paradigm of communication and self-organisation. The instrumentality of the thesis, writing as device, device as writing, follows a lineage of informational instruments that articulate libraries, images, and concepts into operable constellations developed at the Chair of Digital Architectonics at ETH in Zürich. The immediate concern is not to predict architecture from data, but to restore architectonic play between media: a space where theory, atmosphere, culture, and association can once again act with design.

"It was this subversive image that Wittgenstein sought to expel from language, which the behaviorists sought to purge from psychology, and which contemporary art-theorists have sought to cast out of pictorial representation itself. The modern pictorial image, like the ancient notion of "likeness," is at last revealed to be linguistic in its inner workings. Why do we have this compulsion to conceive of the relation between words and images in political terms, as a struggle for territory, a contest of rival ideologies?"⁶



To frame the discussion on how such an instrument takes shape, several key terms are introduced here with specific meanings. **Projection** refers to the transposition of information from one representational domain into another, following a lineage from Alberti's perspectival mappings to contemporary computational models; it always involves distortion and re-proportioning rather than equivalence. **Proportion** denotes the qualitative calibration of distinct modalities such that their differences remain generative, akin to Vitruvian harmony, and is contrasted here with translation, which implies semantic sameness. **Architectural modes of communication** is used to refer to any media through which architectural concepts are conveyed, spanning the diversity of traditional and digital media - plans, sections, renderings, physical models, diagrams, texts, images. **Cast** is used by analogy with material casting, where one substance gains form through the imprint of another, here designating how one modality can structure the expression of another. **Resonance** describes a mode of correspondence between modalities that operates beyond statistical similarity, emphasising experiential, cultural, and contextual dimensions: the capacity of an artefact in one domain to evoke or activate meaning in another without collapsing their formal distinction. Finally, **Architectonic Instrument** names a construct - material, digital, or conceptual - that enables the articulation and interrogation of architectural ideas across domains. In this context, machine learning models are treated as architectonic instruments when they sustain heterogeneity and enable cross-modal reasoning. These terms are expanded in the discussion that follows, introduced here for clarity.



0 — manifesto, jeweler, bookstore, declaring, newspaper

With this ambition and vocabulary in place, the remainder of the chapter specifies the scope of the thesis and articulates its proposal .

7

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1. Valéry, Paul. *Collected Works of Paul Valery, Volume 4: Dialogues*. Princeton University Press, 1989. p.97

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2. Kolbas, E. Dean *Critical Theory and the Literary Canon*. 2001.

↔

3. Bühlmann, Vera. *Mathematics and Information in the Philosophy of Michel Serres*. Bloomsbury Academic, 2021. especially. pp. 154, 168, on models as instrumental and operative

↔

4. Berry, David M. *Understanding Digital Humanities*. Palgrave Macmillan, 2012.

↔

5. Sautoy, Marcus du. *The Creativity Code: How AI Is Learning to Write, Paint and Think*. Fourth Estate, 2019. pp. 95-98

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6. Mitchell, W. J. T. *Iconology: Image, Text, Ideology*. University Of Chicago Press, 1987.



7. The input pdfs for this chapter are: Carpo, Mario. *The Alphabet and the Algorithm. Writing Architecture*. MIT Press, 2011.; Bredekamp, Horst. *The Lure of Antiquity and the Cult of the Machine: The Kunstkammer and the Evolution of Nature, Art and Technology*. Translated by Allison Brown. Markus Wiener Publishers, 1995.; Holmes, Richard. ‘Computer Science: Enchantress of Abstraction’. *Nature* 525, no. 7567 (2015): 30–31. - [Book Context Link](#)



1.2.1 SCOPE



0 — foyer, loudspeaker, furniture, organist, cabinet, soundproof, courtroom

The scope of this thesis is to apply an architectural attitude to digital information. This means the thesis is not so much directly engaging with architecture as an object, but rather with the processes that lie at the basis of architectural projects: how architecture thinks, communicates, and negotiates between heterogeneous modes. The project pursues architectural method as a transferable discipline of mediation, an art of placing different information and contents into proportion. Because the research is pursued through an instrument developed alongside it, the scope revolves around the design of an editor in which the thesis is written and tested as an operational environment, with the theoretical argumentation supporting the reasoning for this stance. The work therefore treats writing itself, and to a lesser extent the curation of image constellations, as modes of architectonic operation: a back-and-forth between domains of texts and images, actively handled, queried, projected, and recomposed as part of the research procedure.

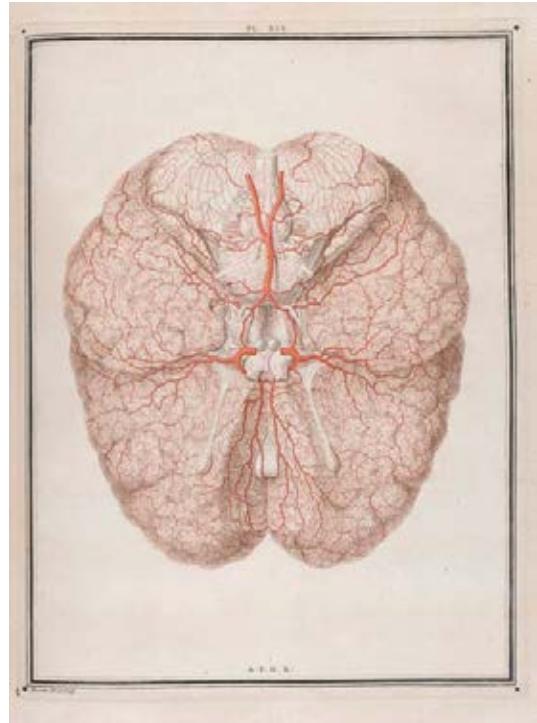
If something is put through computation, with the Turing machine as the archetypal machine, it must be encoded. Represented as 1s and 0s. Flattened into the binary. This however does not necessarily mean the artefact is flattened in itself; the flattening becomes an issue when the encoding is treated as a definition of the object. This could be the case with the 3D model and the digital twin if architecture is presumed to have *become* the model, totally represented through its geometric and informational surrogate. In the same fashion, any one perspective image through Alberti's technics of perspective becomes, in its communication, a flattened index. But the art of architecture is that the comprehension of space exists through the proportion between different modes of communication. This is also why Ada Lovelace remains a key reference point. Her insight for the potential of numerical encoding to offer another space to think in. One that remains an instrument, but not a predetermined one.¹ The thesis keeps the binary substrate (1s and 0s) in view as an addressing system: a condition for operations.

"A sensed structural schema of this sort can be made concretely visible, as when a stick figure drawing or a pipe cleaner sculpture is shaped to correspond to such a posture. But one does not concretely see such a schema when looking at the person-one only senses its presence. The Marrian abstractions (Marr 1982) that represent a human figure in terms of an arrangement of axes of elongation provide one theoretization of this sensed level ofception."²

Instead of relying on computation to collect and internalise all modes of representation in a single relation, this thesis is concerned with how we create talks between them on a level of abstraction that doesn't define the outcome as a linear result of the base. The 3D model is cast as one member of a multimodal ensemble: indispensable where geometry is at stake, yet insufficient as the locus of architectural knowledge. To arrive at a setup that allows for this other aspect, attention is directed to the modalities that currently dominate digital multimodality - text and image - because contemporary machine learning models operate most powerfully across these domains. As an alternative approach to mediate between modes of communications, computational processes are tuned to offer means of projecting between domains in non-systematic matters: foregrounding association and the navigation of the digital plenty that we have at our disposal. This proposes a non-linear model that facilitates the communication between domains, maintaining a proportionality. Focussed on facilitating an understanding.

These associations are approached as invitations into conversation. As stated by Valéry, as soon as we make a comparison it is not moving and we are not entering the relation between the objects.³ Comparison communicates through distance, difference, and proximity; it tends to stabilise. Instead of focussing only on what is close and similar, the scope here is to explore a means of association that forms constellations, what Ishigami calls an approachable abstraction.⁴ These constellations are treated as indefinite and ambiguous clusters of things that might engage in talks, much like the Kunstkammer as discussed by Horst Bredekamp.⁵





association — vein, brainy, cortical, malformation, cerebrum

Within this context, machine learning (ML) is approached less as a means of classification or generation, and more as a family of techniques that enable projections within domains and between domains. Examples range from self-organising maps (SOM)⁶ to contemporary text–image systems.⁷ Although these projections rest on encoding domains into vectors (between which distances can be measured) the relations they establish do not behave like a single explicit function that can be written down in advance.

Using ML methods, the projection from a domain to a co-domain follows contingent relations established through associations of data. Removing a strictly linear connection between domain and co-domain has the potential to lift the resulting architectonic connection out of geometry onto a communication between non-commensurable fields. This does not mean abandoning geometry; rather it means resisting its monopolisation. It will rely on discerning proportionalities between domains instead of translating them into the same common set, comparable to the proportion between plan and section. These domains in architecture are not the same, nor can they be reduced to one field; they need to stand orthogonal to each other to bear meaning. Within that scope, ML is treated as a non-systematic means of orienting qualitative data: facilitating projections within and between domains that do not follow a pre-declared mathematical function, and thereby tuning indefinite and ambiguous constellations of communication.

"Contrasting, for example, record and circle, we notice that circle is part of the shape information in record, which relies, however, on knowledge explaining sound storage (in varying degrees of detail), while nothing (beyond mere geometry) is explained by circle. For almost trivial reasons, the distinction of rich and spare concepts relates to (but is not identical with) the distinction between extrinsic and intrinsic spatial concepts, as opposed to strictly spatial concepts."⁸



At the same time, the scope of the thesis is explicitly instrumental rather than model-inventive. Current ML developments have culminated in models that can transform input data to related information, both between domains (e.g. text to image) and within domains (e.g. text to text). These developments are of evident relevance here because they enable continuous interaction. Because of the high complexity, requirement of resources, and the reliance on enormous scale of data of such models, the thesis does not attempt to extend their computational architectures, nor retrain them; instead it focuses on using and connecting existing technologies, using small scale datasets to curate particular kinds of interactions. Their original setup is used, connected, and probed in ways that support the thesis's architectonic propositions about projection, proportion, and heterogeneity. Their rapid evolution is therefore addressed as context and constraint: it informs what can be staged, but does not determine what counts as an architectural outcome.



practical — conference, gesticulate, speech, debating, convened, briefing, haughty, xerox

"*Although structure-mapping is best known as a theory of analogy, metaphor has been a focus of the work from its inception (e. g. , Gentner, 1982). Structure-mapping theory assumes the existence of structured representations made up of entities and their attributes, functions that map entities to dimensions or to other entities, relations between objects, and higherorder relations between relations.*"⁹

Roberto Bottazzi concisely formulates a void in the current discourse on AI architecture, which is also where the thesis aims to sit in respect to AI: "*Rather, what the debate on AI architecture is missing is the ability to conceptualize the technical logic of AI within the disciplinary repertoire of architecture: to indicate references, directions, practices; in short, a conceptual agenda for the discipline in the light of the penetration of AI in architecture.*"¹⁰ The way in which the experimental setup of this thesis will engage with ML, is therefore consistent with how the digital in general is approached. The concern toward AI is also as one from within architecture, looking to engage ML in a manner to operationalise multimodal domains according to architectonic methods.





setup — fifty, bond, astonish, loft

To support a precise discussion of domains and their relations, a central theoretical point of reference throughout the thesis will be abstract algebra. The purpose of this is not to fully describe the experiments in mathematical terms, but to study algebra alongside computational experiments as a way of thinking about the nature of facilitated communications between domains of data, especially in terms of operations, relations, and invariants. In particular, group theory (as the smallest extension of a set into an algebraic structure) provides a framework for speaking about domains without reducing them to a shared representational substrate.

To conclude, it is proposed that the technics of computation can be seen in a similar manner to the 3D perspective drawing technics of Alberti in the 15th century.¹¹ In line with this, computation does not directly lead to a means of creating; it is first and foremost a technic of communication, one that can communicate architectural thought in novel ways.

12

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1. Bühlmann, Vera. ‘Arché, Arcanum and Articulation: The Universal and Its Characteristics’. In *Domesticating Symbols: Metalithikum. II*, edited by Ludger Hovestadt and Vera Bühlmann. Applied Virtuality Book Series. Ambra V, 2014. pp. 112–176.

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2. P., Bloom, Peterson M.A., Nadel L., and Garret M.F. (eds.) *Language and Space*. 2017.

↶



3. Valéry, Paul. *Collected Works of Paul Valery, Volume 4: Dialogues*. Princeton University Press, 1989. p.13

↶

4. Ishigami, Junya. *Small Images*. LIXIL Publishing, 2012. p.41

↶



5. Bredekamp, Horst. *The Lure of Antiquity and the Cult of the Machine: The Kunstkammer and the Evolution of Nature, Art and Technology*. Translated by Allison Brown. Markus Wiener Publishers, 1995.



6. Kohonen, Teuvo, and Timo Honkela. ‘Kohonen Network’. *Scholarpedia* 2, no. 1 (2007): 1568.



7. Ramesh, Aditya, Prafulla Dhariwal, Alex Nichol, Casey Chu, and Mark Chen. ‘Hierarchical Text-Conditional Image Generation with CLIP Latents’. arXiv:2204.06125. Preprint, arXiv, 12 April 2022.



8. P., Bloom, Peterson M.A., Nadel L., and Garret M.F. (eds.) *Language and Space*. 2017.



9. Jr., Raymond W. Gibbs *The Cambridge Handbook of Metaphor and Thought*. New York: Cambridge University Press, 2008.



10. Bottazzi, Roberto. ‘Projections: On the Design Process in AI Architecture’. In *Architectural Intelligence in the Age of Artificial Intelligence*, 1st edn, edited by Andri Gerber, Oya Atalay Franck, and Michael Mieskes, vol. 93. Architekturen. Transcript Verlag, 2025.



11. Roman, Miro, and Alice_ch3n81. *Play Among Books: A Symposium on Architecture and Information Spelt in Atom-Letters*. Edited by Ludger Hovestadt and Vera Bühlmann. De Gruyter, 2021. p30-3



12. The input pdfs for this chapter are: Ishigami, Junya. Small Images. LIXIL Publishing, 2012.; Cohn, Neil. ‘A Multimodal Parallel Architecture: A Cognitive Framework for Multimodal Interactions’. *Cognition* 146 (January 2016): 304–23.; Valéry, Paul. Collected Works of Paul Valery, Volume 4: Dialogues. Princeton University Press, 1989. - [Book Context Link](#)



1.2.2 PROPOSAL

Given the scope, and the intent of engaging with methodology over architectural material, the point being made is epistemic: architecture is mediated by many modes that do not collapse into a single model. Architectural thought does not, and never did, reside in one privileged representation, but in the proportional negotiations between several - drawings, images, texts, models - each standing apart, yet held together in practice.





0 — juggle, minimal, abstraction, spiral, center

In the digital, this plurality meets a specific condition: vectorisation. To vectorise is to encode artefacts so that relations can be expressed as distances and neighbourhoods in a high-dimensional space. In this sense, contemporary computation introduces a geometry beyond the three-dimensional: not the geometry of solids, but of proximities, sometimes governed by explicit procedures, often emerging as probabilistic reductions. This condition is productive, but to the complexity of intuitive navigation within something we can't visualise - n-dimensions - it also comes with a risk: that translation becomes the default operation (caption ↔ image, prompt ↔ output), and difference is flattened into alignment.

*"Thus, meanings are discovered, coming out of this particular kind of engagement, and places come into being through being involved with the activity itself. This approach differs from one that takes meaning to be overlaid upon the physical world, as if it were possible to take yourself out of it, and to place yourself above its surface."*¹



The proposal of this thesis is to treat such projections as architectonic devices that stage relations between heterogeneous domains so they can be read, re-read, and re-proportioned. This is explicitly not a retreat from computation, but a call for its architectural recalibration. Le Corbusier, writing on the Modulor, warned against the seduction of numerical scales: *"Indeed it is a dangerous tool, for, starting out from its abstract obedience to numbers, one is tempted, by negligence or laziness, to perpetuate it in other convenient measures [...] much to the detriment of architecture"*². Setting out with the ambition to find a harmonic alternative: *"a scale of visual measures has its place because the first effect of this new tool would be to unite, co-ordinate, bring into harmony the work which is at present divided and disjointed"*². These insights frame a historical precedent for the tension explored in this thesis: how instruments for measure can as easily narrow thought as they can open it. The aim here is to construct a multimodal architectonic instrument that can sustain the qualitative, the contingent, and the situated within the digital abundance of contemporary practice.

"Using the work of Mathew Jones, I have shown how a single art work can function as a determinable multiplicity. The dynamic territories that we find in his work draw together the pre-individual singularities of percepts and affects such that new subjectivities and existential





territories might individuate themselves. The singularities provide an intensive consistency of differences in which new formations crystallize."³



modelling — exhibitionist, nude, naked, indoors

[4](#)

Methodologically, this proposal is carried out through computational experiments that work in the multimodal gap using small, curated datasets from films, subtitles, photographs, and architectural papers. These curated selections function as casts: authored constraints that tune what may appear. They operate against larger, generic public corpora, books and images that function as screens of abundance, so that projection can become proportion rather than mere search or equivalence. Crucially, this staging is not external to the thesis: the project is developed and articulated through the Writing Images and Picturing Texts editor (WIPTe), so that writing becomes the principal loop in which the instrument replies and the argument is tested in practice.⁵



measure — breathing, congenital, skin, snored, collagen, gymnastic

[6](#)

The ambition is to be able to formulate proportions between modalities in a manner akin to that of the architectural synthesis of space. In this the spatial manifestation (in digital terms the 3D model) acts as a negotiating cast between distinct projection domains such as plan, section and perspective (Fig. 1.2.2:1). Just as architectural space is synthesised through the relations between incommensurable views, the experiments here investigate how multimodal computational models might be engaged to perform an analogous mediating role across the dominant digital domains on which current multimodal models rely: images and text. The experiments are

therefore oriented toward architectonic reasoning across qualitative domains. Computation as exploration rather than automation.

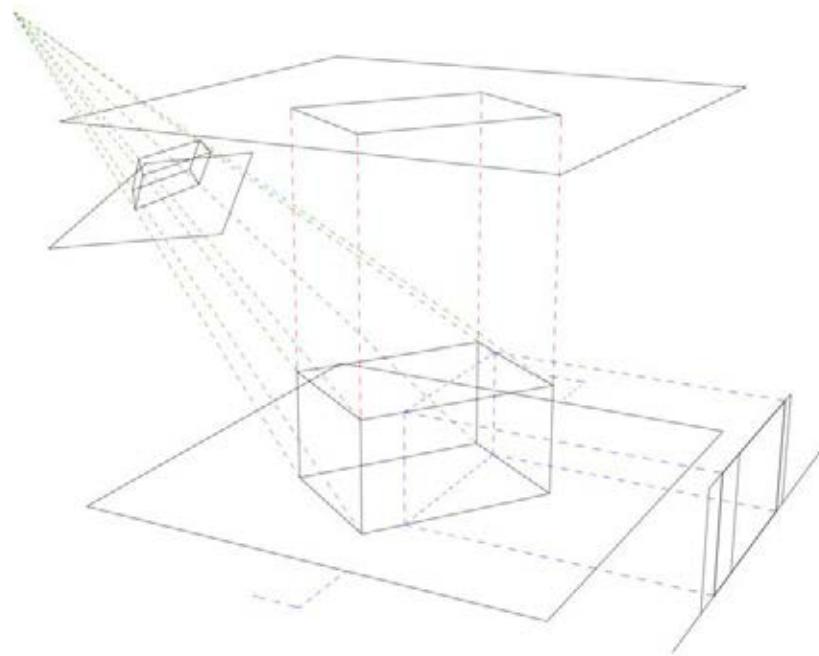


Figure 1.2.2:1 - The 3D model as a mediating construct in architectural communication. Plans, sections, and perspectives each project different but interdependent aspects of the design; none can be directly translated from another. The 3D model functions as a cast that coordinates these modalities by proportion rather than equivalence.

Hypothesis

The complete internalisation of architectural design into a computational model through Cartesian encoding is unable to successfully communicate abstractions of a design process. In the same way that $\sqrt{2}$ is not reducible to a finite rational ratio, architectural design cannot be exhausted by Cartesian geometry. We relate to the $\sqrt{2}$ through an understanding of the operation of the square root, or the proportions of the isosceles right triangle (Fig. 1.22:2), which enable us to communicate with it, even if not deterministically calculated. In a similar way there are aspects of architectural design that can be sought to be expressed through the proportionality of its parts, understood through the perception and operations that hold together a totality without collapsing it. As Ishigami writes:

"The experience of architecture is the manifestation of the totality of perceptions (of the space) as synthesized by the person having the experience." - Ishigami, Small Images⁷

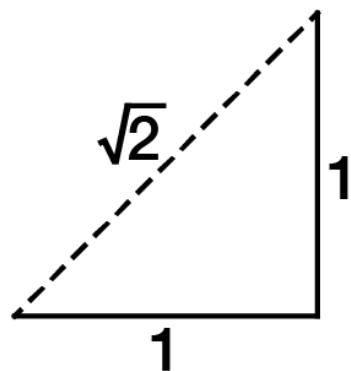


Figure 1.2.2:2: Square root as diagonal of the unit square

Taking an instance of Ishigami's work to illustrate this point, we cannot prove that the KAIT workshop by Ishigami (Fig.1.2.2:3) produces x number of spaces, however we can speak and communicate about how a connection of open areas is experienced from the constellation of the columns. There is a compelling spatial quality that can be discerned, not unlike how we cannot calculate the value of π , but we are most certainly able to speak about it based on how we understand it through the operation of rotation that gives rise to its definition. In Foucault's words: *"The problem is no longer one of tradition, of tracing a line, but one of division, of limits; it is no longer one of lasting foundations, but one of transformations that serve as new foundations, the rebuilding of foundations."*⁸



Figure 1.2.2:3 - Internal Photograph of The Kanagawa Institute of Technology Workshop by Junya Ishigami⁹

Likewise, multimodal ML can transition between objects and indexes, but what matters architectonically is not the projection alone. The interpretative act sits in the encoding, the

selection of casts and screens, and the re-proportioning of the resulting set; how an instrument is tuned, and how its replies are taken up as part of a thinking process.

*"While theorists and commentators of digital writing may have observed the "slip" to which Andrews refers, mainstream scholarship is persistently focused on linear, alphabetic, natural language texts. One of the ways in which this phonetic-linear inertia is being challenged, however, is through calls for a renewed emphasis on production or invention over the traditional concern for critique and analysis. As techniques and technologies for the production of texts become increasingly available and as a generation of influential voices in the humanities focuses on methods of invention over representational critique, there is a rising trend in current scholarship to blur the disciplinary lines that conventionally separate text from code."*¹⁰



Research Question

The contribution of this research is to stage a limited and situated experiment with text–image modalities, as a preliminary probe into how architectural reasoning might be extended to computational multimodality. Its central aim is to test how multimodal ML models, when approached architectonically, might sustain proportion and heterogeneity between modalities, and avoid collapsing them into equivalence. In doing so, it frames a methodological stance that repositions computation as a speculative instrument for architectural reasoning.

The central question guiding this work is:

How can multimodal ML models be engaged architectonically so that their operations sustain the communicative and qualitative differences between modalities?

Three subordinate questions that guide the research:

1. **cast:** How can relations established through datasets of two modalities be constituted into a *cast* that allows for associative projections between domains?
2. **proportion:** What does it mean, operationally, for a multimodal projection to remain proportional, specific, heterogeneous, and usable?
3. **instrument:** How can a continuous interaction with these projections make them domesticated enough to accompany writing and reasoning, while remaining traceable and intentionally biased?

Following the question posed by Ludger Hovestadt as a wide focus of the research at the chair of digital architectonics: "*WHAT IS ARCHITECTURE, if machines successfully can do what we think architecture is?*"¹¹, the thesis approaches this through the more narrow lens of mediation: how computers might act between the domains through which architecture is communicated, and how such mediation can reveal an accessible architectonic abstraction without claiming to automate architectural thought.



collapsing — mechanism, sequel

12

-
1. (ed.), Cristina Grasseni *Skilled Visions: Between Apprenticeship and Standards*. Berghahn Books, 2007.

↔

2. Corbusier, Le. *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics*. Faber & Faber, n.d.

↔

3. (ed.), Gary Genosko *Deleuze and Guattari: Critical Assessments of Leading Philosophers. Volume II: Guattari*. Routledge, 2001.

↔

4. *Saltburn*, Directed by Emerald Fennell (Amazon MGM Studios, 2023), Blu-ray. — 2:05:03

↔

5. The editor is framed in the thesis as *the very medium of this thesis... Every page you read in this document was written inside the editor*; with replies (red/magenta text, blue images) coextensive with the act of writing.

↔

6. *The Skin I Live In (La piel que habito)*, Directed by Pedro Almodóvar (El Deseo, 2011), Blu-ray. — 1:28:00

↔

7. Ishigami, Junya. *Small Images*. LIXIL Publishing, 2012. p.121



8. Foucault, Michel. *Archaeology of Knowledge*. Routledge Classics. Routledge, 2002. p.6



9. Image ©Junya Ishigami, retrieved from <https://www.thisispaper.com/mag/kanagawa-institute-technology-workshop-junya-ishigami> (accessed 15-12-25)



10. Hawk, Byron, David M. Rieder, and Ollie Oviedo *Small Tech: The Culture of Digital Tools*. Univ Of Minnesota Press, 2008.



11. Hovestadt, Ludger. ‘Digital Architectonics Primer #01 HOW to TAKE SPACE - YouTube’. 2020. <https://youtu.be/USQVh4NcimI?si=Dxexwaru0q8Ctzjp>.



12. The input pdfs for this chapter are: Introduction of Hovestadt, Ludger, Urs Hirschberg, and Oliver Fritz, eds. *Atlas of Digital Architecture: Terminology, Concepts, Methods, Tools, Examples, Phenomena*. Birkhauser, 2020.; Ishigami, Junya. *Another Scale Of Architecture*. LIXIL Publishing, 2019.; Cheng, Eugenia. *The Joy of Abstraction: An Exploration of Math, Category Theory, and Life*. First paperback edition. Cambridge University Press, 2024. - [Book Context Link](#)



1.2.3 ORIENTATION

This concludes Chapter 1, where the thesis has been situated within architecture and its challenge and ambitions have been set out. The next chapter shifts register: Chapter 2 defines the position and perspective of the thesis within its primary conceptual discourse - **multimodality** - so that the digital phenomenon can be approached from an architectonic point of view, rather than the other way around. Together, Chapters 1 and 2 form the theoretical grounding of the work: the first as an introspection into the discipline the thesis sits in, the second as a view onto a contemporary digital condition from that disciplinary stance.

Chapter 3 then gives the methodological answer to this grounding. It outlines the development of the Writing Images and Picturing Texts editor (WIPTe) as the central instrument of the thesis, the medium through which the argument is written and tested. The thesis' two *operative chapters*, where the editor's elements change role and what functioned as contextual ornament becomes primary material, sit at its edges: Chapter 0 (Preludes) foregrounds the editor in operation by commenting on its own activities and establishing how its returns are to be read, while Chapter 4 forms the outward counterpart where the editor forms a ground to discuss broad concepts. Finally, Chapter 5 (Conclusion) reflects on what this alternation of theory, method, and demonstration has made possible, and what it has left open.

2. MULTIMODALITY



2 — conscious, counterpart, pedestrian, fragmenting

Where chapter 1 situated the thesis within architecture, this chapter will serve to formulate a perspective onto the primary condition that the thesis revolves around: multimodality. Before introducing the experimental setup, this chapter first reviews the current occurrences of multimodal relations between domains of information within computation and architecture. This will serve as the technical-theoretical basis upon which the experiments will reflect. As previously stated, the aim is not to prescribe applications for architectural representation, but to draw from how architects already work across modalities in order to frame digital multimodal models from an architectonic perspective.

"Each word as it appears on paper takes on a fresh meaning, a literal meaning that is often unnoticed when dropped from the lips in careless conversation. I had a good command of language; I worked with the spoken language every day. To convey spoken ideas is very simple. If you don't know the exact words, a gesture will sometimes take the place of the word you need, and the listener will get the gist of your idea. But on paper, the exact word is needed, and I meant to get through. . . The next ten hours were the most gratifying hours, and the hardest hours I ever worked."¹



2

1. Willeford, Charles *The Woman Chaser*. Thunder's Mouth Press, 2001.



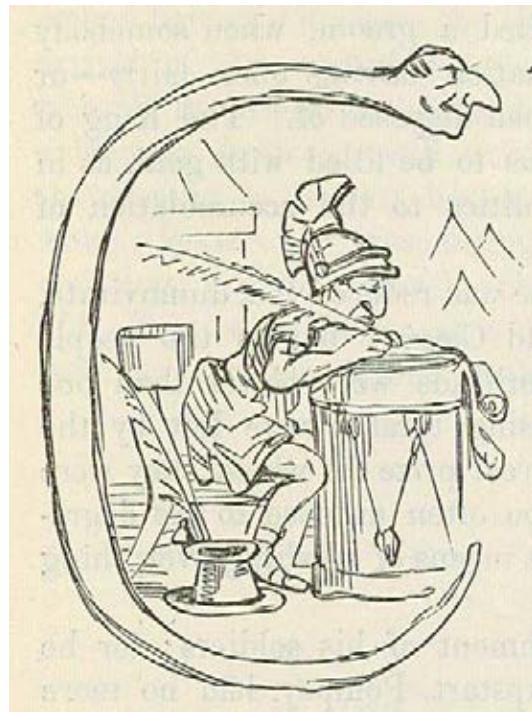
- 
2. The input pdfs for this chapter are: Murakami, Haruki. *Kafka on the Shore*. Knopf Doubleday Publishing Group, 2006. - [Book Context Link](#)

↔

2.1 ARCHITECTURE

*“Arrangement includes the putting of things in their proper places and the elegance of effect which is due to adjustments appropriate to the character of the work. Its forms of expression (in Greek *iδέαι*) are these: groundplan, elevation, and perspective. A groundplan is made by the proper successive use of compasses and rule, through which we get outlines for the plane surfaces of buildings. An elevation is a picture of the front of a building, set upright and properly drawn in the proportions of the contemplated work. Perspective is the method of sketching a front with the sides withdrawing into the background, the lines all meeting in the centre of a circle. All three come of reflexion and invention. Reflexion is careful and laborious thought, and watchful attention directed to the agreeable effect of one’s plan. Invention, on the other hand, is the solving of intricate problems and the discovery of new principles by means of brilliancy and versatility. These are the departments belonging under Arrangement.” - Vitruvius, The Ten books on architecture¹*

In similar fashion to how Vitruvius foregrounded the multidisciplinary nature of Architecture (see 1.1), he outlines in a precise way how the process of design operates within a terrain that is inherently multimodal. Crucially he identifies the way in which the different expressions come together through the two operations of reflexion and invention, thus not just identifying them as representations, but instead the domains across which the central actions of arrangement takes place.



conception — bidet, homer, loo

A later cycle, in a different mode of the same sensibility, is found in the Ten Books of Architecture by Alberti²:

“But I can say this of myself: I have often conceived of projects in the mind that seemed quite commendable at the time; but when I translated them into drawings, I found several errors in the

very parts that delighted me most, and quite serious ones; again, when I return to drawings, and measure the dimensions, I recognize and lament my carelessness; finally, when I pass from the drawings to the model, I sometimes notice further mistakes in the individual parts, even over the numbers. For all this I would not expect him to be a Zeuxis in his painting, or a Nichomachus in arithmetic, or an Archimedes in geometry. Let it be enough that he has a grasp of those elements of painting of which we have written; that he has sufficient knowledge of mathematics for the practical and considered application of angles, numbers, and lines, such as that discussed under the topic of weights and the measurements of surfaces and bodies, which some called podismata and embata.- Alberti, On the art of building: in ten books”³

Here the modalities are expanded to the imagined, the drawing and the model, with Alberti expressing how each contributes differently to the process by revealing different aspects and flaws. He also notes how the modes do not just contribute differently but that they are also rooted in the different disciplines of painting and mathematics.



[algebra — ratio, wakefulness, sight, square, semicircular](#)

The text, the drawing, the model, and now the code; each offers a particular domain through which space can be thought, projected, and communicated. These are not translations of a single idea across formats; they are distinct epistemic instruments, composing space by difference, by their relational tension. In more recent times, Robin Evans⁴ emphasized that architectural drawing is more than a representational tool; it is a generative medium that produces architecture through its very difference from the building. He challenges the assumption that drawings should resemble buildings, arguing instead that the drawing's power lies in its unlikeness, its capacity to create rather than imitate. This suggests that architectural understanding arises through a transfigurative process shaped by the distinct modalities of architectonic communication. In different words, Koolhaas points out that even though as architects we can be seen as specialists of space, we ironically lack the vocabulary to speak about it:

The plan is arguably the dominant conceptual document and the logic of orthographic projection replaces the magic of the floors in temples and palaces. While architects are connoisseurs of spatial containers, the art of making the volume inside those containers is one that, surprisingly, is rarely discussed. [...] Despite the pleasure associated with volume, the discipline has not developed, in hundreds of years of space making, an artful, technical, practical, or even silly vocabulary for describing it. - Koolhaas, Elements of Architecture ⁵

Exactly because of this lack of direct vocabulary, architectural space does not appear independently of its representations but emerges from their interplay. A plan cannot be derived



from a section, nor vice versa; each outlines a different set of spatial relationships, of priorities and abstractions. Plans, or ichnographic projections, establish relational fields, mapping circulation and zoning across the ground plane. Sections, as orthographic cuts, organize vertical stratifications, registering gravity and material accumulation. Scenographic views - elevations, perspectives, and renderings - engage with spatial appearance and performativity. Textual briefs and conceptual diagrams enter this constellation as propositional instruments, inscribing programs, narratives, or theoretical vectors. Each modality draws upon a different register of space. They do not reinforce a singular architectural truth but construct a dispersed and dynamic matrix of interpretations and operations. This disjunction opens architecture to interpretation, negotiation, and invention. It is through their tension that space is circumscribed.

Multimodality in the context of architecture can therefore be understood as a structuring condition of architectural thought, more complex than as a simple coexistence of domains. Each mode - plan, section, model, image, text - carries its own semiotic logic and operational affordances. Rather than dissolving into a unified representation, these modalities sustain architectural reasoning through their interplay and disjunction. As Gunther Kress argues on multimodality in the process of learning in general, each mode brings distinct potentials shaped by its material and cultural history: *"While speech is based on the logic of time, (still) image is based on the logic of space. [...] In image, meaning is made by the positioning of elements in that space; but also by size, colour, line and shape. Image does not 'have' words; it uses 'depictions'. Words can be 'spoken' or 'written'; images are 'displayed'. [...] Meaning relations are established by the spatial arrangement of entities in a framed space and the kinds of relation between the depicted entities."*⁶ In architecture, this supports the notion that drawing, modelling, writing, and narration do not overlap but align momentarily through acts of design. The architect's work lies in composing their proportionality, producing meaning by exploring the resonances and tensions that emerge across modes, an operation that extends beyond that of translating between the different notations of geometry. Modalities define not only what is represented but how thought itself is organised and communicated. This orchestration extends into communication and discourse as well. The architectural project is not finished when built; it is continuously mediated through publications, exhibitions, arguments, and critique; each constituting yet another modality.

*"This last notion follows a univocalization of mimesis, indeed a univocalization of being, in which image and original are congealed into a too fixed one-to-one correspondence. Mimesis is a relation, and hence has a dynamic of relating at work in it. The complexity of the relation has to do less with some univocal visual mirroring than a balanced relativity between an image and an original. That relation is double rather than univocal, indeed plurivocal in that an openness is necessarily inserted between original and image."*⁷



If we widen the lens from the building to the city, multimodality becomes even less a question of "representations of an object" and more a question of relations and gestures. In urbanism, the architect rarely designs a singular artefact in isolation; the work is to shape arrangements; connections and separations, gradients of access, densities, adjacencies, thresholds, patterns of movement and pause. These dispositions are mediated through plans and sections, but equally through schedules, codes and contracts, governance diagrams, budgets, consultation images,

press narratives, and the friction of public argument. In this sense, the architectonic is not simply architecture at a larger scale; it is an emphasis on how architecture operates as a relational practice across heterogeneous media and publics.

This shift clarifies what is at stake in speaking about architectural multimodality here. If modalities are treated as parallel depictions of a stable object, then the task is to align them. If, however, modalities are treated as operative instruments, then the project is not “contained” in any one of them. It is produced through their interplay: how a plan frames a possibility of movement, how a policy clause reconfigures a threshold, how an image persuades or provokes, how a diagram ranks priorities, how a brief scripts use, how a critique re-indexes a project within culture. Architectural work then consists in moving between modes, maintaining productive gaps, and composing their proportionality rather than eliminating difference.



analogy — coat, overcoat, lodge, saloon, flintlock, alchemy, gunfighter, tavern, brewing, raider, mead

§

"The problem-solving approach to architecture is exemplified by a 'third generation' design method based on Popperian falsification: if one is interested in a problem then attempt to solve it by making a tentative assertion and devise a test to appraise that assertion critically. A number of different models form the basis for data generation, hypothesis testing and theory generation, but within an architectural context, design practice may be seen as a matter of generating design proposals and then testing them and modifying and improving them where necessary."⁹

Some architectural episodes make this multi-instrumental condition unusually explicit. Postmodernism in particular foregrounds architecture as a work of citation, montage, and public address. The distinctive move is not simply to “add meaning” to form, but to treat architectural elements as pre-mediated indices; columns, pediments, cornices, arch windows arrive as cultural memories before they are spatial components. Design becomes an operation of re-positioning: taking known fragments and re-situating them so that their meaning changes through context, scale, and juxtaposition. Architecture here is explicitly multimodal: it is read through drawings and details, and equally through writing, signage, mass-media circulation, and the rhetorical tone with which a building presents itself.

Aldo Rossi frames this not as surface play but as a disciplined practice of typology and memory. He approaches urban artefacts as elements that persist through types that outlast function. Courtyards, theatres, streets, cemeteries, all carrying collective memory as a kind of formal and cultural endurance.

"Because of this, cities, even if they last for centuries, are in reality great encampments of the living and the dead where a few elements remain like signals, symbols, warnings." - Rossi, A scientific Autobiography [10](#)

Across his projects he stresses the importance of their operation as an analogue: it gains force by echoing other architectures and other cities, allowing a building to function as a portable citation that is reactivated by displacement.

"The tower of my Venetian theater might be a lighthouse or a clock; the campanile might be a minaret or one of the towers of the Kremlin: the analogies are limitless, seen, as they are, against the background of this preeminently analogous city. I think it was at Izmir that I watched and heard the awakening minarets in insomniac dawns; in Moscow, I experienced the frisson of the Kremlin's towers and sensed the world of the Mongols and of wooden watchtowers set on some boundless plain—I sensed things in this way far more than as elements reducible to those we call architecture." - Rossi, A scientific Autobiography [11](#)

Venturi sharpens the same multimodal logic in a more explicitly communicative register. In *Complexity and Contradiction in Architecture* and *Learning from Las Vegas*, he argues that architecture frequently operates through double address: a generic enclosure may be paired with an explicit public message, where graphics, text, iconography, and surface become primary carriers of what a building says. [12](#) This is not a secondary layer added after the fact; it is a compositional principle that treats architecture as a negotiation between spatial organisation and legibility, between inhabitation and announcement. He advocates for how architectural meaning often arises from many levels:

"I am for richness of meaning rather than clarity of meaning; for the implicit function as well as the explicit function. I prefer "both-and to "either-or," black and white, and sometimes gray, to black or white. A valid architecture evokes many levels of meaning and combinations of focus: its space and its elements become readable and workable in several ways at once." - Venturi, Complexity and Contradiction in Architecture [13](#)



11 — la, sign, designation, homage, tribute, landmark, credential, trademark

From this perspective, postmodernism can be read as less a style label than a particularly clear demonstration of multimodality as architectural method: architecture as the calibrated movement between domains, where quotation, writing, drawing, and public imagery are not supplements but active instruments of composition. That clarity is useful here because it underlines a more

general point: architectural work happens in the crossings; between spatial notation and narrative, between type and situation, between object and discourse.

What becomes apparent is that architecture, understood as a multimodal discipline, cannot be captured through any singular form of representation. The drawing is not a proxy for the building, just as the model is not a scale miniaturisation. Each mode is a proposition, contributing a partial, situated expression of architectural possibility. Rather than converging into a unified field, these modes constitute a shifting terrain of spatial articulation, each enabling a different form of engagement and understanding. It is precisely this irreducibility that gives architectural design its open-ended character, resisting a notion of optimisation or even something that could be thought of as solvable. Architectural multimodality is not an inefficiency to be optimised away through automation or alignment; it is the condition that allows architecture to remain discursive, speculative, and socially embedded.

The experimental scope of this thesis does not extend to the direct material of the architectural modalities, but rather to see if the current primary multimodal ML models can be engaged with in such a manner that it affords this type of interplay. Maintaining the disjunction of domains in order to express a concept or idea across different modes without them translating into the same thing. In other words, the enduring lesson from architectural practice is that modalities are valuable precisely because of their divergence; the discussion now turns to digital computation to ask whether such divergence can be sustained when modalities are collapsed into machine-readable form.

*"Artifacts and representations carry different sorts of meanings simultaneously, and activities are caught up in many different tasks at the same time. This analytic perspective clearly has consequences for design, too. Systems or artifacts supporting embodied interaction need to be designed with an orientation toward the multiplicity of meanings that may be conveyed through them."*¹⁴





0 — vermouth, twittering, monologue, caseworker, dissertation, correspondence

[15](#)

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1. Vitruvius. *The Ten Books on Architecture*. Translated by Morris Hickey Morgan. With Herbert Langford Warren. Dover Publications inc., 1960. Book 1, chapter 2 paragraph 2

[↪](#)

2. Whilst not essential to the current chapter, given the use in 1.1 of the Vitruvius quote on the education of the architect, is interesting to note that Alberti, in the 2 paragraphs prior to the one cited here (end of chapter 10 in book 9), directly comments on the stance of Vitruvius that the architect should be an expert in law, stars, music. Alberti says this is not necessary, however he does immediately proceed to state he should still have "*insight, experience, wisdom, and diligence in the matters to be discussed,*", thus preserving the generalist characterisation of the architect. Further nuancing his comment in that he should be sensitive to harmony and have a sense of policy, and weather. But above all, he highlights the absolute necessity for the architect to be knowledgeable in mathematics and painting, bringing those to the two critical bases for the architect.

[↪](#)

3. Alberti, Leon Battista. *On the Art of Building: In Ten Books*. 7. print. Translated by Joseph Rykwert, Neil Leach, and Robert Tavernor. MIT Press, 1997. - Book 9 chapter 10, p.317

[↪](#)

4. Evans, Robin. 'Translations from Drawing to Building'. *AA Files* 12 (1986): 3–18.



5. Koolhaas, Rem, Harvard Graduate School of Design, Stephan Trüby, et al. *Elements of Architecture*. 1st edition. TASCHEN, 2022. p.23



6. Kress, Gunther. *Multimodality: A Social Semiotic Approach to Contemporary Communication*. 1st edition. Routledge, 2009. p.82



7. Desmond, William *Art, Origins, Otherness: Between Philosophy and Art (Paperback) - Common*. Albany: State University of New York Press, 2003.



8. *The Hateful Eight*, Directed by Quentin Tarantino (Visiona Romantica, 2015), Blu-ray. — 47:36



9. (auth.), H. H. Rosenbrock, and Dr Paul Arthur (eds.) *CADCAM in Education and Training: Proceedings of the CAD ED 83 Conference*. Springer US, 1984.



10. Rossi, Aldo. *A Scientific Autobiography*. Translated by Lawrence Venuti. With Vincent Joseph Scully. Oppositions Books. MIT Press, 1981. p.20



11. Rossi, Aldo. *A Scientific Autobiography*. Translated by Lawrence Venuti. With Vincent Joseph Scully. Oppositions Books. MIT Press, 1981. p.67



12. Venturi, Robert, Denise Scott Brown, and Steven Izenour. *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*. 17th print. The MIT Press, 2000.



13. Venturi, Robert. *Complexity and Contradiction in Architecture*. 2. ed., Repr. The Museum of Modern Art Papers on Architecture. Museum of Modern Art, 1996. p.16



14. Dourish, Paul *Where the Action Is: The Foundations of Embodied Interaction (Bradford Books)*. The MIT Press, 2001.



15. The input pdfs for this chapter are: Villa, Riccardo M. *Upon Entropy: Architectonics of the Image in the Age of Information*. Birkhäuser, 2024.; Evans, Robin. *The Projective Cast: Architecture and Its Three Geometries*. MIT Press, 1995.; Lee, Ju Hyun, Michael J. Ostwald, and Mi Jeong Kim,



eds. *Multimodality in Architecture: Collaboration, Technology and Education*. Springer Nature Switzerland, 2024.- [Book Context Link](#)



2.2 AN ARCHITECTONIC VIEW ON DIGITAL MULTIMODALITY



0 — nightstand, paperweight, collecting, squeezebox, drawer, booklet, chequebook, case

Contemporary computational design tools have undoubtedly changed the way in which architects develop projects, both adding precision and coordination to architectural practice. Yet this very structuring power often flattens the epistemic richness that architectural multimodality affords. Systems like Revit and Grasshopper reduce architectural representation to interoperable geometries and quantifiable parameters. As Marinčić¹ critiques, architectural computation has historically evolved through simplification within existing models, translating architectural thought into parametric control systems, where design becomes the manipulation of variables. He notes that due to their overemphasis on geometry, such systems marginalise modes of thinking that resist formalisation; the speculative, discursive, and affective potentials of architecture.

"In Japan, from the beginning, Architecture with a capital A never existed. When Karatani's Architecture as Metaphor was published in Japan, I was extremely interested in the fact that this book located the place of Architecture, the presence I felt behind textuality; and then I was struck by the procedures it uses to deconstruct the processes through which architecture is employed as metaphor. I think that Architecture as Metaphor, rather than remaining just a title, will begin to function as a double metaphor for architecture today: while it is still burdened with its old metaphorical power, it is now confronting the new crisis and oriented toward an unforeseen problematic formation."²

A parallel flattening occurs in contemporary multimodal machine learning models. Systems such as CLIP embed images and texts into a shared vector space, aligning them under the premise that they express commensurable content. Trained on the one-to-one correlation of *description* as distance measure. Yet this assumption of correlation runs counter to the architectural condition. The value of plans, sections, renderings, and descriptions lies in their divergence, their capacity to circumscribe space through disjunct but interdependent logics. Rather than aiming for alignment, the architectural lesson is that such divergence is precisely what affords conceptual richness. When turning to CLIP, then, the question is whether such divergence can be reintroduced into its collapsed space between image and text; modalities that in architecture permit fundamentally different contributions to the concepts they engage.





interact — birch, autumn, coldly, forested, hike, snowshoe, larch, bushwhacking, frost, woodland

3

That is not to say such models do not bear great potential to facilitate qualitative instrumentalisations. Rather, it is to insist that their value lies in how they can be operated without mistaking their outputs for equivalence. A simple example that demonstrates the potential of computation and particularly ML beyond that of geometrical aspects but towards cultural qualities is to take three images of gardens - Ryoan Ji in Kyoto, Sankei En in Yokohama, Mediterranean Garden in Dyffryn Gardens, UK - and encode them using the CLIP model. Even though the Ryoan Ji and the Mediterranean garden photos might show more resemblance in terms of material, scene, and geometry - both have a ground of gravel, dotted planted elements and a wall backdrop - the Mediterranean garden has a lower similarity to both other images, demonstrating a sensibility to the cultural dimension (Fig. 2.2:1).

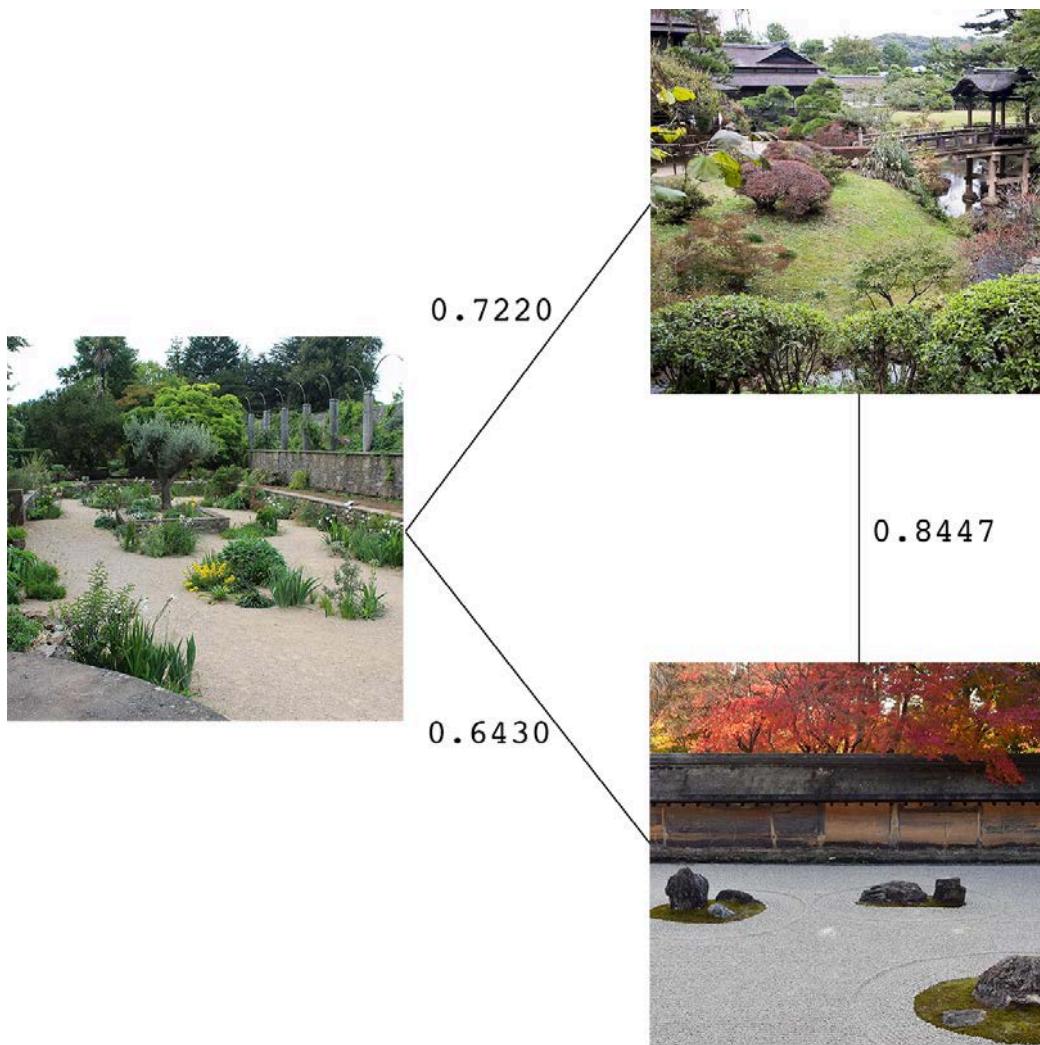


Figure 2.2:1 – Cosine similarity between garden image embeddings using CLIP⁴

The point of this comparison is not that the model “understands” gardens, nor that it reliably detects culture. It is that the embedding space behaves like an environment in which similarity is produced as a consequence of training, framing, and the operative priors of the model. The interest is not the correctness of any single resemblance, but the form-taking of resemblance itself. A similarity score on its own is the view from a perspective that “stays outside” and only checks what goes in and what comes out. Architectonically our interest lies in the interior of the domains in which the resemblances take shape: the mould in which it takes form.

“Information is thus halfway between pure chance and absolute regularity. One can say that form, conceived as absolute spatial as well as temporal regularity, is not information but a condition of information; it is what receives information, the a priori that receives information.”

“Form has a function of selectivity. But information is not form, nor is it a collection”⁵

To elaborate on this shift, from resemblance as description to resemblance as operation, Gilbert Simondon’s critique of the hylomorphic model offers a compelling pivot for rethinking an architectural stance towards computation:

*“The hylomorphic schema is thus a couple in which the two terms are clear and the relation obscure.” - Simondon, *On the Mode of Existence of Technical Objects*⁶*



The hylomorphic view of form imposed on passive matter, thus produces clarity at the level of terms and obscurity at the level of relation. Instead of viewing form as imposed upon passive matter, Simondon insists on attending to the operation itself, the process by which matter takes form. He writes, “*it is not enough to enter the workshop with the worker [...] It would be necessary to be able to enter the mould with the clay, to be both mould and clay at once, to live and feel their common operation in order to be able to think the process of taking form in itself*”⁶. This then demands a different epistemic access where the operation becomes the focus of the interaction. This is the methodological hinge for the multimodal argument made here: as long as we evaluate models from the outside through inputs, outputs and one-to-one correspondences, we re-enforce the hylomorphic setup in computational form. Instead the overall interplay between domains and digital information has to be considered simultaneously:

“*but it is the system constituted by the mold and the pressed clay that is the condition of the process of taking form; it is the clay that takes form according to the mold, not the worker who gives it its form.*”⁷

Another essential insight relevant to this thesis is on the question of technicity of a machine and the importance of indeterminacy. Against the fantasy that perfection increases with automatism, he explicitly counters with that: “*The true progressive perfecting of machines, whereby we could say a machine’s degree of technicity is raised, corresponds not to an increase of automatism, but on the contrary to the fact that the operation of a machine harbors a certain margin of indeterminacy. It is this margin that allows the machine to be sensitive to outside information. Much more than any increase in automatism, it is this sensitivity to information on the part of machines that makes a technical ensemble possible.*”⁸



efficiency — astounding, messier, federation, crystalline, expanding, cosmic, cosmos, galaxy

A machine of high technicity is, for him, an “*open machine*”; and open machines do not simply aggregate into a larger automaton but form an ensemble whose coherence depends on ongoing interpretation and organisation. Simondon’s formulation is unambiguous: “*all open machines taken together ... presuppose man as their permanent organizer;*” as the “*living interpreter of all machines among themselves*” that lets machines exchange information as the organiser; “*in the same way musicians in an orchestra need the conductor.*”⁸

Multimodal practice, in this view, is not achieved when modalities become mutually substitutable coordinates, but when their differences are held in a technical ensemble that remains open, precisely so that information can circulate as variation. Where CLIP tempts us to read “alignment” as a resolution, Simondon thus offers a warning: close the system too far, and

you do not get more, you get less possibility: “*A purely automatic machine completely closed in on itself in a predetermined way of operating would only be capable of yielding perfunctory results.*”⁸

This shift moves from seeing the technical act as a translation of intention to understanding it as an emergent condition arising within a dynamic field of relation. In Simondon’s terms, the worker does not give form; he prepares conditions for a mediation that “*fulfils itself on its own once the conditions have been created*”⁹. Applied to the digital, this suggests that computation is but a field in which form emerges through the interaction of structures, inputs, and operational logics. Simondon’s call to recognise the “*interiority of the relation*” to understand technical knowledge not as a series of gestures imposed on matter, but as an exploration of the logic internal to the process, parallels the reframing of computational practice from algorithmic imposition to operative entanglement. In this light, an architectonic use of machine learning is about constructing environments in which modalities co-form through shared operation; an enactment of transduction in Simondon’s sense, where individuation arises not through imposed form but through the mutual conditioning of heterogeneous elements. Transduction, for Simondon, names the mediation by which potential becomes actual:

*“Yet, in a perfect transducer, no energy is actualized; nor is any energy put in reserve: the transducer belongs neither to the domain of potential energy, nor to the domain of actual energy; it is truly the mediator between these two domains, but it is neither a domain of the accumulation of energy, nor a domain of actualization: it is a margin of indeterminacy between these two domains, that which brings potential energy to its actualization. It is during the course of this passage from potential to actual that information comes into play; information is the condition of actualization.”*⁹

Simondon’s relevance here is that he offers a way to speak about form-taking as an operation rather than the objectification of an idea. Bringing this back to architectural theory, Katie Lloyd Thomas makes clear that this is an existing pressure point already internal to architectural discourse, precisely because architecture is historically “*structured around a distinction between form and matter where the formal (and conceptual) is valued over the material.*”¹⁰ In representation, material becomes invisible or secondary, while form appears as what architecture properly addresses. Giving her own critique on the hylomorphic concept in architecture: “*Nevertheless architecture has [hylomorphism] at its base and sets up a discourse in which form must be realized in matter, with the material being seen as merely interchangeable – just one instance of matter rather than another.*”¹¹ Against this condition, Lloyd Thomas insists on a more operative materialism, an attentiveness that brings materials into view as active participants in formation. Material is not an inert substrate awaiting the architect’s intention. Rather, “*materials are themselves active; it is a transaction, rather than a one-way operation, that occurs in the shaping of stuff.*”¹¹ This processual view of material formation aligns with her broader argument that materials extend beyond matter through their interaction with tools, standards, and socio-cultural forces.



digital — coffee, decaffeinated, caffeinated, boost, coffer

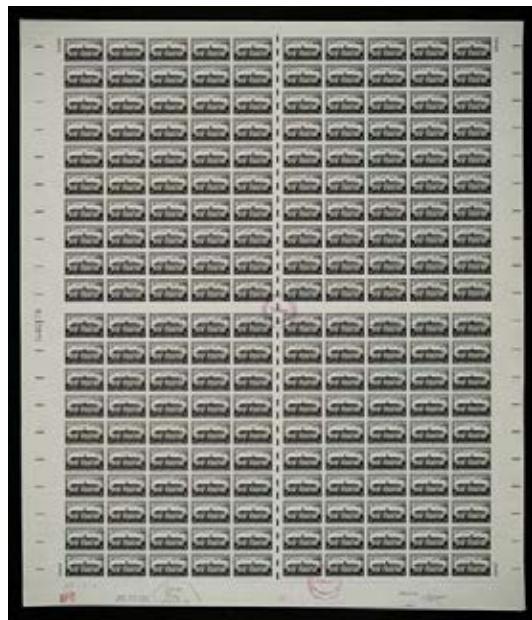
When transposed to the digital, this suggests that digital material (or data) too must be understood as contingent, contextual, and modulated through interaction: not data-in-general, but data as prepared and specified, cleaned, tokenised, annotated, formatted, and made actionable through interfaces, metrics, and thresholds. If digital tools are understood as more than tools that impose structure onto data, but as instruments participating in a relational field of transformation, then computation aligns more with material practice than predicate logic. In this view, the digital becomes less a space of representation and more a space of emergence where modalities, like materials, operate through transduction, negotiation, and co-formation, instead of translation.

"Architects design by translating concepts into two dimensional graphics that which ultimately imply a multidimensional future reality. He or she tests the horizontal and vertical space finding accommodation and commonality of adjacency, connectivity and inclusiveness. It is the commonplace and not the abstract necessity that communicates more readily. The architect is challenged to imbue in the design a more subtle analogy than the obvious. "¹²



In parallel with Lloyd Thomas's critique of material passivity, Ludger Hovestadt extends a similar argument to the digital realm. As Hovestadt articulates, today's designer faces not a scarcity but a "plenitude of information"¹³. Digital material, like physical material, must be engaged through its capacities, orientations, and contingencies. Rather than modelling singular forms, the architectural task becomes one of filtering, relating, and projecting from within this excess. This emphasizes the design of relations and indices over objects and forms, pushing architectural thinking toward algebraic, procedural operations embedded in networks of meaning. Within such a framework, digital architectonics shifts from representation to modulation, engaging the "big plenty" not as overwhelming, but as the generative substrate of

architectural thought. In this sense, the abundance of digital information parallels the potential of material that Lloyd Thomas describes, both requiring architectural interaction to render them operative, relational, and meaningful.



architecture — ti, billion, massive

What matters, then, are not only representations but the operations by which a multimodal domain is proportioned and traversed. When trained on vast datasets, ML models tend to reproduce dominant patterns, flattening anomaly and nuance. Yet architecture thrives on the minor, the irregular, and the contingent. Bernard Tschumi¹⁴ foregrounds this condition in his Advertisements for Architecture emphasising the intersection of space, society, event, sensuality and experience—a configuration that resists formal containment and requires consideration of atmosphere and association rather than purely static form. To maintain the generative capacities of multimodality within a digital architectonics, computational models will have to be capable of qualitative projections rather than universal translations. A dataset contains no fixed meaning; it only acquires specificity through situated modelling. Computation then becomes a speculative scaffold; a conceptual platform through which architects can think differently. This conceptual role of computation echoes the shift Alberti initiated through the introduction of notational drawing systems, which Carpo¹⁵ identifies as a turning point in architectural authorship: not merely a technical refinement, but a reorganisation of design as symbolic projection, separating the act of conception from that of construction. Yet if Alberti's notational system reconfigured authorship by separating conception from construction, multimodal ML models risk reconfiguring it by conflating modalities into equivalence. To understand what is at stake, the next chapter turns to the multimodal gap itself, where these frictions between alignment and divergence become most apparent.

[16](#)

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2. Karatani, Kojin, and Sabu Kohso *Architecture as Metaphor: Language, Number, Money (Writing Architecture)*. The MIT Press, 1995.



3. *Evil Does Not Exist*, Directed by Ryūsuke Hamaguchi (NEOPA Inc., 2023), Blu-ray. — 24:10



4. Images: Ryōan-ji temple (sjaak kempe, CC BY-SA 2.0); Sankeien Rinshukaku and Teisha Bridge (663highland, CC BY 2.5); Mediterranean Garden, Dyffryn Gardens (Nigel Mykura, CC BY-SA 2.0). Source: Wikimedia Commons.



5. ensemble) of forms; it is the variability of forms, the influx of variation with respect to a form. It is the unpredictability of a variation of form, not pure unpredictability of all variation.[Simondon, Gilbert, and Cecile Malaspina *On the Mode of Existence of Technical Objects*. Paperback. Univocal Publishing, 2017.]



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2.3 THE MULTIMODAL GAP



image — conceptual, reaching, pact, figurine, grasp, plaster

Michel Foucault's reading of Magritte's This is Not a Pipe offers a historical and philosophical grounding for the persistent separation of image and text; a separation that contemporary machine learning attempts to bridge. Foucault emphasises that the split between linguistic and visual registers is not a contradiction, but a constitutive feature of representation itself. On the white space between pipe and text he writes, "*image and text fall each to its own side, of their own weight. No longer do they have a common ground nor a place where they can meet, where words are capable of taking shape and images of entering into lexical order.*"¹. This fragmentation of common ground is not merely a breakdown but an unveiling of the void between modalities, a crevasse through which new relations might be imagined rather than described. Foucault insists that the statement "*this is not a pipe*" is not a contradiction but a revelation of the rupture between designation and design. As he notes, "*designation and design do not overlap [...] Hence the third function of the statement: 'This' (this ensemble constituted by a written pipe and a drawn text) 'is not' (is incompatible with) 'a pipe' (this mixed element springing at once from discourse and the image)*"². This insight complicates any model that treats image and text as directly translatable, or even interoperable under a shared latent structure.

"Today, iconographers in the Classic Maya city acknowledge more readily that the association between image and text in Mesoamerica did not necessarily parallel that of Europe (Miller 1989: 177). "Mesoamerica[n] . . . systems [of communication] do not allow for an easy distinction between pure text or pure image" (Baddeley 1983: 56), as suggested by the Nahuatl





word *tlacuiloлизtli*, which means both “to paint” and “to write” (Boone 1994: 3). Some scholars have sought a “reformation of the definition of writing that considers both verbal and nonverbal systems of graphic communication” (Boone 1994: 4).³

A similar take, but instead of formulated from a perspective onto a painting, approaches the challenge of translation between different manners of thought through language, specifically the encounter with Chinese concepts from a Western position. Jullien describes “entering” as a passage from outside to inside, and insists that one cannot enter without moving: leaving one’s own categories rather than simply re-labelling the other in familiar terms. He frames the central dilemma of translation as follows:

“by not translating them you will leave them aglow in some distant exoticism; by wanting to translate them you will immediately enclose them within a foreign language, your own, and deprive them of their coherence, remove them from their implicitness: you are no longer sharing.”⁴

In a language where “writing is ideographic and not phonetic,” Jullien reinforces that direct translation risks depriving the original content of its coherence. He continues by warning that translation : “will provide no more than a facsimile, more or less distorted, of our concepts. You have still not cleared a way, built a threshold, for ‘entering.’ ”⁴ This offers another caution against treating one modality as a field to be converted into another, in our case images and text. Translation in Jullien’s terms either leaves the other modality at a distance, or encloses it within our own terms. Either way, one remains outside.



necessity — indiscreet, adagio, boulevard, interlude, jealous, nightdress, rendezvous, velvet, splendor

5

Taken together, Foucault’s void and Jullien’s threshold describe the same structural difficulty: whenever two regimes are made commensurable too quickly, what is gained in exchangeability is often paid for in coherence. This stance aligns with the obstacle of the multimodal gap in ML models like CLIP, which operate under assumptions of alignment. What Foucault reveals is that the interplay of image and text resists equivalence; they are not mirrors of one another, but mutually estranging domains. Therefore, the multimodal gap is hypothesised to be not an engineering flaw but “an effacement of the ‘common place’ between the signs of writing and the lines of the image”⁶.



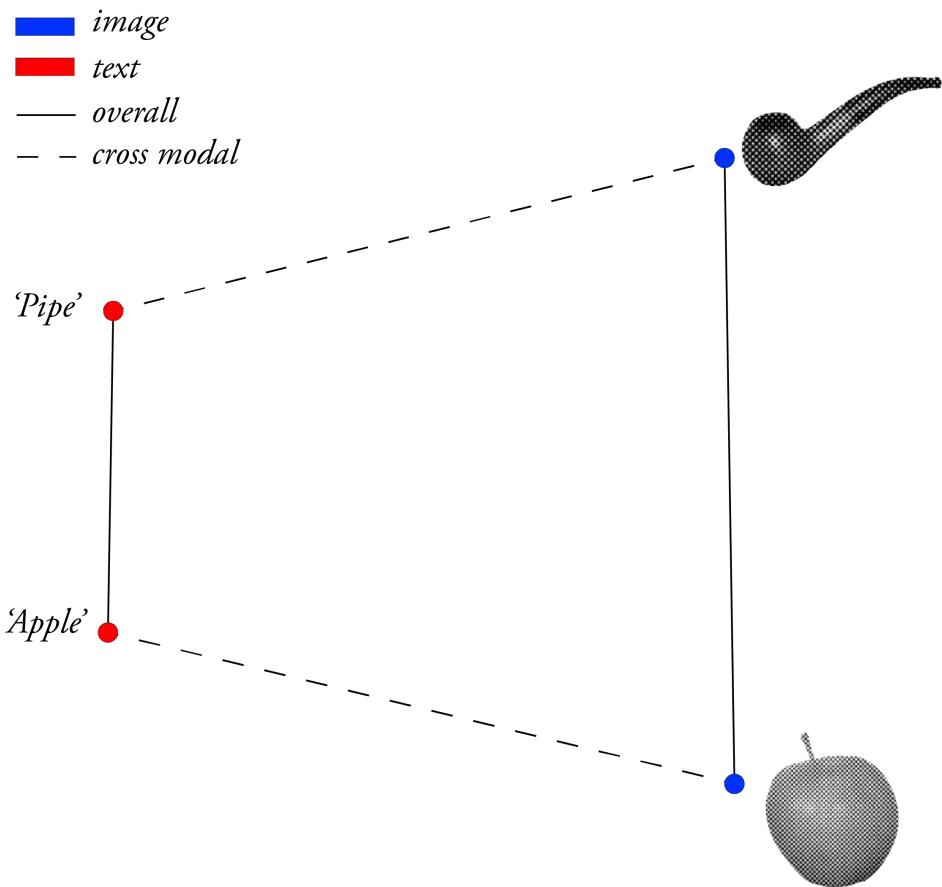


Figure 2.3:1 - Example of the multimodal gap

Machine learning models like CLIP appear to offer a bridge across modalities, embedding images and texts into a shared space, premised on large-scale semantic regularities. They function optimally when translation is direct. CLIP uses a dual-encoder architecture in which distinct encoders process text and image inputs into their respective embedding spaces. These embeddings are then aligned using contrastive loss, which minimizes the cosine distance between matched cross-modal **pairs**. However, as Liang et al.⁷ demonstrate, this optimisation does not eliminate but in fact preserves a distinct modality gap: the embeddings from different modalities consistently occupy separate regions of the shared space.

A simple demonstration illustrates this condition. In one experiment, CLIP embeddings for 15637 screenshots from Studio Ghibli films and their corresponding time-stamped subtitles, contextually relevant but non-descriptive pairings, achieved only 0.03% matching accuracy in image-to-text retrieval across the full corpus. Conversely, 456 images from ArchDaily⁸, paired with FUYU-8B⁹ generated captions reach 66% accuracy.¹⁰ While this is an expected result given the training criteria of CLIP's embedding space, this shows how CLIP's latent space is tuned not for contextual resonance but for semantic alignment.

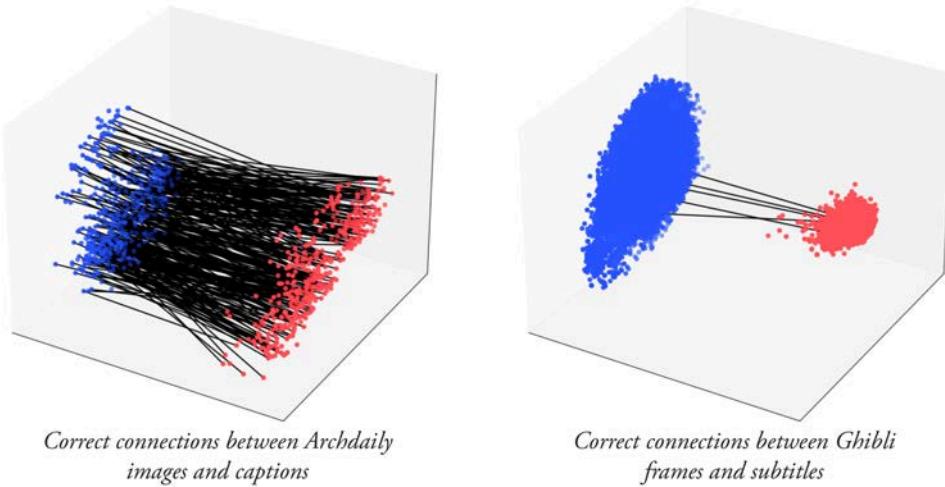
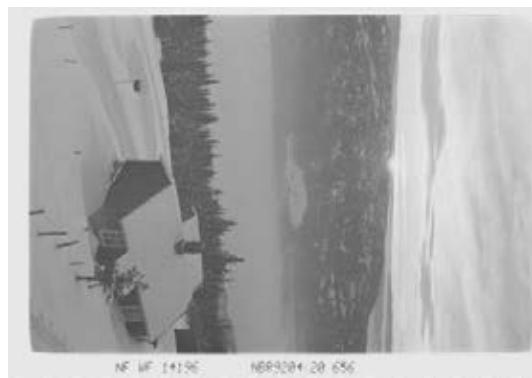


Figure 2.3:2 - 3D PCA reduced visualisation of ArchDaily and Ghibli image (blue) and text (red) pairs.

Far from a neutral terrain, the shared latent space is geometrically shaped by the logic of contrastive alignment. Understanding this mechanism opens the door for alternative approaches. Rather than collapsing modalities into a common axis, an architectonic strategy might embrace this separation as a natural condition, one that supports difference, contextual framing, and multimodality.

"Aldo van Eyck has said: "Architecture should be conceived of as a configuration of intermediary places clearly defined. This does not imply continual transition or endless postponement with respect to place and occasion. On the contrary, it implies a break away from the contemporary concept (call it sickness) of spatial continuity and the tendency to erase every articulation between spaces, i. e. , between outside and inside, between one space and another (between one reality and another)."¹¹



ambiguity — mist, cold, visibility, brisk, dusting, snowstorm, snowing, meteorological, snowed, haze, fog, temperature

12

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3. Parmington, Alexander *Space and Sculpture in the Classic Maya City*. Cambridge University Press, 2011.



4. Jullien, François. The Book of Beginnings. Translated by Jody Gladding. Yale University Press, 2015. p.4



5. *La Notte*, Directed by Michelangelo Antonioni (Nepi Film, 1961), Blu-ray. — 1:05:19



6. Foucault, Michel. *This Is Not a Pipe*. University of California Press, 1983. p.29



7. Liang, Weixin, Yuhui Zhang, Yongchan Kwon, Serena Yeung, and James Zou. ‘Mind the Gap: Understanding the Modality Gap in Multi-Modal Contrastive Representation Learning’. arXiv:2203.02053. Preprint, arXiv, 19 October 2022.



8. ArchDaily. ‘ArchDaily’. 2025. <https://www.archdaily.com/>.



9. ADEPT AI. ‘Fuyu-8B: A Multimodal Architecture for AI Agents’. 17 October 2023. <https://www.adept.ai/blog/fuyu-8b/>.



10. A match was defined as a caption or subtitle ranking in the top 1% of nearest text embeddings (cosine similarity) to the input image/frame within the full retrieval set.



11. INPUT: Venturi, Robert. *Complexity and Contradiction in Architecture*. 2. ed., Repr. The Museum of Modern Art Papers on Architecture. Museum of Modern Art, 1996.



12. The input pdfs for this chapter are: Venturi, Robert. *Complexity and Contradiction in Architecture*. 2. ed., Repr. The Museum of Modern Art Papers on Architecture. Museum of Modern Art, 1996.; Jullien, François. *The Book of Beginnings*. Translated by Jody Gladding. Yale University Press, 2015.; Hovestadt, Ludger, and Vera Bühlmann, eds. *EigenArchitecture: Computability As Literacy*. Birkhäuser, 2014.- [Book Context Link](#)



2.4 MATHEMATICAL INTERPRETATION; SET VS GROUP

Cross-modal machine learning already moves fluently between objects and indices: images and texts are encoded as points, distances, neighbours, clusters. Yet the outcome is most often acted upon as an organised set, a populated space in which elements are placed in proximity to one another, without an equally explicit account of the operations by which this space is to be traversed, transformed, or made productive. If the multimodal gap is not an anomaly to be eliminated but a condition to be inhabited, then the question shifts from *what elements are there?* to *what actions are available?*, from membership to operation.



operational — brainy, cyclops, beam, atlas, vision, retractable, atom, strontium

Through the difference between two basic mathematical frameworks, sets and groups, we can establish a mathematical way of looking at this multi modal separation. A set defines elements by membership; what belongs, and what does not. In contrast, an algebraic structure like a group (and by extension, a ring, or field) defines not only the elements but also the operation by which they interact. It is these operations that structure its generative capacity. This distinction becomes critical when considering how modalities relate. In a set-theoretical view, modalities might be mapped or translated from one to another, assuming that correspondence can be made stable. But in an operational view, modalities are defined by what they *do*: their ability to transform, combine, and produce effects. In an architectural sense; the section does not translate the plan; it transforms the problem by altering the operational frame.

"As mentioned earlier set theory provides a general conceptual framework for mathematics. Now, since category theory, through the notion of topos, has succeeded in axiomatising set-



theory, the outcome is an entirely new categorial foundation of mathematics! The category-theorists attitude that "function" rather than "set membership" can be seen as the fundamental mathematical concept has been entirely vindicated. The pre-eminent role of set theory in contemporary mathematics is suddenly challenged.¹

A simple example clarifies the difference between “a collection of points” and “a structure of actions”. The integers \mathbb{Z} , taken with addition, form a group: the identity element $\mathbf{0}$ and additive inverses belong to the structure, and addition acts as translation: linear displacement along a domain. Likewise, the non-zero rationals \mathbb{Q}^\times , taken with multiplication, form a group: multiplication composes scalings and provides multiplicative inverses. The point is not the examples themselves, but that a mathematical object is never only *what is it*; it is also *what can be done*.

This becomes especially visible in the relation between the real plane and the complex numbers. The set of complex numbers \mathbb{C} can be visualised as a two-dimensional plane \mathbb{R}^2 , mapping the real and imaginary components as coordinates. Under an object-geometry optic, this identification appears to settle the matter: complex numbers are “just” points in a plane. Yet once complex multiplication is taken as the relevant operation, the coordinate picture no longer shows what matters. Addition remains translation, but multiplication acts as a change of frame: scaling and rotation; inversion generates singularities; phase and magnitude become structural. In that sense, what aligns geometrically becomes insufficient operationally. A phase plot does not depict “content” but the behaviour of an operation: how a function displaces domains and codomains through its own internal structure. Fig. 2.4:1 depicts the phase diagram for the complex equation

$$A(Z) = \frac{1}{(Z+i)^2} + \frac{1}{(Z-4)^2} + \frac{1}{Z+2}, Z \in \mathbb{C}$$

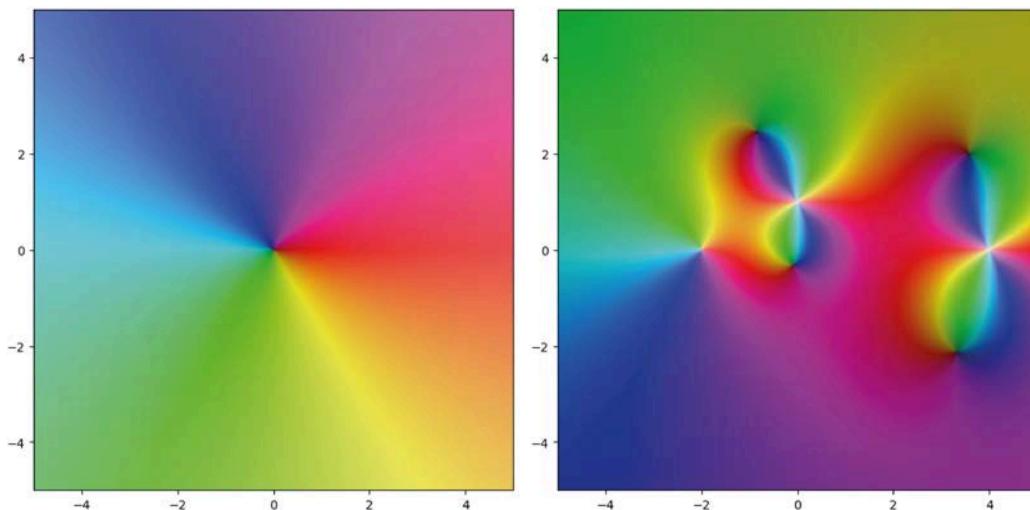


Figure 2.4:1 - Phase plot of a complex function

This is more than analogy. It signals a condition relevant to architecture: when domains of architectural communication are treated merely as sets of information to be aligned or translated, their operative capacity is lost. Treating them operationally means understanding how each mode reshapes the interpretive field of another; how a section reconfigures a plan, how a perspective drawing projects a spatial logic without resolving it.

Machine learning models, especially cross-modal ones like CLIP, tend to treat modalities as data to be aligned in a shared space. But what this produces is rarely a reversible correspondence.

Although the training pairs are presented as one-to-one, the learned relation is better understood as a field of probabilistic association: a single image can plausibly support many captions, and a caption can plausibly support many images. Retrieval itself introduces an operator (nearest neighbours, top-k ranking, thresholding), but it does not yield an inverse in the mathematical sense; it stages a contingent passage. This irreversibility is not a flaw; it is a sign that we are dealing with something more complex than a set of equivalents. Architectural modalities function similarly: they are not mirrors, but projections. They require a framework that accounts for how representations interact, not how they match. This is what an operational understanding of multimodality offers. It invites a shift from translation to projection, from matching to modulation.

"Objects try to make sense of each other through the qualities and logics they possess. When one object caricatures another, the first grasps the second in abstract, enough for the one to make some sense of the other given its own internal properties. A caricature is a rendering that captures some aspects of something else at the cost of other aspects. 16 The mechanism that facilitates this sort of alien phenomenology is not Nagel's objective instrument—one that clarifies foreign perception by removing distortion—but instead a mechanism that welcomes such distortion."²



At this point, Bühlmann's insistence on groups highlights how this consideration is less a mathematical aside than a methodological safeguard: "Groups give us a way of doing mathematics categorially, and thereby they equip us with the necessary means to prevent any (one particular) joining of forces between dogmatic ideologies and mathematical reason."³

4



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2. Bogost, Ian *Alien Phenomenology, or What It's Like to Be a Thing*. University of Minnesota Press, 2012.



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4. The input pdfs for this chapter are: Bühlmann, Vera. Mathematics and Information in the Philosophy of Michel Serres. Bloomsbury Academic, 2021.; Balmond, Cecil. Number 9: The Search for the Sigma Code ; Nien Fixed Points in the Wind. Reprint. Prestel, 2008.; Leinster, Tom. Basic Category Theory. Cambridge Studies in Advanced Mathematics 143. Cambridge University Press, 2014.- [Book Context Link](#)



2

2.5 ARCHITECTONIC OBSTACLE



movement — behind, doorway, distant, bisque, escape

The use of machine learning to encode the objects of domains entails that the model is embedded within the domain as much as the objects it encodes. Encoding is therefore never simply the extraction of properties from “the thing itself”, but the production of differences through a particular apparatus of discernment. In Hegel’s *Observing Reason* the topic of *Differentiae* corresponds to relevant questions as to how we shall relate to the ordered sets of information that are curated by machine learning and the encoding of these objects into vectors as to distinguish them from each other. The “features”, as the dimensions of these vectors are often referred to, behave in similar fashion to the differentiae, in that they certainly have an essential connection to the object it encodes, however they are as much and possibly to a larger extent a characteristic of the model which makes this encoding: its training, priors, and operative constraints. In accordance as to how the differentiae are essentially connected to the cognition which discerns them¹. The obstacle is therefore not only that domains differ, but that the very means by which they are made comparable is itself situated and partial.

“The contrast, therefore, lies deeper, and can be characterized exhaustively only by introducing the concept of an objectively valid regularity. The sensations produced by objects are private, and vary from one individual to another. But the world picture, the world of objects, is the same for all human beings, and we may say that the transition from the sense world to the world picture amounts to a replacement of a disordered subjective manifold by a constant objective order, of chance by law, and of variable appearance by stable substance.” [Planck, Max Scientific Autobiography And Other Papers. Planck Philosophical Essays in English P2P Custom Ed V5 [UL]. Williams & Norgate, 1950.]²



Understanding this as a structural condition rather than a failure and approaching it from an architectural stance offers the opportunity to view the multimodal gap not as a shortcoming to be overcome, but a computational phenomenon in reflecting the non-commensurability of modes. This opens a productive terrain for architectural experimentation, in which computation is not tasked with resolution or translation, but with sustaining resonant disjunctions. Returning to Foucault, his invocation of similitude, distinct from resemblance, is particularly relevant: “Similitude multiplies different affirmations, which dance together, tilting and tumbling over one another”³. Unlike resemblance, which depends on a model to be matched, similitude enables a relation without identity. In computational terms, this resonates with the non-bijective,

probabilistic relations staged by machine learning: they do not secure what is, but suggest what might be proximate. This idea mirrors the non-aligned multimodal relations in architecture, where images, drawings, and texts exist in a field of conceptual adjacency. In Foucault's terms, what multimodal ML collapses into descriptive coherence, architectonically this must instead be sustained as speculative simultaneity. Like Ishigami suggests: "*Rationality may be less about a simple one-to-one coincidence of function and form and more about the linking of new relationships amid endless, fathomless complexity. Amid the whole, such relationships are always unstable, and engaged in a rocky search for stability.*"⁴

*"The visualization of this new transcendental field of pure effects in architecture involves both the critique of architecture and the renunciation of certain formal procedures that condition architecture for the subject. This latter conditioning is typical of the manner in which architecture is complicit in forming representational orders that further control and channel the purely immanent field of its productive agency."*⁵



obstacle — beeper, janitor, bender

Such a reorientation calls for design methods that are sensitive to this condition. Rather than working to close the gaps between modalities, the architectural task becomes one of operating around it as a constant obstacle, constructing and exploring constellations of meaning that arise through non-equivalence. Jullien's warning against "tabulations" is pertinent here: "*Such tabulations provide order (reassuringly) but do not give way to thought; they remain exterior to the material beneath their labels.*"⁶ What matters is not an exhaustive ordering of the multimodal field from outside, but the ability to traverse it from within, to move between intelligibilities without collapsing them. As Jullien notes, "*the wider the gap between those intelligibilities, the greater the opportunities for discovery and traversal.*"⁷



activating — volcanic, dune, wasteland, barren, lithium

The architectural model for working with digital domains, in this sense, would require an instrument for navigating and activating disparity between, not unlike a qualitative counterpart to how the 3D model can be interpreted as a geometric version of the project that negotiates the plans, sections and renderings that are drawn from it (Fig. 1.2.2:1). To achieve this operative ability, computational methods must be situated. This requires setups that foreground context, relation, and situated resonance across modalities. This is the methodological premise carried into the next chapter. Chapter 3 describes how this response is given form as the text editor in which the thesis is written, working through projection, selection, and re-proportioning, staging relations across text and image without reducing them to a single deductive order. Bühlmann characterises Serres's philosophical ambition in terms that are directly instructive here: "It seeks to find concepts capable of grasping phenomena in different domains all at once, without reducing the domains to one hierarchical, deductive order."⁸



domain — battle, spear, sword, khan, swordplay, tunic, conqueror, ceremonial

9

10

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6. Jullien, François. *The Book of Beginnings*. Translated by Jody Gladding. Yale University Press, 2015. p.5



7. Jullien, François. *The Book of Beginnings*. Translated by Jody Gladding. Yale University Press, 2015. p.6



8. Bühlmann, Vera. *Mathematics and Information in the Philosophy of Michel Serres*. Bloomsbury Academic, 2021. p.8



9. *Ran*, Directed by Akira Kurosawa (Herald Ace, 1985), DVD. — 20:08



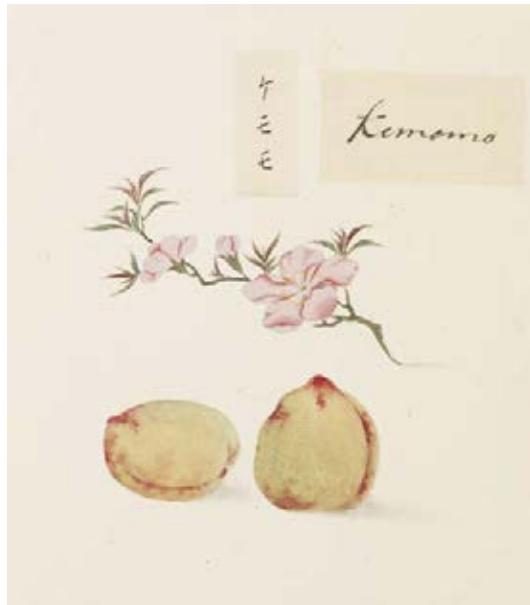
10. The input pdfs for this chapter are: Doyle, Michael, Vera Bühlmann, and Selena Savić. *Ghosts of Transparency: Shadows Cast and Shadows Cast Out*. Applied Virtuality Book Series, vol. 13. Birkhäuser, 2019.; Tschumi, Bernard. *Architecture and Disjunction*. 1. paperback ed. MIT Press, 1996.- [Book Context Link](#)



3. TEXT EDITOR



[text — burgling, courier, tagging, mailer, doorbell, postcode](#)



[editor — translated, apricot, hibiscus, amuse, jujube, peony](#)

This means that computers of today are about two million times more powerful than the machines available to the Wrst MT researchers in the early 1960s. Second, there is now a huge amount text available in many languages, and a not inconsiderable amount of translated text, as well as resources such as bilingual dictionaries, language analysis tools (parsers, part-of-speech taggers), and so forth.¹



Chapters 1 and 2 asked how to work across modalities without forcing them into sameness, and how architectural thought might address non-geometrical registers inside digital encodings.

Chapter 3 turns that demand into practice by introducing the Writing Images and Picturing Texts editor (WIPTe²). Not as a tool added after the fact, but as the very medium of this thesis. Every page you read in this document was written inside the editor. The red/magenta quotations and the blue images you encounter throughout the thesis are the instrument's replies to the act of writing, sometimes embraced as ornament to the content of the thesis, sometimes they become the content themselves.

"Writing ceases to be a mirror. It will constitute itself, strangely, as an absolute of writing and of voice. A "mute written orchestration" Mallarme will say: time and space united, a successive simultaneity, an energy and a work wherein energy gathers (energeia and ergon); a tracing wherein writing breaks always in advance with what is written. Born of this pressure, beyond the book, is the project of the Work, in its very realization always yet to come; a Work without content since always going beyond what it seems to contain and affirming nothing but its own outside, that is to say, affirming itself—not as a full presence but, in relation to its absence, the absence of (a) work, worklessness."³

The editor frames writing as a constant movement: from text onto itself, and from text onto imagery. As a paragraph takes shape, it is projected into two public domains. In the text window, two floating panels return nearby passages: red for content-based correspondences, magenta for speculative continuations. In the figurative window, a constellation of images appears, arranged according to their blue figurative label indices. This colour scheme carries throughout the thesis: red marks the **textual** domain, blue stages the perpendicular **figurative** contexts. The result is that abundance remains playable in the time of writing, not a search session before or after.

Two conditions guide how this accompaniment is shaped. First, the contexts surfaced are indexical: existing passages and images that the editor brings into proximity. Where machine generated information is involved (magenta), it serves as a probe, not as a substitute for the material. Second, while the computational setup supports the inverse directions (image → image; image → text), the writing loop privileges text as the navigational action; the other directions are demonstrated separately and taken up later.

Crucially, nothing here is neutral. The instrument is designed to keep a personal and intentionally biased stance operative. Against generic public screens, the editor operates through authored private casts that tune what appears. In practice a curated set of books configures the textual context for a section, and a hand-picked corpus of multimodal documents (films or PDFs) biases both textual and figurative indices. Public is generic, private is personal: projection becomes proportion through authored perspectives, not general translation. This bias is not a flaw but the architectonic move: a way to keep difference productive and yet legible.

"But this immediacy is only apparent through the mediated temporal and spatial chain to which the newly emergent thing attaches itself. This conclusion leads us to the second, so far inadequately heeded, aspect of non-identical repetition. It concerns the monadological fashion in which each new repetition not only repeats a series of items (stretching back indefinitely), but repeats the process of repetition itself [...]. In this way, it microcosmically represents the process,



in a new sense of 'representation' which is less one of mirroring, and more akin to the symbolic and personal 'standing for' which one associates with political representation."⁴



0 — artwork, booklet, manuscript, nightstand, correspondence, frame, keepsake, case, bookmark

Because this instrument is both subject and medium, its role varies with the aims of each chapter. In chapters 1,2,3, and 5, the red/magenta quotes and blue images operate as context, sometimes commentary, sometimes extended argument, sometimes staged illustrations that form the backdrop of the writing. We embrace this as ornament⁵ in a digital sense: a productive excess that thickens discourse, a calibrated plenty rather than a funnel to one result. The ornament becomes a playable excess that keeps this plenty near at hand, as a proportion of the writing to its contextual textual and figurative parts. In chapter 4 and in the preludes §0.1 and §0.2, the relation reverses: the editor's returns become the material itself, and the personal writing proceeds by composing, embellishing, or glueing those returns.

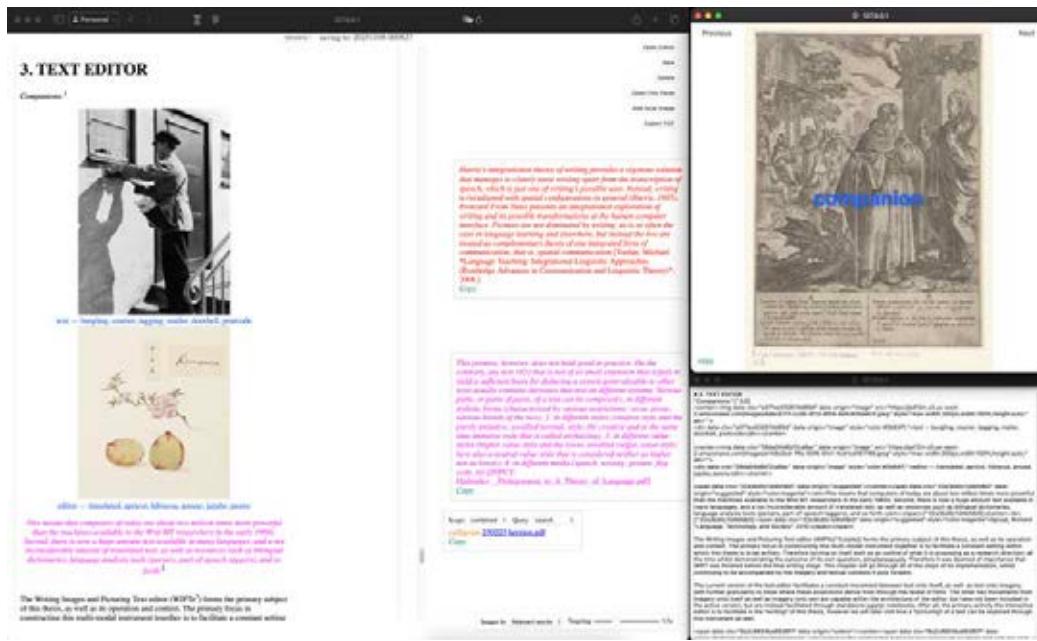


Figure 3:1: Screenshot of the editor whilst writing this chapter.

§3.1 first establishes the instrument's stance and its theoretical framing within the thesis; §3.2–3.6 describe the build: domains and casts, elements and encodings, the screens that keep modalities apart, the projections that relate them, and the interactive loop that lets the editor's replies stay coextensive with the act of writing. In short, this chapter is the hinge where the earlier theoretical posture takes operational form, and gives insight in how that operation returns, quietly and constantly, to write the text it accompanies.

6

1. Sproat, Richard *Language, Technology, and Society*. 2010.



2. The dutch verb "*wipt*" is defined as follows - **wip·pen** (wipte, heeft, is gewipt) 1: to move fast and swift (as) with small jumps, 2: Being in a volatile state: *That table wipt, wippen with his chair that's on two legs*, 3: to play on the **wip** (*seesaw*). - From: <https://www.vandale.nl/pages/gratiswoordenboek/wippen>



3. Blanchot, Maurice *The Infinite Conversation*. University of Minnesota Press, 1993.



4. Pickstock, Catherine *Repetition and identity : the literary agenda*. Oxford: Oxford University Press, 2013.



5. The topic of ornamentation from a digital perspective will be discussed in chapter 4, through the editor's material.



6. The input pdfs for this chapter are: Agamben, Giorgio. *The Signature of All Things: On Method*. Zone Books ; Distributed by the MIT Press, 2009.; Forty, Adrian. *Words and Buildings: A Vocabulary of Modern Architecture*. 1st paperback edition. Thames & Hudson, 2004.; Calvino, Italo. *Invisible Cities*. Translated by William Weaver. Vintage Classics, 2009.- [Book Context Link](#)



3.1 OUTLINE



0 — introduction, indoors, inhaling, census, gramophone

The reason for proposing a text editor as the central instrument of this thesis partially begins from the proposal that text provides a condition of access to the interiority of ideas. Derrida's sentence "*il n'y a pas de hors-texte*" is often flattened into the slogan that "*nothing exists outside language*", as if it were a claim of total enclosure. But his provocation can be read more precisely as a claim about mediation: that meaning does not simply present itself from a neutral outside, and that whatever we take to be an "inside" becomes shareable only through traces, through forms of inscription, reference, and spacing.¹ Text, in this sense, is not just writing, but the weave of traces through which something becomes thinkable.² It is on this basis that the editor is cast as the central figure of the thesis, not because writing is the only access to ideas, but because it is the medium in which this thesis must continuously negotiate what it can hold, what it can cite, and what it can make available.

Like other media, prose can view scenes from anywhere in the physical world, but it also adds subjective angles within a character's mental world. Once the prose writer makes a choice of person (first, third, or the eccentric second), her eye moves from that angle like a spotlight. The author holds our perception in her fist. As we follow her sentences, she takes us where she wishes: through the places, times, and societies of her world; or into a single character's thought-filled depths, there to witness rationalizations, self-deceptions, and dreams; or deeper yet, into the character's subconscious to reveal her raw appetites, nightmarish terrors, and lost memories.³

Following the argument of Chapter 1 that architectural method is never simply the production of objects but the organisation of access to a field of diverse information, then the thesis cannot treat its multimodal experiments as illustrations and results bolted to an already-finished manuscript. The method has to be enacted where it speaks: inside the act of writing a thesis itself. This is why the editor is not an appendix but a medium. It turns the thesis into a test of its own proposition: that multimodal work should be practised as an architectonic operation (projection, proportion, calibration).

The Writing Images and Picturing Texts editor (WIPTe) stages writing as an explicit field condition: words and images, citations and scenes, films and books, public corpora and private



selections. It does so with the simple insistence that the writing window is never alone.

Operationally, the editor holds two perpendicular domains. The red textual domain hosts paragraphs and quotations; the blue figurative domain hosts images and scenes. The interface keeps the writing's surround constantly local and operable: present enough to affect decisions, light enough not to predetermine them.

*This is the power of an open text, as Eco points out in *The Role of the Reader*: 'An open text is a paramount instance of a syntactic-semantico-pragmatic device whose foreseen interpretation is a part of its generative process' (Eco (1994a: 3)). Even in its creation the author anticipates and invites interaction. An open work summons collaboration between the reader and the text to create meanings. These meanings will no doubt be various and disparate but they cannot be without limitations.⁴*



This is also where the *personal* stance enters: the editor is designed to keep my bias operative, not to eliminate it. Its returns are not neutral facts; they are invitations that acquire meaning only through selection, refusal, and placement. The instrument does not promise objectivity; it promises traceable subjectivity.

Incommensurability of modes

Jay Lemke's formulation, quoted by Jewitt, is a refrain for the chapter: "No [written] text is an image. No text or visual representation means in all and only the same ways that text can mean. It is this essential incommensurability that enables genuine new meanings to be made from the combinations of modalities."⁵ The editor therefore does not seek a merger of modalities into sameness; it seeks a way to keep their differences in play whilst navigating between them, somewhat like a see-saw.

In other words, as soon as the textual form is translated into the graphical form, new observation and analysis methods become applicable. Thus the translation has the flavor of associating with the language a more expressive concurrent semantics.⁶



Foucault's reading of Magritte remains decisive because it frames the problem architectonically—as a problem of references, not of “content”: "From painting to image, from image to text, from text to voice, a sort of imaginary pointer indicates, shows, fixes, locates, imposes a system of references, tries to stabilize a unique space."⁷ The editor's design question is how to operate such pointers in a digital context where machine learning is eager to collapse description and image into a shared vector space. The stance here is not to deny that such spaces work, but to refuse their claim to be the only space.

Thus, with regard to the economy of research resources, it may be more productive to spend more time on expanding the corpus of primary data rather than to use it for writing a descriptive grammar. In short, then, the difference between the basic and the extended formats as conceived of here is one between different formats or “styles” for the inclusion of analytical insights in a documentation. In the basic format, analyses are included in the form of scattered annotations and crossreferences between sessions (and, of course, indirectly also by the fact that for topics



for which little or no data can be found in the recordings of communicative events, elicited primary data are included).⁸

Jewitt extends this incommensurability with the further differentiation that internal to the modes there are underlying processes that shape their functionalities: “*central to multi-modal research is that all modes have, like language, been shaped through their cultural, historical and social uses to realize social functions as required by different communities.*”⁹ WIPTe responds to this condition by consistently facilitating a multitude of responses; constellations of information that never claim a singular answer.

Curated proportionality

So far we have argued that the complete internalisation of architectural design into Cartesian 3D models risks freezing the project into a single, over-determined representation. Architectural practice, by contrast, thrives on a circulation between drawings, models, texts, atmospheres, anecdotes, and references. The problem is not that architecture is hard to represent; it is that representation itself is multimodal and non-commutative.



5 — leg, sole, shoe, footwear, tiptoeing, footed, foot, footstep, spilled, toe, toed, levitate

Chapter 2 rephrased this multimodal condition through different discourses to arrive at an architectonic stance towards the separation of modalities. Treating modalities as sets to be mapped or translated invites a logic of equivalence: for every element here, find the corresponding element there. Treating them as part of a larger operational structure allows a different stance: what matters is not sameness but the operations that transform one configuration into another. In architectural terms: the section does not translate the plan; it transforms the problem by altering the operational frame, both revolving around the same space, which neither fully capture on their own.

The editor is positioned in this second sense. It uses machine learning models like CLIP only to the extent that they help construct addressable indices (word vectors, figurative labels, multimodal film signatures) but the core operation is not translation (this image = that caption). It is projection and proportion: given a piece of writing, what other texts and images can be brought into a calibrated proximity according to the personal curation of this projection.

Roberto Bottazzi offers an evocative stance on how a contemporary condition of architects' interaction might take shape within the context of AI and Machine learning tools:

*"From the point of view of design, architects are endowed with the technical means to project data onto each other and "backpropagate" their intentions onto the design process; the cumulative effect of these two conditions brings design closer to curatorial practices. If in traditional algorithmic approaches designers reified knowledge into code to solve problems, with DL models the designers' task is to critique, question—in short, curate—the outputs of a DL model. The actions require designers to critically investigate the space between two technical and the architectural series to foreground what Aby Warburg called the "iconology of the interval," the speculative space between existing things." - Bottazzi, Projections: On the Design Process in AI Architecture*¹⁰



grounded — psychedelic, swag, funk, obey, gonzo, funnest

WIPTe formalises that "interval" as a writable environment: the writing projects outward; the instrument replies; I curate, accept, reject, re-position.

Multimodal documents as casts

Inside this interval, curated collections of multimodal documents are treated as a conceptual counterpart to the 3D architectural model: as a cast that supports multiple readings through its projections (Fig. 3.1:1). Here as a propositional exploration of how this might take form, we are therefore defaulting to the current dominant multi modal relation in computing: Images and Texts. Not because architecture is reducible to them, but because they offer a stringent test case for an architectonic mechanics between modalities.

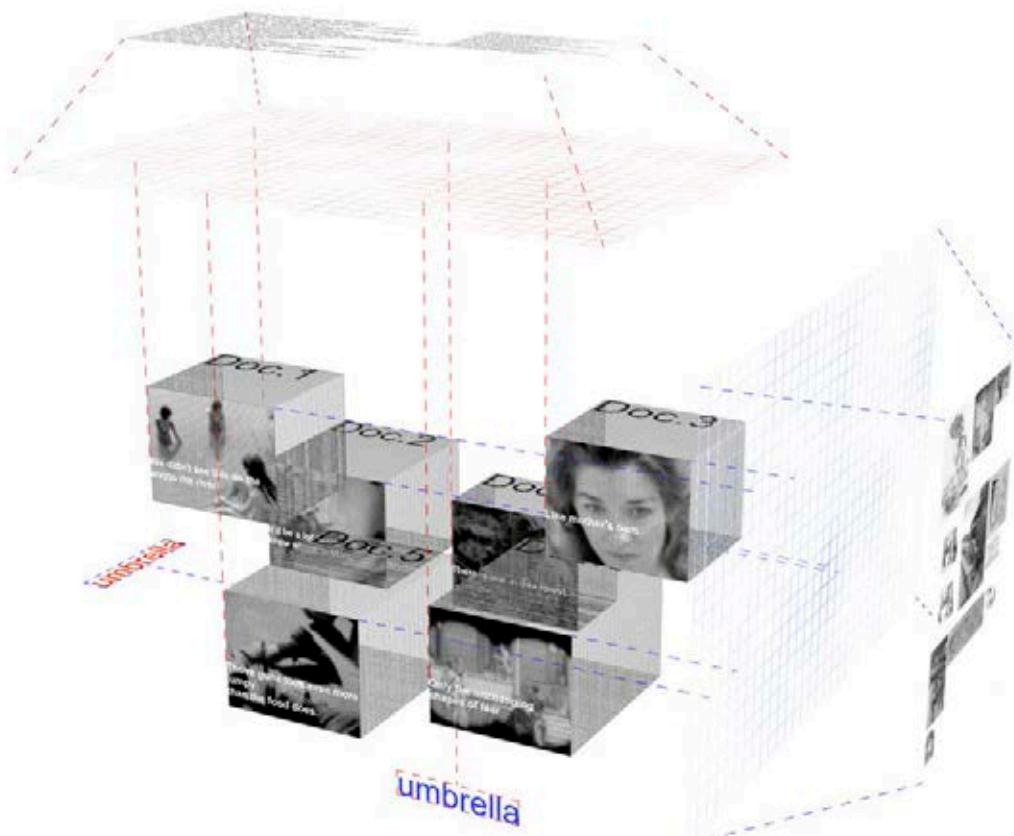


Figure 3.1:1: Diagram of how multimodal documents act as a cast for projections. Through the collection of documents that are of a multimodal nature, a textual and figurative domain of the collection can be derived. These domains, with the documents as its dimension offer manners of projecting within those domains or across them, not translating them into sameness, but seeking resonances between the visual and textual contributions each modality affords. For instance here the imagery of umbrella can be projected to a set of sentences that capture the types of conversations had when umbrellas show up, or the textual umbrella can be projected to a collection of images that reflect the type of visuals that are seen when the documents speak of an umbrella. Similarly to the 3D model facilitating the reading of geometry as section or plan (Fig. 1.2.2:1), this ‘model’ of documents facilitates reading the conceptual realm through imagery or textual concepts.



3 — collecting, binder, cupboard, pantry, inventory, organise

Films are privileged as the primary cast because they already carry a negotiated multimodality: continuous imagery co-present with an articulated textual channel (subtitles), held together by timecodes without presuming equivalence. In that sense, cinema provides a ready-made format for the thesis’ guiding demand: to keep modalities coextensive, not commuted into one another.



The decision to use films as the primary multimodal corpus is not just practical; it is also conceptual. Deleuze's analysis of cinema gives us a language to speak about how frames relate to what escapes them. In *Cinema 1*, he describes the frame as a "set or closed system" that inevitably determines an "*out-of-field*"; not only what lies off-screen, but a more disturbing elsewhere that "*cannot even be said to exist, but rather to 'insist' or 'subsist'*."¹¹ The frame, in other words, is never self-sufficient; it is pressured by a virtual whole that exceeds it.

In WIPTe, this elsewhere condition is evocative to think about how a film corpus facilitates the reading of an exterior public context. Each film is a dimension in the multimodal domains described later in §3.2–3.4: it anchors both a textual signature (its conversations, as captured by subtitles) and a figurative signature (its scenes, as captured by image labels). Together they frame a space of possible projections. The cross-modal gap between text and image in this space can be read as Deleuze's out-of-field: the very pressure through which time, mood, narrative and association enter the writing.

Public screens, private casts



0 — insert, move, restoring, documentation

If there is no outside-text in Derrida's sense, there is also no purely personal text: every act of writing is shot through with anonymous, inherited structures of language and perception. Merleau-Ponty describes this double condition: "*Just as we speak of repression in the limited sense when I retain through time one of the momentary worlds through which I have lived, and make it the formative element of my whole life—so it can be said that my organism, as a prepersonal cleaving to the general form of the world, as an anonymous and general existence, plays, beneath my personal life, the part of an inborn complex.*"¹²

The editor's architecture mirrors this split. At the public/generic scale, the TEXT and FIGURATIVE domains are backed by very large corpora (on the order of millions of books and images). These corpora provide an "anonymous and general existence" of the editor: a

background of language and imagery that stabilises word vectors, figurative alphabets, and similarity metrics. They function like a library and an image archive: statistically legible, computationally addressable, but not yet personally tuned.

Across this, the thesis operates through private casts: curated selections that bias projections in a conscious way. This is where the note about layers of private and public becomes operative: the private construct of choices and curation facilitates projection onto common sense. The public corpora stabilise a shared legibility; the private cast bends that shared legibility into a situated viewpoint. The point is not to escape the common, but to make one's placement within it explicit, and therefore discussable.



[perspective — invisibility, chalkboard, disobedience, scouted](#)

This is also why traceability of content included in the thesis is not an administrative add-on here but part of the architectonic claim. The reader should be able to follow the projection back into its context: to see not only what was cited or shown, but from amongst which other choices it was pulled, and therefore how the instrument's "public stance" was locally constructed.

Non-exhaustive instrument

Chapter 1 already cautioned against mistaking computation for a mirror of the real through the rhetoric of the "digital twin" as an exhaustive model. Villa discusses this limitation as follows:

"The world model is, therefore, undoubtedly "exhaustive" and "resolved" within itself, hence the character of Totalvorstellung. However, it can never be "exhausted" nor lead to a definitive "solution," as this would confer the systematic character proper to the world image"¹³

As Villa states here, a world-model may be "exhaustive" and "resolved" within itself, yet can never be exhausted by the world, nor provide a definitive solution. It remains a Totalvorstellung, a total representation that cannot coincide with the world-image as such. The danger lies in mistaking such models for blueprints instead of instruments.

The message may or may not be temporally divorced from "the original circumstances of its formulation", but it is no longer divorced from its writer, which means that the writer becomes "the authenticating source of the message" and that this fact effectively inhibits the tendency towards regarding "meaning as residing in the words themselves" (Harris 2000: 236). The implication of this is that text-based computer-mediated communication introduces a "responsoring" of the written text and that, when participants interact textually on these premises, they may reclaim language from the "autoglottic" space into which writing previously relocated it.¹⁴



The editor is explicitly on the side of instruments. It constructs casts that are explicitly biased and finite, precisely so they can remain operational. The editor's returns are probabilistic and therefore susceptible to drift, mismatch, and surprise. They do not claim truth; they expose resonances that may, or may not, be taken up. As Bühlmann puts it: "*Perhaps the most important shift this entails is in learning to cope with a certain notion of indeterminateness and cyclicity that is immanent to materiality itself, and within which chance factors as an objective, formally determinative aspect.*"¹⁵ What then subsequently enters the thesis from those returns is not an automatic selection but an authored one. This is where the personal becomes unavoidable: the final choices are mine, calibrated by what feels proportionate to what is being written. The editor makes that authorship legible rather than hidden: it does not obscure taste. Over the span of an entire thesis the repeated use of these projections gives them a kind of operational stability. They become familiar moves, like switching between plan and section.

Information as material



2 — discussing, counterpart, concentrating, psychoanalyze, losing

Technically, the instrument consists of a Python back-end that orchestrates the data processing and machine learning components; the front-end is a combination of HTML and JavaScript, tailored to thesis writing. The reason for building a fully interactive frontend is because if computation is to become an everyday architectural medium rather than an external service, it has to be domesticated; brought out of the notebook, the IDE, and the command line into a space where one can write, edit, annotate, and reference without breaking the interaction.

*Coding is thus an intersubjective process in which (ideally) the interlocutors converge on the same interpretation. At a given moment, a speaker is capable of invoking any portions of a vast conceptual universe, including both new and established conceptions, as well as new ways of apprehending the latter. Content that is activated and exploited for linguistic purposes represents the maximal scope of awareness for the expressions that result. An essential aspect of this awareness is the ongoing discourse itself: prior expressions, the present usage event, and the projection of further expressions, all centered on the speaker-hearer interaction.*¹⁶



In that sense the editor is closer to the shelves in OMA's studio, filled with 3D prints and study models (see 1.1.1), than to a laboratory interface. Those models do not constantly demand attention, but they are present: they can be picked up, rotated, compared, ignored, returned to. WIPTe attempts something similar for digital multimodality. Textual and figurative contexts

hover at the periphery of the screen; red and magenta floating panels, blue image constellations. They can be glanced at, dismissed, folded in. They remain near enough to let writing be affected by them without turning every sentence into a command.

This is how the editor is aligned with the “new materiality” discussed earlier: to get a feel for informational objects as things with grain, bias, and entropy, and to sculpt them into the synthetic process of writing by placing them in new contexts where their characteristics can act.

- - -

This outline positions WIPTe as an architectonic instrument: a way to keep multimodal difference present without demanding its resolution. The sections that follow turn from stance to build: how the public and private domains are constituted, how elements are encoded, how “screens” and indices are constructed, and how interactive projections are kept coextensive with the writing loop.

This interaction, however, assumes different forms in different fields and in different historical periods. In the context of modern academic science, the modes of this interaction range from casual gatherings and seminars to discipleship, co-authorship, and to such relatively institutionalized forms of interaction as the publication of a special journal, the establishment of a separate scientific association (as in the various psychoanalytic schools or the Prague Linguistic Circle), or the organization of scientific meetings and conventions.¹⁷



18

-
1. Derrida, Jacques. *Of Grammatology*. John Hopkins University Press, 1974.



2. Here “text” follows Derrida’s expanded sense of writing/trace (arche-writing) as a condition of possibility rather than a merely linguistic object: writing as “*the condition of the epistème*” and of historicity, the “horizon... [as] world as space of inscription”, and “signification is a priori written... [as] spacing” .



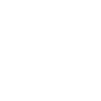
3. McKee, Robert *Dialogue: The Art of Verbal Action for Page, Stage, and Screen*. Twelve, 2016.



4. Bourne, Craig, and Emily Caddick Bourne *The Routledge Companion to Shakespeare and Philosophy*. Routledge, 2018.



5. Jewitt, Carey. ‘Multimodal Methods for Researching Digital Technologies’. In *The SAGE Handbook of Digital Technology Research*, by Sara Price, Carey Jewitt, and Barry Brown. SAGE Publications Ltd, 2013.



6. Gorrieri, Roberto *Process Algebras for Petri Nets: The Alphabetization of Distributed Systems*. Springer, 2017.



7. Foucault, Michel. *This Is Not a Pipe*. University of California Press, 1983. pp. 27–29



8. Himmelmann, Nikolaus P., Jost Gippert, and Ulrike Mosel *Essentials of Language Documentation (Trends in Linguistics. Studies and Monographs Tilsm)*. Mouton de Gruyter, 2006.



9. Jewitt, Carey. ‘Multimodal Methods for Researching Digital Technologies’. In *The SAGE Handbook of Digital Technology Research*, by Sara Price, Carey Jewitt, and Barry Brown. SAGE Publications Ltd, 2013. p.251



10. Bottazzi, Roberto. ‘Projections: On the Design Process in AI Architecture’. In *Architectural Intelligence in the Age of Artificial Intelligence*, 1st edn, edited by Andri Gerber, Oya Atalay Franck, and Michael Mieskes, vol. 93. Architekturen. Transcript Verlag, 2025.



11. Deleuze, Gilles. *The Movement-Image*. 9. print. Translated by Hugh Tomlinson and Barbara Habberja. Cinema / Gilles Deleuze 1. Univ. of Minnesota, 2009.



12. Merleau-Ponty, Maurice. *Phenomenology of Perception: An Introduction*. Translated by Colin Smith. Routledge, 1945.



13. Villa, Riccardo M. *Upon Entropy: Architectonics of the Image in the Age of Information*. Birkhäuser, 2024. p.10



14. Duncker, Dorthe *The Reflexivity of Language and Linguistic Inquiry : Integrational Linguistics in Practice*. New York ; Routledge, 2019.



15. Bühlmann, Vera. *Mathematics and Information in the Philosophy of Michel Serres*. Bloomsbury Academic, 2021. p. 12



16. Li, Thomas Fuyin *Compendium of Cognitive Linguistics Research*. Nova Science Publishers, Inc., 2014.





17. (auth.), Olga Amsterdamska *Schools of Thought: The Development of Linguistics from Bopp to Saussure*. Springer Netherlands, 1987.



18. The input pdfs for this chapter are: Koolhaas, Rem, and Hans Ulrich Obrist. *Project Japan. Metabolism Talks*. 1st edition. TASCHEN, 2011.; Steiner, George. *After Babel: Aspects of Language and Translation*. Open Road Media, n.d.; Zupancic, Alenka. *The Odd One In: On Comedy*. MIT Press, 2008.- [Book Context Link](#)



3.2 DOMAINS



0 — ripple, dissolving, entrancing, bubbling, exhaling

So, contrary to this, I suggest an interact[ive] architecture agenda that is open for technological explorations while at the same time making use of classical concepts from architecture in new innovative texturation processes of information technologies in physical spaces. Not only do we need to relate these new textures available to the concept of buildings, and not only can we rely on architectural thinking when introducing digital elements and technologies in physical spaces.¹



The domains on which WIPTe relies are of three modes and two scales.

The modes are

TEXT, **FIGURATIVE**, and **MULTIMODAL**

The scales are

PUBLIC and **PRIVATE**

or in other words:

GENERIC and the **PERSONAL**

Domains in this context refer to the fields of information between which the projections take place, as well as those that establish said projections. In architectural communication, domains could be understood as the ichnographic, orthographic and scenographic drawings. Here, given the focus on images and text, these will form the primary domains, with the third being a collection of documents² that inherently contain both.

The interactions take place between two domains that can be seen as the generic, big enough to not be curated, and broad enough to be able to expose an exhaustive amount of information hosted by the writing. The projections between these two generics are however of a more precise nature. In a digital context where massive datasets are readily accessible and pre-trained models available, the deliberate use of small, curated datasets might appear counterintuitive. Yet for architecture, whose practice is built on specificity, ambiguity, and situated judgment, this strategy becomes essential to be able to work with the digital in a flexible manner. Each dataset used in this research is conceived as a projectional surface, a biased constellation of ideas. This logic resonates with Miro Roman and Diana Alvarez-Martí's³ reflections on branding. To be a "brand" is not to standardize, but to differentiate; to become legible as a situated vector in a saturated field of signals. A small dataset allows for an architecture of projection, where the specificity of the contents (films of a single director, texts of a single author, or simply the

personal preference of the curator, in this case me) becomes the ground upon which proportionalities are staged.

In this view, the design process builds information into the structure of the molecule. But this view would not make sense if we understood the molecule to be simply a discrete and bounded entity. For if molecules were simply discrete entities, how could one then distinguish between a molecule which embodies little information and the ‘same’ molecule with the same structure of elements that embodies a great deal of information? In Whitehead’s and Stengers’s terms it is possible to give a different and more precise meaning to the idea of a material object being rich in information.⁴

Small datasets contextualised to a generic field of information also inherently retain ambiguity. This ambiguous yet specific nature is positioned in line with Ishigami’s⁵ thoughts on accessible abstractness; architectural abstraction can be precise without being reductive. The datasets used here (Studio Ghibli films, Tarantino films, Tim Walker’s photography, Roald Dahl’s fairytales) are selected not for their neutrality but for their excess. They carry affect, tone, narrative, scenography; dimensions that resist numerical flattening. Where CLIP relies on the vast pairing of images with captions to form its semantic structure, here the relation is reoriented through the specificity of small, situated datasets. The aim is to operate within the fold between modalities, establishing a computational posture that reflects the architectonic nature of multimodal reasoning.



document — wastepaper, dumpster, shatters, junk, smashed

This point is even more poignant if we consider that most of these elements making a building are not designed by architects themselves and their assembly is performed by other professionals.⁶

Computational media can make information relevant to the task at hand thereby (1) reducing the information overload problem and (2) the need for decontextualized learning. They provide the foundation for all “on demand” notions (such as learning on demand, using information on demand, detail on demand). Intertwining Problem Framing and Problem Solving are significant

*not only as technical achievements in computer science, but also as examples of principled analyses of helping humans to cope with complex design problems.*⁷



projected — judgment, confines



Framed through Plato’s distinction between the unlimited (*apeiron*) and limit, the three modes and two scales within WIPTe set out to sketch an unlimited field: an indeterminate more/less between text and image that becomes operable only once limits are introduced. In Philebus, limits are “*things that do not admit the more or the less*”⁸ and, by way of equality, measurement (commensurability), and proportionality (harmony), they “*caus[e] opposites to cease being opposed by imposing proportion and harmony, and thus introducing number*”⁹. Read this way, the **PUBLIC/GENERIC** screens (books, images) form the unlimited substrate; proportion arises only in the instrument. Where equality fixes indices (elemental vocabularies and addressable units), measurement supplies shared bases (cosine similarity, CLIP backbones, film-axes), and proportionality is enacted through *PRIVATE/PERSONAL casts and projections* that relate modes without collapsing them. Domains remain distinct yet are able to communicate. §3.2.1 now turns to the datasets: the materials upon which these limits act.

10

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1. Wiberg, Mikael *Interactive Textures for Architecture and Landscaping: Digital Elements and Technologies*. Engineering Science Reference, 2010.



2. Document is used here as any one particular existing construct of information. For example a book, a film, an image etc.



3. Alvarez-Martin, Diana, and Miro Roman. ‘Being a “Brand”’. In *Atlas of Digital Architecture: Terminology, Concepts, Methods, Tools, Examples, Phenomena*, edited by Ludger Hovestadt, Urs Hirschberg, and Oliver Fritz. Birkhauser, 2020.



4. Fraser, Mariam, Sarah Kember, and Celia Lury *Inventive Life: Approaches to the New Vitalism*. SAGE Publications Ltd, 2006.



5. Ishigami, Junya. *Small Images*. LIXIL Publishing, 2012.



6. Bottazzi, Roberto *Digital Architecture Beyond Computers: Fragments of a Cultural History of Computational Design*. Hardcover. Bloomsbury Visual Arts, 2018.



7. Arias, Ernesto G., Hal Eden, and Gerhard Fischer *Envisionment and Discovery Collaboratory*. Morgan & Claypool Publishers, 2015.



8. Plato, Philebus 25a–b, in Böhme, Gernot, and Hartmut Böhme. *Feuer, Wasser, Erde, Luft: eine Kulturgeschichte der Elemente*. 3. Aufl., Unveränd. Nachdr. C.-H.-Beck-Paperback 1565. Beck, 2014. (Translated with GPT4)



9. Plato, Philebus 25d–e, in Böhme, Gernot, and Hartmut Böhme. *Feuer, Wasser, Erde, Luft: eine Kulturgeschichte der Elemente*. 3. Aufl., Unveränd. Nachdr. C.-H.-Beck-Paperback 1565. Beck, 2014. (Translated with GPT4)



10. The input pdfs for this chapter are: Franke, Anselm, Eyal Veytsman, and Haus der Kulturen der Welt Berlin, eds. *Forensis: The Architecture of Public Truth*. Exhibition ‘Forensis’, Berlin. Sternberg Press, 2014.; Morel, Philippe, and Henriette Bier, eds. *Disruptive Technologies: The Convergence of New Paradigms in Architecture*. Springer Series in Adaptive Environments. Springer International Publishing, 2023.; Burrows, David, and Simon O’Sullivan. *Fictioning: The Myth-Functions of Contemporary Art and Philosophy*. Edinburgh University Press, 2019. . - [Book Context Link](#)



3.2.1 DATASETS

The experimental setup consists of constructing an instrument for multimodal projection, designed to stage conceptual adjacency between modalities without collapsing them into semantic equivalence. Inspired by Roman's¹ exploration of informational architectonics in *Play Among Books* together with his companion Alice_ch3n81, WIPTe extends beyond textual constellations to include visual material, rendering image and text as epistemically distinct but interrelated fields, and thus re-situating the multimodal gap as an opportunity for proportion rather than a technical flaw. The selected multimodal datasets are comprised of media where image and text are co-present but not inherently descriptive of one another. Other datasets form the larger context through which the multimodal casts are viewed.

the PUBLIC/GENERIC

TEXT

The generic text domain is positioned as a writable substrate rather than as a library to be read sequentially. It consists of published books and articles gathered from the ETH digital library as well as public digital repositories (e.g., Internet Archive Open Library², Project Gutenberg³, and comparable sources). After filtering to English, a minimum of 2000 words and deduplication, the corpus comprises 1,100,990 documents. In this process a document is deemed *English* if at least 80% of words (here meaning strings split by spaces or punctuation containing only letters) within the total document are recognised as *English*, using the `en_UK` and `en_US` dictionaries from the `enchant` library. The deduplication was done through comparison between the TF-IDF vectorised books (described in 3.3), where a cosine similarity of higher than `0.98` was set as the duplicate threshold.

All documents were normalised from `.pdf` or `.epub` formats to plain UTF-8 `.txt`, using the `PyMuPDF`⁴ and `EbookLib`⁵ libraries. Through this process, page layout, pagination, figures, and images are discarded. This was done for two reasons: first, the storage required for ~1.1M texts in their original file format was not feasible, so all documents were immediately converted and stored as `.txt` (still resulting in a combined size of ~0.7TB); second, as an operative instrument of writing and picturing, the public text domain needs to serve as a generic screen for multimodal projections, for which uniform, layout-free text is sufficient.



library — literary, headmaster, novelist, bookworm, prefect, reread

The intention is not to read these documents in a conventional manner nor to retrieve them in full. Instead they form a digital substrate, and normalising the data format is the first step that facilitates the operability of this **TEXT** domain. That said, at this stage the texts do remain in legible form, no lemmatisation, segmentation or filtering is applied. They are merely reduced to their most basic form of plain text, line breaks as the only formatting retained. Further analytic pre-processing of the text is applied when vectorising the text (see 3.3).

As such these ~1.1M texts form the generic domain of text onto which the personal projections in WIPTe will be cast. They provide the substrate through which precise contexts, from an amount of writing no single individual could read, are exposed, and which stage the demonstration of a personal perspective set against a public domain of text. In this thesis demonstrated through the quotes in red and magenta .

The metadata accompanying each file was recorded as available upon retrieval and used to populate a minimal dictionary: ID, Title, Author, Year, Edition, Publisher, City, Pages. Based on this information, Chicago-style endnote references are constructed for the red and magenta citations that appear throughout the thesis. Because the books are retrieved from a variety of sources, licenses are not universally the same, as such the full texts are not distributed or displayed in full within the text editor. Only segments of the texts are foregrounded through the mentioned citations, with best effort accompanying references to adhere to regular academic practice when quoting from a source.

Given the quantity and heterogeneity of the dataset, no additional effort was taken to reduce textual noise originating from bibliographies, tables of contents, OCR artefacts, or other causes that may produce segments not immediately recognisable as running prose. In practice, the vast majority of the corpus is legible plain text (with the occasional interruption of a page number mid-sentence). During interaction with the editor this is not experienced as a major issue: projections are expected to circumvent such noise by virtue of resonance, since illegible strings tend not to produce strong matches with intended queries; or, where they do, the query itself will likely be of an equally obscure and illegible nature.

Furthermore, no form of thematic filtering has been applied. The current compiling of this dataset has simply been concerned with gathering a large amount of text from published documents; the nature, reliability, correctness, or norms of its contents lie outside the remit of this stage. Inevitably, the corpus therefore contains texts with which I may personally fundamentally disagree, or even find highly problematic; such is the condition of the generic and the digitally available flow from which these documents are obtained. What matters is not the mere presence of these documents within this dataset, but the manner of engagement with them. How they are proportioned, cast, and set into resonance by an instrument designed to work with abundance rather than to legislate it. Echoing this posture, whilst referencing Calasso, Riccardo Villa notes the epistemic upheaval that the digital introduces: “*Once it becomes digital, every form of knowledge does not simply stand but is always open to 'digitability.'* To quote Calasso, it turns into '[a]n encyclopedia that juxtaposes impeccably reliable information with baseless information, equally accessible and on the same level.’”⁶

Otherwise, possession of it would be no advantage. Therefore, information must be something that can be stored, owned, lost, and found. It must be capable of being priced. It must be transformable—and possible to speak of as differentially distributed across a population. If everybody has it—then it is not new—not information. It must also be possible to speak of it as having a private or a public, or an anonymous, or an identified character, and so on. Several of the characteristics Garfinkel lists relate to completeness of information. And, I think here he is being sensitive to a fundamental contradiction in the conventional theories of information. A rational actor with complete information is assumed—and yet information is the unknown—the



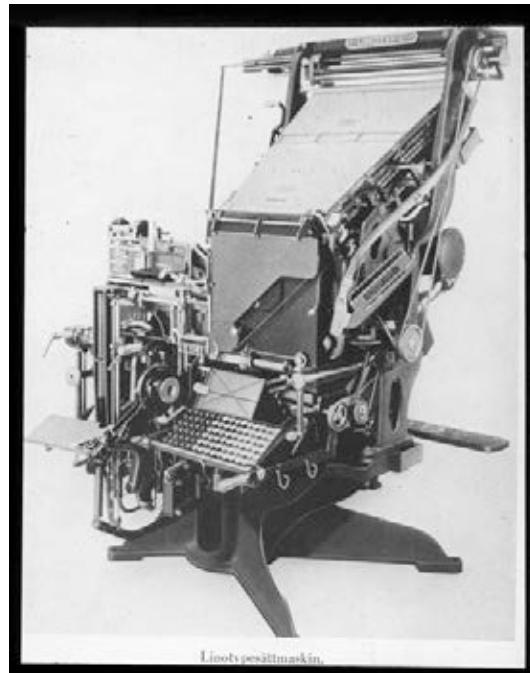
new—the anomaly. In actual practice, actors never have complete information—and yet are capable of handling and recognising information. In order to overcome this contradiction, information must be capable of being incomplete, or lost, or changed.⁷



Some insights into the nature of the documents:

- The median publishing year is 2007
- The top 5 publishers account for 16% of the total dataset
- Top 3 cities: New York, London, Paris
- The median number of pages is 288 with 43% between 100 and 300 pp
- The top 3 individual authors are: Philip M. Parker (480), William Shakespeare (376), Harold Bloom (288)
- The top 3 organisation authors are: United Nations (391), World Bank (340), WHO (218)

the PUBLIC/GENERIC
FIGURATIVE



0 — telegram, bureau, typeface, typist, pressed, misprint, seaboard

For the orthogonal figurative screen, we adopt Public Domain 12M (PD12M)⁸ as the generic image plane. PD12M is a large, licence-clear collection of approximately 12.4 million public-domain/CC0 images, covering a wide spectrum of imagery, hosted independently of original sites on cloud storage, with a standardised Parquet metadata schema and precomputed CLIP ViT-L/14 vectors for every image⁸. These vectors provide a ready-made vectorial substrate for later operations in the image field, at a scale that would otherwise be cumbersome to compute locally, primarily because the full image archive itself is on the order of tens of terabytes (~29 TB for the pd12m-full release).

As with the **TEXT** domain, the intent is not to read images as documents to be authenticated by narrative or biography. We therefore acknowledge and accept the absence of further per-image context: while the dataset contains a minimal source tag that identifies the upstream organisation from which a given file was gathered (56.5% of which is Wikimedia), it does not furnish author names, titles, or comparable bibliographic identity fields, and we deliberately refrain from reconstructing those externally. The image field is thus treated as purely figurative, an appearance-only plane that remains epistemically distinct from the textual field and free of any operational use of original textual accompaniments such as titles, descriptions, or captions. Any operation has to proceed from the figurative information of the **FIGURATIVE** domain itself.

In this form PD12M provides the generic visual screen required by the instrument, ontologically distinct from the textual domain through its total lack of any accompanying non-visually-derived information. The images are indexical only to the extent that each has been made, selected, and put online, yet this minimal index is not expanded into provenance. As Rosalind Krauss writes on the index in the context of photography: “*The photograph is thus a type of icon, or visual likeness, which bears an indexical relationship to its object. [...] Its power is as an index and its meaning resides in those modes of identification which are associated with the Imaginary.*”⁹ Although the images are not exclusively photographs, I would argue that this indexical power extends to the general digital image, where associations can be traced to the fact that each file is a digital trace of active curation. The instrument keeps that indexical trace intact while bracketing biography. In contrast to the continuous flow of contemporary generative imagery, this choice preserves a pre-specific relation to something that has happened, not something specified to be generated.

Where Krauss provides a reasoning for treating the index of the digital image as a trace of occurrence, we turn to Merleau-Ponty’s *Phenomenology of Perception* to clarify why we keep PD12M at the level of appearance only, such that meaning is composed within the field of perception rather than fetched from any external associated information: “*Perception is not a science of the world, it is not even an act, a deliberate taking up of a position; it is the background from which all acts stand out.*”¹⁰ Such is the placement of the images, as a perceptual screen. And, furthermore, how this screen becomes an active layer capable of response through its own internal language without text: “*The passing of sensory givens before our eyes or under our hands is, as it were, a language which teaches itself, and in which the meaning is secreted by the very structure of the signs, and this is why it can literally be said that our senses question things and that things reply to them.*”¹¹

Operationally, our use requirements are modest: we require scale, licence clarity, stable availability, and a compact metric for image to image relations. PD12M satisfies the first three directly, and the fourth through its per-image CLIP vectors, which will be mobilised later on to stage adjacency and proportion within the image field.

Particularly for architecture, machines like sophisticated drawing instruments—and, by extension, digital drawing devices—play unique roles as transdisciplinary interfaces to mathematics itself. As new machines like ellipsographs, conchoidographs, and planimeters began to encode the knowledge required to perform certain architectural drawing procedures, an epistemological distinction between design knowledge and instrumental knowledge emerged.



*On the one hand, we might define design knowledge as the architect's trained intuition of formal organization principles such as the relationship of parts to a whole, the ranges of material effects, and the appropriate use of geometry. Instrumental knowledge is the narrower understanding of the procedures to successfully manipulate a certain type of technique or technology, which would include the ability to operate an instrument, a device, a machine, a process, or a software to intended effect. In addition to its expedient use to accomplish a particular design, instrumental knowledge facilitates the creation of systems of interrelated technologies to systematically realize design agendas.*¹²



4 — correspondence, prologue, domesticity, taxidermy, bedchamber, bookshop

the PRIVATE/PERSONAL
MULTIMODAL

"the theory of series is, in Leibniz and from his work, the common intersection of number theory, combinatorial art, algebra, infinitesimal geometry, function theory, etc., even music, as a mixed science, and even logic, through dichotomous sequences and the virtual envelopment of the predicate in the subject... It is dominated by a philosophy of order, neighbourhood, and situs; at the same time as it dominates a technique of measurement, it gives rise to an analysis of position; at the same time as it is an evaluation of quantity, it provides the principal method for applying the finite to the infinite, or the infinite to the finite - whether we expand or sum; it is the infrastructure of calculation having measurement as a result and order as a condition; it finally allows us to talk about space, in differential geometry, but it constitutes it through tabulation" -

Michel Serres, *Le Système de Leibniz et Ses Modèles Mathématiques*.¹³

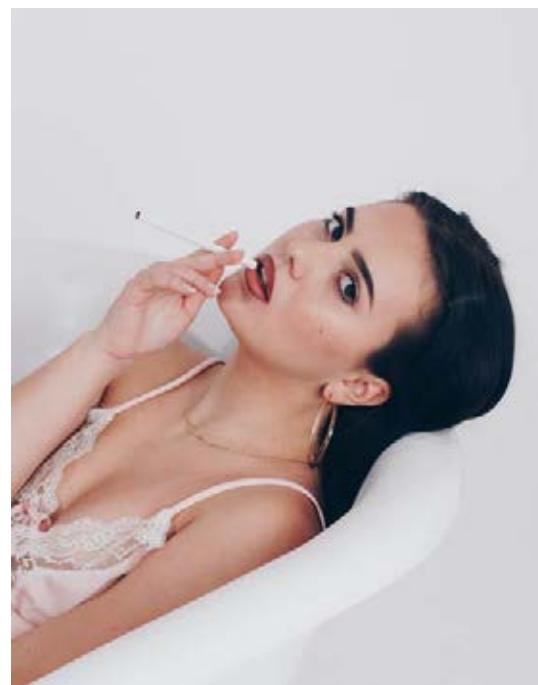
Taking Serres's point that series articulate order, neighbourhood, measurement, and position as a way of relating the finite to the infinite, the small, personal corpora introduced here function as constructed series: finite, authored selections that measure qualitative features and fix a private position in proportion to the abundance of the public domains. As established in the first two chapters, the ambition is to establish projections between modalities and to demonstrate that such projections can be made specific, personal, and curated. The multimodal datasets are therefore deliberately small in comparison to the **PUBLIC** domains and are intentionally partial. Their selection reflects a sensibility: not neutral sampling but situated, authored choices that enable a tuning between text and image distinct from, and in proportion to, the generic screens introduced above.

The following selected images from the editor are shown as two pairs drawn from the *PRIVATE* and **PUBLIC** domains respectively, based on the same projection.



[finite — shes, smut, sexy, boob, blowjob](#)

[14](#)



[finite — sexy, blowjob, boob, menthol](#)



[neighbourhood — confessional, pontificate, theology, atheistic, pontificating, excommunication, priesthood, archdiocese, sinning, catechism, preached, coven, religiously](#)

[15](#)



neighbourhood — catechism, homily, designating, papal, monstrance, intercedes, pope, excommunication, archdiocese, papacy, pontificate, pontificating, pontiff, theology, benediction, conclave, priesthood

1. **FILM**

The first corpus consists of films with subtitles. Films provide a naturally occurring multimodality: a continuous image stream articulated as frames and a co-present narrative channel articulated as subtitle text. We constrain the textual side to non-descriptive subtitle tracks to foreground dialogue rather than editorial commentary; sound-effects glosses and descriptive inserts are excluded. We also ensure that if the film is multi-lingual, all dialogue is included from all languages (in the form of the English translation). The two channels are retained as co-present but non-equivalent: timecodes allow adjacency without presuming that words describe images (or vice versa).

The working collection comprises 216 films. A selection of sub-chapters in chapter 4 operate on smaller, thematically cohesive subsets (e.g., a single director or studio). The selection is intentionally personal; it reflects a preference for films I have watched and value, as well as films I've been meaning to watch but haven't gotten to yet, with a bias toward aesthetic and historical interest. The point is not canonisation but tuning: this corpus sets the figurative and narrative register against which projections into the generic **FIGURATIVE** and **TEXT** domains can be proportioned. Another viewer's corpus would tune the instrument differently and thus produce a distinctly different proportionality.

Operationally, films enter the instrument as: (i) dialogue text (normalised subtitle lines with timestamps) and (ii) time-indexed frames (sampled sparsely to register scenographic change rather than to exhaust motion). Crucially, no attempt is made to collapse one channel into the

other; adjacency is staged, not asserted as equivalence. Later chapters will mobilise this material to derive figurative concepts that orient image search and composition across the generic domains.



0 — eyebrow, chiselled, iris, fidget

[16](#)



1 — burgling, hoarded, cupboard, collecting, inventory, suitcase

Bay side and ocean side: two very different experiences for me from the very beginning. Later on, rereading Proust, I would almost think of them as Marcel had thought of two paths he'd taken as a child in Combray. Not that these cotes were socially distinct as the Guermantes Way had been from Swann's Way. No, rather I thought of them as being distinctive in two main ways, the first atmospheric, the second emotional. The bay side was fragrant, heavily wooded, nocturnal, obscure, somewhat bewildering, a place filled with unclarities of location, not to mention relationship.¹⁷

The full list of films:

12 Monkeys - Terry Gilliam (1995), 2001: A Space Odyssey - Stanley Kubrick (1968), 2046 - Wong Kar-wai (2004), 28 Days Later - Danny Boyle (2002), 4 Months, 3 Weeks and 2 Days - Cristian Mungiu (2007), A Clockwork Orange - Stanley Kubrick (1971), A Complete Unknown - James Mangold (2024), A History of Violence - David Cronenberg (2005), A Separation - Asghar Farhadi (2011), After Hours - Martin Scorsese (1985), All About My Mother (Todo sobre mi



madre) - Pedro Almodóvar (1999), *Amour* - Michael Haneke (2012), *Andrei Rublev* - Andrei Tarkovsky (1966), *Anora* - Sean Baker (2024), *Another Round (Druk)* - Thomas Vinterberg (2020), *Apocalypse Now* - Francis Ford Coppola (1979), *Arrietty* - Hiromasa Yonebayashi (2010), *As Tears Go By* - Wong Kar-wai (1988), *Attenberg* - Athina Rachel Tsangari (2010), *Au hasard Balthazar* - Robert Bresson (1966), *Audition* - Takashi Miike (1999), *Babylon* - Damien Chazelle (2022), *Bad Education (La mala educación)* - Pedro Almodóvar (2004), *Barry Lyndon* - Stanley Kubrick (1975), *Beau Travail* - Claire Denis (1999), *Black Dog* - Guan Hu (2024), *Blade Runner* - Ridley Scott (1982), *Blue Jasmine* - Woody Allen (2013), *Blue Velvet* - David Lynch (1986), *Brazil* - Terry Gilliam (1985), *Broken Embraces (Los abrazos rotos)* - Pedro Almodóvar (2009), *Bronson* - Nicolas Winding Refn (2008), *Burning* - Lee Chang-dong (2018), *Castle in the Sky* - Hayao Miyazaki (1986), *Caught Stealing* - Darren Aronofsky (2025), *Chungking Express* - Wong Kar-wai (1994), *Coffee and Cigarettes* - Jim Jarmusch (2003), *Cold War* - Paweł Pawlikowski (2018), *Companion* - Drew Hancock (2025), *Contempt* - Jean-Luc Godard (1963), *Crimes of the Future* - David Cronenberg (2022), *Dark Habits (Entre tinieblas)* - Pedro Almodóvar (1983), *Death Proof* - Quentin Tarantino (2007), *Django Unchained* - Quentin Tarantino (2012), *Dogville* - Lars von Trier (2003), *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* - Stanley Kubrick (1964), *Dreams* - Akira Kurosawa (1990), *Drive* - Nicolas Winding Refn (2011), *Dune* - David Lynch (1984), *Elvis* - Baz Luhrmann (2022), *Eraserhead* - David Lynch (1977), *Evil Does Not Exist* - Ryûsuke Hamaguchi (2023), *Eyes Wide Shut* - Stanley Kubrick (1999), *Fargo* - Joel Coen (1996), *Fear and Desire* - Stanley Kubrick (1953), *Fear and Loathing in Las Vegas* - Terry Gilliam (1998), *Fight Club* - David Fincher (1999), *From Up on Poppy Hill* - Goro Miyazaki (2011), *Full Metal Jacket* - Stanley Kubrick (1987), *Get Carter* - Mike Hodges (1971), *Goodfellas* - Martin Scorsese (1990), *Grave of the Fireflies* - Isao Takahata (1988), *Hana-bi (Fireworks)* - Takeshi Kitano (1997), *Happy Hour* - Ryûsuke Hamaguchi (2015), *Happy Together* - Wong Kar-wai (1997), *Harakiri* - Masaki Kobayashi (1962), *Heretic* - Scott Beck & Bryan Woods (2024), *High Heels (Tacones lejanos)* - Pedro Almodóvar (1991), *High and Low* - Akira Kurosawa (1963), *Holy Motors* - Leos Carax (2012), *Howl's Moving Castle* - Hayao Miyazaki (2004), *I'm So Excited! (Los amantes pasajeros)* - Pedro Almodóvar (2013), *I, Daniel Blake* - Ken Loach (2016), *Ichi the Killer* - Takashi Miike (2001), *Ida* - Paweł Pawlikowski (2013), *Ikiru* - Akira Kurosawa (1952), *In the Mood for Love* - Wong Kar-wai (2000), *Inglourious Basterds* - Quentin Tarantino (2009), *Jackie Brown* - Quentin Tarantino (1997), *Kika* - Pedro Almodóvar (1993), *Kiki's Delivery Service* - Hayao Miyazaki (1989), *Kikujiro* - Takeshi Kitano (1999), *Kill Bill: Vol. 1* - Quentin Tarantino (2003), *Kill Bill: Vol. 2* - Quentin Tarantino (2004), *Killer's Kiss* - Stanley Kubrick (1955), *L'Avventura* - Michelangelo Antonioni (1960), *La Dolce Vita* - Federico Fellini (1960), *La Haine* - Mathieu Kassovitz (1995), *La Notte* - Michelangelo Antonioni (1961), *Labyrinth of Passion (Laberinto de pasiones)* - Pedro Almodóvar (1982), *Law of Desire (La ley del deseo)* - Pedro Almodóvar (1987), *Live Flesh (Carne trémula)* - Pedro Almodóvar (1997), *Lolita* - Stanley Kubrick (1962), *Lost Highway* - David Lynch (1997), *Lost in Translation* - Sofia Coppola (2003), *Madadayo* - Akira Kurosawa (1993), *Magnolia* - Paul Thomas Anderson (1999), *Marie Antoinette* - Sofia Coppola (2006), *Match Point* - Woody Allen (2005), *Mean Streets* - Martin Scorsese (1973), *Megalopolis* - Francis Ford Coppola (2024), *Melancholia* - Lars von Trier (2011), *Mirror (Zerkalo)* - Andrei Tarkovsky (1975), *Monster* - Hirokazu Kore-eda (2023), *Mulholland Dr.* - David Lynch (2001), *My Neighbor Totoro* - Hayao Miyazaki (1988), *Nausica of the Valley of the Wind* - Hayao Miyazaki (1984), *No Country for Old Men* - Joel & Ethan

Coen (2007), *North by Northwest* - Alfred Hitchcock (1959), *Notes on a Scandal* - Richard Eyre (2006), *Ocean Waves (I Can Hear the Sea)* - Tomomi Mochizuki (1993), *Once Upon a Time in Anatolia* - Nuri Bilge Ceylan (2011), *Once Upon a Time, in Hollywood* - Quentin Tarantino (2019), *Onibaba* - Kaneto Shindo (1964), *Only Yesterday* - Isao Takahata (1991), *Paprika* - Satoshi Kon (2006), *Parasite* - Bong Joon-ho (2019), *Parthenope* - Paolo Sorrentino (2023), *Pepi, Luci, Bom and Other Girls Like Mom* - Pedro Almodóvar (1980), *Persona* - Ingmar Bergman (1966), *Pierrot le Fou* - Jean-Luc Godard (1965), *Point Break* - Kathryn Bigelow (1991), *Pom Poko* - Isao Takahata (1994), *Ponyo* - Hayao Miyazaki (2008), *Porco Rosso* - Hayao Miyazaki (1992), *Possession* - Andrzej Żuławski (1981), *Princess Mononoke* - Hayao Miyazaki (1997), *Psycho* - Alfred Hitchcock (1960), *Pulp Fiction* - Quentin Tarantino (1994), *Pusher* - Nicolas Winding Refn (1996), *Raging Bull* - Martin Scorsese (1980), *Ran* - Akira Kurosawa (1985), *Rear Window* - Alfred Hitchcock (1954), *Requiem for a Dream* - Darren Aronofsky (2000), *Reservoir Dogs* - Quentin Tarantino (1992), *Riders of Justice* - Anders Thomas Jensen (2020), *Rosemary's Baby* - Roman Polanski (1968), *Saltburn* - Emerald Fennell (2023), *Seven Samurai* - Akira Kurosawa (1954), *Shoplifters* - Hirokazu Koreeda (2018), *Silence* - Martin Scorsese (2016), *Snatch* - Guy Ritchie (2000), *Sonatine* - Takeshi Kitano (1993), *Songs from the Second Floor* - Roy Andersson (2000), *Spartacus* - Stanley Kubrick (1960), *Spirited Away* - Hayao Miyazaki (2001), *Shtarker* - Andrei Tarkovsky (1979), *Stuart: A Life Backwards* - David Attwood (2007), *Sátántangó* - Béla Tarr (1994), *Tales from Earthsea* - Goro Miyazaki (2006), *Talk to Her (Hable con ella)* - Pedro Almodóvar (2002), *Taste of Cherry* - Abbas Kiarostami (1997), *Taxi Driver* - Martin Scorsese (1976), *The Banshees of Inisherin* - Martin McDonagh (2022), *The Bear, S02E07 (Forks)* - Christopher Storer (2023), *The Bear, S02E10 (The Bear)* - Christopher Storer (2023), *The Beast* - Bertrand Bonello (2023), *The Big Lebowski* - Joel & Ethan Coen (1998), *The Birds* - Alfred Hitchcock (1963), *The Cat Returns* - Hiroyuki Morita (2002), *The Conversation* - Francis Ford Coppola (1974), *The Cook, the Thief, His Wife & Her Lover* - Peter Greenaway (1989), *The Departed* - Martin Scorsese (2006), *The Double Life of Véronique* - Krzysztof Kieślowski (1991), *The Elephant Man* - David Lynch (1980), *The Florida Project* - Sean Baker (2017), *The Flower of My Secret (La flor de mi secreto)* - Pedro Almodóvar (1995), *The Gentlemen* - Guy Ritchie (2019), *The Godfather* - Francis Ford Coppola (1972), *The Graduate* - Mike Nichols (1967), *The Hand of God* - Paolo Sorrentino (2021), *The Hateful Eight* - Quentin Tarantino (2015), *The Killing of a Sacred Deer* - Yorgos Lanthimos (2017), *The Killing* - Stanley Kubrick (1956), *The Man Without a Past* - Aki Kaurismäki (2002), *The Marriage of Maria Braun* - Rainer Werner Fassbinder (1979), *The Name of the Rose* - Jean-Jacques Annaud (1986), *The Party* - Sally Potter (2017), *The Prime of Miss Jean Brodie* - Ronald Neame (1969), *The Shining* - Stanley Kubrick (1980), *The Skin I Live In (La piel que habito)* - Pedro Almodóvar (2011), *The Spirit of the Beehive* - Victor Erice (1973), *The Straight Story* - David Lynch (1999), *The Tale of the Princess Kaguya* - Isao Takahata (2013), *The Virgin Suicides* - Sofia Coppola (1999), *The Wind Rises* - Hayao Miyazaki (2013), *The Wind That Shakes the Barley* - Ken Loach (2006), *The Wire, S01E11 (The Hunt)* - David Simon (2002), *The Wolf of Wall Street* - Martin Scorsese (2013), *The Young Pope* - Paolo Sorrentino (2016), *Thelma* - Joachim Trier (2017), *There Will Be Blood* - Paul Thomas Anderson (2007), *Three Billboards Outside Ebbing, Missouri* - Martin McDonagh (2017), *Three Colours: Blue* - Krzysztof Kieślowski (1993), *Three Colours: Red* - Krzysztof Kieślowski (1994), *Three Colours: White* - Krzysztof Kieślowski (1994), *Tie Me Up! Tie Me Down!* - Pedro Almodóvar (1990), *Tokyo Story* - Yasujiro Ozu (1953), *Trainspotting* - Danny Boyle (1996), *Triangle of*

Sadness - Ruben Östlund (2022), *Turkish Delight* - Paul Verhoeven (1973), *Ulysses' Gaze* - Theo Angelopoulos (1995), *Under the Skin* - Jonathan Glazer (2013), *Underground* - Emir Kusturica (1995), *Vertigo* - Alfred Hitchcock (1958), *Volver* - Pedro Almodóvar (2006), *Wall Street* - William Oliver Stone (1987), *Werckmeister Harmonies* - Béla Tarr & Ágnes Hranitzky (2000), *What Have I Done to Deserve This?* - Pedro Almodóvar (1984), *Wheel of Fortune and Fantasy* - Ryusuke Hamaguchi (2021), *When Marnie Was There* - Hiromasa Yonebayashi (2014), *Whisper of the Heart* - Yoshifumi Kondō (1995), *Winter Sleep* - Nuri Bilge Ceylan (2014), *Woman in the Dunes* - Hiroshi Teshigahara (1964), *Women on the Verge of a Nervous Breakdown* - Pedro Almodóvar (1988), *Youth* - Paolo Sorrentino (2015)

Some insights into the background of the films:

- 101 different directors
- 26 different original languages being spoken
- 37 different countries of production

2. PDF

A second corpus type turns to PDFs with substantial figurative content. In contrast to film, these documents are denser in text and comparatively sparse in images, and they often organise images diagrammatically or editorially rather than cinematographically. This difference is intentional: it tests the instrument under a textual regime in which images are fewer but often more pointed. Here there is less of a personal view in the selection of the specific documents than with the films, but rather these data collections aspire to demonstrate the ability to foster projections tuned to a specific discourse.

*Now, continuity of motions is a feature of action by contact, on which the localizability of causal interactions is grounded, but it is also a feature of time. As mentioned above, one of the reasons why the dynamical approach presents itself as essentially different from, and more adequate than, connectionism is that it makes reference to continuous time, whereas networks and their learning algorithms are indexed by discrete time, which is not the time of natural phenomena, if not by the mere fact that the “clock” pace varies for different systems.*¹⁸



The collection used for this are PhDs completed at the Architecture department of ETH Zurich: a set of ~500 dissertations were gathered, of which 280 are used here because they exceed a 50-image threshold. The intent is not to model the content of these theses, but to exploit their image density and disciplinary heterogeneity to probe how the instrument behaves when images are embedded in long-form argument. And of course in this thesis it serves as a play in which we can explore how my peers have proportioned image to text in the past.

As with film, co-presence is preserved without forcing alignment: page-level or figure-level positions allow projection, but captions, figure numbers, and paratexts are not operationalised as descriptive truth. The documents are treated as image-rich textual fields whose tuning can be cast into the generic FIGURATIVE and TEXT domains.



analyzing — behave, cane, alfresco, settee, spied, armchair

3. PHOTOGRAPH WITH STORY

The final corpus constructs multimodality deliberately by placing two distinct datasets into relation: a vocabulary of Roald Dahl's stories and the scenographic imagery of Tim Walker. Here, the two channels are not inherently coupled; instead, one domain serves as a screen through which the other is projected. The wager is that single images, treated as documents in their own right, carry sufficient figurative depth to sustain projections across domains when held in tension with a narrative lexicon.

Methodologically, this corpus demonstrates that the instrument is not limited to inherently multimodal sources (like film or illustrated PDFs). Cross-casting can be staged by selecting a textual vocabulary on one side and a curated image set on the other, then proportioning them through the same generic screens. This manufactured adjacency underscores the central claim: projection precedes equivalence and can be made personal without becoming arbitrary.

Because this setup does not align with the primary approach used throughout the thesis and is not integrated within the WIPT editor we won't discuss this experiment here, but instead it is included within Appendix 3.





It seems clear, therefore, that everyday language is bound up with two different traditions: one the tradition of linguistic communication (which requires an attention to the functionality of information), the other the tradition of information technology focused on processes of transforming, coding, and decoding. These telecommunicative processes have a structure, but that structure does not have to be linguistic, meaningful, or capable of being true or false. The myths and icons of naturalized information we have seen so far might seem to suggest that the newly germinating disciplines of the twentieth century cybernetics or the mathematical theory of information, or their borrowings in biology, chemistry, and physics are Information and Myth fundamentally responsible for this interesting ambiguity in ordinary speech.¹⁹

20

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15. *The Young Pope S01E01*, Directed by Paolo Sorrentino (Wildside, 2016), Blu-ray. — 33:50



16. *Whisper of the Heart*, Directed by Yoshifumi Kondō (Studio Ghibli, Inc., 1995), DVD. — 1:14:24



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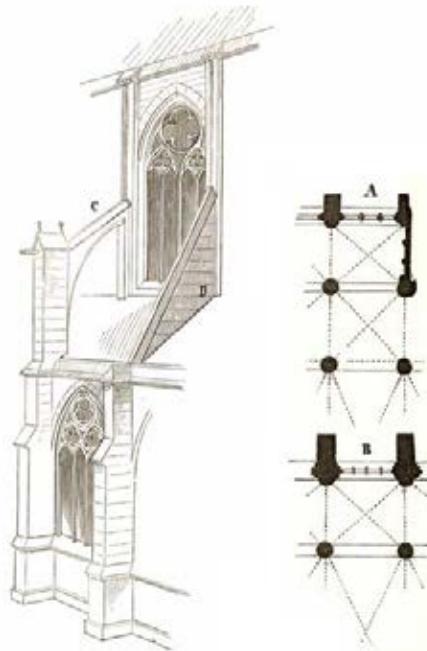
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[Book Context Link](#)



3.3 ELEMENTALS

"Zarathustra worries at this point about receivers being able to stand the signification of new knowledge, not in the least about how to transmit a message put in a different way. The philosopher wants to address individuals concerned with their collective becoming, not a population rounded up for yet another communications campaign or only wanting to hear the good news. This brings us to another of Simondon's concepts, and one that functions along similar lines: *transduction*. Simondon uses it in a specific and very extensive way throughout his work."¹

Now that materials and domains have been established, we specify how these are represented through their subsequent elements: the addressable units that act as indices for searches and projections. For each domain the material is encoded in particular ways, attuned to its modality and scale, that makes it measurable and operable. This orientation presumes the domain structure set out earlier: **TEXT**, **FIGURATIVE**, and **MULTIMODAL**, each operating across a **PUBLIC/GENERIC** and a **PRIVATE/PERSONAL** scale. The instrument operationalises the material by casting projections between these domains and scales, using elements as computational indices, with their encodings situating content for subsequent operations. Scale and modality dictate encoding: at book corpus scale, sparse lexical statistics preserve broad thematic bias; at paragraph scale, local vector spaces sharpen neighbourhoods of meaning; at film scale, text and image are encoded distinctly and related architectonically through multimodal documents rather than through direct term alignment.



3 — stairwell, loft, reference, dumbwaiter, downwards

"The symbolic, as such untranslatable, while translating itself is hereby however not completely transferred into the technical. It differentiates itself in relation to itself, i. e. it "specifies" itself in

an operative model that remains symbolic-referential. The relation of the place-value-like arrangement of the symbolic denies itself to both itself and any definite model of its own function. This way only it becomes legible as the primary origin which enables the origin of communication technology to be determined, i. e.²



The elements below distinguish themselves as the core symbols through which the WIPT editor operates. Each element passes through an abstraction step, and therefore appears with two faces: one **informational**, the other **vectorial**.

The notation of the elements and their vectorial counterparts:

To cross informational domains and encodings without constant paraphrase, we first outline the notation used for the primary elements and their encodings. Generally the **informational** face follows the typeface of their domain, but in lowercase (i.e. **book** as an element in the **TEXT** domain). The **vectorial** face is denoted by mathematical notation (i.e. \mathbf{b} for the vectorial counterpart for **book**).³

- **book**: \mathbf{b} - book-level vector in the **PUBLIC/GENERIC TEXT** domain. Unless specified differently, \mathbf{b} always refers to the LSA vector of the book, if dealing with both TF-IDF and LSA vectors we refer to the TF-IDF encoding as \mathbf{b}_t and the LSA encoding as \mathbf{b}_l
- **paragraph**: \mathbf{p} - paragraph vector in a specific subset of books, either using TF-IDF + LSA: \mathbf{p}_u or through BGE: \mathbf{p}_v
- **writing**: \mathbf{x} - current editor text, encoded as a paragraph-like vector
- **suggestion**: $\sigma_{\mathbf{x}}$: suggestion - (LLM-extrapolated text from **writing**) encoded as a paragraph-like vector
- **word**: \mathbf{w}_t - text-based word vector either at scale of books (\mathbf{w}_{tb}) or at the scale of paragraphs (\mathbf{w}_{tp})
- **image**: \mathbf{i}_v - image CLIP vector
- **image**: \mathbf{i}_w - image database entry with figurative words (labels) as keys
- **word**: \mathbf{w}_f - figurative-based word vector, while **word** is associated to the **PUBLIC** image, its vectorisation relies on the **PRIVATE** figurative **word** vectorisation (see below), in the case of the film cast: \mathbf{w}_{fF} , and in the case of using pdfs: \mathbf{w}_{fP} .
- **multimodal document** either as film or pdf. Vectorially it occupies a dimension within the cast in which text and image are proportioned
- **film**: \mathbf{F} - a film as a whole
- **pdf**: \mathbf{P} - a pdf document as a whole
- **word**: \mathbf{w}_{tF} or \mathbf{w}_{tP} - text-based word vector defined through subtitles in the case of films or the text content of a pdf.

- **frame** or **figure**: f_v - an image based CLIP vector of a frame extracted from a **film** at timestamp t_f or a figure extracted from a **pdf** on page p_f .
- **frame** or **figure**: f_w - image database entry for a frame or figure with figurative words (labels) as keys
- **word**: w_{fF} or w_{fP} - figurative-based word vector defined through frame or figure labels.

There is also a number of elements that do not have a vectorial face, but are rather inferred through the information of others:

- **subtitle** - a line of subtitle in a film that contains a number of **words** and also a timestamp t_s
- **scene** - a continuous piece of film inferred through the aggregation of adjacent frames maintaining $\geq 30\%$ label continuity in f_w around a seed frame.

Three textual word embeddings are distinguished: w_{tb} (book-scale), w_{tp} (paragraph-scale), w_{tF} (subtitle-scale) and two image word embeddings w_f (public image scale), and w_{fF} (film frame scale). Within the textual or figurative, the informational identity of the word can serve as a bridge between vectorial faces, however across domains the informational identity is never assumed to be equivalent; a “word” names different anchors in different domains.

TEXT

"Leontes sees, as we have begun to see, that the instability of meaning and uncertainty of reference he is experiencing first-hand—what I have generally termed linguistic indeterminacy—is not simply a function of expression but of interpretation as well. It arises, that is, not only out of an imperfection in the medium or the speaker's use of it, but out of the radical subjectivity of the listener or interpreter. For this reason, it is doubly inescapable, a condition that prevents us from ever arriving at certain or complete understanding in human affairs."⁴

book

We use **book** to refer to any highest-order document in the text domain, even if some sources (e.g., articles) are not “books” in the strict sense. The book as a full entity is in all instances treated purely as text as such. The processing from the original file format was discussed in 3.2.1. Next, we make this full text ‘measurable’ or in other words we create a vectorisation for each book. To preprocess the contents we filter to words, lowercase, strip punctuation, remove stopwords, lemmatise, and remove non-English terms. For example, the red quote above becomes the following list of terms:

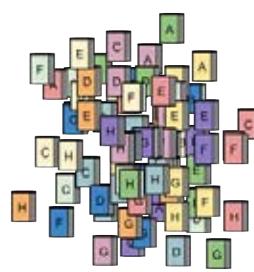
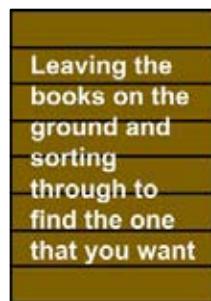
```
[ 'see', 'begun', 'see', 'instability', 'meaning', 'uncertainty',
'reference', 'experiencing', 'first', 'hand', 'generally',
'termed', 'linguistic', 'indeterminacy', 'simply', 'function',
'expression', 'interpretation', 'well', 'arises',
'imperfection', 'medium', 'speaker', 'use', 'radical',
'subjectivity', 'listener', 'interpreter', 'reason', 'doubly',
```

'inescapable', 'condition', 'prevents', 'ever', 'arriving',
'certain', 'complete', 'understanding', 'human', 'affair']

"are not themselves objects, any more than ideas or concepts are objects. We see or recognize a Gestalt, not in the sense that we see a physical object, but in the sense that we see or recognize a likeness."⁵



Applying this to ~1.1M books and retaining words appearing in ≥ 30 books yields a vocabulary of 63,029 unique terms ([1_1m_vocab](#)). We compute a sparse TF-IDF⁶ matrix with 1,100,990 rows \times 63,029 columns ([|books|](#) \times [|words|](#)) and reduce it to 300 dimensions via LSA⁷ : [|books|](#) \times 300. Because of the size, this was done with truncated SVD in randomised batches. Cosine similarity⁸ provides the metric for operations over b .



0 — naming, spacing, hymnal, typeface, spelling



2 — mailer, hamper, bookkeeper, scribbling, tagging, needlework, suitcase, pantry

9

"Words are acoustical signs for concepts; concepts, however, are more or less definite image signs for often recurring and associated sensations, for groups of sensations. To understand one another, it is not enough that one use the same words; one also has to use the same words for the same species of inner experiences; in the end one has to have one's experience in common."¹⁰



paragraph

A smaller entity from the books that will play a role is the paragraph. It is the level at which we interact most explicitly with the books, and the form in which their material manifests in the thesis as the red and magenta quotes that are included throughout. The first step is to extract paragraph-like units; we chunk on line breaks; recursively splitting long chunks at sentence boundaries to respect a max length; merge adjacent short chunks to respect a min length.



2 — pigment, coordination, flooring, tile, checkerboard

We do not operationalise paragraphs in the context of all books but only within the subset of books relevant at that moment. Paragraphs are vectorised in the same manner as books, with each paragraph acting as a document amongst the combined paragraphs from all books in the subset. Taking the present chapter as an example, 175 books produce 153,450 paragraphs; we encode them through TF-IDF and a local LSA at 100 dimensions: $|\mathbf{p}_u| * 100$. Because \mathbf{p}_u inhabits a focused subset, local neighbourhoods of meaning are sharper than at the scale of books. This also illustrates why paragraphs are not computed across all books; as a rule of thumb, scaling by three orders of magnitude would place the full library near a billion paragraphs.

Paragraphs are short enough to be able to work with an LLM-based encoding as well. This encodes **paragraph** to \mathbf{p}_v with dense semantic vectors using BGE embeddings¹¹. TF-IDF+LSA facilitates scale; BGE complements it with strong contextual semantics for small selections where fine semantic nuance matters (e.g., synonymy, paraphrase). We compute BGE only for a dynamic paragraph set pre-selected through \mathbf{p}_u to keep costs low.



analysis — synthesised, zigzagged, innards, ordinate, sectioned, corrupted, programmed

"Further, it is also possible to insert into the text in practically endless ways not only syllables but especially words; of these systems one of the most effective consists in taking a book of poetry or prose, or composing a fake letter to <someone> who is intimate, into which apt words and expressions are scattered in a suitable position. So distributed they must be identified and



*collected by the friend far away, these words have to be evidenced by means of some precise signs agreed upon by convention."*¹²



word

The smallest element in the textual domain, and the core symbolic entity by which the multimodal instrument will operate. It occurs in 3 different ways, leading to each word being represented in three distinct embeddings for three different domains. Although the vocabulary is not necessarily identical across these domains so therefore not every word will occur in all three domains.

*"But it does not only delight the ear. In classical Chinese, compound ideographs are combined to create words. Thus two ideographs meaning 'tree', placed side by side, mean a grove, while three, two above and From Vegas to Vega: American Moon 221 one below, mean a forest. The ideograph for 'sun' placed next to the ideograph for 'moon' means bright. This writing system allows the poet to play with a second layer of meaning through visual associations, and Li Po (or Pai) was a master of such subtleties."*¹³



At the book scale the word as an element is not vectorised per se, rather w_{tb} can be seen as the dimensionality in b_t , the book encoding before applying LSA. Word vectors could easily be obtained as the transposed TF-IDF book matrix ($\text{words} \times \text{books}$) with appropriate normalisation. However we will not rely on this encoding of the words within the `1_1m_vocab`.

For the paragraph scale we do not heavily rely on the word vectorisation either, but it is used as an intermediate step. The w_{tp} are the rows of the transposed matrix of the paragraph-term matrix. We use w_{tp} operationally to find replacements when a writing token does not occur in the film vocabulary `mm_216_vocab_t` (see w_{tf} below). Thus only serving an internal replacement operation on the writing level.

In a similar fashion, subtitles from the 216 films introduced earlier are extracted. Because we are not working with the actual material of the subtitles as sections, but interested in how the subtitles together give shape to the text domain within the multimodal corpus of films, the subtitles as a whole are not operationalised as separate elements (which would sit at a similar level to the paragraphs). However the words occurring within the subtitles form the primary elements by which we will speak about the textual concepts within the multimodal corpus. So where the primary role of words in the other text domains is to form the dimensionality for the documents, here the documents form the dimensions for the words. The vectorisation method of these words will be discussed in the subtitle section later this chapter.

*"It is not a concept. Indeed, it is not even a word. In an essay on 'Differance', Derrida demonstrates that the term he has invented on the basis of the French homonym is also an instance of deconstruction, and a kind of ironic tribute to Saussure. It is impossible in speech, he reiterates, to use the term without explicitly invoking the spelling. You cannot, he insists, hear the difference between 'difference' and 'differance' (or difference and 83 difference). The only way to make the distinction evident in speech is to say 'difference (with an a)'."*¹⁴



writing and suggestion

The other elements within the text domains are writing, encoded as \mathbf{x} (the current editor text being written), and the suggestion extrapolated from writing by an LLM (Llama-3-8B-Instruct.Q5_K_M)¹⁵ is encoded as $\sigma_{\mathbf{x}}$. We process both like the paragraphs to live in the same space as \mathbf{p} . Neither \mathbf{x} nor $\sigma_{\mathbf{x}}$ aggregate to a corpus; they are navigational probes used to communicate with other elements.

FIGURATIVE

The figurative domain, deals with the images on their own, without additional information outside of the image document. To distinguish this from the frames in the film we strictly distinguish between *image* and *frame*, although the methods used largely overlap.

image

Each image is primarily encoded with CLIP¹⁶ (or in the case with the PD12M dataset, a CLIP encoding is already present). This encoding \mathbf{i}_v is maintained and stored, however does not serve as the primary means through which the image screen is operationalised. Instead we label images with words from the vocabulary with which they are to communicate (in the case of the 216 films this would be the mm_216_vocab, see below). This is done through the vectorisation of the vocabulary in the same CLIP model (Vit-L/14 in the case of PD12M) with four leading prompts:

```
"an image of {w}",  
"an image containing {w}",  
"an image showing {w}",  
"apart from people the image shows {w}",
```

As such we do not engage with the image domain directly through its generic encoding \mathbf{i}_v , but we always approach it specific to the multimodal cast to which it is to perform as a generic screen. Based on the labels each image is assigned the top 20 words from each prompt as a set of labels, forming \mathbf{i}_w . This is the symbolic representation of the images that will be relied on to operationalise the domain through an SQL database. Further explained in chapter 3.6.



Prompt: an image of {x}:
 spire, steeple, gibbet, tower, gallows, shed, silo, barn, observatory, tallest, windmill,
 towering, maelstrom, conical, landmark, folly, rebuilt, turret, behemoth, tiptop,
 outbuilding, cabin, pilgrim, braced, converted, chimney, rig, still, churchgoer, swinger

Prompt: an image containing {x}:
 steeple, spire, shed, still, tower, barn, gibbet, gallows, gable, silo, landmark, windmill,
 cabin, towering, rebuilt, chimney, chime, outbuilding, tallest, sauna, rebuild, folly,
 refurbishing, erected, churchgoer, lair, chimed, turret, stand, jelling

Prompt: an image showing {x}:
 spire, steeple, tower, gibbet, gallows, converted, windmill, towering, landmark, shed,
 erected, rebuilt, silo, folly, renovation, turret, hoisted, chimney, chimed, tallest,
 conversion, barn, cabin, chime, wooden, tiptop, doghouse, bell, gable, rig

Prompt: apart from people the image shows {x}:
 spire, steeple, gibbet, windmill, erected, tower, chapel, gallows, barn, shed, shrine,
 outbuilding, forge, church, chimney, silo, turret, observatory, cabin, obelisk, redwood,
 pilgrim, churchgoer, pavilion, rosebud, pulpit, sawmill, cockney, totem, pagan

Figure 3.3:1 - Image #613 from the PD12M dataset with 120 assigned labels from the mm 216 vocab based on 4 prompts.

word

The figurative domain is addressed primarily through word labels. These are indices, anchors by which images can be grasped, not to be read as exhaustive descriptions of image content.

Because the used vocabulary is dictated by the multimodal cast, the anchors are specific to that sensibility, and the figurative words can therefore be interpreted as a set of distinct symbolic tags rather than interpreting the words in their general textual meaning. The semantic identity of a label in the figurative domain is not assumed to match its textual counterpart; the two are related only architectonically, through the multimodal model as cast. As such the figurative word only has one embedding, the one defined through **word**. So $w_f = w_{fF}$, which will be described below.

*"There is a certain playful kind of poetic form in such an equation: all to say, by way of experiential methodology and extended metaphor, that context determines text, as wave pattern shapes particle in position. A given minim of any joke is meaningless out of sequential context, or so Mary Douglas extends Freud to show the cultural continuum of a given joke."*¹⁷



FILM

The film serves as the core multi-modal construct through which the WIPT editor navigates between modalities. In line with the multi-modal gap, we construct each domain through its own internal material and relate them proportionally through the common film documents.

*"However, it would be wrong to consider Empedocles an early forerunner of atomism... because he lacks the concept of the void." — Böhme & Böhme, Feuer, Wasser, Erde, Luft*¹⁸

Taking this as a diagnostic necessity between the atom and void, and by further analogy with atomism, where the void is the condition that lets discrete atoms remain distinct and enter into motion and recombination. In this thesis, I treat the gap between modalities as an architectonic

void. A space that allows the “atomism” of distinct indices (textual **word** and figurative **word**) to persist and be recomposed architectonically. This gives the elementals of WIPTe both stability (as indices) and transformability (through casts and proportions).



atom — nightclub, billion, drumming, soloist, believer

[19](#)

word

The **subtitle** collection forms the documents through which the **word** embeddings \mathbf{w}_{tF} are defined. We parse **.srt** tracks (dialogue-only) into timestamped lines, then apply the same text pre-processing used for **b** and **p**. Across 216 films, this yields a raw vocabulary of 20,170 unique words. We keep only the words that occur in at least 2 films, leading to 12,934 textual indices for films:

- **mm 216 vocab** - raw subtitle vocabulary (20,170 words)
- **mm 216 vocab** - filtered textual film vocabulary (12,934 words) (we will abbreviate this to \mathbf{W} within the mathematical definitions)

For each **word** $w \in \mathbf{W}$ and film F_j , we count occurrences $c(w, F_j)$ over that film's combined subtitle lines.

And let $C = \sum_{w', j'} c(w', F_{j'})$ be the total number of words across the entire corpus (accumulative, not the same as the vocabulary).

We calculate joint and marginal proportions as:

$$p(w, F_j) = c(w, F_j)/C$$

(word within a film in proportion to total corpus word count)

$$p(w) = \sum_j p(w, F_j)$$

(word across films in proportion to total corpus word count)

$$p(F_j) = \sum_w p(w, F_j)$$

(total word count in one film in proportion to total corpus word count)

The word-over-films vector $\mathbf{w}_{tF} \in \mathbb{R}^{216}$ is formed as a PPMI weighting across films²⁰:

$$w_{tF}[j] = \max(0, \log(\frac{p(w, F_j)}{p(w)p(F_j)}))$$

After which we apply L2 normalisation to each word: $\hat{\mathbf{w}_{tF}} = \frac{\mathbf{w}_{tF}}{\|\mathbf{w}_{tF}\|_2}$

Stacking all \mathbf{w}_{tF} yields a 12,934 x 216 matrix \mathbf{W}_{tF} with rows \mathbf{w}_{tF} (subtitle words) and columns \mathbf{F} (films).

The basis is cinematographic: films provide the axes; words become indices positioned by their distribution across films. Uniformly spread terms collapse toward the origin (low or zero coordinates), while terms disproportionately associated with particular films acquire larger coordinates. Row-L2 normalisation makes cosine the natural metric; angles encode shared film profiles. The denominator $p(w) \cdot p(F_j)$ down-weights background effects (globally frequent words or globally dominant films), sharpening contrasts. In short, each \mathbf{w}_{tF} gains stability (a fixed index within \mathbf{W}_{tF}) and transformability (it can be re-proportioned in casts with other domains through its dimensionality being defined through 216 films).



available — suit, representative, concierge, excelsior, commissioner, architect, secretary, announcer, mayor

frame

The frame forms the material that builds the figurative domain of the films. We extract representative frames per film (dense sampling in dialogue-rich scenes; sparser elsewhere). Each frame is embedded with CLIP to obtain \mathbf{f}_v . We also embed text prompts for each word in `mm_216_vocab` to serve as the labels. To capture cinematic and animated registers we pad each label w with six prompt templates depending on if the film is animated or live-action:

```

'description': 'a film still of {art} {w}',
'showing': 'a movie scene showing {w}',
'containing': "a film still containing {art} {w}",
'set': 'a film still set in {art} {w}',
'in': 'a movie scene in {art} {w}',
'context': 'Apart from people the film still shows {art} {w}',

'ani_description': 'an animation still of {art} {w}',
'ani_showing': 'an animated scene showing {w}',
'ani_containing': "an animation still containing {art} {w}",
'ani_set': 'an animation still set in {art} {w}',
'ani_in': 'an animated scene in {art} {w}',
'ani_context': 'Apart from people the animation still shows {art}'

```

Here $\{art\}$ is the suitable article (an, a) for the word $\{w\}$. For each frame we calculate cosine similarity for all labels across the six prompt embeddings and assign the top-N per prompt ($N=20$ by default). This yields up to 120 unique labels per frame, recorded in f_w . We keep the possibility of duplicates across prompts, allowing for a bias of primary focus of the image contents.

We aggregate label counts per film across all frames. Keeping labels that occur in ≥ 3 films yields 16,996 figurative indices:



Prompt: a film still of [art] {w}:
diner, busboy, launderette, milkshake, heat, bartender, deli, juice, takeaway, restaurateur,
takeout, eat, pizzeria, soda, barman, waiter, bodega, dined, culinary, cafe
Prompt: a movie scene showing {w}:
launderette, diner, restaurateur, busboy, bartender, pizzeria, barman, bodega, cashier,
milkshake, wiseguy, rockabilly, waitress, juice, munch, deli, beverage, cocktail, eats,
takeaway
Prompt: a film still containing {art} {w}:
diner, busboy, milkshake, bartender, restaurateur, barman, launderette, waiter, restaurant,
deli, juice, cafe, takeout, overcook, waitress, soda, beverage, bistro, cocktail, grease
Prompt: a film still set in [art] {w}:
diner, bartender, restaurateur, deli, milkshake, waitress, restaurant, pizzeria, waiter,
barman, busboy, cafe, takeaway, juice, chippy, barkeep, eating, soda, eat, takeout
Prompt: a movie scene in [art] {w}:
diner, restaurateur, rockabilly, takeaway, waitress, pizzeria, bodega, launderette, busboy,
barman, milkshake, chippy, contempt, deli, godfather, fishmonger, señorita, canteen,
wiseguy, roadhouse
Prompt: Apart from people the film still shows {art} {w}:
bartender, diner, busboy, launderette, restaurateur, barman, waitress, bodega, barkeep,
shopkeeper, cafe, apron, waiter, smoker, cashier, deli, espresso, pizzeria, rockabilly,
barroom

Figure 3.3:2 - Frame from Chungking Express - t: 56:20 with 120 assigned labels from the mm 216 vocab based on 6 prompts.

word



Figure 3.3:3 - Frame from My Neighbour Totoro - t: 41:50 with 120 assigned labels from the mm 216 vocab based on 6 prompts.

word

mm 216 vocab f — filtered figurative film vocabulary (16,996 labels)

word

For each figurative word we construct a word-over-films vector w_{fF} with the scheme used for the subtitle words, but instead of **mm 216 vocab t** we use **mm 216 vocab f** as W , and accordingly for each **word** $w \in W$ and film F_j , we instead count occurrences $c(w, F_j)$ over that film's combined frame word labels, producing a $16,996 \times 216$ matrix W_{fF} with rows $w_{fF} \in \mathbb{R}^{216}$.

Semantic identity is not assumed between w_{tF} and w_{fF} even when strings match; any relation is established through films and subsequent casts. The semantic meaning of the words here is treated as completely distinct from that in the subtitles and at no point do we rely on the identity of a word in the subtitles vocabulary to the frame vocabulary. This is to say that the words here function as anchors to determine the figurative elements and nature of the visual film contents. For this we rely on the translational abilities of CLIP, in order to then establish our own non-translational multimodal construct.

"We are all, in a sense, cheap knock-offs of ourselves. This sounds like a metaphor at best, madness at worse. A dancing cow onscreen is what it is because it participates in an abstract data structure or resource—a file on some hard disk or server, saved as dancingcow.jpg. That makes sense. But a real cow doesn't work like that. Cows come from cows, not some abstract Form of Cow-ness. What would it even mean to assert the contrary? The geometry example makes a certain sense in its own terms. But everything isn't like geometry."²¹



CO-OCCURRENCE NUDGE

Optionally, we perform a second pass over the \mathbf{w}_{tF} and \mathbf{w}_{fF} encodings to fine-tune them at scene level by slightly nudging cross-modal alignment within film dimensions when a subtitle word and a frame label co-occur in time. This is computed as follows:

let \mathbf{W}_{tF} be the row-normalised vectors \mathbf{w}_{tF} of the **word** (subtitle based) matrix

and \mathbf{W}_{fF} the row-normalised vectors \mathbf{w}_{fF} of the **word** (frame label based) matrix

Then for each film F_j we have T_j as the set of subtitle line timestamps. We take S as **mm_216_vocab_t** and L as **mm_216_vocab_f**. Then $S_j(t_s)$ the set of processed words in the subtitle line and $L_j(t_s)$ the set of labels in the corresponding frame for $t_s \in T_j$.

First we build a co-occurrence matrix. $m_j(s, l)$ counts how many subtitle-frame pairs in film j contain both subtitle word s and frame label l at the same time:

$$m_j(s, l) = \sum_{t_s \in T_j} 1 : [s \in S_j(t_s) \wedge l \in L_j(t_s)] | 0 : otherwise$$

Aggregating this over films:

$$m(s, l) = \sum_{j=1}^{216} m_j(s, l)$$

is the total co-occurrence count of s and l across films.

$$M = \sum_{j=1}^{216} \sum_{s \in S} \sum_{l \in L} m_j(s, l)$$

is the total number of word-label co-occurrence events across the whole corpus, used as a normalising constant to convert counts into probabilities.

Then using these counts to compute probabilities:

$$p(s, l) = \frac{m(s, l)}{M}$$

$$p(s) = \sum_{l \in L} p(s, l)$$

$$p(l) = \sum_{s \in S} p(s, l)$$

To finally compute an association value, which establishes how strongly two terms across modalities are associated through co-occurrence (PPMI).

$$ass(s, l) = max(0, log \frac{p(s, l)}{p(s)p(l)})$$

This $ass(s, l)$ is then used to nudge the textual and figurative word-over-films vectors toward each other only where they truly co-occur in time by applying a small symmetric re-proportioning. Let $\mathbf{w}_{tF} \in \mathbb{R}^{216}$ be the word-over-films vector (row of \mathbf{W}_{tF}) and $\mathbf{w}_{fF} \in \mathbb{R}^{216}$ be the label-over-films vector (row of \mathbf{W}_{fF}). Then we calculate the nudged vectors through:

$$\hat{w_{tF}} = \text{norm}(w_{tF} + \mu * \sum_{l \in L} ass(s, l) * w_{fF})$$

$$\hat{w_{fF}} = \text{norm}(w_{fF} + \mu * \sum_{s \in S} ass(s, l) * w_{tF})$$

- $\text{norm}(x)$ is row-wise L_2 normalisation.
- μ is a constant (we use **0.05**)
- w_{tF} being the vector for **word** s and w_{fF} being the vector for **word** l

This nudge is iterated K times (we use $K = 3$).

The nudge tightens concepts across modalities where words and labels truly coincide in a scene, thus adding a more fine-grain tuning; unrelated pairs ($ass(s, l) = 0$) remain unchanged. Updates occur along film axes, so the cinematographic embedding space basis is preserved.

scene

Given a frame selected by a figurative query (a set of labels), we infer a scene window by sliding over adjacent frames and keeping the maximal contiguous interval whose per-frame label maintains a certain percentage overlap with the input search set. I chose a threshold of $\geq 30\%$ after manual testing, which in practice yields scenes of between 20-60 seconds. The result is a dynamic element s that supports inspection of a scenography around a figurative projection while remaining consistent with its indices.

Throughout the setup in navigating between the film domains, I intended to keep the system playful. Zupančič's²² reading of comedy (via Hegel/Lacan) treats universality not as a predicative truth to be narrated or staged, but as something that incarnates; becomes the subject through the "odd one in," the short-circuit between heterogeneous orders. Rather than seek a fusion of modalities (a tragic identity), the editor privileges proportions that let the substance of the corpora become subject through casts that recompose indices.

"subject narrates the universal, the essential, the absolute; in tragedy, the subject enacts or stages the universal, the essential, the absolute; in comedy, the subject is (or becomes) the universal, the essential, the absolute. Which is also to say that the universal, the essential, the absolute become the subject." - *The Odd One In: On Comedy* - Zupančič²²



[abolishing — master, encircle, renunciation, meditation, deity, worshipped](#)

Paraphrasing Zupančič: comedy is where universality appears in the singular, through operations that connect incommensurables without abolishing their difference. In this sense, the instrument's projections aspire less to closure than to concrete universality appearing in the work: a bias toward operative harmony (Plato's proportional limit) over finality, and toward architectonic becoming over representational truth. The presented images are included as context, in a way meant to be a juxtaposition to the spoken yet atmospheric to it, could come to fulfil a comical nature. The overall endeavour of the text editor is therefore one that sometimes strives to go towards the comical, certainly more than that of truth and absoluteness.



[arrive — cannibalism, dissertation, twittering](#)

[PDF](#)

The method for the pdfs is largely identical to that of the films. The only difference being that the text comes from the body of text within the pdf instead of subtitles, and the images are extracted images from the pdf instead of frames. This does mean that the text corpus of the pdfs is inherently much more abundant than that within the film, and the image corpus is relatively far sparser. Also because the pdfs do not have the condition of strict co-occurrence of text and image like in the films, we do not apply the nudge step to the pdfs.

-
1. Mellamphy, Dan, Nandita Biswas Mellamphy, Babette E. Babich, Horst Hutter, Manabratra Guha, Gary Shapiro, and Julian Reid et al. *The Digital Dionysus: Nietzsche and the Network-Centric Condition*. New York: Punctum Books, 2016.



2. Hovestadt, Ludger, and Vera Bühlmann, eds. *Domesticating Symbols: Metalithikum. II. Applied Virtuality Book Series*. Ambra V, 2014.



3. There are instances where the informational element is required to construct the vectorial embedding. In that case the informational element might also be denoted in mathematical notation within the description of how the vectorial embedding is constructed, but this will always be explicitly mentioned



4. Hartman, Geoffrey H., and Patricia A Parker *Shakespeare and the Question of Theory*. New edition. 1986.



5. Monk, Ray *Ludwig Wittgenstein: The Duty of Genius*. New Ed. Vintage, 1991.



6. TF-IDF stands for term frequency - inverse document frequency. Term frequency is determined as:

$tf(t, d) = \frac{f_{t,d}}{\sum_{t' \in d} f_{t',d}}$ where t is the term, d the document, $f_{t,d}$ the number of times t occurs in d , and the denominator of the fraction is the total number of terms (not unique terms) in the document. Thus plainly said it's the number of a term's occurrence in a document divided by the document length. Inverse document frequency is defined as: $idf(t, D) = \log \frac{N}{n_t}$, where D is the collection of all documents, N is the number of documents in the collections, n_t is the number of documents that t occurs in. The TF-IDF is then calculated as:

$tfidf(t, d, D) = tf(t, d,) * idf(t, D)$. Note that this is the calculation for one term, in one book. The point is that this formula gives terms that are uniquely frequent to that book in comparisons to other books a high weight, thus allowing for a comparative characterisation of the book in the context of the total document corpus. It also entails that each document is encoded in a vector the length of the total vocabulary, however many of these dimensions are usually 0 because of the term not occurring in the document, therefore the vectors are stored as sparse; only storing the non-0 values and their position. The library used is the `TfidfVectorizer` from scikit-learn.



7. LSA stands for latent semantic analysis which applies singular value decomposition (SVD) to the matrix of TF-IDF values. SVD is essentially a principal component analysis technique yielding the eigenvalues of a matrix. The values are then comparable through cosine similarity (measuring the rotational distance between points rather than Euclidean distance). For the large book dataset it was not possible to calculate the SVD transformer on the full dataset at once, so therefore truncated SVD was used, applying the SVD on randomised subsets first. The library used is `TruncatedSVD` from scikit-learn.



8. Cosine similarity between vectors \mathbf{a}, \mathbf{b} is calculated by the dot product divided by magnitude:
 $\text{cosineSim}(\mathbf{a}, \mathbf{b}) = \frac{\mathbf{a} \cdot \mathbf{b}}{\|\mathbf{a}\| \|\mathbf{b}\|}$. In the case of normalised vectors, this means the cosine similarity is equal to the dot product.



9. 2046, Directed by Wong Kar-wai (Jet Tone Production, 2004), Blu-ray. — 30:52



10. Nietzsche, Friedrich *Beyond Good & Evil*. Knopf Doubleday Publishing Group, 2010.



11. The subset of paragraphs for which we compute BGE embeddings is done with `BAAI/bge-large-en-v1.5` (Available: <https://huggingface.co/BAAI/bge-large-en-v1.5>) using the retrieval instruction "Represent this sentence for searching relevant passages". Similarity across the embeddings is computed as a dot product, equal to cosine similarity after normalisation.



12. INPUT: Williams et al. - 2010 - The Mathematical Works of Leon Battista Alberti.pdf



13. Attlee, James *Nocturne: A Journey in Search of Moonlight*. University Of Chicago Press, 2011.



14. Belsey, Catherine *Poststructuralism: a very short introduction*. Oxford University Press, 2002.



15. For the suggestion generation we run a local Llama 3 8B Instruct model (quantised Q5_K_M, Llama-3-8B-Instruct.Q5_K_M.gguf) via llama.cpp (context 8192 tokens, 8 threads, GPU layers = -1 / CPU). The current editor text is wrapped as `<draft>...</draft>` and sent with a system prompt that forbids rewrites/prefaces/role tags/code fences, so the model only continues the draft. Decoding: max_tokens=256, temperature=0.7; stop sequences intercept only ChatML/control tokens (not paragraph breaks). The raw reply is post-processed to strip control artefacts; only the new sentences are returned. The suggestion is embedded to σ_x like a paragraph and used solely as a navigational probe into the PUBLIC text domain.



16. The CLIP model version used throughout is the ViT-L/14 model which is also what is used for the embeddings in the PD12M dataset.



17. Lincoln, Kenneth *Indi'n Humor: Bicultural Play in Native America*. 1993.



18. Böhme, Gernot, and Hartmut Böhme. *Feuer, Wasser, Erde, Luft: eine Kulturgeschichte der Elemente*. 3. Aufl., Unveränd. Nachdr. C.-H.-Beck-Paperback 1565. Beck, 2014.(Translated using GPT-4)



19. *Bronson*, Directed by Nicolas Winding Refn (Vertigo Films, 2008), Blu-ray. — 1:16:40



20. Explanation of PPMI weighting for the film words. For each word/label w and film F_j , with counts $c(w, F_j)$ and $C = \sum_{w', j'} c(w', F'_{j'})$, define $p(w, F_j) = c(w, F_j)/C$, $p(w) = \sum_j p(w, F_j)$, $p(F_j) = \sum_w p(w, F_j)$. We use Positive Pointwise Mutual Information (PPMI) with the natural logarithm: $PMI(w, F_j) = \log(\frac{p(w, F_j)}{p(w)p(F_j)})$, $PPMI(w, F_j) = \max\{0, PMI(w, F_j)\}$. each row is then L2-normalised, making cosine the operative metric. Plainly said, PMI subtracts global baselines (frequent words, dominant films) and highlights disproportionate associations; zeroing negatives stabilises geometry. Our frequency filters (e.g. words ≥ 2 films; labels in \geq films) avoid zero denominators; no additional smoothing is used. Also see: Turney, Peter D., and Patrick Pantel. ‘From Frequency to Meaning: Vector Space Models of Semantics’. *Journal of Artificial Intelligence Research* 37 (February 2010): 141–88.



21. Holbo, John, and Belle Waring *Reason & Persuasion: Three Dialogues by Plato: Euthyphro, Meno, Republic, Book 1*. 3rd ed. Pearson Education, 2010.



22. Zupancic, Alenka. *The Odd One In: On Comedy*. MIT Press, 2008.



23. The input pdfs for this chapter are: Hovestadt, Ludger, and Vera Bühlmann, eds. *Domesticating Symbols: Metalithikum. II*. Applied Virtuality Book Series. Ambra V, 2014.; Serres, Michel. *The Parasite*. Translated by Lawrence R. Schehr. Johns Hopkins Univ. Press, 1982.; Dylan, Bob. *Chronicles: Volume One*. Simon & Schuster UK, 2005.; Williams, Kim, Lionel March, and Stephen R. Wassell, eds. *The Mathematical Works of Leon Battista Alberti*. Springer Basel, 2010.- [Book Context Link](#)



3.4 CONSTRUCTING THE DOMAIN STRUCTURES

"Fortunately, our purposes do not entail 'knowing' Chinese thought extensively, an endless enterprise requiring two lifetimes, but something else entirely: only crossing a threshold and 'entering.' - Jullien, *The Book of Beginnings* ¹

Like Jullien's statement on the Chinese thought, the goal here is not to *know* the full extent of the domains we engage with, but to find ways of *entering*. This chapter establishes the instruments for this entering: the *screens* between which projections are cast.

We adopt the term screen to describe a low-dimensional, addressable field, an instrument rather than a representation, that lets a whole domain be handled at once. In WIPTe, screens are built either as Self-Organising Maps (SOMs)² or, for the **GENERIC FIGURATIVE** domain, as a word-indexed database surface. They are *screens* because they are designed to receive and diffract projections across the domain while preserving differences in kind: **PUBLIC** screens (books, images) are generic and observational; **PRIVATE** screens (multimodal text-words, figurative-words) are deliberately biased and personal. Together they operate orthogonally (shared measures, different information) so that the operation between them is *proportion* rather than *translation*.



[1 — nightstand, case, bookmark, materialist, collecting, squeezebox, correspondence, drawer, manifesto](#)

The two **PUBLIC** screens can also be seen as the observational substrate, while the **PRIVATE** screens act as the projective instruments through which the different observations are refracted onto a spectrum of observations of the other public screen - more like a prism than a mirror.





public — triplicate, speech, delegate, debating, bureaucrat, bureau, brainwashing, courtroom

[3](#)

"For example, the Oxford English Dictionary has accumulated a great mass of valuable data but presents it in an entirely atheoretical manner; producing a jungle with no paths leading from A to B, no clear signposts, and no consistent system of semantic analysis that would allow either insiders or outsiders to find their way. By contrast, the approach taken in this book follows the way of the bee in that it gives close attention to the meanings of words gathered from the gardens of literature and modern linguistic corpora and then transforms them by means of a coherent semantic methodology."⁴



3.4.1 INFORMATIONAL SCREENS

Screens provide a constructed field for projection: a low-dimensional, addressable surface that lets a whole domain be handled at once. Not a picture, but an instrument, like the silver screen in a cinema is a host for the film projector.

"The point-by-point correspondence of the solid volume and its delineation, ichnography or scenography, makes the latter a characteristic or a language; conversely, language establishes a correspondence of the same type as the painting - one then understands the deformations and avatars of the former, if one observes that the projection can be made on a left surface, or 'humpbacked'" - Serres, Le système de Leibniz et ses modèles mathématiques⁵

Our screens align with the projection surface Serres describes in his discussion on the way Leibniz achieves a formal analysis of representation, designed to keep correspondences legible under changes of projection surface. It fixes indices (what can be addressed), supplies a compact metric (how things can touch), and offers a plane where proportions can be cast without collapsing modalities into translation. In the **PUBLIC** screens (books, images) the surface remains generic and tends towards observation. In the **PRIVATE** screens (multimodal text-words, figurative-words) the surface is biased on purpose, an authored cast that curates attention. Together they coexist without collapse: shared dimensionality, different information.

"These experiences show us that color and images generally "may be there where the thing seen is not". The image seen by reflection in a glass "is not any thing in or behind the glass. "The image and color "is but an apparition to us" of the motion of object and nerves. Thus again, two senses of light are distinguished: motion in and from the object, and the appearance or image. We should perhaps guard against crediting too strong a psychological content to these various words used by Hobbes."⁶



This coexistence is further grounded in Serres' framing of Leibniz' universal language: "*There are, therefore, two orders, the order of reasons and the order of images, but these orders are multiple.*"⁷ Distinct orders, still able to communicate via projection. The screen is where that projection becomes operable: public surfaces make private biases legible; private casts turn the public surface into a playground.

Placed within WIPTe the Self-Organising Map becomes a way to *constitute an alphabet* of a domain rather than to represent it. Roman puts it concisely: "*A SOM provides a context for articulating a kind of genericness*", a way to encode potentials on a generic plane "without explicating what they are."⁸ Kohonen's own description tells us why this suits our use: "*The SOM model may not be a replica of any input item but only a local average over a subset of items that are most similar to it,*"⁹ which makes it a compact, query-time-light substrate for projecting and re-projecting. In this sense the *screen* functions as a generic machine for alphabets: it lets domains speak in their own terms, and then enables us to read them architectonically via casts.



domain — encamped, retreat, cavalry, cultivation, meditation, translated, swordsmanship, tang, renunciation

At the Chair of Digital Architectonics at ETH, this approach to SOMs has been cultivated through informational instruments, a description that also fits WIPTe, following a lineage of such constructs developed within the chair. Hovestadt deliberately shifts from map to model: "*The self-organizing map articulates the logical form of chronological elements in probability values... Therefore we suggest that we should not talk about a self-organizing map but a self-organizing model.*"¹⁰ Marinčić develops the point as an instrument for communication with an invariant anatomy that supports many algorithmic variants while keeping the informational contract intact.¹¹ In short: more than a dimensionality-reduction, the SOM keeps *coexistence* operable.

This is why three of the screens are SOM-based (public books; private text-words, private-figurative-words): we want stable neighbourhoods that we can address and traverse; an alphabet we can play. After training, the screen becomes a calibrated context in which unknowns can be placed and, more importantly here, in which projections can be cast and compared across screens with shared measures.¹²

*"With regard to the former, a semantic relation obtains between certain Forms and particulars such that certain particulars bear the same name (eponymazein) – as the Forms, such as the equal particulars that have the same name as the form of Equality. The justification for the linguistic connection is provided by the idea of participation, or sharing, a relationship of similarity between particulars and Forms based on their common character."*¹³



Then why is our fourth screen, that of the **GENERIC** images not a SOM? Because the alphabet for images already exists elsewhere in our setup: the figurative film screen furnishes the figurative index, the set of labels with which we want to address images. We leverage that alphabet directly and keep the generic image domain as a large, word-indexed database.

This is a choice of both scale and architectonics. At 12M images, global clustering in CLIP space tends to foreground style and near-duplicates; we need compositional, label-wise diversity to assemble scenes from separate images rather than nearest-neighbour look-alikes. And since the filmic SOM already calibrates a figurative alphabet, duplicating it with a second, image-only alphabet would blur the orthogonality we want. We keep the public image surface generic and queryable by figurative indices; diversity is decided by the filmic alphabet, not by global visual proximity. (Hence: “generic image” as database; “figurative words” as SOM.) This is also in part due to the nature of images compared to books: the public text screen deals with books as already-composed collections, whereas an image remains stubbornly unitary, an image is still an image, less naturally decomposed into smaller elements.

Throughout, the interplay of these screens is not neutral, maybe contradicting the silver screen metaphor. Our informational screens are biased and tuned to personal curation. Roman, in a similar situation, characterises the double articulation as *“Machine intelligence complements human intelligence in a Plentiful Play.”*¹⁴ The performer (writer) sets the interest; the instrument responds with a calibrated attitude turned back onto the generic. Bühlmann’s reading of Serres gives the figure for this: *“The cornucopia is a container that grows in its capacity to give, the more of itself it gives away.”*¹⁵ The screens must behave like that, scaling generosity without losing exactness. They are exact instruments for plenty, not funnels to the one best result.



instrument — shroud, midday, quietly, ephemeral, celandine, quietness, solitude

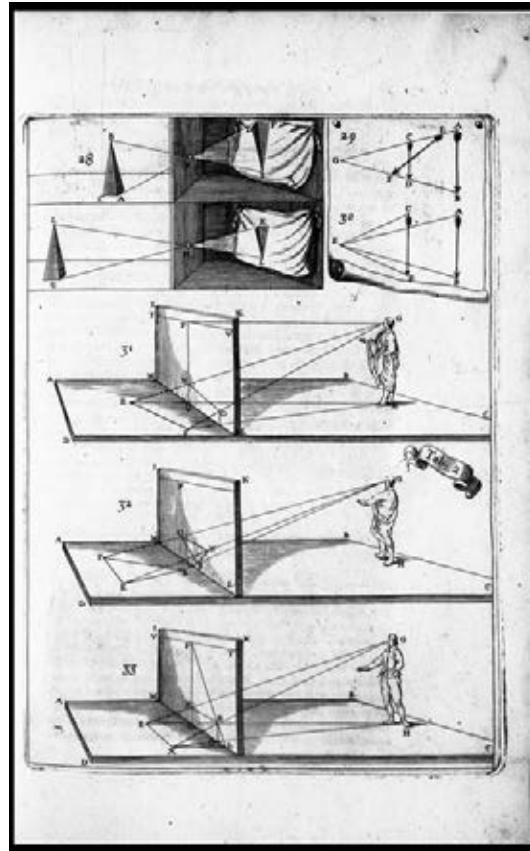
To wrap up before we proceed with the technical description: the screen acts as an informational instrument that turns abundance into a playable surface. SOMs provide alphabets for three domains (public books; personal text-words; personal figurative-words). The public image domain remains a database keyed by those figurative letters. Public is generic. Private is authored. Orthogonal screens, shared measures, different information, so that projection becomes proportion rather than translation.

3.4.2 FOUR SCREENS

TEXT
book

Within the text domain, the first screen is the book screen. Here speed matters, because we are dealing with a large set of relatively high dimensional data (~1.1M x 300). Apart from speed the other priority is not necessarily to just find the most similar books, but rather facilitate a view onto the full collection of books and their subsequent contents from a particular point of view, generally this point is defined by one or multiple books of its own.

the priority is not merely nearest-neighbour similarity. The book screen is designed to enter the library from any chosen vantage—typically defined by one or several books—so that the whole collection remains available as a spectrum rather than collapsing into “the best match”.



0 — move, loudspeaker, blindfold, projectile, documentation

"I edited the bookshelf one shelf at a time, just looking for the least favorite book on each shelf. I was able to identify a book on each shelf that was less appealing than any other book on that particular shelf. This made it easier for me. Taking all the books off all the shelves and sorting them would have been much more effort. I would have gotten more distracted. I may not have been willing to get rid of as many books. The books I get rid of get taken to my local bookstore. There, they have the chance of being read by someone who needs them and not held hostage on my shelf, hoarded for that day that may never come."¹⁶



This screen is implemented as a spherical SOM: a geodesic discretisation (degree 5; 20,480 units) within a cosine measured 300-dimensional TF-IDF/LSA space. The spherical topology serves two roles. First, it rhymes with the angular semantics of cosine measurement: neighbourhoods on the sphere correspond to angular similarity. Second, it enables a per-unit altitude measure, computed along a locally estimated outward direction in embedding space, that separates the generic (negative altitude, “inside”) from the unusual (positive altitude, “outside”). This produces an ultra-light retrieval route: first pick a unit by global topic, then bias selection within that unit by altitude.



Figure 3.4:1 - Two orthographic views of the spherical SOM trained on ~1.1M books, coloured through PCA colourisation.

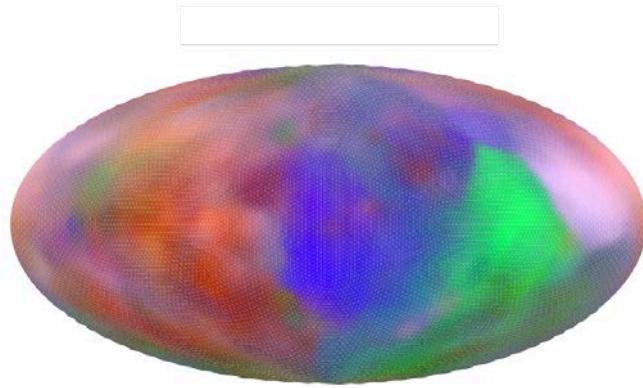


Figure 3.4:2 - Flattened Hammer projection of the PCA coloured spherical SOM

All books are projected onto the SOM and assigned to a cell. This populated SOM is shown in Figure 3.4:3.

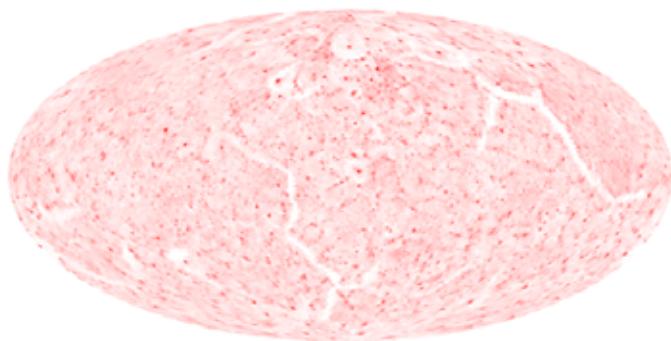


Figure 3.4:3 - Flattened Hammer projection with a heat-map of the projected number of books onto the SOM (1525 is the maximum number per cell, 0 the lowest)



altitude — barometric, seaplane, dirigible, warplane, aeronautical, bomber

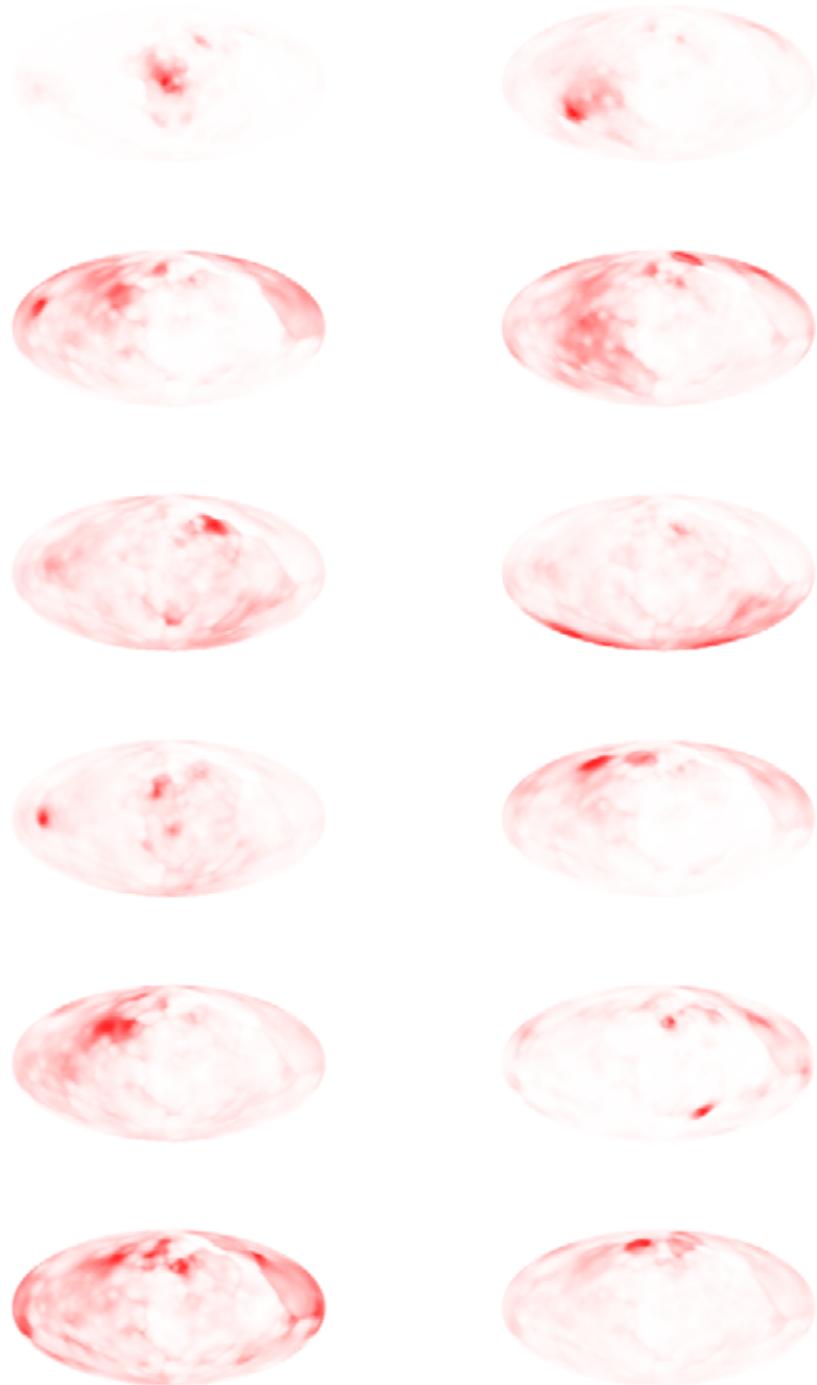
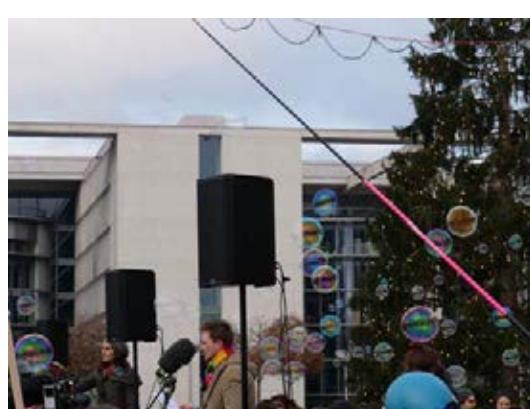


Figure 3.4:4 - Activations of books in the dataset at indices 0, to 1,100,000 at 100,000 intervals



altitude — curvature, barometric, altimeter, physic

Altitude is estimated from the local geometry of the SOM in the 300-dimensional embedding.



0 — astrophysicist, juggle, chancellor, bubbling, ribbon

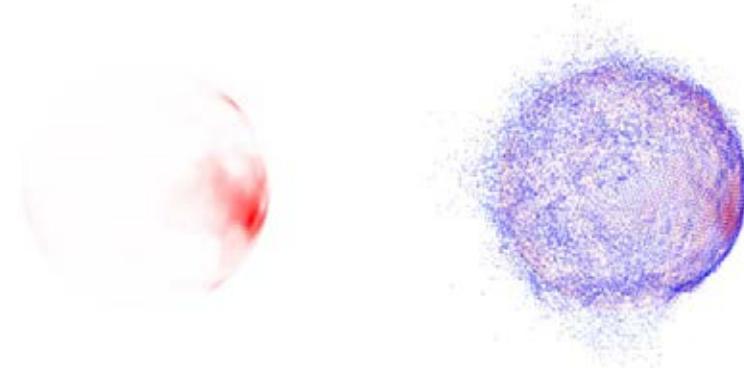


Figure 3.4:5 - Example of an activation by book index 0 and the altitude of that book in each cell of the som.

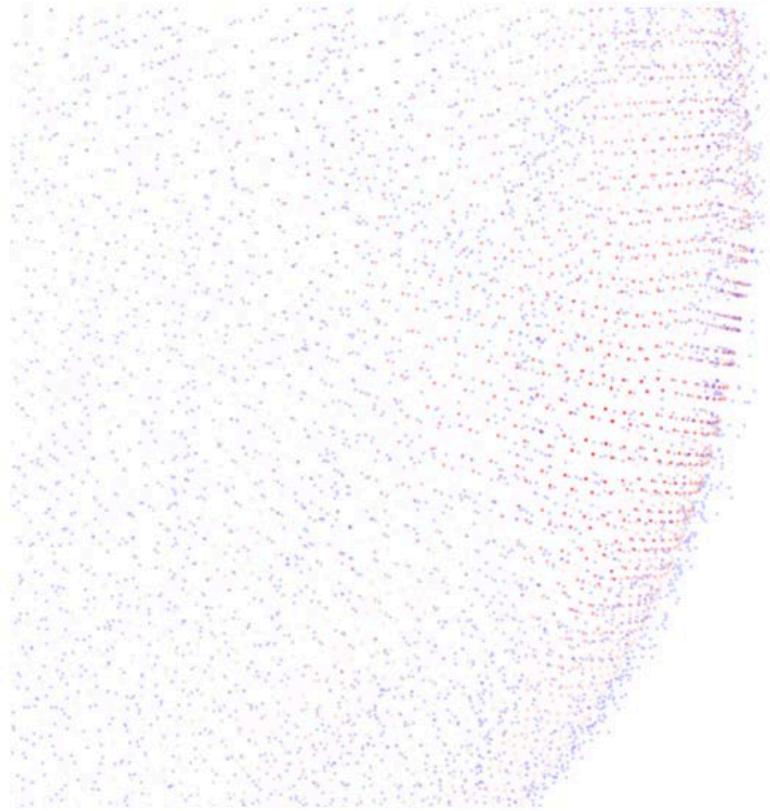


Figure 3.4:6 - Zoomed in altitude mapping on the activated region of the SOM

Although the SOM is spherical in topology (a 2-sphere), it is embedded in \mathbb{R}^{300} ; consequently *perpendicular to the surface* is not a single direction by default, but a choice from a large normal subspace. We fix a consistent choice by (i) estimating a local tangent plane and (ii) selecting, from the available normal directions, the one that is most radial with respect to the sphere centre.
[17](#)

The altitudes are calculated as follows:

Let $\mathbf{M} = \{\mathbf{m}_c \in \mathbb{R}^d\}$ be the vectors for all cells C of the SOM, with the dimension $d = 300$ as the LSA vectorisation of the books. Let

$$\mu = \frac{1}{|\mathbf{M}|} \sum_{c \in C} \mathbf{m}_c$$

be the centre of the SOM lattice (used as the sphere centre).

For each cell c

- **Local tangent plane:** Define a neighbourhood $N(c)$ as the set of nearby cells on the sphere (all cells within a fixed geodesic/arc radius on the SOM topology). Compute PCA on the cell vectors in $N(c)$ offset by vector \mathbf{m}_c :

$$\Omega(c) = \{m_{c'} - m_c | c' \in N(c)\}$$

let e_1, e_2 be the first two principal axes of $PCA(\Omega(c))$. We take $\text{span}\{e_1, e_2\}$ as the local tangent plane.

- **Outward normal selection:** Let $r_c = m_c - \mu$ be the radial direction. Define P_E as projection onto the tangent plane $\text{span}\{e_1, e_2\}$. The chosen outward normal is the radial direction with its tangential component removed:

$$\hat{n}_c = r_c - P_E(r_c), \quad n_c = \frac{\hat{n}_c}{\|\hat{n}_c\|}$$

if $\|\hat{n}_c\|$ is (numerically) small, fall back to the radial direction $n_c = \frac{r_c}{\|r_c\|}$. Finally orient n_c outward by enforcing $n_c \cdot (m_c - \mu) \geq 0$ (flip the sign if needed).

- **Per-item altitude:** For a book vector b assigned to cell c , define signed altitude as

$$h(b; c) = (b - m_c) \cdot n_c$$

Negative h indicates *generic* (towards the interior), positive h indicates *unusual* (away from the interior). Within-cell altitude distributions (Fig. 3.4:7) quantify the spread of conversations that a unit accommodates, and supply a second-stage retrieval bias that is computationally light.

"The same may be done in all our complex ideas whatsoever; which, however compounded and decompounded, may at last be resolved into simple ideas, which are all the materials of knowledge or thought we have, or can have. Nor shall we have reason to fear that the mind is hereby stinted to too scanty a number of ideas, if we consider what an inexhaustible stock of simple modes number and figure alone afford us. How far then mixed modes, which admit of the various combinations of different simple ideas, and their infinite modes, are from being few and scanty, we may easily imagine."¹⁸

An example of the internal altitudes for cell number 4250 is given in Figure 3.4:7. This cell was chosen as a demonstration because it holds a relatively small number of books, allowing for a more legible spectrum.



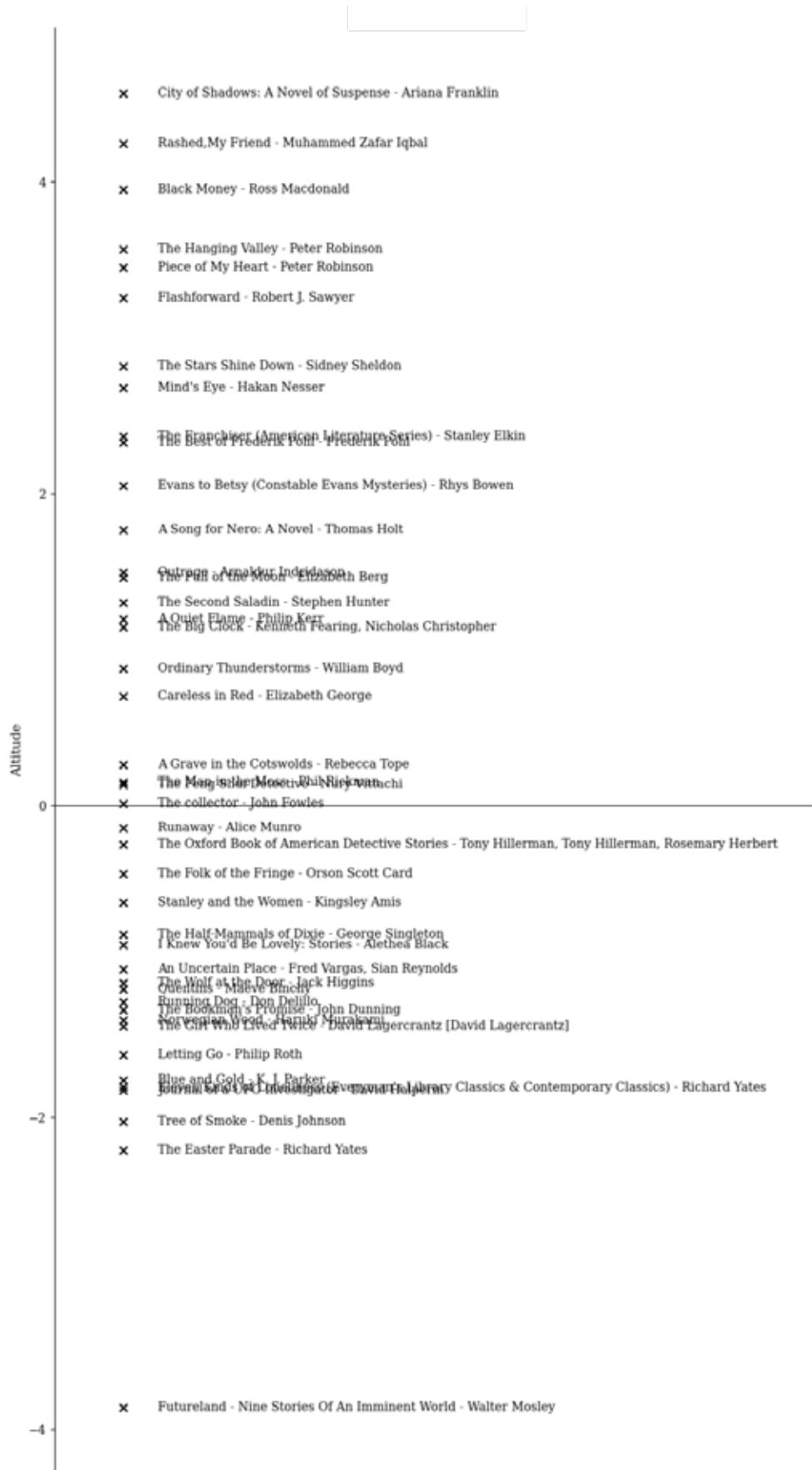


Figure 3.4:7 - Altitudes of the book population of cell 4250 (the one including Norwegian Wood by Haruki Murakami).



0 — indoors, restoring, projecting, manufacture, mirrored

paragraph

At paragraph granularity we deliberately do not maintain a unifying map. The set is volatile by design (per-chapter configuration in WIPTe), and the retrieval task is specific to the current writing. We therefore use a two-tier vector search (fast lexical → semantic rerank; see §3.6) over the active paragraph set. Unlike the book-level screen, the goal here is not to curate a broad spectrum but to surface locally relevant passages that move with the writing.

"There is another possible book that contains all that is not in this one. In that book, other habits take center stage, other unfamiliar experiences are recorded, and the jokes are told all the way to the end. That book's disadvantage, though, would be its exclusion of what is published here. It would omit these gathered experiences in favor of others. That other book might have a different tenor: it might perhaps be more critical in tone, be more analytical in approach, contain more argumentative opinion."¹⁹

FIGURATIVE

"This synthesis of the manifold of sensible intuition, which is possible and necessary a priori, can be called figurative (synthesis speciosa), as distinct from that which would be thought in the mere category in regard to the manifold of an intuition in general, and which is called combination of the understanding (synthesis intellectualis); both are transcendental, not merely because they themselves proceed a priori but also because they ground the possibility of other cognition a priori. Yet the figurative synthesis, if it pertains merely to the original synthetic unity of apperception, i. e., this transcendental unity, which is thought in the categories, must be called, as distinct from the merely intellectual combination, the transcendental synthesis of the imagination."²⁰

IMAGE

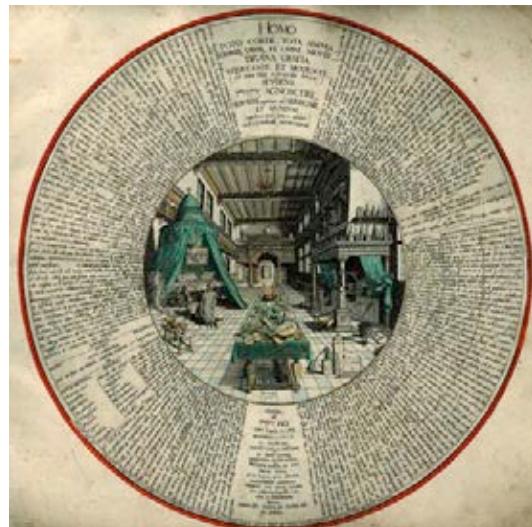
For the generic public image domain the screen takes the form of a large DuckDB/SQL surface keyed only by figurative word-labels. Retrieval is label-set based; CLIP is not used in retrieval at all. It appears upstream to help name the figurative alphabet and then exits.

Why this different instrument than for books? For books it makes sense to curate a topologically diverse selection from within the generic because the book topology (TF-IDF at high frequency)



encodes topics of discussion. Given a query (either from writing or by combinations of words coming from the multimodal textual screen), we want several distinct views on that topic; and crucially, each selected book still contains a second layer of granularity: its paragraphs, which can answer more precisely. The book screen can therefore be a SOM, and the subsequent paragraph retrieval supplies the finer response.

Images behave otherwise. An image is a figurative whole; it cannot, in any straightforward manner, “reply” with a smaller part of itself to a figurative notion. A region on a hypothetical SOM of images would mostly collect similarly looking instances, proximity that shows the same thing seen differently. That is the wrong format for this screen: instead of a visual neighbourhood, we want a constellation, a set of images that complement one another to stage a scenography in answer to an already detailed query (a combination of figurative words from the multimodal figurative screen). Where books can defer precision to their interior, images must answer in one go at the level of the whole document. Hence: no image SOM. The public image screen is a label-indexed database designed to assemble complementary figurative aspects under a single query, not a field for nearest-neighbour lookalikes.



0 — record, typo, speech, hymnal, gramophone, thesaurus, manifesto

We use CLIP only to facilitate the figurative alphabet, not as a metric. Its descriptive coupling of image and text provides the necessary abstraction step: a shared interface where words can address figures. Purely image-based encodings tend to remain specific because they carry the whole of a frame, which is exactly why they excel at finding "the" image, or at driving diffusion models toward a singular specification. But that same specificity means there is no "a-specific" image address that can cleanly express only one figurative aspect. By contrast, the textual side lets us layer characteristics, giving the layered multi-attribute addressability we need for scene construction. CLIP’s role here is therefore instrumental: it helps us name and stabilise the figurative labels; retrieval itself remains figurative-word-set → image-set, so the proportional relations we care about are carried by the alphabet rather than by a global visual metric.

Of course, we could attempt a parts-based view with a segmentation model. This can be informative for single-image symbolisation (see appendices), but at corpus scale (~12M images) it is unattainable, and even then the segmented parts are often hard to appreciate if taken outside

the context of the original image, making a scenography through composition of images a challenge.

Finally, on the seeming tension with §2: while we are cautious about translation as a general paradigm (because it tends to flatten differences between modalities), our use of CLIP here is not the target of that critique. At the alphabet-making stage, translation is precisely the right move: we translate just enough to establish an addressable figurative vocabulary, crucially never treating these as words for writing, nor equating them to their written counterparts. Beyond that point, the instrument returns to proportion rather than translation. The word-set queries do not reduce images to descriptions; they organise complementary figurative aspects so a scenography can be composed in one go.

MULTIMODAL



2 — appendix, iris, spiral, expansive, magnifying

Both multimodal screens sit within the dimensions corresponding to the multimodal documents that make up the domain. As an example we will describe the multimodal structure based on the 216 films described in 3.3. Any other collection of multimodal documents as described in 3.3 would follow the same process in establishing the two operative screens.

"But since an idea is quite different from its object, it should come as no surprise if the comparison of ideas reveals completely different similarities and differences than those obtaining between their objects. Thus the ideas "equilateral triangle" and "equiangular triangle" differ, but the objects they represent are the same."²¹



1 — abstraction, interior, visitor, immersed, outline

word



Figure 3.4:8 - SOM of the 216 dimensional textual domain of films (click to see large pdf).



For the textual domain we will rely on the vectors w_{tf} based on the subtitles of each film as described in 3.3. These vectors (with the co-occurrence nudge) are the material for training a toroid SOM of 35x60 cells. A toroid SOM was chosen here because the legibility in a 2D format was deemed important in accordance with the ambition of a simultaneous reading of domains as explained in 2.4.

The resulting screen is a populated grid of 2,100 cells with the 12,934 words from the `mm_216_vocab` shown in figure 3.4:8.

Activating the textual screen on each dimension, corresponding to a film each, provides an insight to the different characteristics and emphasis that each film puts within the textual domain, shown in figure 3.4:9.

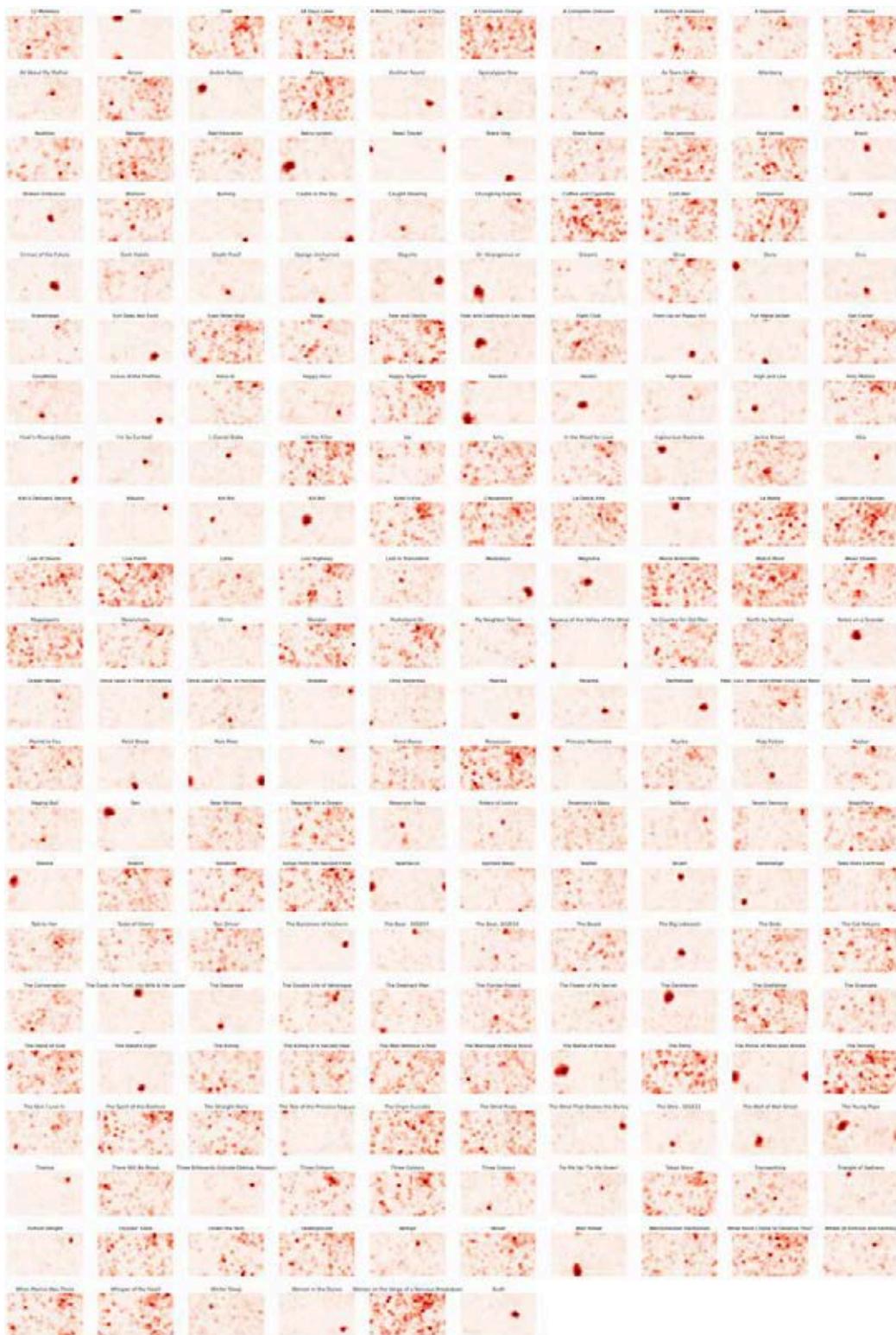


Figure 3.4:9 - 216 projections of the textual screen, activated by dimension/film (click to open full scale image).

Following from this we can also contextualise the synergies between the different dimensions, based on how they present themselves through the vocabulary. For example, the five films that align themselves the most in conversation to *Chungking Express* by Wong Kar-wai are in order of likeness:

2046 - Wong Kar-wai (2004), *Happy Hour* - Ryusuke Hamaguchi (2015), *In the Mood for Love* - Wong Kar-wai (2000), *Fight Club* - David Fincher (1999), *Happy Together* - Wong Kar-wai (1997)

This ability to be able to associate documents to others within the multimodal construct won't be used explicitly, but it does allow us to gain a view on its tuning, and from our perception of films see if it aligns with our expectation. The small example above demonstrates the tuning ability by the association of consistent filmic likeness.



Figure 3.4:11 - SOM of the 216 dimensional figurative domain of films (click to see large pdf).

For the figurative domain we follow the same topology and size as the textual domain to train a figurative SOM on the w_{fF} vectors.

The resulting screen is a figurative counterpart to the textual screen. A populated grid of 2,100 cells with the 16,996 words from the `mm_216_vocab_f` shown in figure 3.4:10.

Activating the figurative screen on each dimension, corresponding to a film each, provides an insight to the different characteristics and emphasis that each film puts within the figurative domain, shown in figure 3.4:11.

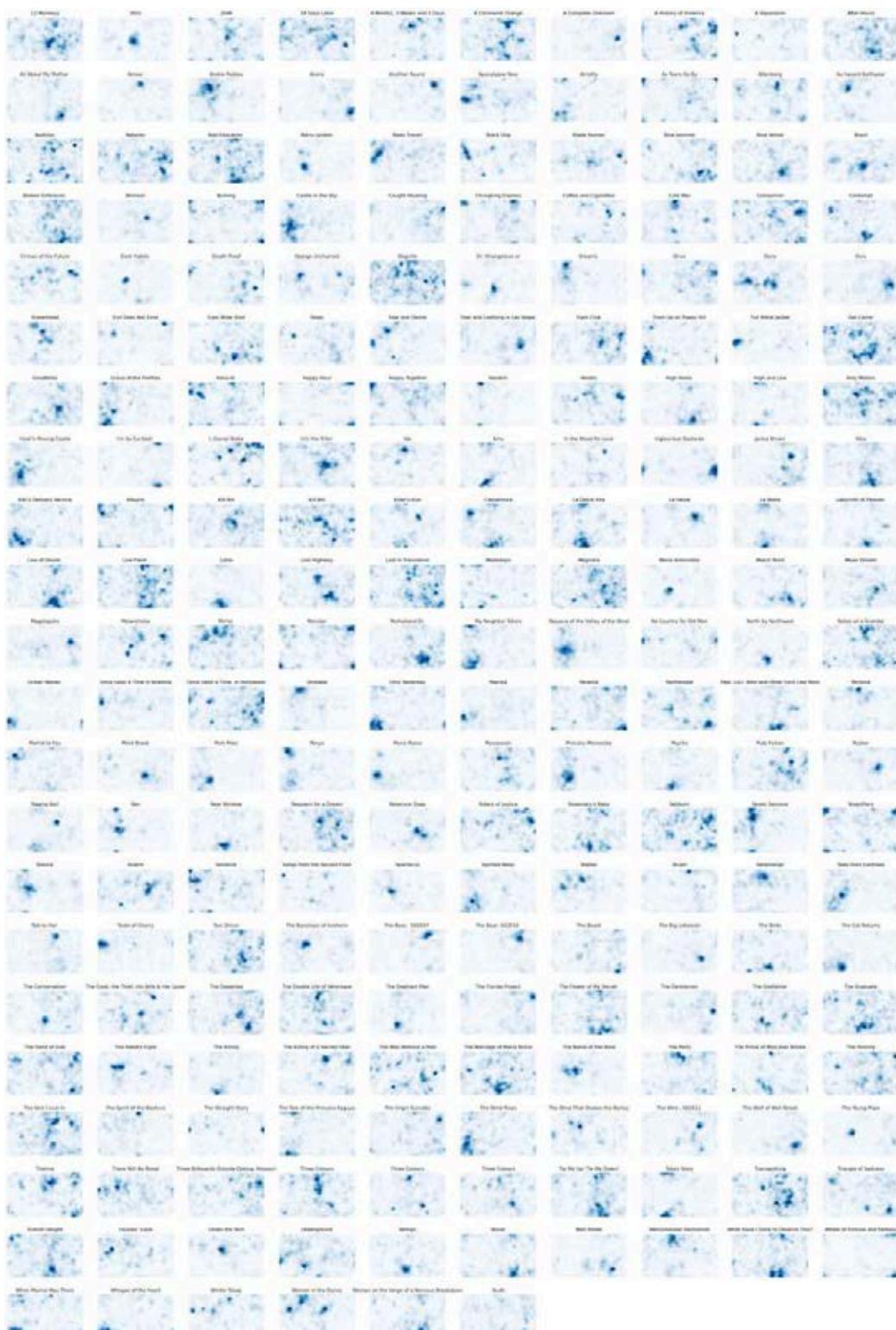


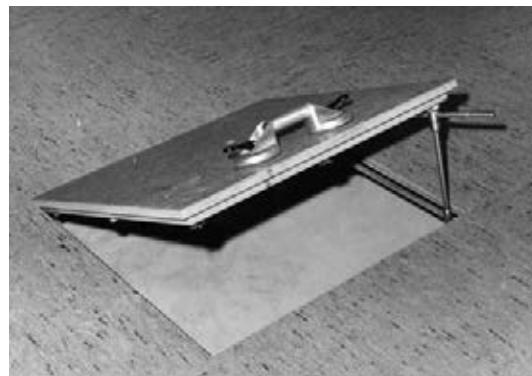
Figure 3.4:10 - 216 projections of the figurative screen, activated by dimension/film (click to open full scale image).

Now let us have another look at which films align themselves with Chungking Express within the figurative:

Happy Together - Wong Kar-wai (1997), *Parasite* - Bong Joon-ho (2019), *As Tears Go By* - Wong Kar-wai (1988), *Requiem for a Dream* - Darren Aronofsky (2000), *The Florida Project* - Sean Baker (2017)



The overlap with the textual list (Wong Kar-wai titles) and the drift (e.g., Parasite) indicate that textual vs figurative affinities are related but not identical, which is what the dual screens are meant to present.



drift — aboveboard, kicker, cartwheel, ramp

[22](#)

-
1. Jullien, François. *The Book of Beginnings*. Translated by Jody Gladding. Yale University Press, 2015.



2. The numbasom library developed by Nikola Marincic (<https://github.com/nmarincic/numbasom>) was developed further by extending the implemented square and toroid topologies with spherical, mesh, linear and circular topologies, and added option of using cosine similarity as the distance measure. Additionally cosmetic additions to display the SOMs were implemented as well.



3. *Fear and Loathing in Las Vegas*, Directed by Terry Gilliam (Universal Pictures, 1998), Blu-ray. — 1:32:42



4. Wierzbicka, Anna *Experience, evidence, and sense : the hidden cultural legacy of English*. Oxford, Toronto: Oxford University Press, 2010.



5. Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007. (Part II, “Le langage des schémas,” Chapitre premier, §008, Translated with GPT4)



6. Yolton, John W. *Perceptual Acquaintance from Descartes to Reid*. 1984.



7. Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007. (Part I, Chapitre troisième, quatrième partie, §003, Translated with GPT4)



8. Roman, Miro, and Alice_ch3n81. *Play Among Books: A Symposium on Architecture and Information Spelt in Atom-Letters*. Edited by Ludger Hovestadt and Vera Bühlmann. De Gruyter, 2021. pp.332



9. Kohonen, Teuvo. ‘What Makes The Self-Organising Map (SOM) So Particular Among Learning Algorithms?’ In *Coding as Literacy: Metalithikum IV*, edited by Vera Bühlmann, Ludger Hovestadt, and Vahid Moosavi. Birkhäuser, 2015.



10. Hovestadt, Ludger. ‘Elements of Digital Architecture’. In *Coding as Literacy: Metalithikum IV*, edited by Ludger Hovestadt, Vahid Moosavi, and Vera Bühlmann. Birkhäuser, 2015.



11. Marinčić, Nikola. *Computational Models in Architecture: Towards Communication in CAAD: Spectral Characterisation and Modelling with Conjugate Symbolic Domains*. Applied Virtuality Book Series, vol. 12. Birkhauser Verlag, 2019.



12. Why SOMs instead of a transformer / diffusion stack? The combination of a Self-Organising Map with the film-derived dimensions preserves indexicality and traceability at the level of use: neighbourhoods remain visible, scales of specificity can be traversed quickly, and latency stays low enough to keep the exchange conversational and dimensionality understandable through correspondence to documents. A transformer-only or generative diffusion stack would possibly offer greater power but at the expense of legibility, slower iteration, and a stronger drift toward translation. The present choice keeps measure and movement, but resists equivalence. It would also make the creation of various casts, essential for facilitating the shifting points of view, significantly heavier and more complicated.



13. Ward, Julie K. *Aristotle on Homonymy: Dialectic and Science*. 2010.



14. Roman, Miro, and Alice_ch3n81. *Play Among Books: A Symposium on Architecture and Information Spelt in Atom-Letters*. Edited by Ludger Hovestadt and Vera Bühlmann. De Gruyter, 2021. pp.331



15. Bühlmann, Vera. *Mathematics and Information in the Philosophy of Michel Serres*. Bloomsbury Academic, 2021.



16. Johnson, Jennifer *A Little Book On Happiness*. 2017.



17. This approach is the result of an earlier experiment which is included in the appendix.



18. Locke, John *Complete Works of John Locke*. Delphi Classics, 2017.



19. Cole, Teju *Known and strange things: Essays*. Random House, 2016.



20. Immanuel Kant, Paul Guyer (Editor, Allen W. Wood (Editor Translator), and Translator) *Critique of Pure Reason*. Cambridge University Press, 1998.



21. Bolzano, Bernard *Theory of Science*. Oxford University Press, 2014.



22. The input pdfs for this chapter are: Hovestadt, Ludger, Vera Bühlmann, Miro Roman, Sebastian Michael, and Diana Alvarez-Marin, eds. *A Quantum City: Mastering the Generic*. Applied Virtuality Book Series 10. Birkhäuser, Part of Walter de Gruyter GmbH, Berlin, 2015.; Rossi, Aldo. *The Architecture of the City*. The MIT Press, 1984.; Heidegger, Martin. ‘The Thing’. In *Poetry, Language, Thought*, by Martin Heidegger, translated by Albert Hofstader. HarperCollins Publishers, 1971.; Dylan, Bob. *Chronicles: Volume One*. Simon & Schuster UK, 2005.- [Book Context Link](#)



3.5 PROJECTIONS

“The elementary event is already invested with meaning, and the higher function will bring into being only a more integrated mode of existence or a more valid adaptation, by using and sublimating the subordinate operations.” - Merleau-Ponty, Phenomenology of perception ¹

In line with Merleau-Ponty’s placement of the elementary within a functional whole, this section relates the elemental encodings of §3.3 to the domain screens of §3.4: we define projections that elevate elements into communicable functions. While more operations are in principle possible within the setup of the instrument, we will restrict ourselves to the ones that are facilitated within the text editor, with some specific additions that will be used for the chapter 4 sections. Each projection is characterised first of all by its domain and codomain, then the encoding method is specified according to the description given in 3.3. From here the computational equation between these is given. Finally each projection is demonstrated with one or more examples. Instead of following the order of the previous chapters where we first started at the public to then go to the private domains, we will now start with the private multimodal domain and then end with the public single-modality domains.

“It is true that as soon as we have defined the difference, separated the “same” from the “other,” we have returned home. We know this, don’t we—that “to compare” is another way of not moving, of not leaving, and therefore of not entering?” - Jullien, Book of Beginnings ²

We treat each operation as a (possibly multi-valued) projection, i.e., a relation that returns a set in the codomain.

We invert the earlier order (public→private) to expose how the private cast, through the 216-film corpus that defines the feature space, biases the projections later exported to the public screens and then operationalised within the WIPT editor in §3.6.

PRIVATE MULTIMODAL



¹ — loudspeaker, audio, projector, organist, exhibition, projectionist

MULTIMODAL → word

First we will look at the projections that have the multimodal documents as the domain with the textual domain of the multimodal corpus as its codomain. These projections are internal to the multimodal domain, and we rely on the personal 216 film corpus to demonstrate the operations. The outcome of these projections onto the textual screen has already been shown in figure 3.4:9.



Because the multimodal documents are also what constitutes the dimensions of the multimodal encodings, this projection can be more understood as an investigation of the space within which the textual domain is defined rather than an immediately productive one. Therefore it also doesn't directly feature in the operative projections within the text editor, but it will give us an insight into the constitution of the multimodal cast we rely on, together with the projection from multimodal to figurative that we will also discuss next.



0 — wardrobe, correspondence, squeezebox, examine, organized, bookseller, drawer, roomful, dissertation, confession

This projection will only be explored through singular element inputs, we will not apply the projection onto multiple multimodal documents combined. So the vectorial signature of the projection is $\pi_{M \rightarrow \Theta} : F \rightarrow \{w_{tF}\}$ or if using PDFs instead of films $\pi_{M \rightarrow \Theta} : P \rightarrow \{w_{tP}\}$.³

So now we will consider what these projections are. Taking the 216 film corpus, they can be understood as how each film presents and distinguishes itself according to the conversations being had in it, amongst all the other films in the corpus. We already saw this as an outline in figure 3.4:9, but let us have a closer look at the contents. For instance the film *Chungking Express* by Wong Kar-wai distinguishes itself through the use of these words, and the corresponding projection shown in figure 3.5:1:

pang, renovating, expiration, chi, recuperating, earliest, mandarin, harvested, sleepwalking, outdated, whirl, weepy, pineapple, shapeless, daydreaming, nabbed, comfy, jilted, karaoke, sliced, tat, shrewd, expire, salad, indulging, expired, cramp, observant, queasy, jog



*Figure 3.5:1 - Projection of **Chungking Express** onto the textual multimodal screen (click to open full scale image).*

For completeness we will also take a look at the reverse of this projection ($\pi_{\Theta \rightarrow M} : w_{tF} \rightarrow \{F\}$), a way of taking a view on which films are most relevant to a particular conversation topic. For instance conversations about **playground** are most notably held in:

The Virgin Suicides - Sofia Coppola (1999), *Reservoir Dogs* - Quentin Tarantino (1992), *Notes on a Scandal* - Richard Eyre (2006), *Porco Rosso* - Hayao Miyazaki (1992), *Ikiru* - Akira Kurosawa (1952)

Because the multimodal documents set the basis for the figurative and text screens, the projections out of the multimodal documents mainly interrogate the space that defines the screens; they are not used for navigational operations within the editor.

word → word

The next projection is one step down where we look at the internal projections within the text domain. This will give us an insight into how certain textual terms position themselves amongst other conversations ($\pi_{\Theta \rightarrow \Theta} : w_{tF} \rightarrow \{w_{tF}\}$). Vectorial operation is performed through a cosine similarity calculation between all w_{tF} vectors, and the SOM is activated through a cosine similarity calculation between the w_{tF} input and the vector of each cell.

Taking **playground** again but this time to see in which contexts conversations about it are being held, we see it surrounds itself with:

anticipated, recess, realised, patronise, complexion, lunching, extended, pressure, highway, leprechaun, lux, neighbourhood, burping, tipping, borderline, intersection, homecoming, hurricane, ballot, debutante, plumber, delicately, baked, kite, turbot, determination, yahoo, fungus, blackout

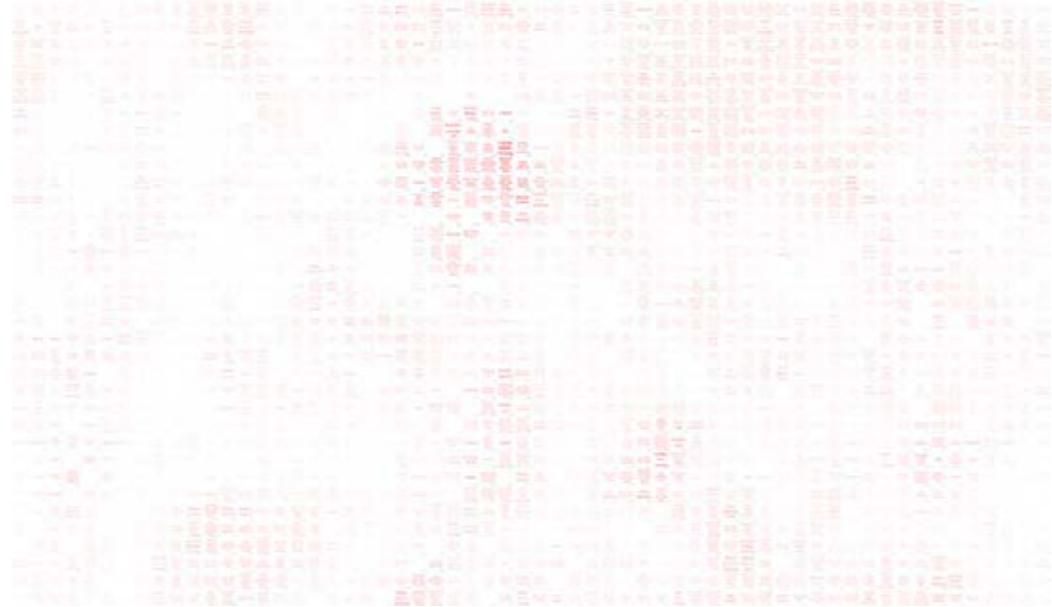


Figure 3.5:2 - Projection of *playground* onto the textual multimodal screen (click to open full scale image).



MULTIMODAL → [word](#)

Now for the figurative counterpart we will take the same examples, but instead we first project the film onto the figurative text, according to the signature $\pi_{M \rightarrow \Phi} : F \rightarrow \{w_{fF}\}$. This illustrates the kind of objects and settings through which the film presents itself primarily compared to the others:

tin, dipping, temporary, prioritize, hundred, coke, soda, pickled, core, staple, cola, canned, tiny, tinned, whopper, tilling, consumer, dip, flashy, rolling, haggard, cooling, reciprocity, sketchy, brightly, fry, manipulate, stuffed, coca, preserving



Figure 3.5:3 - Projection of *Chungking Express* onto the figurative multimodal screen (click to open full scale image).



And the reverse projection ($\pi_{\Phi \rightarrow M} : w_{fF} \rightarrow \{F\}$) now using the figurative playground index presents these films as showing playground the most notably:

The Florida Project - Sean Baker (2017), *Black Dog* - Guan Hu (2024), *The Wire*, S01E11 (*The Hunt*) - David Simon (2002), *La Haine* - Mathieu Kassovitz (1995), *Attenberg* - Athina Rachel Tsangari (2010)

Do note that **playground** and **playground** do not have any predetermined relation, any more than two other indices, their possible correlation only comes from their presence within the domains and possible representation within the films.

word → word

Now for the internal figurative domain projection $\pi_{\Phi \rightarrow \Phi} : w_{fF} \rightarrow \{w_{fF}\}$, again using **playground** as the search index yields:

skate, skateboard, seesaw, neighbourhood, placed, disadvantaged, area, sneaker, custody, backpack, chalking, neighbourhood, graffiti, outreach, placing, vandalism, skating, distributing, handstand, relocation, donate, basketball, hydrant, converse, location, housing, complex, footlocker, township



Figure 3.5:4 - Projection of **playground** onto the figurative multimodal screen (click to open full scale image).



word → word

Now that the internal projections have been established, we will look at the cross-modal projections. First $\pi_{\Theta \rightarrow \Phi} : w_{tF} \rightarrow \{w_{fF}\}$, with as index **playground**:

credited, neighbor, bullied, substitute, toxic, goodwill, reverse, mortgaged, mi, teenage, differentiation, goofed, puberty, purchase, homey, townsman, four, copying, selection, bully, address, respectful, lunacy, inventor, parakeet, bogey, immature, cleanest, revert, punctilious



Figure 3.5:5 - Projection of *playground* onto the figurative multimodal screen (click to open full scale image).



This projection can best be understood as the figurative aspects in scenes amongst which one might have a conversation about playgrounds. If we compare this to the internal figurative projection, we see an overlap of the primary activated peak of the screen, but differences between the secondary nuances. This demonstrates both that the overall multimodal cast has been calibrated to a degree that affords a level consistency between textual and figurative concepts, but at the same time also showing the way in which the figurative and textual indices are distinct from one-another.

*"It is all a matter of context, dependent on from what perspective we are approaching the object or, in the language of the Sophist, how we speak of it: whether we mean something in one way or in a different way."*⁴



What is interesting in this particular case, is that the figurative *playground* does not present itself amongst the 20 top figurative contents relevant to conversations about playgrounds. In other cases this does occur, for instance *umbrella* surrounds itself with its figurative counterpart first: *umbrella, downpour, warmhearted, raining, rainy, touching, maintains, upbringing, unbleached, sentimental, solidifying, rainwater, richness, nostalgic, rained, quaint, kindhearted, drizzle, rain, heartbreaking*. These are in both cases of course quite tangible nouns, so let us have a look at something less tangible topic of conversation like *beauty*: *silicone, detox, reliquary, unraveling, malnourished, unraveled, hermaphrodite, ratify, dona, mausoleum, holy, bronze, necrophilia, satanism, slaying, sinning, deceased, titian, renaissance, trachea*, which interestingly shows up in the background of its antithesis, at least things that are usually not regarded as beautiful at all, but either the loss thereof, or the attempt to mitigate the loss of beauty. Another interesting conversation is that of *night*: *caressed, intertwining, sensuous, velvety, nuzzling, sensual, stimulating, kiss, caress, seductive, intimacy, kissing, humidity, abstract, seductress, kissed, fingering, tonguing, seducing, seduced*, in which case the connection is more obvious, where the visual indices build up a clear genre of intimate scene in which one might expect to be speaking of the night.



"The problem is that habits, dispositions, and aptitudes all seem to have extra-perceptual existence. Leibniz's most common metaphor for innate ideas – veins in marble – also suggests that innate ideas are outside perception. The latter is, however, a metaphor, and the question is how strongly to take it. A block of marble is used metaphorically by Leibniz in another telling sense – as an example of a being by aggregation, thus not a real substance. The metaphor of veins in marble, or spatial patterns in an aggregate, can only be loosely applied to a simple being that has no parts, is a true unity, and is not extended."⁵

The limitation of this approach is that we only discuss the top 20 indices that present themselves as the primary context, so in order to gain more nuance we will engage with the SOM to find distinctions between the different scenes in which topics are discussed. For this we rely on the topology the SOM provides us. Reading the activation of a term as a landscape of scenography, where the peaks of the figurative screen define the different backdrops against which the activating text feels like it can be discussed. Because here we don't just get a set of words in the codomain, but a family of sets (regions), this projection has the signature

$$\pi_{\Theta \rightarrow \Phi}^*: w_{tF} \rightarrow \{\{w_{fF}\}\}.$$

"Plato names three types of limits: first, equality—which is placed before the others—second, measurement, and third, proportionality. Measurement means that one opposing term can measure the other, making them commensurable. Proportionality means that opposing tendencies are brought to a halt by entering into a numerical ratio. The result achieved in this process is generally called "harmony" by Plato, as his standard example is the relationship between high and low tones in Pythagorean musical theory." - Böhm and Böhm, Feuer, Wasser, Erde, Luft ⁶



0 — recuperating, exhaustion, psychoanalyze, monologue, reader, thinker, anguish

If CLIP facilitates translation (equality) between modalities, our aim with these scene-based projections is to establish commensurability (measurement) and proportionality (harmony) between images and texts.

"We do normally and naturally suppose that there is a deep causal resemblance between cases of modes falling into this intermediate class. It would be something of a surprise to learn, for example, that two or three very different mechanisms share the responsibility for phenomenally indistinguishable human pains, or for memories of past experience; or that several physically



quite distinct kinds of light are seen as the same shade of brown. Yet such discoveries (which do sometimes occur and could in principle occur more generally) do not undermine the use of the concepts in question.⁷



Returning to our conversations around the **playground** we get the different scenes defined through the figurative words shown in figure 3.5:6.



*Figure 3.5:6 - Projection of **playground** onto the figurative multimodal screen broken down into the different figurative scenes.*

These scenes are determined as follows. Given an activation $\mathbf{A}(\mathbf{w}_{tF}, \mathbf{C}; \gamma)$ on the figurative SOM with cells $\mathbf{C} = \{\mathbf{c} \in SOM\}$, and \mathbf{m}_c as the vector of \mathbf{c} , through cosine similarity of \mathbf{w}_{tF} to each \mathbf{m}_c with constant γ as exponent, the regions are extracted by:

1. Denoise: Apply graph smoothing on the SOM lattice for s steps with weight λ :

$$\mathbf{A} \leftarrow (1 - \lambda)\mathbf{A} + \lambda * \text{mean}_{N(c)}(\mathbf{A})$$
2. Threshold by mass: Pick a threshold ξ to retain the dominant part of the field. To determine this threshold we use the automatic thresholding method Otsu⁸. If this fails we use a fallback where ξ is set to cover 60% of the activation mass.
3. Binary mask and connectivity: Form $\mathbf{B} = \{\mathbf{c} : \mathbf{A}(\mathbf{w}_{tF}, \mathbf{C}; \gamma) >= \xi\}$. Then we establish adjacent neighbourhood through connected cells based on lattice adjacency (toroid wrap around with 8 surrounding cells).
4. U-matrix connectivity: The neighbourhoods are split up if connected across large U-matrix distances (inverse cosine similarity between adjacent SOM cell vectors, indicating splits along semantic ridges: $U(\mathbf{c}, \mathbf{c}') = 1 - \cos(\mathbf{v}_c, \mathbf{v}'_c)$).
5. Split oversized regions: Regions above a set maximum size are split up along U-matrix creases.
6. Label: For each region \mathbf{R}_j we record the peak index ($\text{argmax}(\mathbf{A}) \in \mathbf{R}_j$)

This results in a variety of different divisions, sometimes very clearly fragmented like the first example, in some cases completely singular like with **umbrella** (fig 3.5:7) or where the regions are less naturally distinct in which case the upper bound of coverages divides the large regions into multiple smaller ones like with **night** (fig 3.5:8) and a mix between these as seen with **beauty** (fig 3.5:9).



Figure 3.5:7 - Projection of *umbrella* onto the figurative multimodal screen broken down into the different figurative scenes.



Figure 3.5:8 - Projection of *night* onto the figurative multimodal screen broken down into the different figurative scenes.



Figure 3.5:9 - Projection of *beauty* onto the figurative multimodal screen broken down into the different figurative scenes.

word → word

Now the reverse $\pi_{\Phi \rightarrow \Theta} : w_{fF} \rightarrow \{w_{tF}\}$ applied to playground:

grandma, crackhead, swimsuit, safari, kid, truck, clad, watch, duty, pulled, mom, anyone, pull, fun, china, fell, poop, alien, clean, ran, keep, playing, rule, trash, letting, standby, need, fifth, booty, winding



Figure 3.5:10 - Projection of [playground](#) onto the figurative multimodal screen (click to open full scale image).

The reverse shows a further contrast compared to the textual internal projection of the topic of conversation. Where conversations about playgrounds onto the figurative and the playground as a figurative index projected on its own had a certain correspondence, at least in its primary region, the textual internal projection and the figurative playground onto text do not have any significant alignment based on the two textual screens (comparing figures 3.5:2 and 3.5:10). From this we can clearly see the two aren't equivalent, nor are the projections reversible. But it also suggests that when a conversation revolves around a playground it does occur a significant amount of times that we also see a playground. However the topics that are discussed on the background of a playground do not have as strong a bias towards also mentioning a playground. An easier to measure metric is by showing that [playground](#) is in the top 6% of most relevant figurative indices to [playground](#), while [playground](#) is in the top 12% of most relevant textual indices to [playground](#).



[0 — frame, squeezebox, correspondence, newspaper, materialist, abstraction](#)

Looking at our other object type index [umbrella](#) within the figurative we see a relation to the conversation around: [umbrella](#), [wait](#), [wind](#), [rain](#), [home](#), [hurry](#), [ready](#), [garden](#), [treasure](#), [let](#), [gremlin](#), [brought](#), [sky](#), [live](#), [already](#), [studio](#), [magic](#), [great](#), [grown](#), [worry](#). As for the more



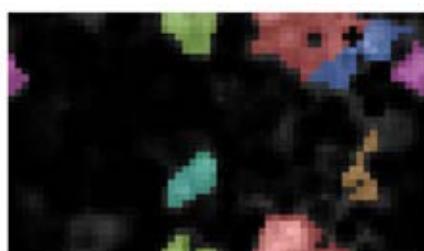


intangible indices, a backdrop labelled with beauty hosts conversations on: afraid, believing, desk, laughing, description, respectability, grandson, several, seemed, saw, learned, whether, unsolved, alone, jump, tossing, accident, anyway, afternoon, picked. And a scene showing night foregrounds the spoken words of: good, let, lost, cold, minute, shop, along, excited, near, saw, dance, hate, around, drive, living, place, tired, home, look, car.

"Such spatial representation of spatial relationships is pictorial in a quite straightforward way.

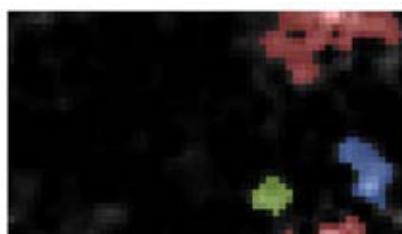
Few cases, however, are as simple as this. If the sentence were spoken instead of written, it would be a temporal relationship between sounds rather than a spatial relationship on the page which would represent the relationship between the cities. But this in turn is possible only because the spoken sequence and the spatial array have a certain abstract structure in common. According to the Tractatus, there must be something which any picture must have in common with what it depicts."⁹

Applying the same principle of breaking down the activations into regions similarly allows us to discern a variety of conversations that might be taking place with a given figurative input. The results of this projection $\pi_{\Phi \rightarrow \Theta}^* : w_{fF} \rightarrow \{\{w_{tF}\}\}$ are shown in figures 3.5:11-14.



clad mom rule pulled keep fever playing fell jail anyone
kid bite fun standby either swimsuit bar ran photo whenever
watch skinhead fifth track pull officer sunk safari zip snack
duty trash edge wild until side without eaten changing order
trying crackhead veg seriously soda key cent whoa booty bullshit
flirt meat beer pamphlet spit altogether hung bitter picnic bullock

Figure 3.5:11 - Projection of *playground* onto the textual multimodal screen broken down into the different textual conversations.



wait umbrella build better treasure wrote rain great scared bus
garden miraculously badger gremlin celebrate safely fetch canned large blooming
poem crowd hunting grandpa ottoman short pen shack out park

Figure 3.5:12 - Projection of *umbrella* onto the textual multimodal screen broken down into the different textual conversations.



saw afraid dining seemed wanted neck whether picture several jump
afternoon entire marriage taken shall matter seven would distinguished rather
bought community garrison victory traveled just opponent camp surrounded areas
french known house title harm away begin men obvious ran
grandson pleases fort ribbon dearest noble loyalty satisfaction springtime brandy
terrific garden hopeless celebrate small tail dump lamp roof contract

Figure 3.5:13 - Projection of *beauty* onto the textual multimodal screen broken down into the different textual conversations.



*Figure 3.5:14 - Projection of *night* onto the textual multimodal screen broken down into the different textual conversations.*

If by contrast we would use CLIP to show us the closest concepts to for instance *umbrella* in Ghibli's vocabulary we would not get anything surprising, but merely a generic reading of which words often co-occur in image captions across the generic stream on which CLIP is trained:

'wet', 'underneath', 'rainy', 'umbrella', 'covered', 'raining',
'fan', 'parasol', 'rain', 'unpredictable'

PUBLIC

Now that we've seen the internal calibration of the multimodal cast, with its distinct biases and interest, we turn outwards to see how these relations can be projected onto the public screens.

book → book

For this we will first look at the process by which we curate a set of books from a selection of input references, for which we will rely on the spherical SOM of ~1.1M books, and the mapped altitudes as described in 3.4. The overall vectorial signature of the projection is $\Pi_{\Theta \rightarrow \Theta} : \beta \rightarrow \{b\}$, with β the vector of the input book.

The approach to this is informed by the aim to get a varied set of books as a response to an input of one or multiple books. For a single input book **book** we first encode its text into a low-dimensional semantic vector $\beta \in \mathbb{R}^{300}$ following the steps of tokenisation → TF-IDF → LSA(SVD) (like all of the ~1.1M books, as described in 3.3). This vector is then used to activate the spherical SOM of ~1.1M books, consisting of 20,480 cells $C = \{c \in SOM\}$, arranged on a unit-sphere, each with a vector m_c and surface normal n_c calculated based on the SOM contents and topology (see 3.4). Each populated cell provides its books and their vectors $B^c = \{b \in c\}$ as well as their distribution along the normal referred to as their altitude h_b^c (altitude of b in c).

For the input book we calculate the activation for each cell $a_c = A(\beta, m_c; \gamma) \in [0, 1]$. Through cosine similarity of cell c 's vector m_c to β . This provides a measure as to how strongly cell c on the SOM is relevant to β (sharpened by a constant γ that is used as the exponent of the activation). And we calculate the relative altitude h_β^c in each cell, placing β along the normal n_c . Both of these calculations are shown across the full SOM in figure 3.4:5.

Based on these values we create a set of candidates. First we only keep cells where the altitude h_β^c falls within the populated altitude range within that cell $[\min_{b \in B^c} h_b^c, \max_{b \in B^c} h_b^c]$. If it does, then we keep the book in c of which the altitude is closest to h_β^c as a candidate.

Each candidate book \mathbf{b} is given a weight ρ_b by the product of the activation value of the cell it comes from a_c , the normalised difference in altitude to h_β^c , and the cosine similarity between β and \mathbf{b} .

$$\rho_b = a_c \cdot \left(1 - \frac{|h_\beta^c - h_b^c|}{\Delta h_c}\right) \cdot \cos(\beta, b)$$

$$\Delta h_c = \max_{b \in B^c} h_b^c - \min_{b \in B^c} h_b^c$$

Then we retain all \mathbf{b} with $\rho_b >= \xi$, empirically adjusting ξ to target 30-80 results.

An example response to the input books given for writing this chapter is seen in figure 3.5:15, with the colours of each book corresponding to the PCA coloured cell from where they were selected (see figures 3.4:1-2). The grid format reflects the altitude at which each book sits within their cell on the SOM, with extreme altitudes on the periphery of the grid.

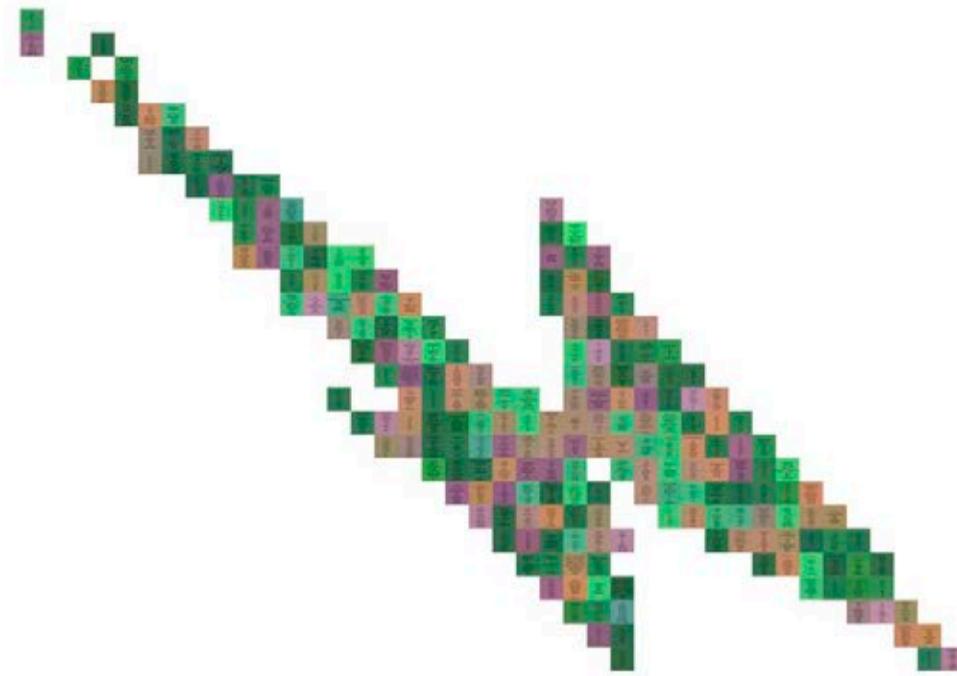


Figure 3.5:15 - Projection response of the book selection [10](#) of this chapter onto the ~1.1M books.
(click to open full scale image).

writing → paragraph
suggestion → paragraph

As we've mentioned this projection isn't so much a projection on a screen that serves a representation of the domain of paragraphs, because the paragraph domain is unique to each chapter configuration. Given an input paragraph, either in the form of a piece of writing or a suggestion, is vectorised to \mathbf{x}_u using the same TF-IDF and LSA, and vectorised to \mathbf{x}_v with the BGE, same as for the paragraph embeddings of the book selection for that particular chapter in which the writing sits (\mathbf{P}_u and \mathbf{P}_v). Then cosine similarity is calculated between \mathbf{x}_u and all $\mathbf{p}_u \in \mathbf{P}_u$, of which the top n paragraphs are kept as candidates (this n can be set within the WIPTe config, generally set to 200). These n paragraphs are then vectorised using BGE to

obtain \mathbf{P}_v , where $|\mathbf{P}_v| = n$. Finally the cosine similarity between all $\mathbf{p}_v \in \mathbf{P}_v$ and \mathbf{x}_v are calculated, of which the top k are selected as the most relevant paragraphs to the input writing or suggestion (by default set to 15). For examples of results click any of the links associated to the red and magenta citations throughout the thesis to see the input query and the possible selections from which the final quote was selected.

`word → image`

The final projection to discuss is that of the figurative words to the public image domain. As mentioned before this one also doesn't rely on a screen of the domain, but instead uses a database query to retrieve a response. It has a signature of $\Pi_{\Phi \rightarrow \Phi} : \{w_f\} \rightarrow \{i_w\}$.

For a set of figurative input terms (`word` elements) $T = \{(\tau, \omega_\tau)\}$ where $\tau \in \text{mm_216_vocab_f}$, combined with the optional weights $\omega_\tau > 0$, the projection returns a small varied constellation of `image` elements by querying a postings table of term-image incidences and then reranking greedily to promote breadth across the input vocabulary.

For `image` i and input term τ , let $c_{i,\tau} \in \mathbb{N}$ be the (aggregated) count derived from multi-prompt labelling (see §3.3). Define the query coverage of an image as:

$$k_i = |\{\tau \in T : c_{i,\tau} > 0\}|$$

We discard candidates with insufficient coverage: $k_i \geq m$, where m is the minimum coverage parameter.

Then we first retrieve a broad candidate pool by weighted overlap. For each surviving image i , compute weighted overlap score:

$$o_i = \sum_{\tau \in T} \omega_\tau (1 + \delta \max(c_{i,\tau} - 1, 0)) \cdot \mathbf{1}[c_{i,\tau} > 0]$$

where $\delta \geq 0$ (duplication bonus) optionally rewards repeated same labels, and $\mathbf{1}[c_{i,\tau} > 0]$ means multiplication by 1 if $c_{i,\tau}$ is larger than 0, and multiplied by 0 otherwise.

Sort by o_i and keep a candidate pool of size $P = \max(K * \eta, P_{\min})$, where K is the intended final number of image results (default 20), η is a factor (default 40), and P_{\min} is a set minimum (default 2000).

This pooling step is designed to be cheap: it avoids building per-image lists until the pool is already small.

The pooled candidates are all relevant, but many will be relevant in the same way (dominated by a subset of the input labels). To avoid a shortlist that over-serves a few terms, we enforce a per-term quota:

$$q_\tau = q \in \mathbb{N}$$

meaning that each term is allowed to "help" at most q selections. Let $\text{usesLeft}(\tau)$ track remaining uses. For each pooled image i , retain its overlapped term set

$$T_i = \{\tau \in T : c_{i,\tau} > 0\}$$

We then define a dynamic gain that only credits terms that still have quota remaining:

$$G_i = \sum_{\tau \in T_i : \text{usesLeft}(\tau) > 0} \omega_\tau$$

The selection objective mixes this breadth term with the base overlap score:

$$J_i = \alpha G_i + (1 - \alpha) \hat{o}_i$$

where $\alpha \in [0, 1]$ trades diversity against raw overlap strength, and \hat{o}_i is the current static score contribution. In the simplest case $\hat{o}_i = o_i$, but the implementation optionally masks static contributions from terms once they have been *spent*:

- `static_mask_mode = "none"`: never mask o_i always counts fully
- `"covered"`: mask a term's static contribution after it is credited the first time.
- `"exhausted"`: mask only when a term has reached quota - when $\text{usesLeft}(\tau = 0)$

Now that the pool images have been given a value, we do a greedy selection process from the candidate pool, K times:

1. pick $i^* = \text{argmax}(J_i)$ among remaining candidates
2. for each $\tau \in T_{i^*}$ with $\text{usesLeft}(\tau) > 0$, decrement $\text{usesLeft}(\tau) \leftarrow \text{usesLeft}(\tau) - 1$
3. update G_i and optionally \hat{o}_i for the remaining candidates accordingly.

The output is a ranked set $I = \{i_1, \dots, i_K\}$

Intuitively, the pool step ensures every image already overlaps well with the input terms (high o_i); the greedy step then spreads the shortlist across the vocabulary by spending per-term quotas, so each figurative word can only 'carry' the selection a limited number of times. The parameter α tunes this trade-off: $\alpha \rightarrow 0$ favours raw overlap strength (including duplicates via δ).

This projection is thus a two-stage proportioning: first by weighted overlap to secure relevance, then by quota-constrained gains to keep the list variegated across the input vocabulary, producing a compact legible image constellation around the words rather than a repetitive cluster. Because the searches are acknowledged to always be partial they bring a further insight into the figurative screen as to which sorts of figurative features are brought to the foreground through their presence alongside the aspects by which they were projected.



accompany — seat, swift, armrest, refurbish, sit, airline



For an example of a query, simply click one of the many blue labelled images included throughout the thesis. Then below the input text, for each query you'll see the initial textual input word or region index followed by a list of figurative search terms. Below is the list of image responses available through a link, and labelled with the terms that overlap with the input terms.

It might seem unbalanced or off that we are not using a topological representative of the domain in this case, but only relying on a database structure. However the nature of an image is, as we're attempting to demonstrate at quite some length, very different from a text document. The text documents at the highest order of what we're using - books - quite intuitively let themselves be broken down into smaller constituent parts, even though the full book still indisputably is a whole. On the other hand we've got our ~12 million images, each of which are their own document, but not trivially broken down into smaller parts that still fall within their own domain. The Segment Anything Model might offer some means, like seen in the side experiment in the appendix, but these parts are much less legible on their own than say a paragraph out of a book stands on its own as a piece of information. This also means that here our responses to what we search are not so much just a collection of most relevant options, but we're more focused in seeking for a multitude of objects that together form a response to the query as defined by the multimodal cast. This means that the internal topological structure of this domain is given less importance, but instead we've focused on devising an aggregation method that looks for complementing aspects, relying on the textual indices that form our current best effort at looking at the smaller constituent parts within each image.

"Finally, in Plato there is yet another element that is a necessary supplement to the deficiency in both the great forces. This is the mythical and the metaphorical. The first kind of dialectic corresponds to the first kind of irony, the second kind of dialectic to the second kind of irony; to the first two corresponds the mythical, to the last two the metaphorical-yet in such a way that the mythical is not indispensably related to either the first two or the last two but is more like an anticipation engendered by the one-sidedness of the first two or like a transitional element, a confinium [border territory], that actually belongs neither to the one nor to the other."¹¹



10

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1. Merleau-Ponty, Maurice. *Phenomenology of Perception: An Introduction*. Translated by Colin Smith. Routledge, 1945. pp. 11



2. Jullien, François. *The Book of Beginnings*. Translated by Jody Gladding. Yale University Press, 2015. pp. 13



3. For the naming of the projections the greek capital letters \mathbf{M} , Θ , Φ denote the domains MULTIMODAL, TEXT and FIGURATIVE respectively. π and Π are used for the PRIVATE and PUBLIC scale projections respectively.



-  4. Parmenides., Plato., Parmenides., Sylvana Chrysakopoulou, and Arnold Hermann *Plato's Parmenides : text, translation & introductory essay*. Las Vegas: Parmenides Publishing, 2010.

[↩](#)

-  5. Perkins, Franklin *Leibniz and China: A Commerce of Light*. Cambridge University Press, 2004.

[↩](#)

6. Böhme, Gernot, and Hartmut Böhme. *Feuer, Wasser, Erde, Luft: eine Kulturgeschichte der Elemente*. 3. Aufl., Unveränd. Nachdr. C.-H.-Beck-Paperback 1565. Beck, 2014. Chapter 3
(Translated with GPT4)

[↩](#)

-  7. Ayers, Michael *Locke (Arguments of the Philosophers)*. New edition. Routledge, 1993.

[↩](#)

8. Otsu, Nobuyuki. 'A Threshold Selection Method from Gray-Level Histograms'. *IEEE Transactions on Systems, Man, and Cybernetics* 9, no. 1 (1979): 62–66.

[↩](#)

-  9. Kenny, Sir Anthony *An Illustrated Brief History of Western Philosophy*. [Illustrated ed.]. Malden, MA: Wiley-Blackwell, 2006.

[↩](#)

10. The input pdfs for this chapter are: Zafiris, Elias. *Natural Communication: The Obstacle-Embracing Art of Abstract Gnomonics*. Edited by Ludger Hovestadt and Vera Bühlmann. De Gruyter, 2021; Plato. *Timaeus*. n.d.; Bishop, Christopher M. *Pattern Recognition and Machine Learning*. *Information Science and Statistics*. Springer, 2006.; Leibniz, Gottfried Wilhelm. *Philosophical Papers and Letters*. Edited by Leroy E. Loemker. Springer Netherlands, 1976. - [Book Context Link](#)

[↩](#)

-  11. Kierkegaard, Søren, Friedrich Wilhelm Joseph von Schelling, Socrates., Edna Hatlestad Hong, Søren Kierkegaard, and Howard Vincent Hong *The concept of irony, with continual reference to Socrates : together with notes of Schelling's Berlin lectures*. Princeton, N.J: Princeton University Press, 1989.

[↩](#)

3.6 INTERACTIVITY

"The new new scientific spirit has rediscovered the art of Penelope: while the sailor comes and goes, approaches and moves away, she weaves and unwinds the map of the journey, the portulan of the universe." - Serres, Le Système de Leibniz et Ses Modèles Mathématiques.¹

Following this statement by Serres, the modern scientific attitude shifts from Ariadne's thread² to Penelope's weaving: from an objective singular notion to an operative stance. In our case, now that the elements and projections of the WIPT editor are in place, this section turns to use: how writing interactively negotiates across the domains of the multimodal cast in practice. Rather than a single deductive chain, interaction unfolds as a woven network of concurrent entries and crossings, more tapestry than thread, so that its cast is always oriented to the whole it approaches through successive correspondences.



woven — tavern, cabinetmaker, wench, saddled

³

"Derrida suggested that a cultural construction, such as an idea, a value, or a sentence can be disassembled, or taken apart, and decoded—its parts examined for "meaning." The parts can be reassembled into another whole that may, then, take on a different meaning. The rearrangement of the parts into various wholes opens a way of exploring the complex nature of signs and moves communications into the complicated landscape of multimeaning, layered contexts, thus marking a shift from binary, yes-no signification to a more subjective, multidimensional interpretation of meaning."⁴



Because a text editor is, first of all, an instrument for text, and because of the necessary writing required for this thesis we stage the editor within a primarily textual experiment, the principal mode of interaction is mediated by writing. The reverse direction (image → text) is also part of the cast and will be demonstrated in an experimental sub-chapter in Chapter 4, although for this the interaction sits partly outside the editor's interface. The present section therefore first describes the active mediations implemented in WIPTe and then outlines the character of the inverse direction to situate the later demonstration.



Figure 3.6:1 - Screenshot of the WIPT editor, showing the section of this chapter, with the config buttons at the top of the section, next to it are the thumbnails of dropped in pdfs, the dropdown menu for the image projection method at the bottom, targeting slider; and the editor window to the right.

A brief note on how the frontend ties to the elements, screens, and material explained above. The editor runs locally in a web interface. Markdown is typed in a pop-up editor and rendered as formatted text in the main window. The main window is partitioned into selectable sections (typically a chapter or subchapter). Clicking a section loads its markdown into the editor. Each section exposes three controls, *bookConfig*, *saveConfig*, *loadConfig*, to set up the input book references that constitute the paragraph collection for that section. Input books are added by simply dropping a PDF onto the section. The combination of these PDFs locates a personalised perspective on the public corpus specific to the writing of that section.

Once a configuration has been loaded, two floating panels appear: one contains a red paragraph, the top result from projecting the current writing onto the paragraphs of that section's books; the other shows a magenta paragraph, the top result through the suggested paragraph based on the same writing. Clicking either panel opens a list of 10-20 alternatives (depending on the configuration setting), which are also the same alternatives that are visible when clicking one of the included red or magenta citations throughout this thesis. In effect, the writer plays and the instrument replies, abundance becomes playable rather than merely searchable. The aim is that the instrument realises what it operates on and, in doing so, renders its analysis transparent, foregrounding realisation over representation, a model of operation as described by Bühlmann⁵.

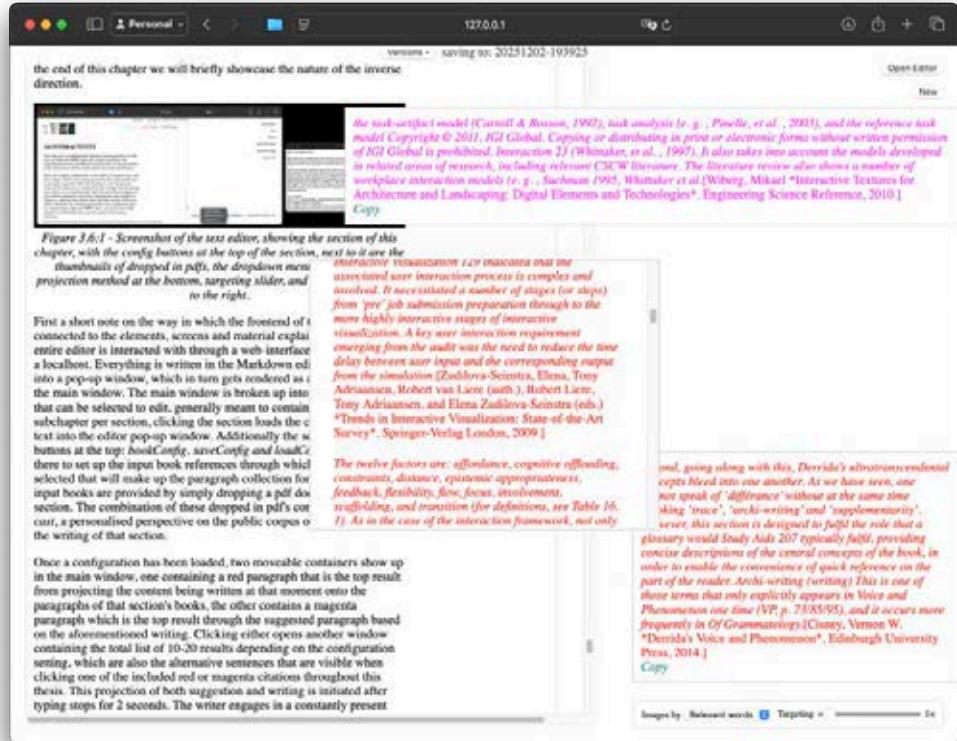


Figure 3.6:2 - Screenshot of the WIPT editor, showing the red and magenta floating panels, and the red popup window containing the results.

The writing that is being responded to is a selection of the full section based on the place of the cursor. For the red search, the input is the full current paragraph (a block of text delimited by blank lines), including the text after the cursor. If the paragraph is shorter than 500 words, the previous paragraph is added as context. This keeps responses tethered to the thought being developed while supplementing it with proximate context if needed. For the magenta input the selection is identical, except the text is cut at the cursor from which the LLM infers the next piece of writing which is used for the actual query, it presents a set of responses that present a direct speculative forecast of what might be written next, even if adjusting a thought mid-paragraph.

TEXT → FIGURATIVE

In parallel, when writing is paused a projection from the written text onto the ~12M images is activated. This composite projection is defined through a chain of constituent projections that were described in §3.5. There are two settings, one is based on a number of words that are deemed most significant within the writing (i), the other follows a process of computing a vector for the entire writing within the textual domain of the multimodal cast (ii). First we'll walk through the process of option (i), selected in the editor as *Relevant words* from a dropdown menu, with next to it a slider to set a **Targeting** value (see activation exponent γ in §3.5).

Relevant Words

The signature, when following the elements as described in 3.3 and individual projections in 3.5, this composite projection in the case of using the film based multimodal cast is given as:

$$p \rightarrow^1 \{w_{tF}\} \rightarrow^2 \{\{w_{fF}\}\} \rightarrow^3 \{\{i\}\}$$

where:

- p is the vectorised piece of writing, embedded in the TF-IDF space of the section's paragraphs.
- $\{w_{tF}\}$ is the set of textual vectors corresponding to the words selected from the writing.
- $\{\{w_{fF}\}\}$ is the set of sets of figurative word vectors, resulting from projecting the textual words onto the figurative domain. These provide a set of figurative words for each textual word input.
- $\{\{i\}\}$ is the set of sets of images found based on the figurative words.

And each of the steps are defined as:

$$p \rightarrow^1 \{w_{tF}\}$$

With TF-IDF fitted to all paragraphs of the section, we compute a TF-IDF vector for the current writing. The highest-valued tokens are selected as the key terms of the paragraph in the context of the section. Since these tokens may exceed the size of the textual multimodal vocabulary (`mm_vocab_216_1` in the film cast), out-of-vocabulary tokens are replaced by the nearest neighbour found in the TF-IDF embeddings that is in the vocabulary. The number of terms is configurable (generally capped at seven).

$$\{w_{tF}\} \rightarrow^2 \{\{w_{fF}\}\}$$

For each **word** corresponding to the vectors in $\{w_{tF}\}$ we project onto the figurative domain, yielding candidate regions populated by figurative words, as described in §3.5. Per input word, we then select the single region that best complements the others in the current set. Each chosen region yields one figurative set $\{w_{fF}\}$.

$$\{\{w_{fF}\}\} \rightarrow^3 \{\{i\}\}$$

As in §3.5, each figurative set forms a query to the image database, returning a constellation of images that together sketch the scene suggested by that set. Each group of images corresponds to one input textual term. The collection aims for scenographic breadth, a constellation that hangs together rather than a cluster of near-duplicates, so complementarity is preferred over tight sameness.

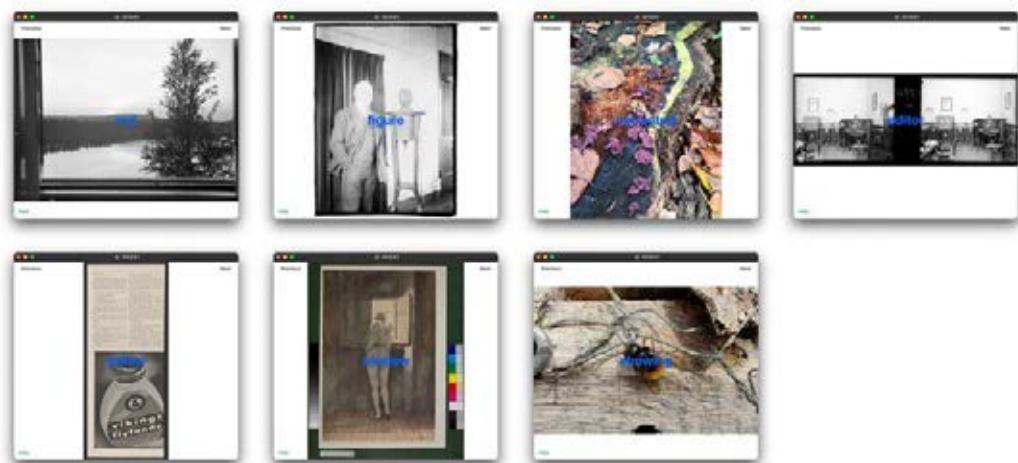


Figure 3.6:3 - Screenshot of 7 "relevant word" views of the image popup window.

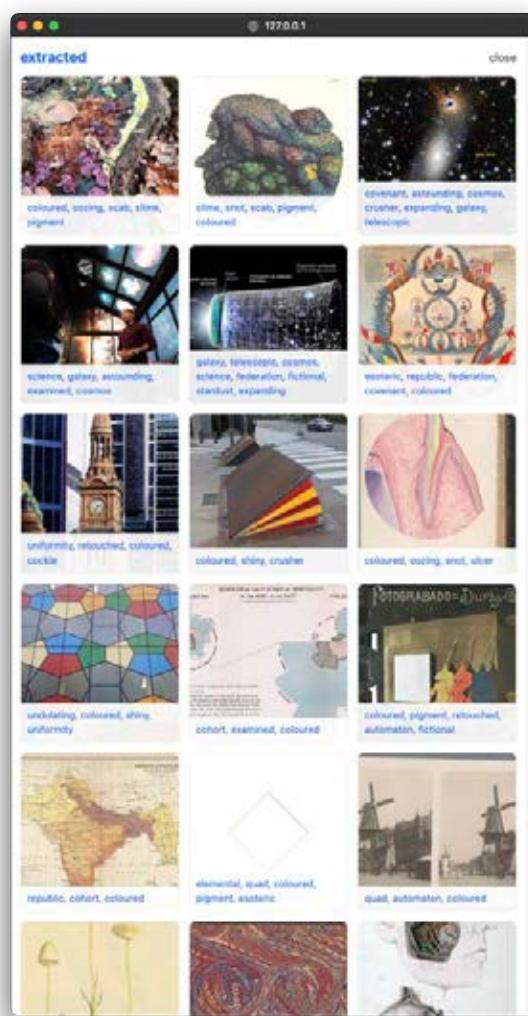


Figure 3.6:4 - Screenshot of the clicked word view on "extracted" of the image popup window, with the image labels that overlap with the query.

Paragraph

The second option is *Paragraph*. The signature is analogous:

$$p \rightarrow^1 p_{tF} \rightarrow^2 \{\{w_{fF}\}\} \rightarrow^3 \{\{i\}\}$$

The only difference being p_{tF} instead of $\{w_{tF}\}$: the writing is vectorised directly into the textual film space by fitting a TF-IDF matrix on the films' subtitles and embedding p into that space (with dimensionality corresponding to films). Because we do not differentiate words as inputs, we project p_{tF} as a single vector onto the figurative domain; we then use all extracted regions from that activation as figurative sets for the image domain (indexing regions by number). Each region marks a distinct figurative neighbourhood activated by the paragraph vector and yields its own image constellation.



Figure 3.6:5 - Screenshot of 7 "Paragraph" views of the image popup window.

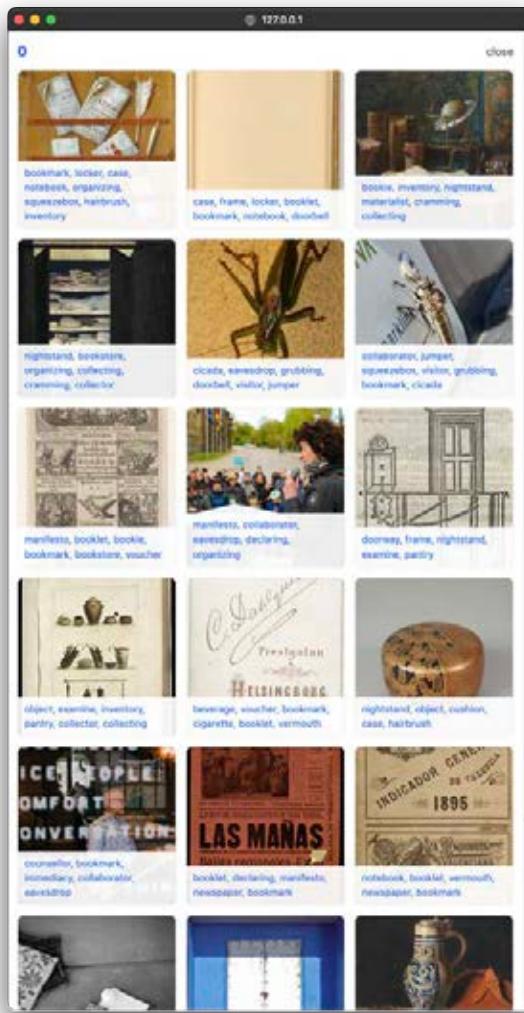


Figure 3.6:6 - Screenshot of the clicked paragraph view on region 0 of the image popup window, with the image labels that overlap with the query.

"To suggest the hegemony of a specific style of visual experience is not to exclude the other senses, but to perhaps suggest that they are increasingly defined in relationship to the visual and its associate technologies in the contexts discussed here—film image and themescape. The transfer of a visual logic onto the nonvisual reduces other sensuous geographies to visual-like ones and so hides their distinctive contribution to the multisensual nature of geographical experience and understanding."⁶



The regions resulting from both settings are assembled to stage a scenography alongside the writing; not illustrations of it, but a backdrop and context. In practice, the prose navigates one textual field while, orthogonally, a visual field unfolds. This is our instrumented way of involving multiple domains while maintaining their differences. Serres, reading Leibniz, describes such contrapuntal analysis: “*Generally, the analysis is spun in such a way that several areas are involved at the same time: it is by this contrapuntal style that one recognises the master's pen. This makes us understand why the overall system is always the horizon of each analysis: through successive multivalences, we move towards the whole. The unilinearity of the writing itself is thus overcome.*”⁷. The operative image sought to be establish in this context is

not a Cartesian chain but a network: "since the image that Descartes and tradition have left us of their order is that of a chain, which concretises for the imagination the unity of progression and the connection of reasons, the image that imposes itself here is that of a network with several concurrent chains, which presents multiple "entries" and intersections: tapestry, weaving, embroidery or lace"⁸. This is why the image lists prioritise complementarity over sameness: each constellation is composed to hold together scenographically rather than repeat a single motif. Where Batia Suter's *Parallel Encyclopedia* traverses pictorial plenty through thematic clusters of depiction mediated by her personal observations, this setup approaches a collective visual reading via navigation by writing. As Suter notes on her method: "*Coincidence is like an instrument that can be played*"⁹, which holds in the digital setup defined here as well, where outcomes remain probabilistic rather than certain.



1 — perpendicular, nonparallel, elevator, stairwell, downwards

"The brilliance of Klingemann's identification of the content of the illustrations lies not in a reliance on a specific method, but on a combination of approaches. He employs multiple data clustering algorithms alongside a manual clustering of image training sets organised using human vision. The most prevalent method for making image content searchable, though, does not so much involve 'vision' as text. It is the spectral presence of words that haunt these various techniques, from the 'Bag of Words' model, and the textual metadata that underpins the pictures retrieved from Google Images, to the crowdsourced tags in ImageNet that have been used in recent deep-learning experiments. This dependence on words is a key component of large-scale databases containing illustrations that do not rely on computer vision, but instead use the surrounding text to 'explain' and return relevant images, whether this is the OCRed text (sometimes including the image caption), bibliographic and other metadata, or an amalgamation of different textual information."¹⁰

FIGURATIVE → TEXT

For the composite projections in the opposite direction we mirror the forward logic but start from an image input. Input images are labelled with the same prompting procedure used for the ~12M image dataset, so descriptors are symmetric across directions. As before, the chain proceeds through the figurative and textual screens, but the public text screen is searched by LSA rather than label overlap in the public figurative screen; accordingly, the character of the result differs from the image side.

We implement two options that parallel *Relevant words* and *Paragraph*:

Distinctive figurative labels as query (mirror of Relevant words)

$$i \rightarrow^1 \{w_{fF}\} \rightarrow^2 \{\{w_{tF}\}\} \rightarrow^3 \{\{p\}\}$$

We fit a TF-IDF matrix on the selected multimodal figurative-screen documents (i.e., on the label corpus tied to the chosen cast) and select the most central labels for the input image. Each selected figurative word is projected onto the textual screen, producing a set of textual regions; for each label we choose the region most relevant to the others (synergy at the level of labels). From every chosen textual region we take its word list and issue an LSA query against the section's paragraph collection in the WIPT editor. The outcome is one paragraph collection per selected label.

Image as query (mirror of Paragraph).

$$i \rightarrow^1 i_{fF} \rightarrow^2 \{\{w_{tF}\}\} \rightarrow^3 \{\{p\}\}$$

Using the same TF-IDF, we pool the image's labels into a single figurative vector, project this vector onto the textual screen, and obtain a list of textual regions. Each region (with its words) is then used as an LSA query onto the section's paragraphs, yielding several paragraph collections, one per activated region.

Because the text screen is queried by LSA (semantic vectors) rather than by label overlap, the search does not compose a complementary image-style scenography. Instead, it returns collections of paragraphs/phrases likely to be part of the conversations that the input images host. In other words, we the proportional chain of projections is retained, but the screen typology determines a different aggregation logic: on images we curate complementarity across labelled objects; on text we assemble discourse fragments indexed by latent topics in the chosen textual regions.

Examples of the outcomes of this image-to-text workflow, focused on image curation leading to paragraph selection, are shown in Chapter 4.

What Chapter 3 omits (deliberately)

Getting the instrument to run meant writing a few thousand lines of code across front- and back-end, coordinating multithreaded routines, heavily loaded models, and concurrent requests, as well as text formatting of copied quotes with citations, ensuring LaTeX renders, PDF export, and procedurally linking throughout to the contexts hosted on GitHub. Because the research question here is architectural, about communicative proportion rather than web engineering, those infrastructural details remain offstage. The intent is to make this aspect available as a public GitHub repository of the code in the future.

11

1. Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007. - ch. 1: Le schéma carré en général : des séries aux tables (Translated with GPT4)



2. On the Ariadne's thread metaphor in scientific method, see Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007. chapter 1 - Scenographie, ichnographie, note 1: "The image of the thread of Ariadne in the labyrinth is undoubtedly the most repeated throughout the entire work of Leibniz," citing Specimen demonstrationum politicarum pro eligendo rege Polonorum (1669): "Id vero filum mihi ipsa demonstrandi forma est, perpetua rationum catena constans, et implicantibus sese propositionum annulis innexa." - "That thread, for my part, is the very form of demonstration: a continuous chain of reasons, and fastened together by the interlacing rings of propositions." (translated with ChatGPT5)



3. *The Tale of the Princess Kaguya*, Directed by Isao Takahata (Studio Ghibli, Inc., 2013), Blu-ray.
— 1:19:29



4. Heller, Steven *Design Literacy: Understanding Graphic Design*. 2nd. 2004.



5. Bühlmann, Vera. *Mathematics and Information in the Philosophy of Michel Serres*. Bloomsbury Academic, 2021. Chapter 7: "Analysis here is structural, it produces models in which every step of differentiation is complemented with an inverse step of dedifferentiation. Such models realize the transparency with which they operate analytically. Structural analysis so conceived is about instructing a domain of the quasi, whose architectonic status draws credit from metaphysics (universality). It is an architectonic domain that accommodates the power of the pseudos as a withholding power, by giving it an public face." - p.168. And also: "It is with a view toward this "historical totality" that we must relate sophistication to anamnesis in order better to grasp Serres's maxim that models are not primarily to be representative or explanatory but instrumental and operative (they "realize" a phenomenon) and also active (since he attributes mentality and character to instruments that operate, as we have seen). Models are required to facilitate a taking and a giving for both equatorial poles of Serres's operational principality of reason (which is "that there be no reason," see Chapter 3), the equipollence between the real and the rational." - p.154



6. Rodaway, Paul *Sensuous Geographies*. 1994.



7. Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007.- ch. 3: "Le graphe en réseau: multilinéarité, multivalence" (Translated with GPT4)



8. Serres, Michel. *Le Système de Leibniz et Ses Modèles Mathématiques*. Presses Universitaires de France, 2007. - ch. 3: "Le graphe en réseau: multilinéarité, multivalence" (Translated with GPT4)



9. 'Batia Suter - Parallel Encyclopedia #2'. *Metropolis M*, n.d. Accessed 3 December 2025. <https://metropolism.com/nl/feature/batia-suter-parallel-encyclopedia-2/>.



10. (auth.), Julia Thomas *Nineteenth-Century Illustration and the Digital: Studies in Word and Image*. Palgrave Macmillan, 2017.



11. The input pdfs for this chapter are: Venturi, Robert, Denise Scott Brown, and Steven Izenour. *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*. 17th print. The MIT Press, 2000.; doubleNegatives Architecture. *Dust Eyes, Dust Architecture - DoubleNegatives Architecture Contemporary Architect's Concept Serie 9*. Inax, 2011.; Merleau-Ponty, Maurice. *Phenomenology of Perception: An Introduction*. Translated by Colin Smith. Routledge, 1945. - [Book Context Link](#)



4 CONCEPTS

This chapter puts the output of WIPTe central through 4 different exposures of its operations. The focus lies on how different types of interactions, and various tunings make the overall nature of the instrument more transparent.



0 — booklet, keepsake, four, guidebook, coordinate, notebook



4.1 ORNAMENT



1 — recovered, etching, developed, depict,
engraved, scroll



1 — anthology, bibliographic, accession,
manuscript, colophon, insomuch,
bibliographical, cookbook, marginalia, catalog,
philology, libretto, folio, antiquarianism,
philological, catalogue, codex, compendium,
treatise

The first of these chapters starts with a short essay on how the concept of *ornament* can be placed and operationalised within the digital. This is the least overtly technically schematic chapter within chapter 4, and sets out to contribute a theoretical view that continues the discussion of chapters one and two, but in active conversation with the material of the text editor, which before was treated as ornament. In a way this means that what was ornament in the previous chapters, is now invited to actively enter the shaping of the argument, becoming an equal part of the body of text. To enforce this, I will not use any external references for the argument, but only rely on what is put forward by the editor to shape my stance. Have the *ornament* articulate itself. This does mean that I might rephrase out of context, misunderstand the point being made due to its partial information, and according to some misapprehend the point the author originally made with the text. But this is unavoidable, and also outside the concern of this editor, I have probably not read any of the books from which I will cite in a conventional manner. I will trust the method that my curation of input books will gather a relevant constellation of sources around them to build the argument, perhaps leaning onto references more than one normally would.

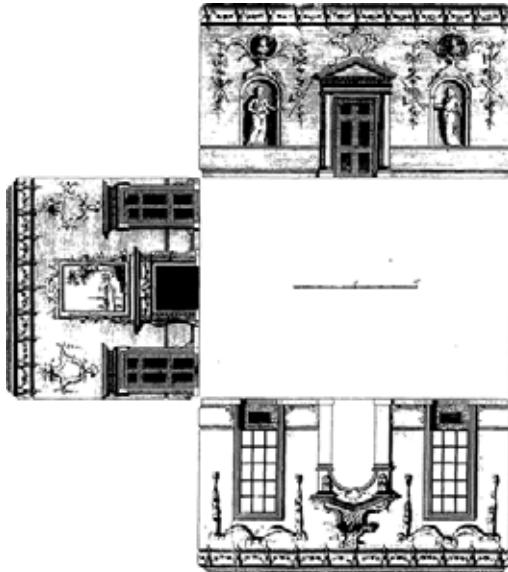
The reason for choosing the concept of ornament is that I know particularly little on the topic. Beyond a basic understanding of it essentially being frills attached or applied to the primary object, and its prominence in the Baroque, I lack a comprehensive familiarity with the subject. Because I have no extensive knowledge on it beforehand, it makes it a suitable subject to experiment how writing an essay on the topic might work when relying exclusively on WIPTe to



provide me with information and material to write this short essay. The basic idea from which I start, informed through my superficial understanding of the topic, is that exactly that superficiality is very important to the ornament because it sits at the surface due to its visuality. I turned to thinking about which type of surface ornament is still very much in place today, which led me to the topic of tattoos. This is why I included a book on tattoos in the PDF inputs. If I were to write this essay in a normal way, I don't think I would go down this route, because I probably wouldn't be that interested in reading an entire book on tattoos, but in this way I was comfortable enough to give it a go. So based on this simple starting premise, the essay unfolds through the interplay with what was ornament in the thesis up to this point.



0 — shred, eject, ripper, wedge, surfed,
adrenaline



0 — court, panelled, summerhouse, enfilade,
dollhouse, rectory, blueprint, loggia, courtyard,
legation, fretwork, mansion, doorstep,
architectural

Throughout this chapter the editor is used in the same way as it has been used throughout, but with two different casts to showcase how this provides other figurative associations. Images with blue tags are provided through the 216 film cast, and the cyan tagged images by the ETH PhD cast.

1

-
1. The input pdfs for this chapter (including 4.1.1) are: Calvino, Italo. *Invisible Cities*. Translated by William Weaver. Vintage Classics, 2009.; Semper, Gottfried, and Harry Francis Mallgrave. *Style: Style in the Technical and Tectonic Arts; or, Practical Aesthetics*. Translated by Michael Robinson. With Getty Research Institute. Texts & Documents. Getty Research Institute, 2004.; Gilbert, Cheralea. *Tattoo History: A Source Book ; an Anthology of Historical Records of Tattooing throughout the World*. With Kazuo Oguri and Stephen G. Gilbert. Juno Books, 2000.; Ishigami, Junya. *Small Images*. LIXIL Publishing, 2012.; Hovestadt, Ludger, and Vera Bühlmann. *Sheaves: When Things Are Whatever Can Be the Case*. Applied Virtuality Book Series. Ambra | V, 2013.-
[Book Context Link](#)



4.1.1 AN ESSAY ON ORNAMENT, PLAYED IN DIGITAL ORNAMENT



ornamental — vocation, annunciation, monstrance, cloister, catholic, sermonizing, holiest, confessor, convent, divine, religion, saintly, sacristy, novena, curia, archdiocese, religiously, amen, rosary, pontificate, nun

1

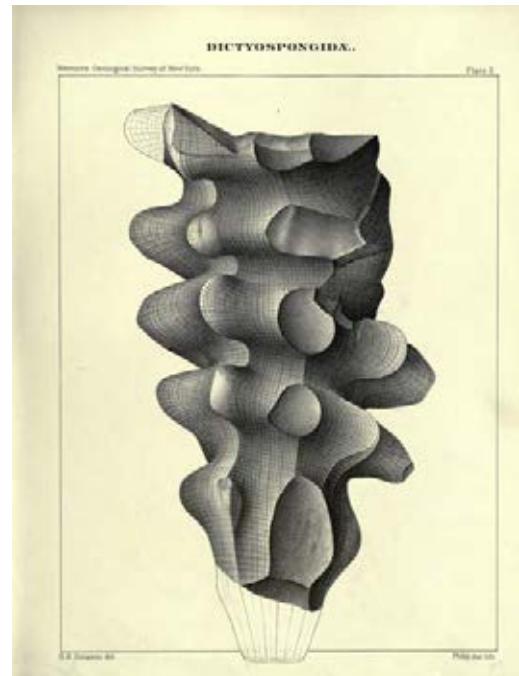


ornamental — organza, propagator, germinating, ornamental, flowery, centerpiece



surface — upholstery, artwork, centerfold, contortionist, flesh, underwear, disrobing, eroticism, thigh, undress

2



surface — shading, polyhedral, curvaceous, isotropic, sinuous, graphite



"Form and ornament are products of the subconscious collaboration of all members of a particular culture. Art is the complete opposite. Art is the product of the genius going his own way. His commission comes from God. To waste art on objects of practical use demonstrates a lack of culture. Ornamentation means added labor. The sadism of the eighteenth century, burdening one's fellows with superfluous work, is alien to modern man."³



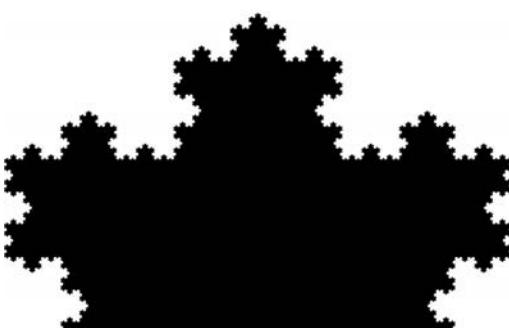
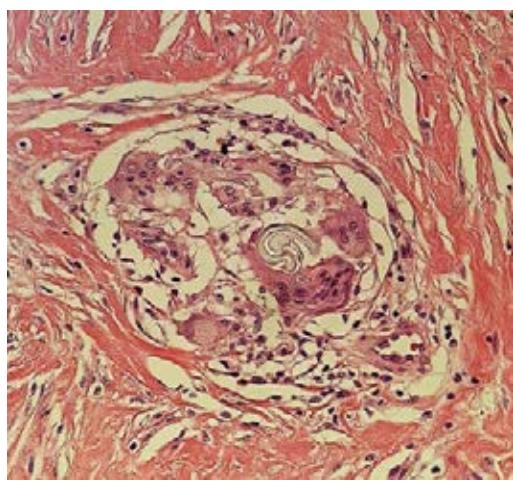
Adolf Loos very clearly is not fond of ornament, and thinks it's wasted in a modern setting. Yet he does offer a useful characterisation: ornament is an outcome of the communal collaboration of a culture. His principal objection is the "added labour", but in a digital context, this labour might not be an obstacle for the ornament to be brought back into the familiar of "modern man".



0 — dockyard, ark, renovating, storehouse, palisade, production, constructing, cutaway

0 — manuscript, collector, trio, collaborator, publication, collecting, booklet, frame

"First, let us list the ornamentation used at the time, either in the form of paint or recovered paste. Everywhere you look are winged, rounded female forms (Victories, Muses, Graces, etc.), busts of Minerva, garlands of flowers and fruits, palmette crowns, incense tripods, sacrificial alters, bucranes, foliage, thyrses, vases, inset portraits painted in monochrome or on porcelain, quivers, arrows, bows, caduceuses, scales, cornucopia, sphinx, birds, swans, crickets, chimaeras, mermaids, lightning under imperial eagles, all within bronze and gilded brass frames, applying white on light blue, light yellow, Sienna yellow, with imitation silk draperies in blues, pinks, yellows, etc, a renaissance of Raphael's arabesques, reworked and corrected. . ."⁴



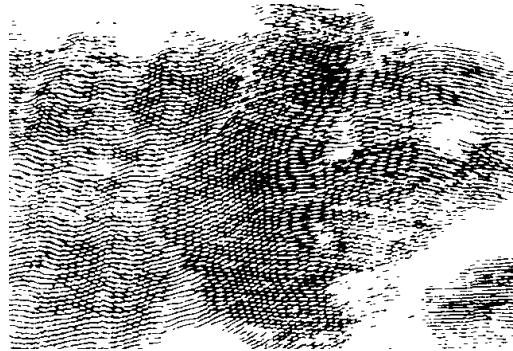
1 — algorithmic, jig, modulo, parameterized, tessellated

1 — vein, aortic, scalp, lung, skin, spiral

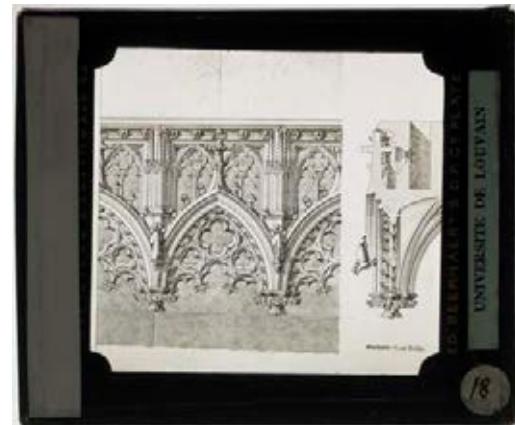
In this discussion on ornament, to finally work towards an idea of an operative sense of digital ornament, I begin from the surface; both the substrate and the condition for ornamentation. Ornament embellishes, it is what meets the eye: pattern, colour, relief. Therefore, at first it presents at surface level. The above quote shows that surface as a lexicon. Gottfried Semper makes the point programmatically: *"Ornaments, however, are often needed to correct a certain*



*indeterminateness or even transgressions of the limits of pure form, or to bring into sonorous accord those dissonances that are unavoidable, even inevitable, in high artistic endeavors.*⁵ To misread this layer as “superfluous” decoration neglects its communicative aspect. Although the aforementioned subjects of ornament are easily dismissed as kitsch from a contemporary view, at the time the objects made their surface legible, not dissimilar to pictograms. *"Consideration of pictographs as a step along an evolutionary path, however, obscures their significance as a complete and purposeful communicative system. When characterized simply as less than a written language, pictographs always fall short of their purpose."*⁶ Then if ornament has this communicative power, how does the surface communicate in our current time?



0 — scribbled, identifies, seeped, dissolving,
accumulating



0 — fragment, architecturally, digitizing,
triptych, bookend

To elaborate on this we'll first turn away from buildings and rely on the metaphor of the skin: *"Skin metaphors are ubiquitous in contemporary art and architectural theory. Not only are "skins" of artworks and buildings frequently referred to, but the metaphors and mechanics of skin as the body's surface are applied to artworks—the skin's self-regulation, its ability to adapt to changing environments, its permeable surface, as well as skin's organic nature."*⁷ After all, the ornamentation of this most intimate surface is still very much part of our time. Tattoo and piercing keep ornament operative at the scale of the person; the body becomes a legible social text; *"Becker suggests, "Body morphology is a primary lexicon of social processes, not a means of self-representation; it is a matter of social, not personal, concern. "Becker's assessment finds her study of the way Fijian culture shapes the experiences and meanings of embodiment; it also returns us to the insight that tattooing, as a way of making the body legible in culture, has meanings that are as much social as personal."*⁸





0 — atelier, surveying, observatory, commune, chronometer, radiometer

0 — brushstrokes, abstraction, eavesdrop, passageway, frame

"In particular, it allows skin to be understood as a form of clothing, and clothing as a form of skin. In other words, skin can be understood as a canvas to be dressed up (as in ornamentation practices such as tattooing), and clothing can be understood as a second skin. Skin is thus a crucial border site in the shifting relation between nudity and clothing – a bodily site with great cultural, psychological and phenomenological import.⁹ Skin, as a tactile organ, is also a means of communication. One of the reasons that skin is such a rich site to explore, we believe, or one of the reasons that artists use skin, is that skin "signs" are coded in different ways, and sometimes in more ambiguous ways than traditional literary texts. Skin can be visually perceived as can any map, yet it can also be touched and penetrated."¹⁰



intimate — domineering, sauna, subhuman, jigsaw, homicidal

11



intimate — kabuki, tending, promenading, japan, bustling, townspeople, cultivation

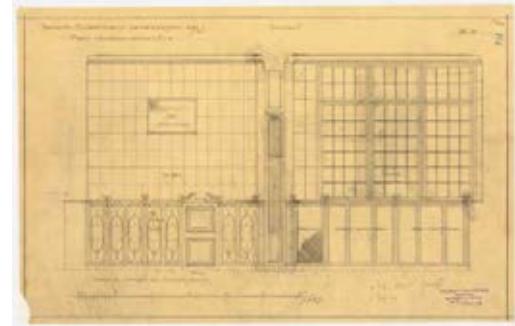
Then the skin, and by extension the surface is more than just that singular superficial plane, it extends to a vehicle for expression and communication. It forms a cultural and social surface, an ornament as shared literacy, possible precisely through what Loos described as "subconscious collaboration". Semper extends the ornament beyond the surface through the coupling of surface and structure: *"Many even display accurate knowledge of the location and functioning of the muscles under the skin, so that the muscles and their actions are represented on the surface of*



the skin pictorially or rather graphically using systems of lines—a very remarkable phenomenon that demonstrates they have grasped and correctly understood ornament in its structural and symbolic sense. Does this justify the conclusion that this conception of ornament is the most original? Or should it rather appear to be a sign of a secondary cultural condition of the people among whom it occurs?"¹²



0 — gilt, bedchamber, throne, centerpiece, ballroom, overdressed, decor, opulent, indoors, suite



0 — loggia, sketch, legation, orthographic, fenestration, gymnasium, vitrine, emporium, blueprint, solarium, clerestory, pilaster, panelled, architecturally



Following the trajectory of Semper, where a most original ornament is posed to be one that connects structure to ornament let's take that perspective towards architecture. The first architectural example that comes to mind to illustrate an interplay between structure, skin and ornament is the Centre Pompidou, where the structure is ornamentalised and exteriorised, with the skin sitting as a membrane between them. Of course this is as much a decorative move of extended labour as the many figures listed at the beginning, but the difference is that they communicate something different, more of this time, which is why it is not seen as superficial decoration. It does exactly what Semper highlights, in that for this decoration to work it connects the communication of structure and normally internalised aspects and brings them to the surface of the skin, whilst maintaining a connection. *"Architecture is not only essential as shelter for people, livestock, and crops but is the most public of all folklife expressions, revealing, to those able to "read" the cultural landscape, clues about the background of the builders and how they responded to a locale's physical environment."*¹³





0 — futurism, spanning, atrium,
architecturally, louver, superstructure,
structuring, concourse



0 — ramp, stairwell, downwards, elevator,
skyscraper, compactor, balcony

If Semper proposes the interplay of structure and ornament on skin as the most original form, I would propose a further extension to this, where the ornament is fully interiorised within the surface in its communication. Briefly returning to the skin metaphor to elaborate on what I mean by that. *"Skin is a metaphor for borders. Is skin surface or interior? [...] In its complicated formulations, skin is both boundary and surface, a place where identity is both revealed and concealed."*¹⁴ *"The skinned body is less a body even than a skeleton, which we find it easier to reclothe in flesh (there are plenty of dancing skeletons in story and ritual, but very few skinned bodies). The skin always takes the body with it. The skin is, so to speak, the body's face, the face of its bodiliness."*¹⁵

I would propose that a more recent development of ornamentation within architecture is exactly where the skin not only communicates its identity, but also conceals it at the same time. For this I have two particular projects in mind, a table by Yunya Ishigami that is so long and thin it shouldn't be able to stand straight, and the Teshima Art Museum by Nishizawa. Both present a singular material, a seemingly singular perception, but the structural finesse that goes into making them work is what makes this unique simple communication of something extraordinary possible. It presents something that looks odd within our perception, yet immediately recognisable through its simplicity. This continuity of surface with ornament is further expressed by Semper as follows: *"As already demonstrated, the principle of surface ornamentation arises from the basic idea of the surface as such and accordingly reaffirms it. At the same time, however, it follows from the uniformity of what the dressing encloses as a unity and a whole. The cover cannot present itself as undisturbed if the ornamentation on the enclosing surfaces seemingly prevents it from being a continuous spatial enclosure."*¹⁶ The whole skin is the ornament; a single, seemingly mute surface saturated with interior complexity, all for the communication of a spectacle, here not by adding detail but by its removal. Returning to Loos' objection from the start, we could say we've come full circle, where in both works, this



complexity is not 'functional', and results in added labour. "3. It can often take an inordinate amount of thought and effort to do things simply. And a highly developed aesthetic. 4. A modernist aesthetic theory: the more highly developed the aesthetic sense, the more subtle and simple the style, and the more arcane the code."¹⁷ But following Burrison¹³, isn't this communicative aspect what makes them worth making?



0 — escalator, organist, redecorate,
individualism, balcony, courtroom, foyer

18



0 — experiment, installation, tunnel,
projection, overpass, soundscapes

Whether the building shouts its workings outward or interiorises them into a continuous skin, ornament remains a matter of expression and code.



1 — scribbling, collecting, pigsty,
correspondence, repairman, collaborator



0 — materialise, making, constructing,
process, assembling, sculpts



Then turning this back to the thesis, when following the role of communication as a primary characteristic, the comparison of the quotes and images included throughout the thesis as a form of digital ornament becomes clear. They fulfil their role as ornament by communicating the nature of the instrument they describe as well as how they stem from it. In terms of a result of community, it aligns; the quotes present themselves from a context of texts belonging to a certain curation. They are however less arduous as they stem from an interaction with automation. "*One of the key issues of our time for all avant-garde designers, both Eastern and Western, is the reconciliation of craft and the look of the handmade with high-tech, massproduced processes. In one instance, for example, 'computer-driven mechanized looms are routinely interrupted so that tiny elements, like feathers or paper, can be inserted by hand' (McCarty 1998). By doing this, designers embed the meaningful mark of the hand with the poetic in their work.*"¹⁹





1 — typology, series, tableau, chronological, numbering, categorises

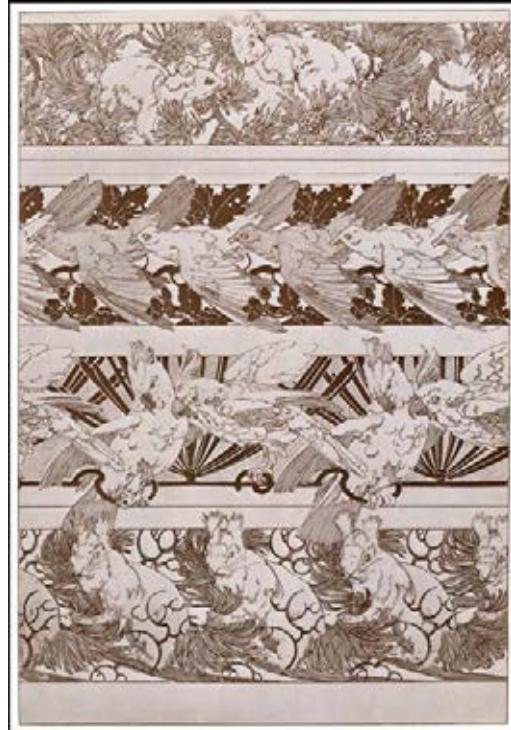
1 — zippered, strapping, zipper, heel, knife, ankle



What then can be considered as the surface of ornament in a digital context? "*Not insignificantly, these newly constituted subjects made their debut within a new visual mode of recording observation.*"²⁰ If we follow the visual nature as the primary characterising mode, the digital surface would intuitively be the screen; the interface that makes interaction with the digital legible. "*It is a change that has forced designers to explore other approaches to design, to look at the ways that design can be used to communicate the purpose and the meaning of an object, rather than to treat design primarily as a question of solving mechanical and technical problems.*"²¹ Following this the ornaments of this thesis are of similar gesture to the infrastructure of Pompidou, they present themselves as the informational face of the editor and the thesis, clearly accessible, interactive, and still holding the trace of their original function when clicked. "*The impact of digitalization in many areas of technology has been to diminish the traditional role of the designer as a sculptural shape-maker. Design has turned into something that involves a sequence of images on a flat screen, and developing a logical way to move through them.*"²²



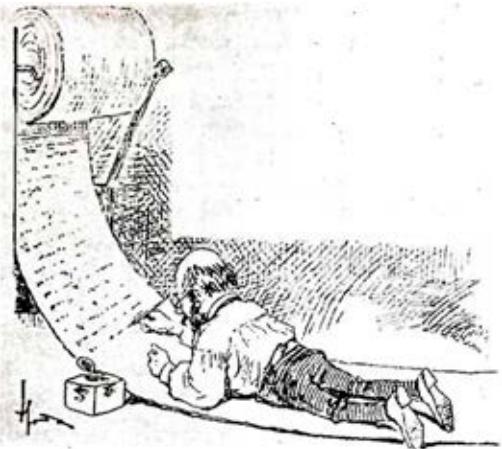
0 — correspondence, communicating, publication, conservatoire, bookmark, manifesto



0 — sequence, tracing, series, leitmotif, repetition, tessellation

The ornament is surface level. So in relation to the digital, it is also what sits on the screen, the digital visual surface. So when dealing with machine learning, AI, code, in principle these are structures, they're what sits below. But then every output that is read on the screen outside the structure would be ornament? This doesn't quite fit, I refer to the outputs of the editor as ornament because of their role in communication of the intent that is meant to be hosted by the entirety of the system. The red/magenta quotes and blue images are there to communicate the nature of the editor, and this thesis, but the rest is still around it. That combination of structure and material, as well as the communication of the ornaments together form the 'space' of the thesis. *"In the real world, pens and pencils don't necessarily represent cultural systems and values, but I believe that computers do. Computers run by relying upon zeros and ones, ons and offs, hard drives gridded out in block parcels, software constructed in distinct hierarchies. Computers contain nested structures within structures, each drawing from a different discipline: engineering to design, architecture to literature. Once we are faced with a paradigm, however, the underlying assumptions on which it is built become invisible."*²³





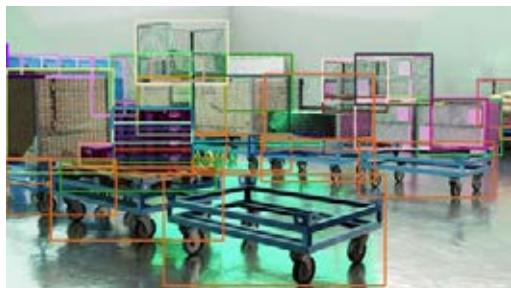
0 — telegram, rewriting, scribbling,
bureaucrat, typewriter, faxed



0 — visualizer, instancing, hypercube,
encircles, warp, algorithmic, tessellated

So then we might opt for a less obvious view that code not the screen is the surface of the digital, as the field that facilitates the calculations on the processor through an informational layer. Placing the editor, the quotes and images in that perspective means that it sits closer to the game played by Ishigami and Nishizawa where the surface is at once the entity of communication, as well as the structure. The editor is facilitated by code, but hosts the coded objects and projections with code internalised. The editor only offers selective glimpses into the internal surface through the clickable contexts.

"Helmut Lang's fashion work shows skin at the expense of figure. It plays upon the theme of fabric as second skin. The received view of the sexiness of clothes rests upon an intentional exposure of skin as a clearly defined part of a clearly silhouetted figure. Clothes make people sexy by imparting significance to what is otherwise sensually meaningless, by transferring bare flesh into a code."²⁴



0 — multiprocessor, hypercube, algorithm,
visualization, tangle, segmentation

0 — bookmark, bookie, guidebook,
communicating, vermouth, dining

1. *Dark Habits (Entre tinieblas)*, Directed by Pedro Almodóvar (Tesauro, 1983), Blu-ray. — 1:31:50



2. *The Skin I Live In (La piel que habito)*, Directed by Pedro Almodóvar (El Deseo, 2011), Blu-ray.
— 1:20



3. Loos, Adolf *Ornament and Crime*. Penguin Books Ltd, 2019.



4. Bayard, Émile *The ABC of Style*. Parkstone International, 2012.



5. INPUT: Semper__Style_in_the_Technical_and_Tectonic_Arts_or_Practical_Aesthetics.pdf



6. Penney, David W *Art of the American Indian frontier - the Chandler-Pohrt Collection*. University of Washington Press, 1992.



7. Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.



8. Ellis, Juniper *Tattooing the World: Pacific Designs in Print and Skin*. Columbia University Press, 2008.



9. Barcan, Ruth *Nudity: A Cultural Anatomy*. Berg Publishers, 2004.



10. Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.



11. *Crimes of the Future*, Directed by David Cronenberg (Serendipity Point FilmsIMDb, 2022), Blu-ray. — 1:39:49



12. INPUT: Semper__Style_in_the_Technical_and_Tectonic_Arts_or_Practical_Aesthetics.pdf



-  13. Burrison, John A. *Roots of a Region: Southern Folk Culture*. University Press of Mississippi, 2007.

[↔](#)

-  14. Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.

[↔](#)

-  15. Connor, Steven *The Book of Skin*. 2009.

[↔](#)

-  16. INPUT: Semper_Style_in_the_Technical_and_Tectonic_Arts_or_Practical_Aesthetics.pdf

[↔](#)

-  17. Boyer, G. Bruce *True Style: The History and Principles of Classic Menswear*. Basic Books, 2015.

[↔](#)

18. *The Killing of a Sacred Deer*, Directed by Yorgos Lanthimos (Element Pictures, 2017), Blu-ray. — 15:10

[↔](#)

-  19. English, Bonnie *Japanese Fashion Designers: The Work and Influence of Issey Miyake, Yohji Yamamoto and Rei Kawakubo*. Bloomsbury Academic, 2011.

[↔](#)

-  20. (auth.), Stephanie Leitch *Mapping Ethnography in Early Modern Germany: New Worlds in Print Culture*. Palgrave Macmillan US, 2010.

[↔](#)

-  21. Sudjic, Deyan *B is for Bauhaus, Y is for YouTube: Designing the Modern World from A to Z*. Rizzoli Ex Libris, 2015.

[↔](#)

-  22. Sudjic, Deyan *B is for Bauhaus, Y is for YouTube: Designing the Modern World from A to Z*. Rizzoli Ex Libris, 2015.

[↔](#)

-  23. Flanagan, Mary, and Austin Booth *Re:skin*. Cambridge, Mass: MIT Press, 2006.

[↔](#)

-  24. Vinken, Barbara *Fashion Zeitgeist: Trends and Cycles in the Fashion System*. 2005.

[↔](#)

4.2 CAST

This chapter shows how the change of the multimodal casts impact the projections between modalities, by taking a set of inputs as invariants.

The three casts I will use for this are the 216 film cast that has been used throughout the thesis, the ETH PhD cast (280 PhDs from the architecture department with a minimum of 50 images), and a smaller scale filmic cast only using the films from studio Ghibli (the 21 Ghibli films also in the 216 cast).

invariants

INDICES

- the word and word: *umbrella*
- the word and word: *space*

TEXT

- the final couplet of *Desolation Row* by Bob Dylan:
*Yes, I received your letter yesterday
(About the time the door knob broke) When you asked how I was doing Was that some kind
of joke? All these people that you mention Yes, I know them, they're quite lame I had to
rearrange their faces And give them all another name Right now I can't read too good Don't
send me no more letters no Not unless you mail them From Desolation Row*

FIGURATIVE

- This photograph of a casting assembly by Rodin



Figure 4.2:1 - Assemblage of a plaster cast and terracotta vase - Auguste Rodin^L

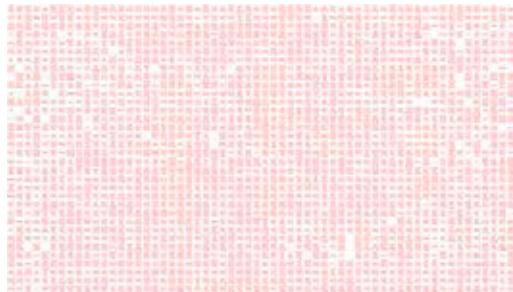
screens of the casts



Textual screen of 216 film cast (click to
enlarge)



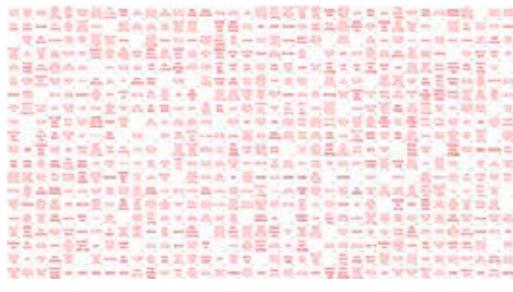
Figurative screen of 216 film cast (click to
enlarge)



Textual screen of ETH PhD pdf cast (click to
enlarge)



Figurative screen of ETH PhD pdf cast (click
to enlarge)



Textual screen of Ghibli film cast (click to
enlarge)



Figurative screen of Ghibli film cast (click to
enlarge)

Projections around invariants

This chapter is focussed on the connection between the textual and figurative screens internal to the casts, I therefore present them through comparisons of the textual and figurative indices. At the top of each list of words there is a link to the corresponding projection.

Different projections around *umbrella*

umbrella

216

ETH

Ghibli

Onto the text screen: umbrella, camphor, lunch, acorn, gremlin, badger, furry, rice, hairpin, stamp, cemetery, rafter, eats, rain, yelled, sandal, home, drenching, late, soot, bumpy, collapsing, hungry, vegetable, bedding, crabby, carp, wartime, rash, already

Onto the figurative screen: umbrella, downpour, warmhearted, raining, rainy, touching, maintains, upbringing, unbleached, sentimental, solidifying, rainwater, richness, nostalgic, rained, quaint, kindhearted, drizzle, rain, heartbreaking, farewell, gently, sweetest, rainfall, tender, faraway, beckoning, innocence, lovelorn, motherly

Onto the text screen: umbrella, ruling, soap, parabola, explicates, along, orchestral, chatting, atheistic, entangling, returnee, fabric, sought, tied, discreteness, tying, parabolic, prepping, started, judiciary, turn, emergence, unable, reemphasized, enslavement, tribalism, retaliation, trodden, afterlife, policeman

Onto the figurative screen: scuffed, hardworking, huntsman, steersman, bystander, anchor, reemphasising, ute, publicise, entangles, shewing, univocal, bracing, conducted, intertwine, windjammer, propositional, vendor, mobilizing, laborer, collapsed, colonise, plaza, confront, hustling, interviewed, colonizing, roofless, swordfish, boatman

Onto the text screen: umbrella, camphor, hospital, cemetery, eats, yelled, dad, vegetable, scared, home, whoa, brush, wait, bus, nope, telegram, gremlin, toilet, lunch, cold, soon, getting, rain, yep, sprout, greeting, especially, adventure, planted, squirrel

Onto the figurative screen: dentist, maintains, procreation, southern, ditch, gravel, warmhearted, doll, motherless, childhood, adopted, bathing, liberation, untouched, crawling, tenderness, nudity, nudist, sequence, bathtub, irrigation, unconditional, naked, creeping, anomaly, orphaned, sweeping, teardrop, precious, upbringing

216

Onto the text screen: umbrella, wait, wind, rain, home, hurry, ready, garden, treasure, let, gremlin, brought, sky, live, already, studio, magic, great, grown, worry, rafter, finished, scared, build, badger, everywhere, mackerel, find, bus, helped

Onto the figurative screen: umbrella, rainy, raining, drizzle, downpour, rained, rainfall, rain, precipitation, raincoat, raindrop, rainwater, damp, wettest, sentimental, outdoor, together, gardenia, tandem, weather, wet,

umbrella

ETH

Onto the text screen: diagram, thrust, constrained, equilibrium, force, reciprocal, edge, shallower, tributary, finding, dome, nodal, vertex, vault, convex, applied, vaulted, primal, magnitude, unsupported, support, load, admissibility, constraining, graphical, blazing, structural, polyhedral, indeterminacy, planar

Onto the figurative screen: umbrella, parasol, bisecting, parachute, tensile, kite, bow, hyperbola, sunshade, impermeable, frustum,

Ghibli

Onto the text screen: telegram, bus, yep, making, doctor, lunch, watching, stamp, try, nope, meet, mom, nice, unless, phone, dad, whoa, met, weekend, afternoon, umbrella, gremlin, soaked, sunshine, happen, hello, day, wanted, across, home

Onto the figurative screen: umbrella, fan, typing, downpour, precipitation, raining, rainfall, container, raindrop, drizzle, writer, rainy, rained, rain, songwriter, laundry, typist, stayed, corkscrew, rainwater, wettest,



orphanage, evident, farewell,
quaint, mow, stormy,
commuted, represses,
romantic

tetrahedron, topology,
tetrahedral, bisection,
angulation, ultralight,
topological, hyperplane,
geodesic, triangulated, canopy,
rhomboid, annulus,
polyhedron, bunting,
kinematics, curving, webbed,
spline

listening, saw, ear, studying,
oeuvre, develops, typewriter,
eviction, recounting

Different projections around space

216

Onto the text screen: space,
procedure, plan, total, closer,
relationship, surface, basically,
outer, game, nutcase,
computer, farted, specific, air,
system, planet, base, obeyed,
moment, animal, ruin, bile,
vital, contact, control, range,
unknown, transfer, generation

Onto the figurative screen:
upwards, graphic, satellite,
stratosphere, sectioned,
messier, federation, orbiting,
blastoff, booster, fusion,
exterminate, updraft, launch,
pump, maneuver, piloting,
fractal, admiral, zodiacal, drill,
cohort, executor, operate,
scattering, atlas, decoded,
shimmering, spacecraft,
docking

space

ETH

Onto the text screen: space,
others, way, philosopher,
multiplicity, play, particular,
playing, emerge, appears,
literal, one, many, compelling,
fact, another, turn, essence,
empty, hierarchy, context,
vibrancy, redefined, intimate,
enclosure, hillier, premise,
meaning, anyone, emerged

Onto the figurative screen:
space, square, squareness,
fragmented, instancing,
bustling, ungraded,
disconnected, hypercube,
crowd, massed, jumbled,
reshapes, locate, sparkled,
relocated, activate, place,
mapper, outdoors, outdoor,
procedural, cubed,
orthogonality, diverges,
slideshows, passersby, emitter,
pertinacity, multiplex

Ghibli

Onto the text screen: striking,
space, fairy, testing, desk, shh,
alright, rusted, beat, half, story,
clock, yeah, grandpa, book,
library, concrete, coffee, bill,
except, perfectly, wanting, bar,
complicated, fixing, talent,
difference, read, bell, wrote

Onto the figurative screen:
closing, ghostwriter,
anesthetic, paperback, dickey,
edifying, label, flyover,
composing, charting, vitals,
buckle, arranging, prescription,
aficionado, cooler, checkbook,
robbery, approves,
overdressed, teleprinter, xerox,
thrasher, neg, champion,
dubbed, enjoyably, robbed,
hallelujah, appliance

216

Onto the text screen:
operational, capability,
reliability, regulatory,
transmission, pod, lunar,

space

ETH

Onto the text screen: space,
kinda, lingering, versed,
conferencing, electronically,
parking, overpopulation,

Ghibli

Onto the text screen: strong,
useless, skin, must, military,
tin, rest, mosquito, exchange,
bank, neighborhood,

confidently, prediction,
erosion, distorted, fouled,
assurance, manned, cropped,
reviewing, rotate, conclusive,
fullest, geological, lam,
proximity, occurring, snag,
enjoyable, mode, rotation,
welcoming, recommending,
obtained

Onto the figurative screen:
space, intergalactic, orbiting,
cosmos, orbit, astronomy,
astrophysics, galaxy,
spacecraft, system, cosmic,
celestial, stellar, blastoff,
federation, astronaut, vii,
directive, spaceship, enfold,
booster, universe, satellite,
constellation, sci, zodiacal,
gravitational, aeronautics,
enterprise, planet

habitable, cheer, tanning,
punter, signalled, grues, turn,
chatting, gondolier, liveliness,
active, transparency, calming,
advocated, organically, menu,
untranslatable, redefined,
bleaching, playing, cruising,
queuing

Onto the figurative screen:
space, spaced, spacial, slake,
sunlit, unquiet, sparkled,
interact, disquiet,
pronouncement, misconduct,
headroom, subspace,
disconnected, approximates,
recess, atrium, premix, spark,
rigor, square, partake,
metricates, enclosure,
deficiency, retake, aberration,
summering, splashed, trading

understood, navy, reply, gruel,
review, bastard, medical,
directed, production, dead,
bomber, rice, strength, eat,
burned, waiting, emperor,
cave, executive

Onto the figurative screen:
space, napalm, universe,
terminus, astrophysics,
unconscious, truce, intervene,
intervenes, retreating,
outpouring, system, comatose,
void, deathbed, basin,
discharged, silhouette,
retaken, massacred, deceased,
knelt, sleeping, evacuate,
wounded, hummus, massacre,
galaxy, fatally, undulating



Different projections around the couplet of *Desolation Row*

216

Onto the text screen: last, tell,
made, ask, else, would, could,
another, anyone, lot, anything,
might, day, today, started,
longer, came, seeing, except,
took, either, worked, care,
never, long, gave, go, given,
every, wanted

Onto the figurative screen:
nightstand, manicure, bedpost,
spacing, mirrored, interaction,
doorbell, nonparallel,
monogrammed, undershirt,
typewriter, tenderness,
belladonna, finger,
concentrated, millimetre,
mantelpiece, conversing, trio,
sideboard, bedspread,

ETH

Onto the text screen: another,
one, still, back, even, others,
took, would, little, encouraged,
went, never, many, hope, take,
working, made, away, much,
know, brought, become,
mention, later, first, neither,
put, together, already, gave

Onto the figurative screen:
towered, tower, briefing,
tallest, towering, genealogical,
architecturally, genealogically,
orientates, architectonic, map,
architectonics, architecture,
genealogist, mapmakers,
compilation, zero, plan, issued,
doodling, examining, looting,
guidebook, brownfield, zoom,

Ghibli

Onto the text screen: another,
day, brought, sit, straight,
sitting, one, good, feel,
interesting, answer, least,
different, might, hundred, met,
lot, given, letter, ago, year,
taken, know, known,
completely, understand, say,
going, live, excuse

Onto the figurative screen:
softness, market, grading,
amnesiac, goodbye,
psychotherapy, lovelier,
generosity, pyjama, daughter,
suitcase, skylight, dimple,
wrist, track, beautiful, doleful,
accusing, orphanage,
gramophone, commuted,



cupboard, domesticity,
fingering, credenza, smirking,
cheekbone, hairstyle, wallet,
tonguing

triptych, atelier, constructing,
zing, zit

domesticity, vending,
sharpener, patio, pretty, tired,
palm, register, melancholy

Different projections around the *photo of a casting by Rodin*

216

Onto the text screen: away,
use, almost, look, turn, world,
wait, could, full, others,
already, clear, eye, field,
beautiful, grow, make,
everyone, quickly, perfect, fire,
even, hold, far, run, choice,
finally, building, work, happy

Onto the figurative screen:
wilted, hand, sleeping,
crouching, suffocate, handed,
napping, finger, bubbling,
snuggling, dozing, slumber,
fingertip, knocked, instinct,
concentrate, rafter, tying, nap,
fallen, forefinger, snuggle,
lithograph, dissolving,
plucking, overcome,
sleepyhead, disintegrated,
hogtied, repose

ETH

Onto the text screen: produced,
prototype, curiosity,
publishing, savage, crafting,
prince, graphite, poured,
delicate, genesis, produce,
bacon, invention, oxford,
architectural, without, wonder,
eighteenth, sixteenth, sort,
disposition, kind, yet, fragile,
producing, mounted, part,
ought, removed

Onto the figurative screen:
amphora, satyr, spittoon,
narcissus, vellum, allegorical,
eclogue, faun, incubus, vase,
cupid, pitcher, triptych,
manuscript, diptych, jug,
midsummer, gastropod,
hunting, wilted, sandblasted,
goblet, poured, observatory,
lithography, baptized,
fibreglass, sculpting, kiln,
etching

Ghibli

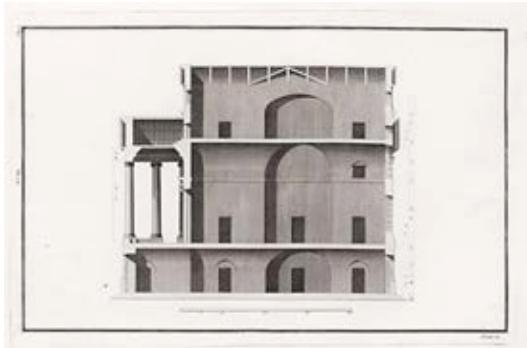
Onto the text screen: expect,
serious, choice, least, start,
whoever, singing, whatever,
listen, everything, top, gave,
contact, born, baby, strange,
studio, attention, hurry, liar,
point, indeed, left, aura,
emergency, faster, tight, living,
crazy, nobody

Onto the figurative screen:
tent, gelatin, postwar, vat,
concession, convict, evocative,
walker, collide, contaminate,
repression, edible, predecessor,
skiing, jazz, headstone,
meantime, limbo, assassinated,
snuggling, entering, dream,
bunker, melting, checkpoint,
mayor, affectionate, criterion,
trumpeter, caged

1. Nabi, Nabila Abdel, and Achim Borchardt-Hume. *The Making of Rodin*. Tate Publishing, 2021.



4.3 ELEMENTS



element — interior, cistern, dwelling, confinement, vault, palazzo, mortuary

In this chapter I will work with the text editor to offer a view on how the elementals of the construct can be used to facilitate a movement through a very specific constellation of themes. For this I will take some of the elements discussed in *Elements of Architecture* by Rem Koolhaas, as the starting point, to see how these elements take shape if used as indices of curation in the WIPTe environment. The intent here is to demonstrate how the WIPTe elementals can be anchored to provide a discussion on a particular set of topics. The elements for each of the chapters correspond as follows:

- The book input for the curation of the books from the public screen are the corresponding chapter from *Elements of Architecture* supplemented by a philosophical and prose book.
- The figurative word index corresponding to the title of the element discussed is used as an anchor for the figurative results, meaning that the figurative word is mandatory in the label sets of the returned images. For these sub-chapters we use a translational anchor to see how constellations of that visual thing host the projections of visual atmospheres that result from the text being written. So the images are: *what kind of these elements are exposed by these conversations*.
- The textual and figurative words are both used to select the most relevant films to this element, each selecting the top 10 films relevant within the textual and figurative domains. So the casts for these chapters are made up of up to 20 films.
- Images are included to free up direction. So they are a context to the preceding paragraph by which they were presented, after which an inverse projection can be used to give a collection of textual words that will set up the text search for the next paragraph.

The intent is to show how the editor, with some minor tweaks to its mechanics is able to host a very specific and topical conversation through the use of its elementals as anchors, in this case to speak about architectural elements. Here strictly represented using only the elemental responses with no additional writing or input from my side other than curation. Providing a very quick, yet specific view on a concept.¹ None of them to be seen as a definition, full description, they're small interplays around a theme and across modes to expose how the informational domains offer a stance. It takes a fully "curatorial" approach, with little to no typed input from myself.

1. To keep the text more legible, the links and colour coding of the elements is removed in the body of the text, but maintained in the references.



4.3.1 FLOOR



0 — existentialism, strewn, outcast



1 — library, baroness, fanatic

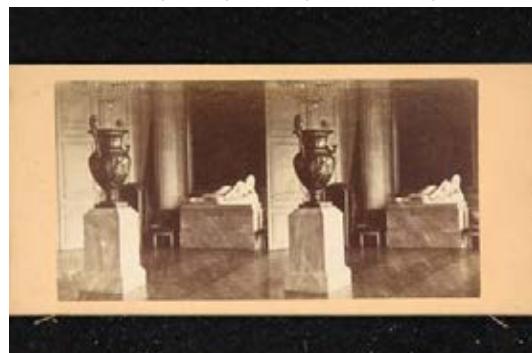
1

FLOOR... staking the claim of civilization on the raw ground, encoding usage and assuming decoration.² The textural details of previous occupants are kept intact.³ Featureless and soundless (except for sneakers, which squeak on it).⁴ Despite this, the language of space planning is the floor plan, and its graphic qualities cannot be entirely ignored.⁵ It is not necessary to debate here whether a solidly functional floor plan is more important than a visually satisfying space; both are crucial to well-designed and sustainable interiors.⁶ Thinking about how you move in and through a space is the key.⁷ As one moved from floor to floor, the iconography seems to have been the constitutive, rather than coincidental, part of the architecture, and together, they transform the building.⁸ And when I stepped onto the area of clean fresh floor in the art gallery I was concerned that I had maybe stepped onto something that did not have the same solid firmness as the proper floor.⁹





0 — install, floor, mover, floorboard, crawl



0 — mailing, autopsy, paralyzed



0 — sublet, subtext, consensual, loft

[10](#)

. . . the floor. That's right. The floor. It's typically the largest horizontal surface in the room and undeniably the most used.¹¹ To provide a flat, horizontal surface on which desired human activities can take place, all buildings contain at least one floor.¹² The walls are a large "plane." The sofa is a large "plane." The floor coverings and floor are large planes.¹³ ALL you need is a plane and a nice clear piece of wood.¹⁴ For example, a marble runner within a wooden floor could form a 'pathway' through a hall and into a living space, perhaps continuing to the fireplace or window.¹⁵ That said, it should be remembered that arbitrarily eliminating as many interior walls as possible will not necessarily result in a better space.¹⁶ Yet planners often have a strong inclination to get so involved in the space planning process and its two-dimensional, jigsaw-

puzzle-like qualities that the resulting three-dimensional qualities of the space become an afterthought.¹⁷



0 — automobile, jackpot, convertible



0 — furniture, floor, paralyzed, enlargement, upholstery



3 — handicraft, kimono, repairman, domesticity, loudspeaker

The floor is hard and cold even if you have carpet, yet it's incredibly erotic.¹⁸ The sensual floor - always touching or communicating with the body - participates in the body's bearing and movement.¹⁹ The bedroom floor, yours or someone else's, is a great place for a quickie, Having sex on the floor always implies that you just couldn't wait for the bed,²⁰ the floor acts as a large radiator storing heat at night and releasing it during the day.²¹





0 — interior, paralyzed, anteroom, repose, room, bedroom, cleanliness



1 — kiss, kissing, love

22



0 — doorway, paralyzed, fainting, floor, anteroom, room

Infinitely harmless, the floor Is obliged to offer Its occupants stability - yet receives from Its users systematic harshness, If not abuse, in return.²³ On the floor; refers to movements performed with the working leg touching the floor as opposed to in the air.²⁴ Move across the floor. When you move across the floor either by yourself, in a line, or with a group, you must be safe and courteous. ²⁵



2 — fainted, floor, plainclothes, domesticity, flirtation



Photograph by T. C. Mitchell

BRIDGE OVER THE ST. PAUL RIVER

This is another type of bridge constructed by natives in northern Liberia—logs tied together with native ropes and floated on the water's surface.

0 — paralysed, labourer, transportation, transporting, flagstone

A tantrum is also ideally performed, kicking and screaming, on the floor. The floor holds the same entropic thrall over inanimate objects. Failed things, no longer able to resist gravity, lose

their place and become detritus on the floor. Things strewn on the floor are signs of chaos.[26](#)



0 — phrenology, floor, phrenologist



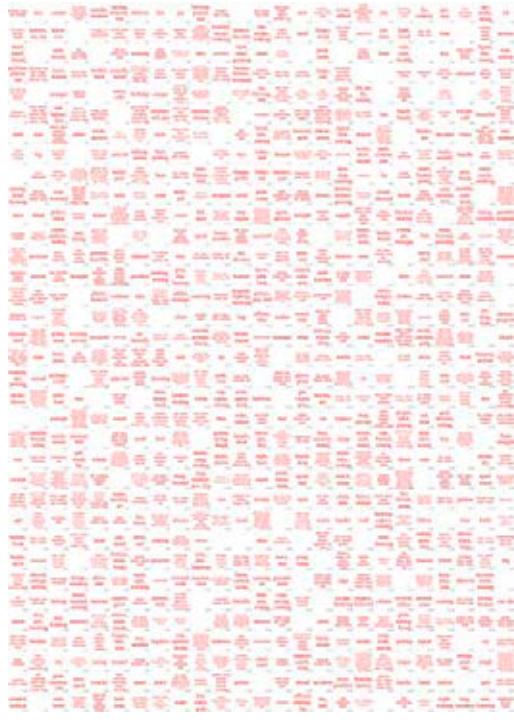
1 — sleepiness, encountering, zonked, bystander

[27](#)

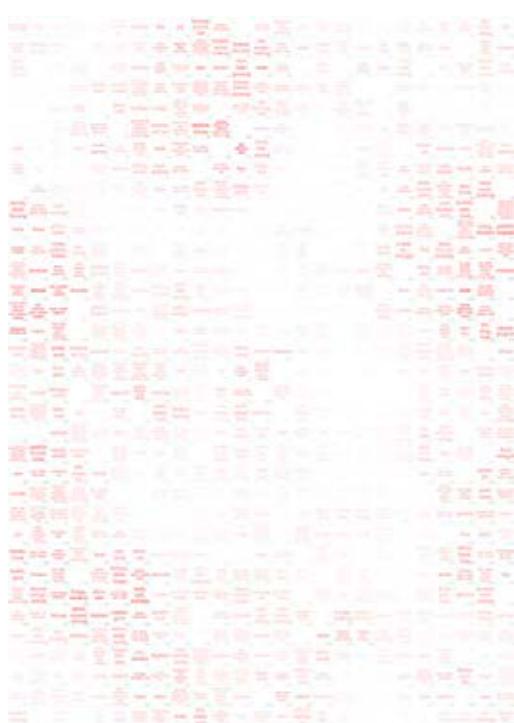
Floor Cast

Films selected by **floor**: *The Cook, the Thief, His Wife & Her Lover* - Peter Greenaway (1989) *Snatch* - Guy Ritchie (2000) *Point Break* - Kathryn Bigelow (1991) *Kill Bill: Vol. 2* - Quentin Tarantino (2004) *Possession* - Andrzej Żuławski (1981) *A Separation* - Asghar Farhadi (2011) *The Double Life of Véronique* - Krzysztof Kieślowski (1991) *From Up on Poppy Hill* - Goro Miyazaki (2011) *Paprika* - Satoshi Kon (2006) *Saltburn* - Emerald Fennell (2023)

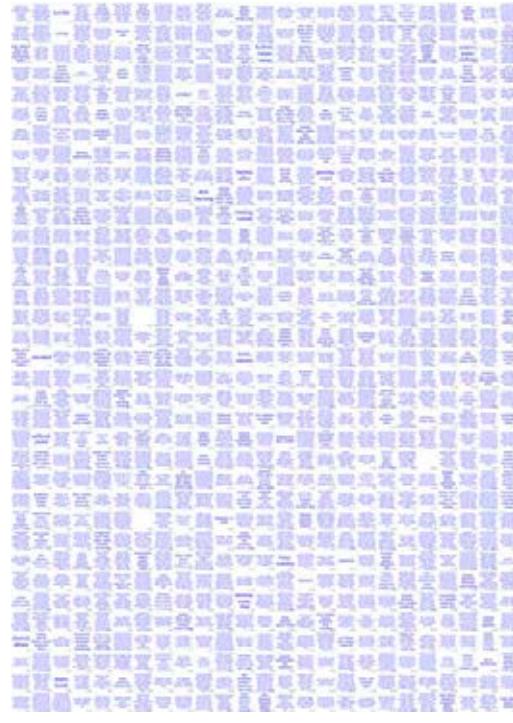
Films selected by **floor**: *Black Dog* - Guan Hu (2024) *Ichi the Killer* - Takashi Miike (2001) *Reservoir Dogs* - Quentin Tarantino (1992) *The Shining* - Stanley Kubrick (1980) *Dogville* - Lars von Trier (2003) *Paprika* - Satoshi Kon (2006) *Trainspotting* - Danny Boyle (1996) *Monster* - Hirokazu Kore-eda (2023) *Kill Bill: Vol. 1* - Quentin Tarantino (2003) *Audition* - Takashi Miike (1999)



Textual screen of Floor cast (click to enlarge)



floor projected onto the textual screen of the
Floor cast (click to enlarge)



Figurative screen of Floor cast (click to
enlarge)



floor projected onto the figurative screen of the
Floor cast (click to enlarge)

-
1. *Parthenope*, Directed by Paolo Sorrentino (The Apartment Pictures, 2023), Blu-ray. — 1:39:40



2. INPUT: floor.pdf



3. Chang, Catherine *Beauty Salons*. Liaoning Science & Technology Publishing House, Profession Design Press, 2011.



4. INPUT: floor.pdf



5. Karlen, Mark, and Rob Fleming *Space Planning Basics*. 4th ed. Wiley, 2016.



6. Karlen, Mark, and Rob Fleming *Space Planning Basics*. 4th ed. Wiley, 2016.



7. *Australian House & Garden* 2017.



8. Lin, Wei-Cheng *Building a Sacred Mountain: The Buddhist Architecture of China's Mount Wutai*. University of Washington Press, 2014.



9. Unwin, Simon *Doorway*. Routledge, 2008.



10. *Audition*, Directed by Takashi Miike (Omega Project, 1999), Blu-ray. — 1:50:50



11. Farris, Jerri *Kitchens & Baths for Today & Tomorrow Ideas for Fabulous New Kitchens and Baths*. Cool Springs Press, 2008.



12. Merritt, Frederick S., and James Ambrose (auth.) *Building Engineering and Systems Design*. Springer US, 1989.



13. Salway, Christina, and Monica Pedersen *Home improvement projects for the busy & broke: how to get your \$h!t together and live like an adult*. Skyhorse Publishing, 2016.



14. Robertson, Craig, and Barbara Robertson *The Kids' Building Workshop: 15 Woodworking Projects for Kids and Parents to Build Together*. 2004.



15. Hoppen, Kelly *House of Hoppen: A Retrospective*. Jacqui Small, 2016.



 16. Shafer, Jay *The Small House Book*. Tumbleweed Tiny House, 2009.



 17. Karlen, Mark, and Rob Fleming *Space Planning Basics*. 4th ed. Wiley, 2016.



 18. Hunt, Jennifer, and Dan Baritchi *1,001 best places to have sex in America : a when, where, and how guide*. Avon, Mass: Adams Media, 2010.



 19. INPUT: floor.pdf



 20. Hunt, Jennifer, and Dan Baritchi *1,001 best places to have sex in America : a when, where, and how guide*. Avon, Mass: Adams Media, 2010.



 21. MBErg, Duncan Marshall BSc MCIOB, and Derek Worthing BSc Mphil MRICS *The Construction of Houses, Fourth Edition*. 4th ed. Estates Gazette Ltd, 2006.



22. *Paprika*, Directed by Satoshi Kon (Madhouse, 2006), Blu-ray. — 58:50



 23. INPUT: floor.pdf



 24. Kassing, Gayle *Beginning ballet*. Champaign, IL: Human Kinetics, 2013.



 25. Kassing, Gayle *Beginning ballet*. Champaign, IL: Human Kinetics, 2013.



 26. INPUT: floor.pdf



27. The input pdfs for this chapter is: The Floor chapter in Koolhaas, Rem, Harvard Graduate School of Design, Stephan Trüby, et al. Koolhaas. *Elements of Architecture*. 1st edition. TASCHEN, 2022.- [Book Context Link](#)



4.3.2 WALL



0 — folly, misty, mist, moss



1 — ascend, adorned, surrounded

The face of the wall is vertical, indicating tipping has not occurred.¹ How the lapse of time affects ownership and usage of the wall.² Hanging loosely, perhaps flapping, the woven screen generates- and, crucially, symbolizes - the division and organization of activities within the primitive dwelling. The woven "wall" is an enabler of civilization; the thick structural wall merely a defender of it.³ The hanging wall has an apparent descent compared to the foot wall.⁴ Instead, one could read into it a patterning which — whether it was essentially true or not — helped one to understand what was going on, how the new intruded upon the old, what existed accommodated itself to change, and how that aged fabric once enjoyed layered horizons of relevance, one upon the other and all of it awaiting disentanglement on one's own terms.⁵



0 — engrave, rubbing, millimetre, corbel, ventilation, crowbar

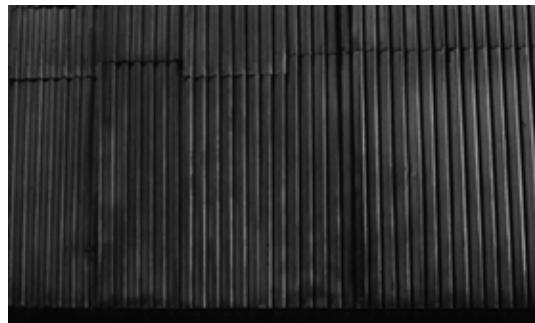
[6](#)



1 — lettering, poetics, calligraphy, spacing

He argued that structure is there within the wall, but the importance of the wall is the visible spatial enclosure.⁷ The meaning of the wall is just as diverse as the uses of vertical surface can be, but there are at least two essential functions: providing structure and dividing space.⁸

Practically, however, the two modes of action are always in some sort united.⁹ Where structure is not exposed but concealed, perhaps hidden within wall cavities, screened by suspended ceilings or undifferentiated from partition walling, it possesses very limited opportunities to enrich architecture. In these situations, where the architecture must rely on other devices and elements for its qualities, any skeletal, wall-like or expressive structural qualities remain latent – structure cannot be read.¹⁰



0 — panelling, rotation, grating

[11](#)



0 — gangplank, passageway, woodwork, panelling

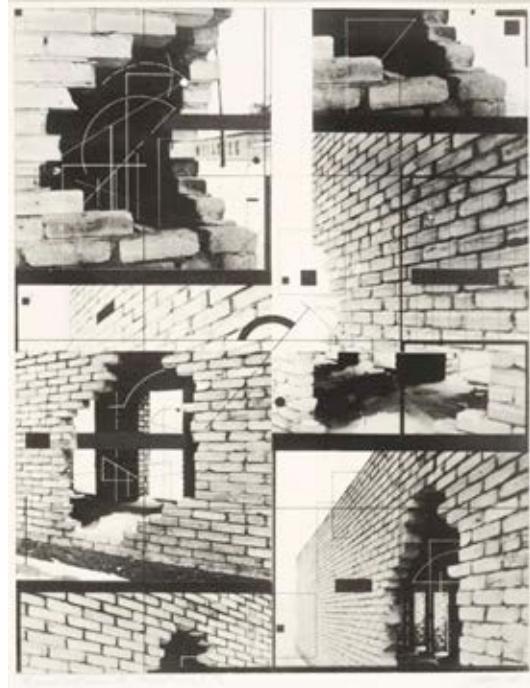


To the interior, smooth wall inside-surfaces create pure interior space, while to the city, smooth wall outside-surfaces definite clear open spaces. So the designer abandoned all decoration on both sides of wall, try to create the atmosphere of pure spaces, in order to highlight the art works at the same time.¹² A glimpse of a garden behind an all-glass wall, and then surround them with art before they know it. Moreover, this pioneering building—fortified by a series of electrifying exhibitions—was to make “Modern” architecture (and art, design, and photography) acceptable, even fashionable ¹³



0 — encircled, rounded, zippered

The significance of a wall’s threshold qualities notwithstanding, a wall is empirically also a screen, or cover;¹⁴ Openings must be made through these abutments for the areas to communicate with each other, and to diminish the surfaces in contact.¹⁵ When stone and masonry load-bearing wall construction dominated previous periods of architectural history, openings for light could be considered the absence of structure.¹⁶ It illustrates structure’s dual roles, as both a source and modifier of light, and introduces a number of different strategies designers use to maximize the ingress of light into buildings. ¹⁷



0 — structuralists, obliteration



0 — nightfall, intersects, millimetre, termagant

[18](#)



0 — digit, disintegrated

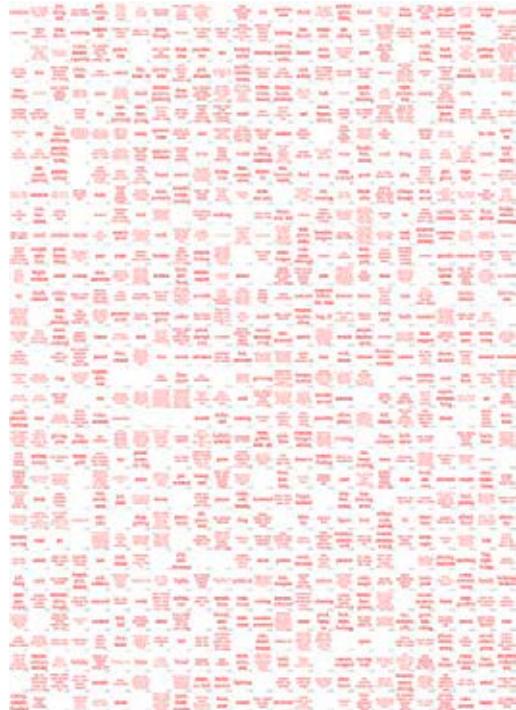
[19](#)

Wall Cast

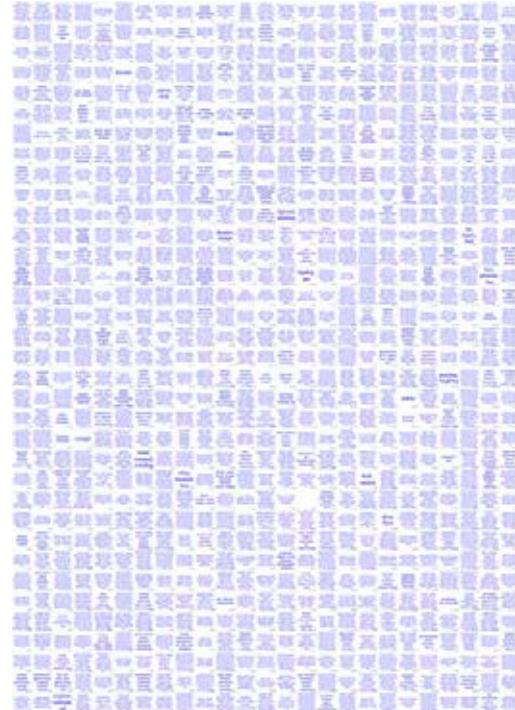
Films selected by **wall**: *Only Yesterday* - Isao Takahata (1991) *Ran* - Akira Kurosawa (1985) *The Name of the Rose* - Jean-Jacques Annaud (1986) *28 Days Later* - Danny Boyle (2002) *Dune* -

David Lynch (1984) *The Cat Returns* - Hiroyuki Morita (2002) *The Wind That Shakes the Barley* - Ken Loach (2006) *Wall Street* - William Oliver Stone (1987) *The Wolf of Wall Street* - Martin Scorsese (2013) *The Spirit of the Beehive* - Victor Erice (1973)

Films selected by [wall](#): *The Florida Project* - Sean Baker (2017) *Harakiri* - Masaki Kobayashi (1962) *Bad Education (La mala educación)* - Pedro Almodóvar (2004) *The Cat Returns* - Hiroyuki Morita (2002) *The Skin I Live In (La piel que habito)* - Pedro Almodóvar (2011) *Trainspotting* - Danny Boyle (1996) *The Hand of God* - Paolo Sorrentino (2021) *Taste of Cherry* - Abbas Kiarostami (1997) *Black Dog* - Guan Hu (2024) *Contempt* - Jean-Luc Godard (1963)



Textual screen of Wall cast (click to enlarge)



Figurative screen of Wall cast (click to enlarge)



wall projected onto the textual screen of the
Wall cast (click to enlarge)

wall projected onto the figurative screen of the
Wall cast (click to enlarge)



1. (Editors), Paul A. Bosela 7 Norbert J. Delatte *Forensic engineering : proceedings of the 4th congress, October 6-9, 2006, Cleveland, Ohio*. Cleveland, Ohio), Reston, Va: American Society of Civil Engineers, 2007.



2. (auth.), Besim S. Hakim *Mediterranean Urbanism: Historic Urban / Building Rules and Processes*. Springer Netherlands, 2014.



3. INPUT: wall.pdf



4. Gatscher, Jeffrey A., AIA Gary L. McGavin, and Philip J. Caldwell *Earthquake Protection of Building Equipment and Their Systems: Bridging the Implementation Gap*. American Society of Civil Engineers (ASCE), 2012.



5. Allinson, Kenneth *London's Contemporary Architecture, Fourth Edition: An Explorer's Guide*. 4th ed. Architectural Press, 2006.



6. *Bad Education (La mala educación)*, Directed by Pedro Almodóvar (El Deseo, 2004), Blu-ray. — 1:31:20



7. Baydar, Gilsum *Negotiating Domesticity Spatial productions of gender in modern architecture*. 2005.



8. INPUT: wall.pdf



9. Ruskin, John *The Stones of Venice: The foundations*. Smith, Elder, and co., 2013.



10. Charleson, Andrew *Structure As Architecture: A Source Book For Architects And Structural Engineers*. Architectural Press, 2005.



11. Werckmeister Harmonies, Directed by Béla Tarr & Ágnes Hranitzky (13 Productions, 2000), Blu-ray. — 21:50



12. Yu, Jasmine *Museum Display Design*. Design Media Publishing Limited, 2012.



13. Smith, George Everard *Source Book of American Architecture: 500 Notable Buildings from the 10th Century to the Present*. Princeton Architectural Press, 1997.



14. O'Meara, Simon *Space and Muslim Urban Life: At the Limits of the Labyrinth of Fez (Culture and Civilization in the Middle East)*. 2007.



15. *The Decorator's assistant*. W. Gibbs, 1847.



16. Charleson, Andrew *Structure As Architecture: A Source Book For Architects And Structural Engineers*. Architectural Press, 2005.



17. Charleson, Andrew *Structure As Architecture: A Source Book For Architects And Structural Engineers*. Architectural Press, 2005.



18. *Trainspotting*, Directed by Danny Boyle (Channel Four Films, 1996), Blu-ray. — 1:08:04



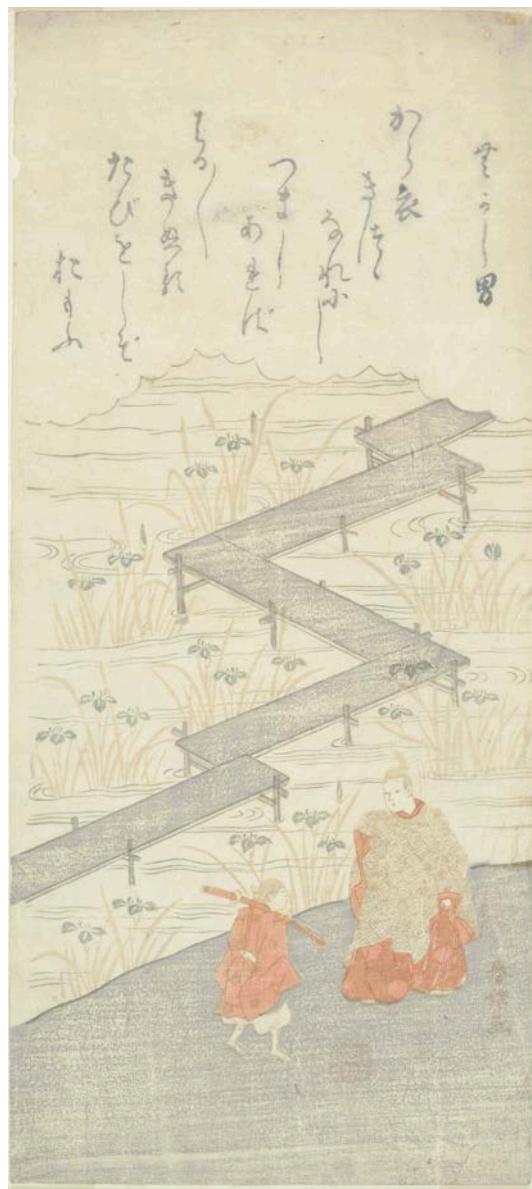
19. The input pdfs for this chapter is: The Wall chapter in Koolhaas, Rem, Harvard Graduate School of Design, Stephan Trüby, et al. Koolhaas. *Elements of Architecture*. 1st edition. TASCHEN, 2022.-
[Book Context Link](#)



4.3.3 STAIR



0 — motto, mantra, quotation



1 — punting, watercress, carp, gardener

Whether you are going up or going down, a staircase takes you to another level and to somewhere new, so it is important that its design should both reflect and generate a sense of anticipation and excitement.¹ The success rests upon the innate curiosity of people to ascend and move to brighter elements in the interior.² How dull, in contrast, are intact stairs who stand with ease, paying no attention to the perfect state of their matter. Such stairs rise despite their steps. The function transcends the material. The material is instrumental to an overriding activity that pursues its goal without noticeable difficulty. A flight of stairs is but of fleeting interest, unless it is a new and remarkable form.³ So we came to the realization that the exactitude of the stairs' dimensions was directly related to their significance. The emperor, king or Prince had exactly constructed stairs.⁴



0 — landscape, mountaintop, hideaway, oleander



0 — kissing, hallway, carry, embrace



0 — pointing, assassination, railing, doorman, inspected

Our body's matter mounts upon the stairs' matter. We are both worn. We rise by some internal persistence that corresponds to the intemality of the function that keeps the stairs in perpetual tension. The stairs are ready for us. Their readiness draws us to them. We are ready for the stairs. Our readiness opens them to our participation.⁵



0 — banister, domesticity, architect, doorman, refurbish



0 — weapon, gunfire

6

They could, however, also be used in some instances as a method of human sacrifice, the victim pushed from the top providing a grisly reminder that stairs are as potentially deadly as they are useful. Stairs still hold cultural references.⁷ While approaching the top step, fire is lighting up over your head, and you see the firefighter victim within 3 ft of your reach. Whether a hose line is available or not, the conditions can turn fatal at any second. It is at this point that the rescuing firefighter will grab any part of the victim, pull toward the stairs, and slide or tumble down the stairs to outrun the dropping heat.⁸ They descended single-file, even though the stair was empty when they entered, so that anyone that attempted to come up the stair could pass them.⁹ The stairs and the human being, each in its way, has conquered servitude.¹⁰ Such stairs could be used as a way of asserting the separation between the gods and mortal men.⁷



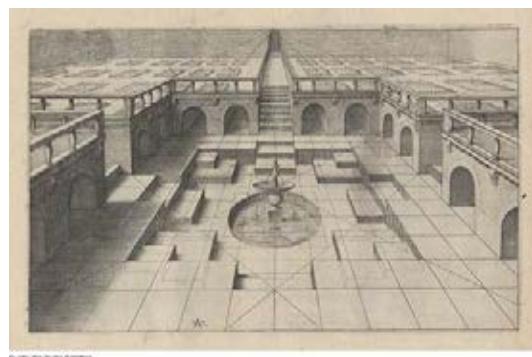


1 — psychoanalyst, eavesdropper, directing



0 — deposition, enquiry

Truncating spiral stair with a steadily reducing width towards the top, whilst maintaining a constant diameter of the stair 'eye' or central void.¹¹ Palladian stairs are always enclosed by walls; visual cross-connections are unthinkable. A spatial construct created by stairs, the creation of a stairwell, was only achieved in stairs winding around large openings, stair 'eyes'.¹²



0 — downstairs, dimensional

It was barely light the next morning when my stomach woke me and sent me stumbling down the stairs to the Alaq's cement water closet, my insides all knotted up.¹³ Waking from a nightmare race, thrashing the blankets, cursing, sweating and gasping for breath, fleeing for life, always his uphill, with the Jerries dose behind; [...] at such a time a time men wondered if they were sane.¹⁴ We were suddenly buried in a slew of new questions that had us trying different ways to get the upstairs door to slam, such as opening and closing the exterior door with the attic door open and then closed.¹⁵ A deadbolt turned, foot-steps faded; silence fell.¹⁶



0 — illustration, acquitted, directing

17

Stair Cast

Films selected by **stair**: *Parasite* - Bong Joon-ho (2019) *The Virgin Suicides* - Sofia Coppola (1999) *Howl's Moving Castle* - Hayao Miyazaki (2004) *Lost Highway* - David Lynch (1997) *Kikujiro* - Takeshi Kitano (1999) *Broken Embraces (Los abrazos rotos)* - Pedro Almodóvar (2009) *Monster* - Hirokazu Kore-edo (2023) *My Neighbor Totoro* - Hayao Miyazaki (1988) *Vertigo* - Alfred Hitchcock (1958) *A Separation* - Asghar Farhadi (2011)

Films selected by **stair**: *Match Point* - Woody Allen (2005) *Audition* - Takashi Miike (1999) *Dogville* - Lars von Trier (2003) *Ida* - Paweł Pawlikowski (2013) *Holy Motors* - Leos Carax (2012) *Possession* - Andrzej Żuławski (1981) *The Name of the Rose* - Jean-Jacques Annaud (1986) *Killer's Kiss* - Stanley Kubrick (1955) *The Marriage of Maria Braun* - Rainer Werner Fassbinder (1979) *Contempt* - Jean-Luc Godard (1963)

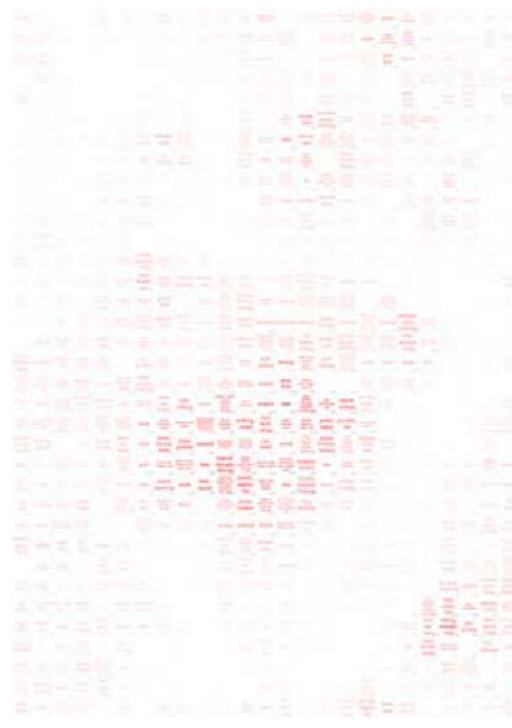


Textual screen of Stair cast (click to enlarge)



Figurative screen of Stair cast (click to

enlarge)



stair projected onto the textual screen of the
Stair cast (click to enlarge)



stair projected onto the figurative screen of the
Stair cast (click to enlarge)



1. Hoppen, Kelly *House of Hoppen: A Retrospective*. Jacqui Small, 2016.



2. Blanc, Sylvia, and Alan Blanc *Stairs, Second Edition*. Architectural Press, 2001.



3. Ginsberg, Robert *The Aesthetics of Ruins: Illustrated by the Author*. Rodopi, 2004.



4. INPUT: stair.pdf



5. Ginsberg, Robert *The Aesthetics of Ruins: Illustrated by the Author*. Rodopi, 2004.



6. *Inglourious Basterds*, Directed by Quentin Tarantino (The Weinstein Company, 2009), Blu-ray. —
1:34:40



7. Campbell, James W. P., and Michael Tutton *Staircases: History, Repair and Conservation*. Routledge, 2014.



- 
8. Kolomay, Richard, and Robert Hoff *Firefighter Rescue And Survival*. Tulsa, Okla: PennWell, 2003.

[↔](#)

- 
9. Hoskins, Bryan L., and James A. Milke (auth.) *Study of Movement Speeds Down Stairs*. Springer-Verlag New York, 2013.

[↔](#)

- 
10. Ginsberg, Robert *The Aesthetics of Ruins: Illustrated by the Author*. Rodopi, 2004.

[↔](#)

- 
11. INPUT: stair.pdf

[↔](#)

- 
12. INPUT: stair.pdf

[↔](#)

- 
13. Schweid, Richard *The Cockroach Papers: A Compendium of History and Lore*. Basic Books, Inc., 1999.

[↔](#)

- 
14. Reid, P R *Escape from Colditz : the two classic escape stories*. Philadelphia: Lippincott, 1952.

[↔](#)

- 
15. Cole, Jeff Scott *Ghostly Encounters: Confessions of a Paranormal Investigator*. Skyhorse Publishing, 2015.

[↔](#)

- 
16. Praeger, Dave, and Paul Provenza *Poop Culture: How America Is Shaped by Its Grossest National Product*. Feral House, 2007.

[↔](#)

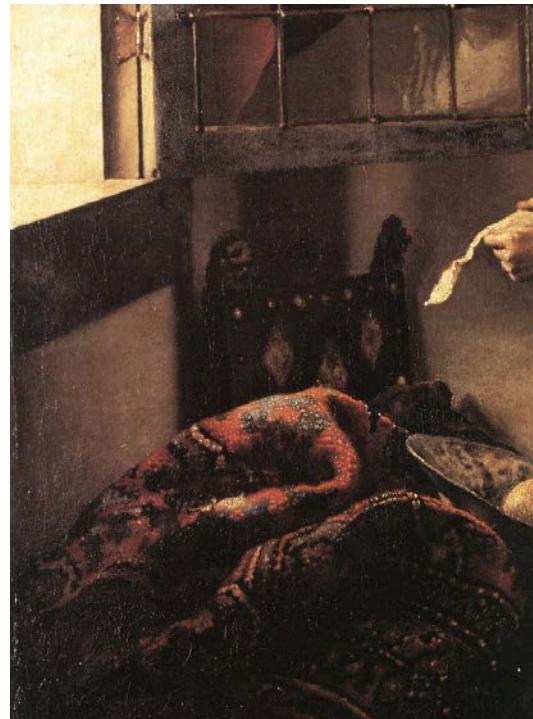
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17. The input pdfs for this chapter is: The Stair chapter in Koolhaas, Rem, Harvard Graduate School of Design, Stephan Trüby, et al. Koolhaas. *Elements of Architecture*. 1st edition. TASCHEN, 2022.- [Book Context Link](#)

[↔](#)

4.3.4 WINDOW



0 — stair, conservatoire, handrail, alcove, descend



1 — kitchen, annunciation, toiletry, porcelain, veronica





2 — paw, grasp, escaping

In all of this the window serves as the prop for discovering new and unexpected relationships between the inside and outside. This window, like any other, relies on mechanisms of operation, instruments of opening and closure.¹ Fundamentally, glass is hard, yet fragile and brittle.² The polished surface receives the gaze and, through its invisibility, reflects fleeting glimpses of the “other,” much like a mirror. Even with perfectly clear glass, the extent of this view is bounded because most glass panels require a frame.³ The frame turns the view into a “picture” and alters the nature of the spectator’s gaze.³



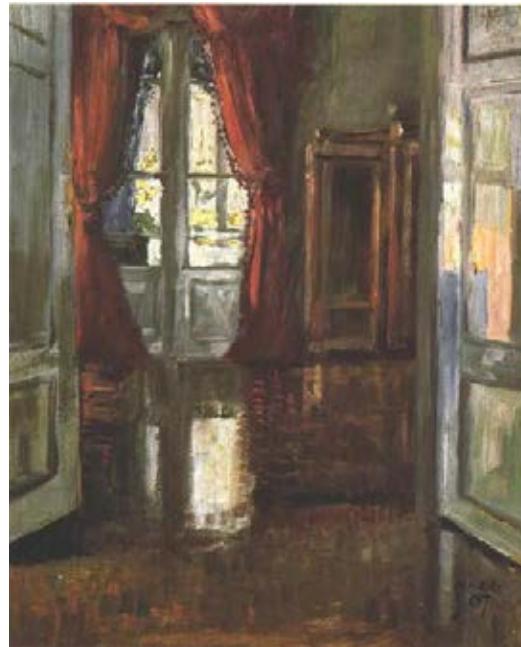
0 — mending, strapping, repairman

An ingenious device to siphon daylight deeply into a building, this glazed opening serves also to share illumination between rooms demanding acoustic separation, so as to spread light in a peaceful way, free of disrupting noise.⁴ To block out an undesirable view, use a stained glass panel the size of the window; to focus attention on the view, select a rectangular or curved stained glass frame around clear glass. Clear glass mixed at random with colored glass in a single panel gives a feeling of depth.⁵ Dramatic window accents can be beautiful, but if too much light enters a room, furnishings can take a beating.⁶ The window as a device that selects a view on the outside was sacrificed to achieve abundant light inside or total transparency to the outside.⁷



0 — anteroom, incorporated, lounge, stair

[8](#)



0 — hallway, corridor, domesticity, wardrobe, doorway, psychoanalysis

The architect's decision to use clear glass and to splash only a few precise places with touches of colour corresponds to his wish to keep a tight rein on the use of light – a primordial element in the definition of the interior volumes.⁹ The interior atmosphere of a space affects us greatly, and if we don't get enough light, we fall ill.¹⁰ The fact that the colour on the walls alters when a cloud passes over the sun and looks different throughout the day or even across the seasons is what makes the paint feel alive. It is this quality that gives an interior a unique sense of depth and atmosphere.¹¹ But even under dullyovercast conditions the light has an incandescent quality, seemingly brighter than intuition would allow.¹²



0 — guidebook, visit, layette



0 — cave, hideout, wedged



0 — livery, wheelbase, alpine

The condition is exacerbated when the building's windows are glazed in tinted glass. Light and colour God created the heavens and the Earth in the very beginning... (and) God said 'Let there be light'¹³ Light is one. It only appears multiple and diverse because of the intervention of darkness which lacks intrinsic reality. Without light there is pure nothingness.¹⁴



0 — embedding, entryway, passageway, interior, converted, enter





0 — converted, upstairs, hall, embedding, entryway, interior

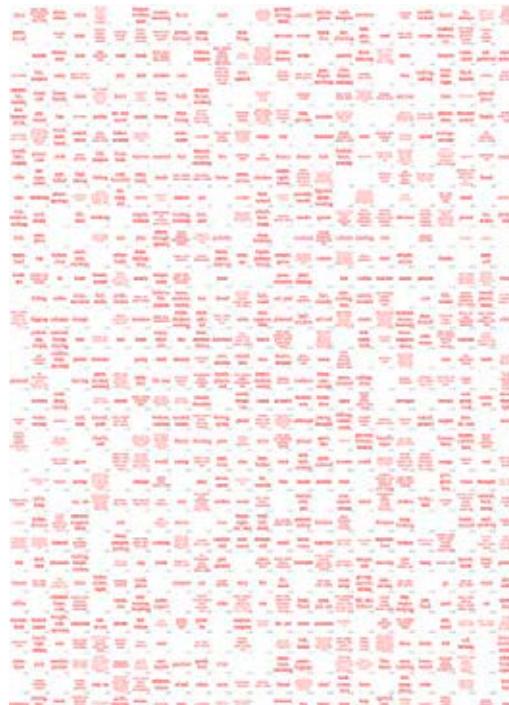
[15](#)

[16](#)

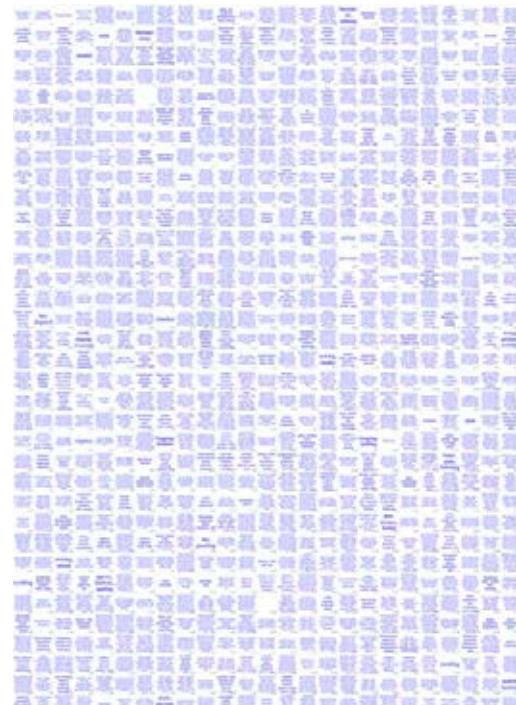
Window Cast

Films selected by **window**: *Amour* - Michael Haneke (2012) *Three Colours: Blue* - Krzysztof Kieślowski (1993) *Three Colours: White* - Krzysztof Kieślowski (1994) *Three Colours: Red* - Krzysztof Kieślowski (1994) *The Skin I Live In (La piel que habito)* - Pedro Almodóvar (2011) *Contempt* - Jean-Luc Godard (1963) *The Birds* - Alfred Hitchcock (1963) *Possession* - Andrzej Żuławski (1981) *Winter Sleep* - Nuri Bilge Ceylan (2014) *Rear Window* - Alfred Hitchcock (1954)

Films selected by **window**: *The Banshees of Inisherin* - Martin McDonagh (2022) *Holy Motors* - Leos Carax (2012) *Three Colours: Red* - Krzysztof Kieślowski (1994) *Killer's Kiss* - Stanley Kubrick (1955) *The Spirit of the Beehive* - Victor Erice (1973) *Mirror (Zerkalo)* - Andrei Tarkovsky (1975) *Ida* - Paweł Pawlikowski (2013) *Black Dog* - Guan Hu (2024) *Rear Window* - Alfred Hitchcock (1954) *Taste of Cherry* - Abbas Kiarostami (1997)



Textual screen of Window cast (click to
enlarge)

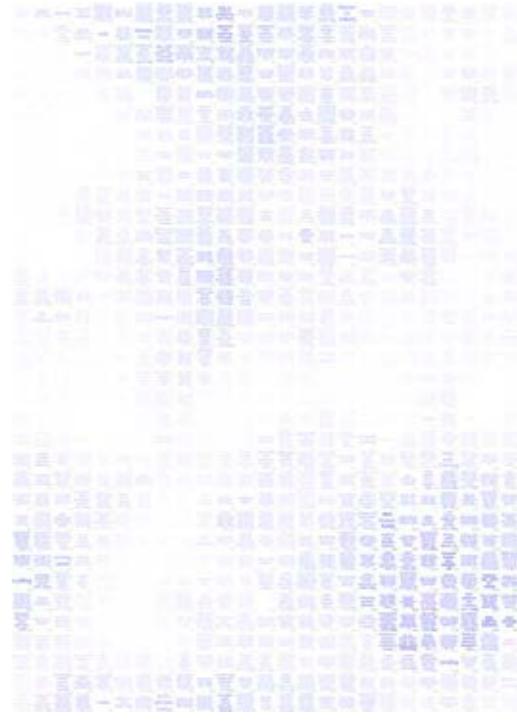


Figurative screen of Window cast (click to
enlarge)





[window](#) projected onto the textual screen of
the Window cast (click to enlarge)



[window](#) projected onto the figurative screen of
the Window cast (click to enlarge)

-
1. Leatherbarrow, David, and Mohsen Mostafavi *Surface Architecture*. 2002.



2. Yglesias, Caren *The Innovative Use of Materials in Architecture and Landscape Architecture: History, Theory and Performance*. McFarland, 2014.



3. Yglesias, Caren *The Innovative Use of Materials in Architecture and Landscape Architecture: History, Theory and Performance*. McFarland, 2014.



4. Plummer, Henry *Stillness and Light: The Silent Eloquence of Shaker Architecture*. Indiana University Press, 2009.



5. *Windows & skylights* Menlo Park, Calif: Lane Pub. Co, 1982.



6. Stoehr, Kathleen S., and Charles T. Randall *The Window Decorating Book*. Charles Randall, Inc., 2009.



7. INPUT: [window.pdf](#)



8. *Contempt*, Directed by Jean-Luc Godard (Rome Paris FilmsIMDb, 1963), Blu-ray. — 1:29:30



9. Pauly, Daniele *Le Corbusier: the Chapel at Ronchamp*. Birkhäuser Architecture, 2008.



10. Roesler, Sascha, and Madlen Kobi *The Urban Microclimate as Artifact: Towards an Architectural Theory of Thermal Diversity*. Birkhauser, 2018.



11. Studholme, Joa, and Charlotte Cosby *Farrow & Ball How to Decorate: Transform Your Home with Paint & Paper*. Mitchell Beazley, 2016.



12. Hawkes, Dean *The Environmental Imagination: technics and poetics of the architectural environment*. Routledge, 2008.



13. Saunders, Thomas *The Boiled Frog Syndrome: Your Health and the Built Environment*. 2002.



14. (Editor), Jonathan G. Katz *Architecture as Symbol and Self-Identity*. Aga Khan Award for Architecture, 1980.



15. *The Shining*, Directed by Stanley Kubrick (Hawk Films, 1980), DVD. — 52:33



16. The input pdfs for this chapter is: The Window chapter in Koolhaas, Rem, Harvard Graduate School of Design, Stephan Trüby, et al. Koolhaas. *Elements of Architecture*. 1st edition. TASCHEN, 2022.- [Book Context Link](#)



5 CONCLUSION

"Intuition operates without intention. However, its own grasping ghosts the very same serial mode of encounter and relaying of significance that is hoped for by the methods of fulfilling intention. That is to say, the instrumentality of intention more often than not requires a series of moves to convey such intent; this is akin to intuition in that it too operates by grasping things in series."¹



0 — archiving, briefing, register, recount, projectionist, loudspeaker, speech, computation, cabinet

"This study has provided an initial attempt to open the door."²



1 — cellar, storehouse, storeroom, warehouse, burgling, cabinetmaker, basement, crate

3

1. (auth.), Robert Kirkbride, and Robert Kirkbride (eds.) *Geometries of Rhetoric*. Birkhäuser Basel, 2010.



[↪](#)

2. Edited by Shoshana Dreyfus, Maree Stenglin, and Susan Hood *Semiotic Margins: Meaning in Multimodalites*. Continuum, 2011.



[↪](#)

3. The input pdfs for this chapter (including 5.1 and 5.2) is the thesis itself up to this point - [Book Context Link](#)



[↪](#)

5.1 RELEVANCE

"I see promise in this, in something as indefinite and ambiguous as a cluster of stars becoming oriented into a very particular and enduring image or state. I see in this a kind of accessible abstractness." - Junya Ishigami, Small Images [1](#)*



0 — roomful, abstraction, psychoanalyze, comatose, delirium, sleepwalker

In *Of Clocks and Clouds*, Karl Popper proposes that physical systems range from the highly regular (clocks) to the irregular (clouds), with the conclusion that any physical system is, in the end, a cloud that may at times behave like a clock². The endeavour of computational architecture to systemise design into deterministic algorithms (clocks) is futile, as it does not allow for it to remain a cloud. The clockiness of a cloud remains something that is perceived from the cloud, but not distilled into it. In accordance this is how Ishigami speaks about the tuning of space through perception and moving through scales¹, highlighting the value of ambiguity in discerning proportionalities. It is the nature of interactions in space that determine it. As Koolhaas speaks about the occurrences in Rhode Island "*If Paris is France, Coney Island, between June and September, is the World.*"³, the turns that new ways of interacting in space bring, influence how we as a whole experience and in turn interact with everything - the world. These considerations seem to be necessary to make the emerging abstraction accessible, and something that can be entered instead of it becoming a closed system. This way the architect is concerned with understanding a complex body and embracing its indefinite character to put the related space in proportion, as opposed to crafting systems creating complexity of deterministic nature. Similarly to the intellectual according to Foucault⁴ the role of architects would be the analysis of their familiar domain and how this can be re-questioned to shake up habits and change the ways of acting and thinking, against the rules that are imposed through familiarity and institutions. This is what the thesis has set out to demonstrate through a change of footing in regards to the relation of architecture to AI.



*"The element to which Tschumi turned was time. In the Parc de la Villette project, especially, the grid and follies upon which the park is based do not represent a dispersion of the body via a decentering of modernist form so much as an attempt to create events in space: At a conceptual level, randomness can be better applied to events, actions, and programs than to physical form itself. So at La Villette the system of physical forms is there to allow the random—the event—to take place. 71 Tschumi's notion of architecture as "space, event, and movement" is an extension of Johnson's claim that architecture exists in time, not space."*⁵



In the Modulor, Le Corbusier sets out to describe a scale around which proportionality in architecture revolves⁶. One reading of this can be that Le Corbusier presents "*mystic associations – the golden ratio, the nautilus shell, tedious references to musical rhythm, or the endless parade of anthropometric proportions.*"⁷ to establish said proportionality. However, the primary way in which the Modulor scale differs from the anthropomorphic imperial system or that of the linear scalar metric system, is that the Modulor takes into account the actions that occur between the invariant knots, as with musical harmonics⁸. Through this the measured elements, which only adhered to an ordering if put towards the old scales, were elevated to having an intertwined proportionality that relies on an interplay of invariants and spectrality. The mathematical precedent to this would not be one of the mystic associations of specific mathematical forms mentioned by Witt, but more appropriately the extension of the real numbers with the imaginary numbers to create the complex numbers, like discussed before in chapter 1. What makes this extension fundamental is only revealed under the definition of the operations which transform the complex numbers from a set to a field. If the complex numbers are viewed as a set, they are of the same size as the real numbers, but the field of the complex numbers is not, due to the operator which sets the real numbers in proportion to the imaginary numbers⁹. Instead of using mathematical geometry as a means for legitimising shapes in architecture, let us consider the mathematical operations as that which can facilitate accessible abstractions: "*A mathematical object is what it does*"¹⁰. Accordingly, this thesis situates its relevance in the opening up of architectonic operations within multimodalities.



1 — overhearing, furnishing, smoker, stakeout, installing, diner

This work presents an argument and proposal for how architecture can and should set the tone for our attitude toward the digital; less by seeking a universal model than by composing interiors where ambiguity becomes accessible. It has done so by preparing an instrumented environment for writing between two modalities, but with this sets out to act as a demonstration of a proportional, and curated reading of digital information. With this position established, the next section details more concretely how these contributions are proposed to be understood: how the editor, casts, and procedures furnish a working stance that reintroduces distance, situates concepts, and keeps multimodal projections usable because they remain revisitable.

"Indeed, there can only be reading if the elements to be decoded are subjected to the test of comprehension. And, as we have seen before, to comprehend a piece of information implies that one can relate it to a context of reception so as to look at it in light of what is already known."¹¹

1. Ishigami, Junya. *Small Images*. LIXIL Publishing, 2012.. p.23



2. Popper, Karl R. *Objective Knowledge: An Evolutionary Approach*. Revised edition. Oxford University Press, 1979.



3. Koolhaas, Rem. *Delirious New York: A Retroactive Manifesto for Manhattan*. New Ed edition. Monacelli Press, 1994. p.39



4. Foucault, Michel. *Dits et Ecrits 4, 1980-1988*. Gallimard, 1994. p.676-677



5. Waldrep, Shelton *The Dissolution of Place: Architecture, Identity, and the Body*. Ashgate Pub Co, 2013.



6. Corbusier, Le. *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics*. Faber & Faber, n.d.



7. Witt, Andrew. *Formulations: Architecture, Mathematics, Culture*. The MIT Press, 2022.



8. Corbusier, Le. *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics*. Faber & Faber, n.d. p.33



9. Essen, Arno Van den. *Nieuwe getallenstelsels: over schoonheid en nut van ongewone wiskunde*. 1st edition. Veen Media, 2010.



10. Gowers, Timothy. *Mathematics: A Very Short Introduction*. Very Short Introductions 66. Oxford University Press, 2002.



11. Vandendorpe, Christian *From Papyrus to Hypertext*. Urbana: University of Illinois Press, 2009.



5.2 CONTRIBUTIONS



0 — redecorate, foyer, secretary, briefcase, bureau, backroom, furniture, typewriter

"Their co-presence announces both the site and the project of architectural theory. The way for the interconnection to be established and thus worked through continually cannot be described as though it only had one form. Digital reproducibility within design opens an importunately new domain of activity. Design now has a relationship to the potentially within software programmes."¹

What is assembled in this thesis and its instrument WIPTe is, first of all, an occasion for conversation; a way to make multimodal machine learning discussable from within architectural method, rather than treated as a foreign technical object that architecture merely applies. The work cultivates an architectural attitude toward the digital multimodal condition; a manner of interaction that composes before it computes, stages differences so that they can speak. The contribution is a prepared scene for talking with, and through, abundances in curated ways. The editor, the casts, the proportions, and the readings are all parts of that scene. Their common task has been to make room for thinking to happen while writing, searching, watching, and modelling; at once.

"The space so expressed is not one internal to a frame or closed system - such conceptions of space always lead us back to an image of a static or firmly bounded system, from which nothing escapes and in which everything is firmly anchored in place (contained in co-ordinates) and subject to illumination and observation (the erroneous dream of the panoptic state). There will always be something that escapes the fixity of boundaries and totalizing points of view. It is to this space beyond the frame that the interaction image turns and returns."²

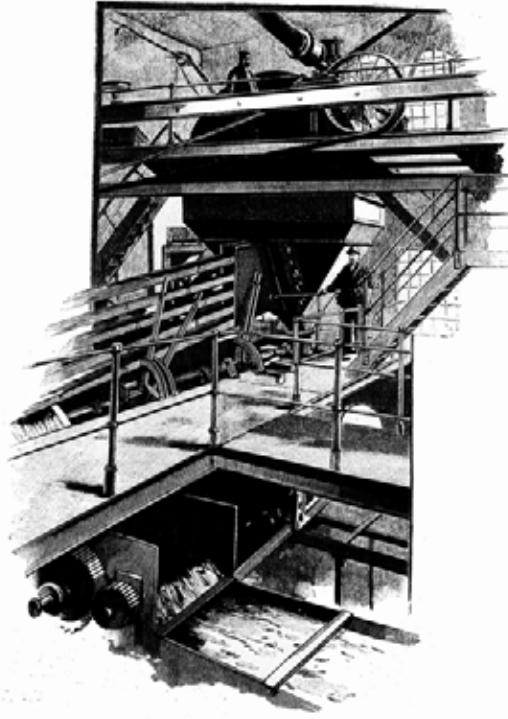


0 — trio, overview, railing, escalator, elevator, foyer

Architecture, taken as method, helps the digital recover distance. In response to the shrinking of physical distance in the twentieth century Martin Heidegger asked: “*What is happening here when, as a result of the abolition of great distances, everything is equally far and equally near? What is this uniformity in which everything is neither far nor near-is, as it were, without distance?*”³ Where Heidegger talks about a loss of distance within physical space, the digital first extended this reduction by the decrease of inter-personal distance of communication by text (message), sound (phone), visual (video-call). What followed is the reduction of informational distance. Current infrastructures compress information of endless variation until everything can meet everything else inside a measurable space. The thesis responds by introducing architectonic constructs - casts, scales, frames, and measures - that do not fight that comparability, but give it interior structure and reintroduce distance as a practicable condition, so that one can actually enter the field rather than only skim it through similarity of iterated inputs. In practice this meant writing with a public corpus switched on by personal curation, projecting across images and texts, and letting films act as naturally multimodal hinges. Near and far become adjustable again, not fixed facts of the medium.

*“Though technically operating within the same space, they navigate as if they were in a more smooth space. As Nunes says, referring again to the ideas of Deleuze and Guattari, “smooth space sets up a nomadic system of movement,” where “lines become vectors, rather than units of measurement”. This tension between striated and smooth space, between movement on a grid or network and nomadic wandering in a free space, is the inherent tension of digital space and the binary opposition—presented using the very same vocabulary—that runs throughout Against the Day.”*⁴





0 — flywheel, elevator, compactor, manufacture, loft, escalator

A helpful grammar for such measures comes from Plato, as read by Böhme and Böhme. In *Philebus*, oppositions like hot/cold and more/less belong to the unlimited until a limit intervenes. Böhme remarks: “*We find it difficult to understand Plato properly here, as we are accustomed to thinking of differences like high and low, heavy and light, warm and cold in quantitative terms, in terms of proportions. But Plato asserts that these proportions are always the result of numbers*”⁵. He continues: “*The unlimited, according to Plato, refers to oppositions that have not yet been brought into any determinate relationship and instead exist as indeterminate excess or deficiency*”⁵. Plato names three kinds of limiting action; equality, measurement, proportionality, that introduce number, produce ratios, and yield harmony; bringing indeterminate tendencies into determinate relation.

This theoretically aligns with the contribution WIPTe presents: embeddings and statistics furnish the numeric substrate for proportion; limits are composed architecturally so relations become legible constraints rather than untraceable scores. In concrete terms, equality appears as duplication and mirroring across modalities; measurement as commensuration within textual and visual traces; proportionality as tuned correspondences that hold unlike things together in workable ratios. The “situated cast” shows this in practice. By setting an authored selection against a large, generic field, the cast turns vague categories into live concepts. An umbrella, seen through Studio Ghibli, becomes a *Ghibli umbrella*: an object with narrative, weight, and gesture. It means that a concept can stop being an abstract noun and start behaving like something with a particular weather, pacing, and atmosphere. The “umbrella” example is telling precisely because it is banal: once the umbrella passes through a cast of Ghibli films it ceases to be a generic token and becomes a specific one, a *Ghibli umbrella*, without requiring an explicit definition. The contribution is not that the cast reveals what an umbrella is, but that it lets a concept become situated enough to be discussed without collapsing into mere comparison. That is also why the thesis keeps returning to the question of what a projection does, how it binds,



shifts, and delimits, rather than what it “represents.” Proportionality becomes a mode of holding differences in play: specific enough to work with, heterogeneous enough to stay communicative.

"Sense is, thus, necessarily distributed "across . . . local arrangements with relational particularity" and hence enacted transpositionally. For this to become possible, artistic research should be seen as a dispositif rather than a discipline with a heightened attention on the consistency of transpositional operations rather than the form they take. Expanding on Giorgio Agamben's work, in her chapter, "Without Remainder or Residue: Example, Making Use, Transposition," Yve Lomax reflects on the power of examples to connect to one another before a rule emerges that is then taken to presuppose the examples."⁶



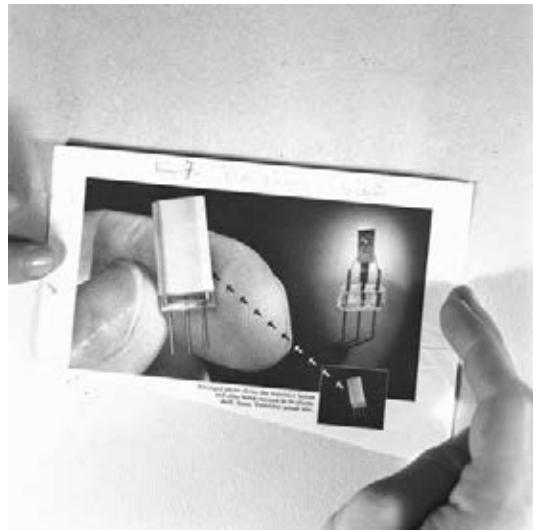
In part WIPTe can be characterised as a “personal AI”, making a very large amount of information locally available through a personalised lens. Architecture, however, is an inherently public activity; its contents must be open. The instrument therefore couples situated prompts and casts with public corpora and explicit citations, keeping a productive dichotomy between private orientation and public accountability. Unlike passive recommendation (i.e. playlists), writing here is active composition: suggestions arrive as materials to be argued with, not prescriptions to be obeyed, and with their original context available to the reader. What this suggests is public-by-construction personalisation: exportable traces of how a page was assembled, reproducible selections, and visible measures.



1 — epicentre, dispatcher, debriefing, desk

The instrument itself is part of the contribution: an experiment in creating a place where casting, projection, and proportion can occur continuously within the same space as reasoning. The emphasis throughout the writing was on implicit, ongoing interaction rather than producing singular experiments through programming; code remains necessary and present, yet it operates infrastructurally, surfacing as the behaviour of coded objects, the affordances of the interface, and the rhythms of search and projection. This stance sits within digital literacy understood as the capacity to shape an instrument in advance and to read its effects in use. The writing process being “inside the act” is earned: a prior, explicit literacy in code went into the pre-writing construction of the editor, aligning its data structures and procedures with the theoretical commitments developed here. Once in place, that literacy withdraws into the instrument,

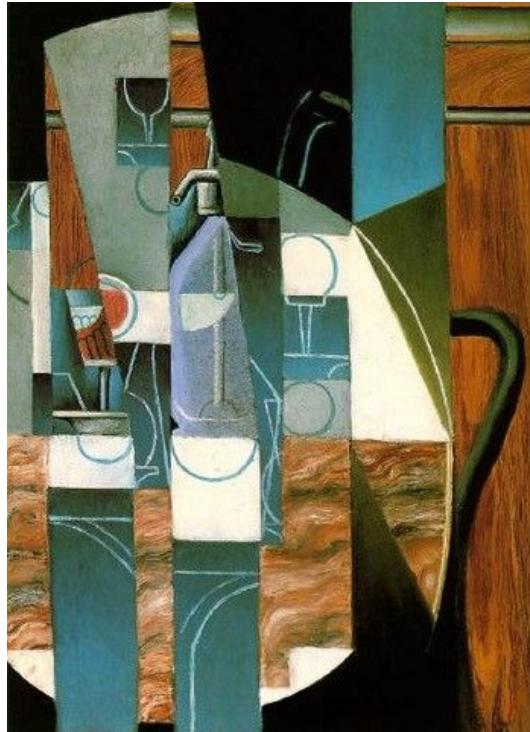
allowing me to revise, return, trace, and re-situate without leaving the scene of thought, while the coded substrate keeps the field active. In this sense, the thesis offers an instrumented stance rather than a finished object: a way of working with multimodal systems such that distance does not disappear, concepts gain situated specificity, and projections remain usable precisely because they remain revisitable.



leave — shh, telex, zipper, erase

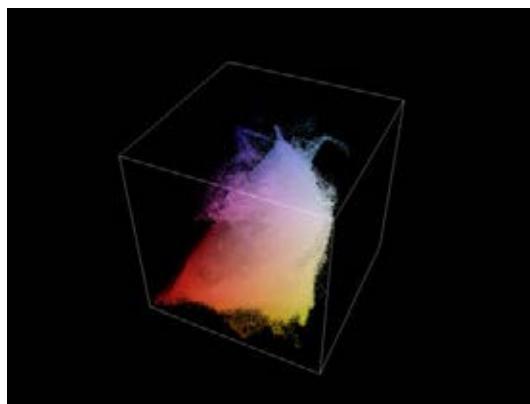
Writing with the editor across a broad horizon proved lively and generous; it routinely surfaced comments of different kinds and at different distances. When the argument was already personally built up, this continuous presence was enriching and fun: if nothing useful appeared at a given moment, nothing was lost. By contrast, when setting out along a path that required the editor to deliver the next step continuously, its role changed from companion to performer. The expectation of uninterrupted performance introduced a certain unease: sometimes it does not produce what one is looking for, or not yet. Chapter 4 makes this palpable when the topic is tightened: the more narrowly we focus, the thinner the contributions can feel. This is an initial experience; with time the balance may shift, or it might just take some getting used to.





4 — barroom, sipping, restaurateur, tequila, mirror

If there is a claim to carry forward, it is simple and demanding: keep architecture in the loop of digital work. Let architectural thinking, its sense for proportion, casting, sectioning, montage, index, and room, shape how corpora, models, and interfaces are assembled and used. The future directions suggested by the experiments follow from this claim: enlarge the repertoire and nature of digital casts; refine algebraic correspondences across media; articulate new scales of near and far in embedding spaces; and continue to design instruments that foster an architectural literacy within the digital, just as a digital literacy within architecture.



0 — accumulating, dissolving, immersed, infinite, plexus, volume

By now I have spoken about many things, and resolved very few; the intent is that hosting this conversation within a digital context of information is the contribution itself. The digital will continue to abolish distances in the background, which is exciting, just like the reduction of distance across the globe facilitated people to expand their world. The response is not to resist this, but to build interiors within that condition; rooms where differences can gather without being flattened, instruments that make abundance playable, and projects that remain accountable

to their own measures. Architecture is well-suited to that task. Here one approach to such an interiority has been proposed, as an opening to a broader discussion.

"I have always believed that in life as in architecture, whenever we search for something, we do not find merely what we have sought; in every search there is always a degree of unforeseeability, a sort of troubling feeling at the conclusion. Thus the architect must prepare his instruments with the modesty of a technician; they are the instruments of an action which he can only glimpse, or imagine, although he knows that the instrument itself can evoke and suggest the action." - Aldo Rossi, *A Scientific Autobiography*⁷



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1. Benjamin, Andrew *Writing Art and Architecture*. 2010.



2. O'Connor, Daniel M. *Mediated Associations: Cinematic Dimensions of Social Theory*. McGill-Queen's University Press, 2002.



3. Heidegger, Martin. 'The Thing'. In *Poetry, Language, Thought*, by Martin Heidegger, translated by Albert Hofstader. HarperCollins Publishers, 1971. p.164



4. Herzogenrath, Bernd *Travels in Intermediality: ReBlurring the Boundaries*. Dartmouth, 2012.



5. Böhme, Gernot, and Hartmut Böhme. *Feuer, Wasser, Erde, Luft: eine Kulturgeschichte der Elemente*. 3. Aufl., Unveränd. Nachdr. C.-H.-Beck-Paperback 1565. Beck, 2014. Chapter 3.
(Translated with GPT4)



6. Schwab, Michael *Transpositions: Aesthetico-Epistemic Operators in Artistic Research*. Leuven University Press, 2018.



7. Rossi, Aldo. *A Scientific Autobiography*. Translated by Lawrence Venuti. With Vincent Joseph Scully. Oppositions Books. MIT Press, 1981.



APPENDIX

APPENDIX 1 - CLIP SOM INDEXING

This appendix shows an alternative method to establish the figurative screen of the multimodal cast. Instead of relying on words as indices through the labelled film frames, this approach builds up a different figurative vocabulary first. This is done by first training a spherical SOM on the combined clip embeddings of all film frames, in this example using the same 216 films shown in chapter 3. This amounts to a total of 426,261 CLIP vectors. The spherical SOM used is of degree 5, so a total of 20,480 cells. The trained SOM with PCA colouring is shown in figure a1:1.

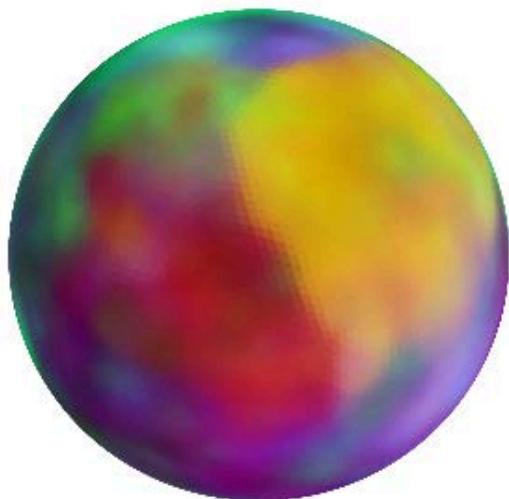


Figure a1:1 - Spherical SOM trained on 426,261 CLIP embeddings of film frames.

Each of the cells of this SOM are taken as one entry in the figurative vocabulary; instead of the word labels here the vocabulary consists of the spherical som indices. The calculation of a vector for each cell that aligns with the 216 dimensions of the films is done in roughly the same way as the film vectors for the figurative and textual words as described in chapter 3, however without

an alignment nudge. The difference is that instead of counting how often a word is used as a frame label in each film, the count for each cell in the vocabulary is calculated as follows:

- For each frame in film a the 100 closest cells on the spherical SOM are selected
- For each of the selected cells, the count of the film a for that cell is increased by one.
- This is done for all films

This gives each cell a count for each film. From there the normalisation and final *word* vector calculation proceeds in the same manner as defined in chapter 3. The result is that each cell of the spherical SOM now has an associated 216 dimensional vector, and we can now train a SOM to operate as figurate screen on these 20,480 cells, treating them as vocabulary (only including a cell if it has a minimum occurrence across 10 films). This follows the same method as how we trained a SOM on the figurative and textual vocabularies in chapter 3. Figure a1:2 shows the trained SOM, activated by each of the 216 films.

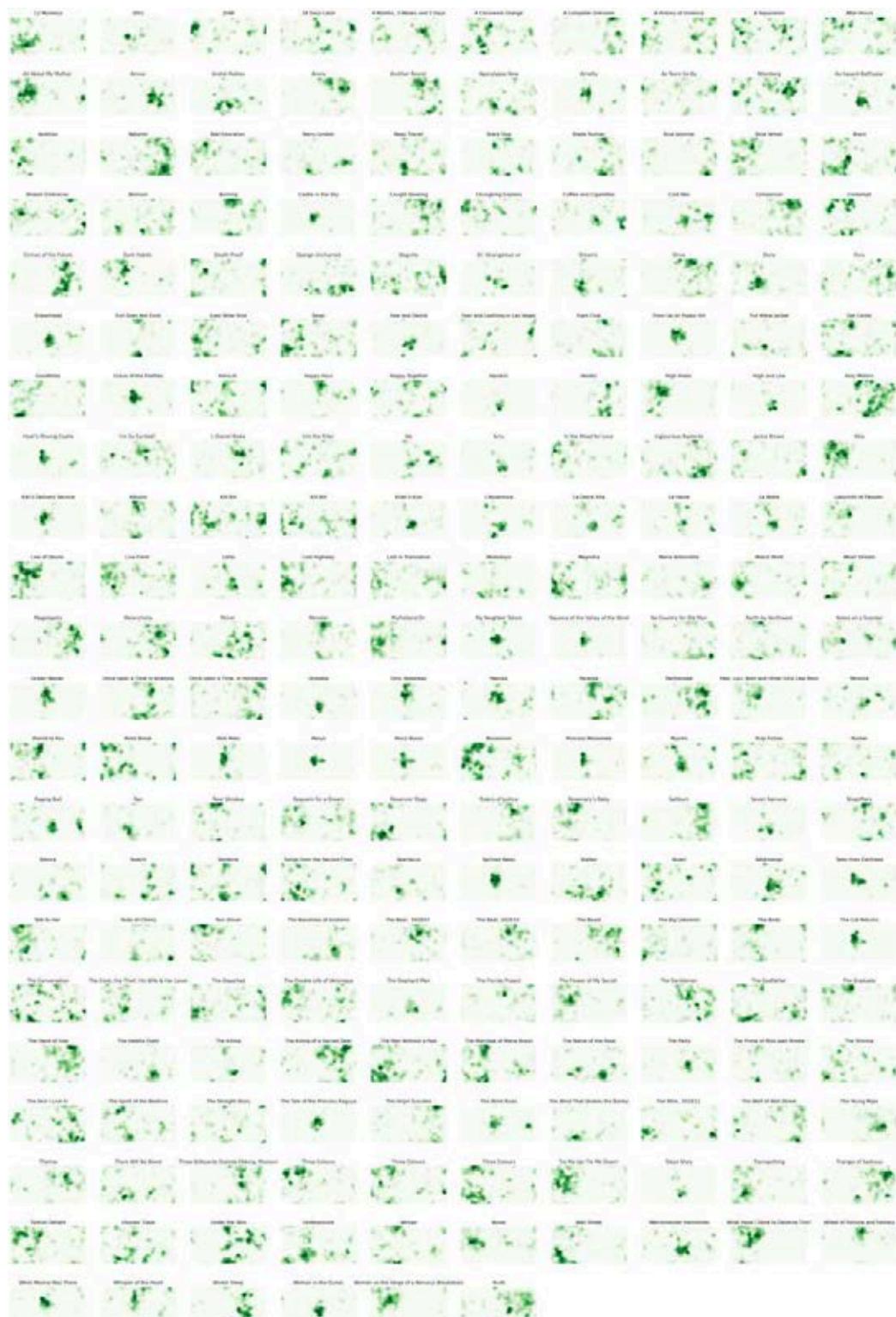


Figure a1:2 - Toroid SOM of the spherical SOM cells as vocabulary, activated by each of the 216 films that make up the dimensionality. (click to enlarge)



To visualise this SOM as figurative screen we can't rely on the mnemonic qualities of the figurative labels, because the vocabulary here are just cells of a spherical SOM, so instead, for each spherical SOM cell we take the nearest frame from the combined frames across all films as its representative image. Then projecting the cells onto the toroid SOM gives a visualisation of its visual vocabulary, shown in figure a1:3.

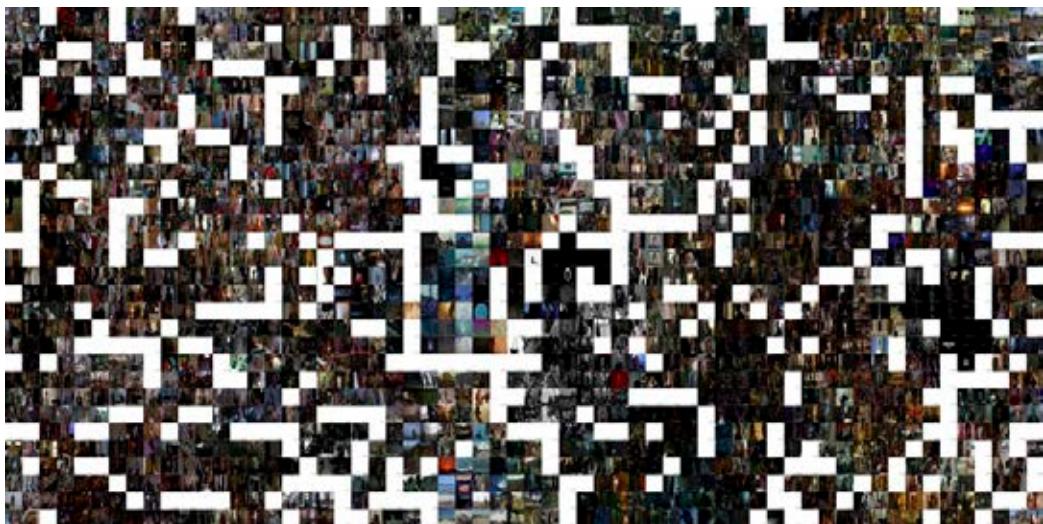


Figure a1:3 - Toroid SOM of the spherical SOM cells as vocabulary, visualised by pairing each vocabulary entry to the closest film frame. (click to enlarge)

Activating the SOM by Chungking Express highlights the portion of the SOM that aligns most with the film's overall aesthetic, and is successful at grasping an overall atmospheric quality that resonates with the film. See Figure a1:4.

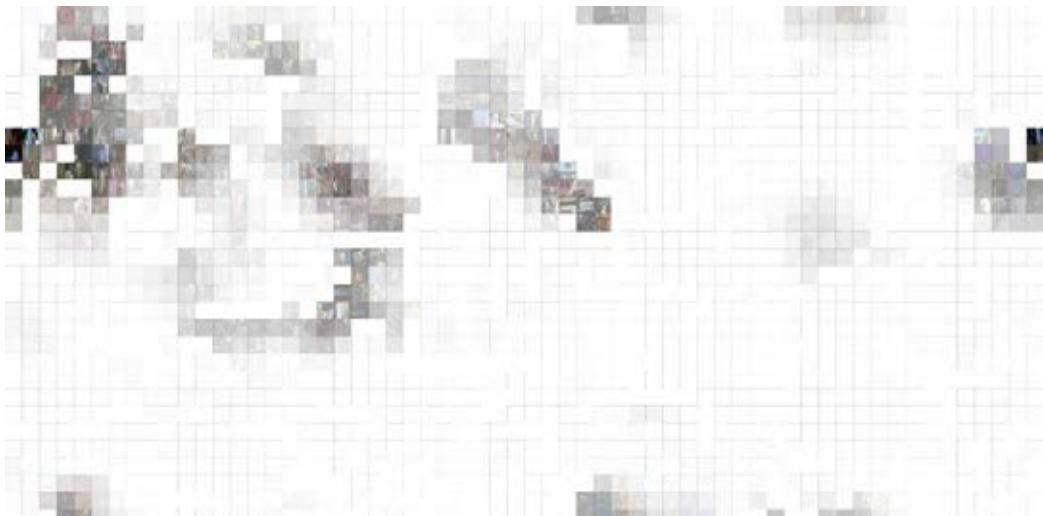


Figure a1:4 - Toroid SOM of the spherical SOM cells as vocabulary, activated by Chungking Express (click to enlarge)

Figures a1:5 to a1:8 show further interaction with this version of the figurative screen by projecting **playground**, **night**, **umbrella** and **beauty** onto it, showing its capacity to still host adequate projections across modalities.

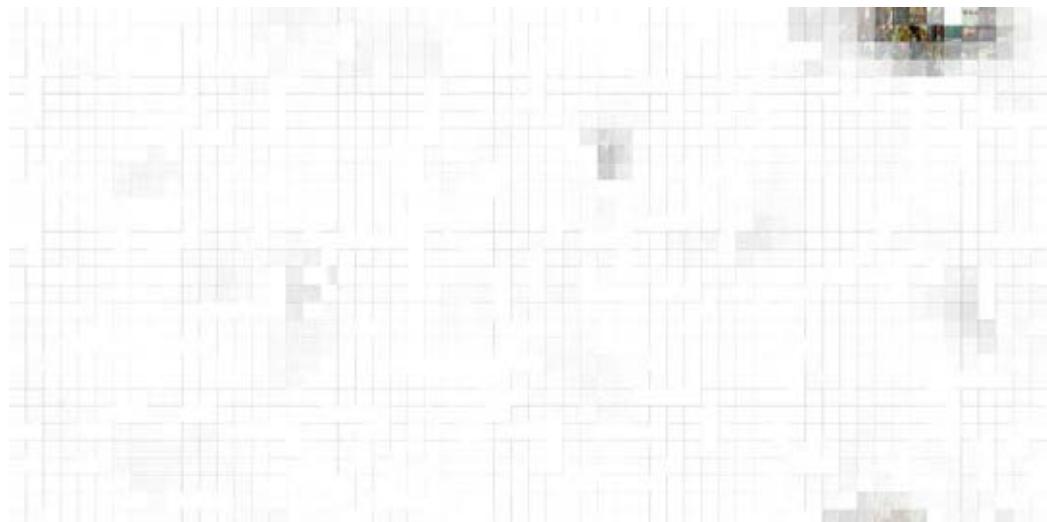


Figure a1:5 - Toroid SOM of the spherical SOM cells as vocabulary, activated by **playground**
(click to enlarge)

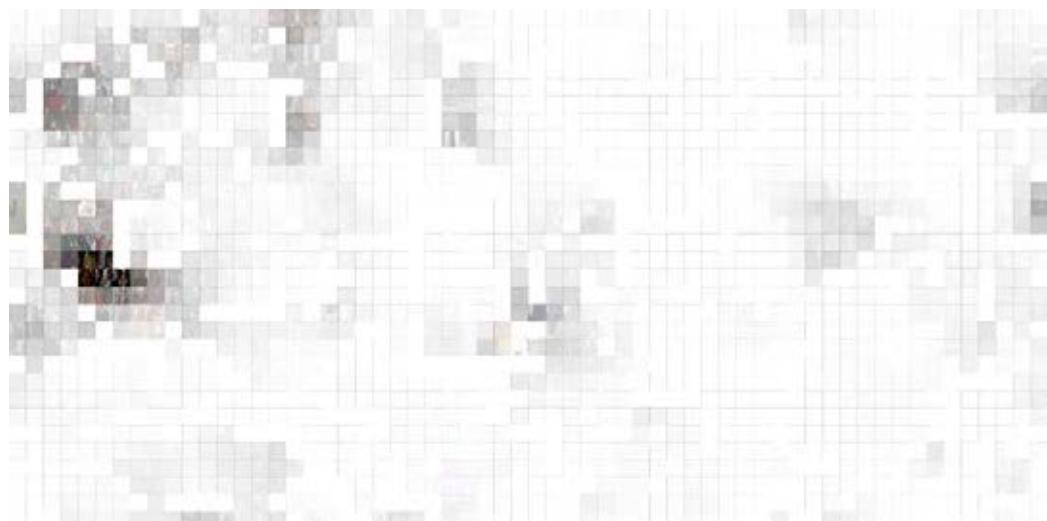


Figure a1:6 - Toroid SOM of the spherical SOM cells as vocabulary, activated by **night** (click to
enlarge)

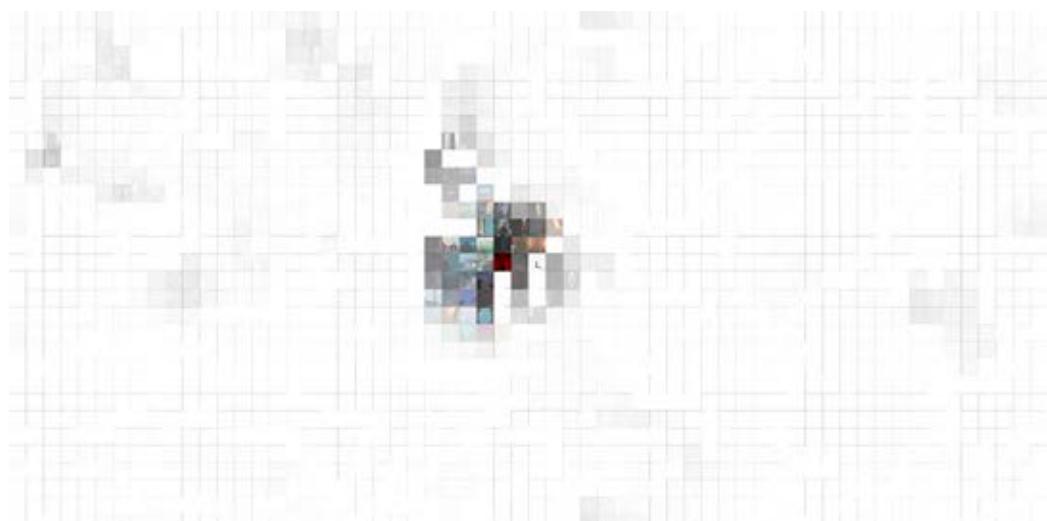


Figure a1:7 - Toroid SOM of the spherical SOM cells as vocabulary, activated by **umbrella** (click
to enlarge)



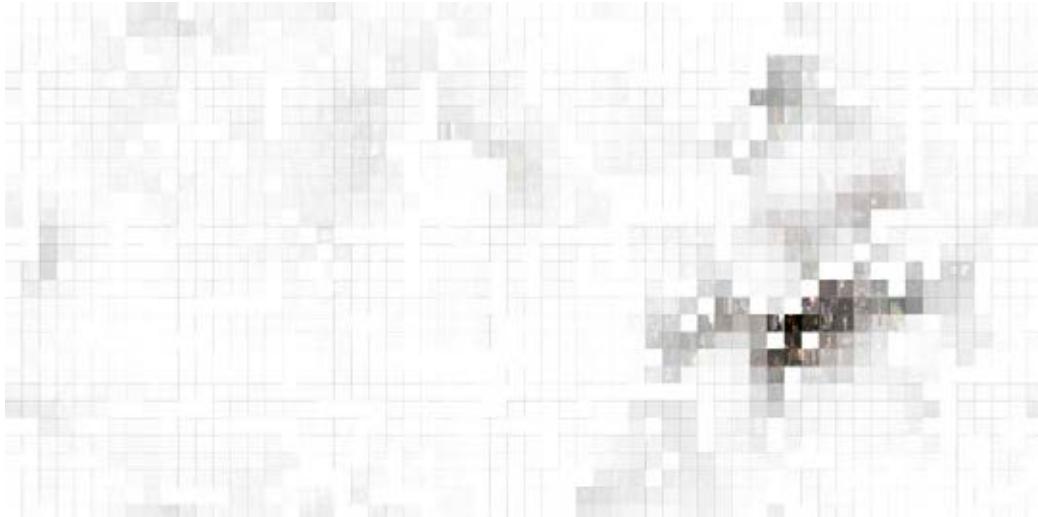


Figure a1:8 - Toroid SOM of the spherical SOM cells as vocabulary, activated by **beauty** (click to enlarge)

Inspecting these projections, there is a sense of contextual relevance that does confirm its tuning works, as seen from the frames highlighted by Chungking Express, but also how for instance **playground** shows frames with kids playing and a focus on outdoor settings within a narrow focus across the screen, contrasted by **night** highlighting a broader spectrum but revolving around intimate scenes. The drawback of this method compared to the figurative word based labels that were used in the thesis is however that the stylistic nature of the frames of the images is overbearing. Which is particularly visible though how the SOM is heavily compartmentalised, as seen in figure a1:3, resulting in black and white films, and animation films occupying segregated regions. This shows a strong influence of style instead of a focus on *what* is being depicted, which is why throughout the thesis the preference was given to the label based approach. However it might be interesting to experiment further with a hybrid of the two in order to incorporate more stylistic and atmospheric components in the cross-modal projections.

APPENDIX 2 - SPHERICAL SOM INITIAL DEVELOPMENT

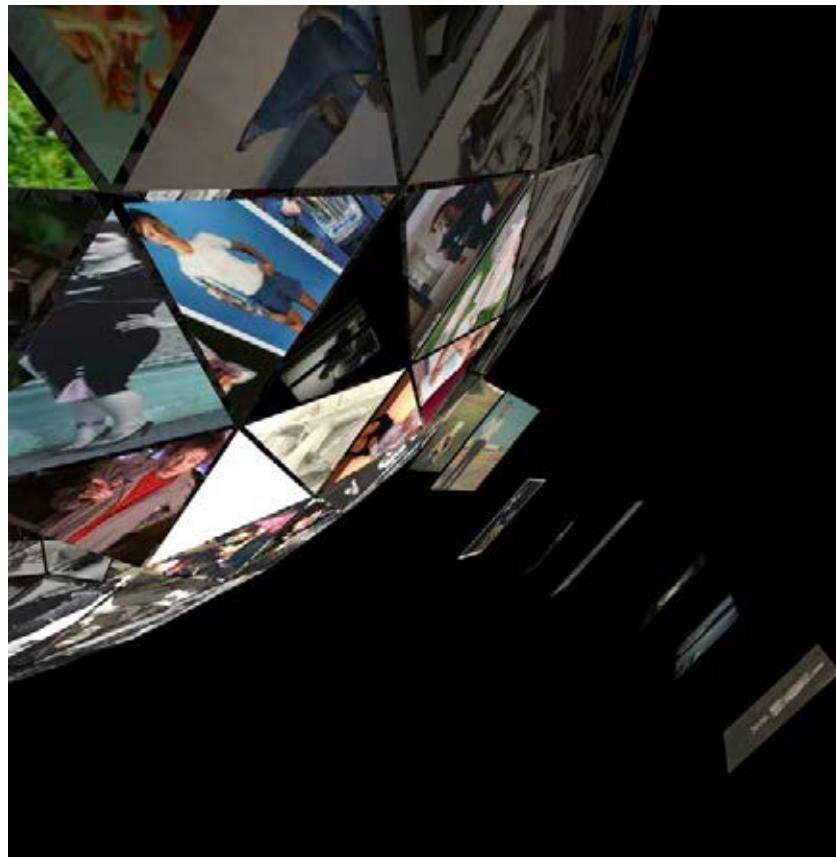


Figure a1:1 - Spherical SOM experiment with Tate and MoMA collections, visualising the interior exterior altitude aspect.

The initial experiment of implementing a spherical SOM was done in a preliminary format of making an interactive interface between images and text. For this initial experiment the text and image datasets were as follows:

TEXT A first collection was made from books available online written by authors on the Wikipedia list of 20th-century writers¹. This amassed to more than 6000 books which were split up into about 12 million paragraphs.

IMAGES A first collection was made of art pieces from the Tate² and MoMA³ collections, resulting in a collection of 130,178 images.

In this preliminary experiment a spherical SOM was used to encode the two domains of text (20th century books) and images (art pieces). A spherical SOM was chosen to explore the ability to determine insides and outsides of the SOM. This was implemented by applying PCA to the contents of each cell, as a deterministic method would require solving n linear equations, where n is the dimensionality of the vector representation of the data. The casts between the domain of texts and images were established by the pairing of subtitles and still frames. At this stage the projections only operated in the direction of text to images. Here, the environment showed a moveable spherical context with images, next to a neighbourhood of short citations that was put

together in a user interface within GODOT. A text can be entered, after which sentences at similar altitude of inside or outside form the 10 adjacent cells are displayed. These correlated to subtitles which establish a connection to the spherical SOM of art pieces, in which the correlating areas are illuminated. At this stage the correlation was immediately coupled to the image contexts corresponding to the frames coupled with the selected subtitles, thus not yet relying on a vectorial space across films.

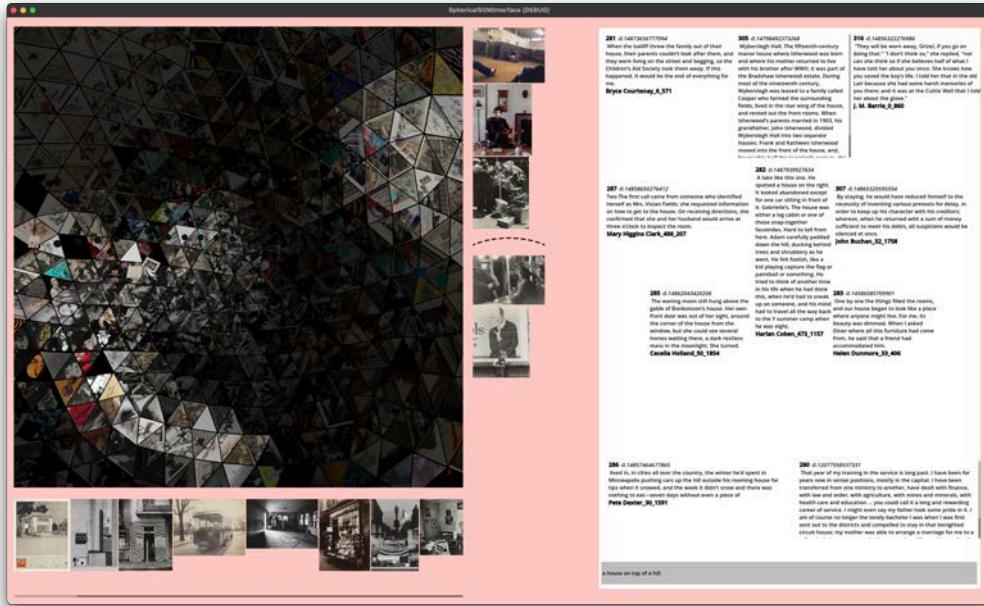


Figure a1:2 - Initial multimodal navigation interface within GODOT.

1. https://en.wikipedia.org/wiki/List_of_20th-century_writers



2. Tate. The Tate Collection. 16 September 2013, released 26 July 2023.

<https://github.com/tategallery/collection>.



3. Museum of Modern Art. 'MuseumofModernArt/Collection: The Museum of Modern Art (MoMA) Collection Data'. 1 November 2022. <https://github.com/MuseumofModernArt/collection>.



APPENDIX 3 - PHOTOGRAPHY WITH STORY CAST

This additional experiment explores a deliberately constructed multimodality by placing two distinct datasets into relation: the vocabulary of Roald Dahl's stories and the scenographic imagery of fashion photographer Tim Walker. Rather than relying on an inherently multimodal corpus, this test investigates how one domain can serve as a cast through which the other is projected. It further probes whether single images, treated as documents in their own right, carry sufficient depth to construct a multimodal cast capable of sustaining projections across domains.

Tim Walker's photographic scenography expressed in the words of Roald Dahl Dahl's vocabulary was chosen because of its tonal mixture of the whimsical and grotesque; Walker's scenography was chosen because of its baroque staging and attention to detail. Their pairing demonstrates how one medium (photography) can be recast through the conceptual inflection of another (literature), producing a cast that is neither purely visual nor purely textual.

First the vocabulary of Roald Dahl was selected by contrasting the use of his words to 20k other English-Language novels from Project Gutenberg, after which the top 10% of strongest relation to his books were filtered out, leading to a vocabulary of 2431 words. The purpose of this is to extract the words that are particular to Dahl's writing, thus setting the tone of the textual domain. Then for the images a total of 651 photographs by the fashion and art photographer Tim Walker¹, were first segmented into smaller zoomed in segments in each image. This was necessary for each image to function as one dimension. The segmentation was done using the SAM model², producing up to 34 smaller cropped details from each image.

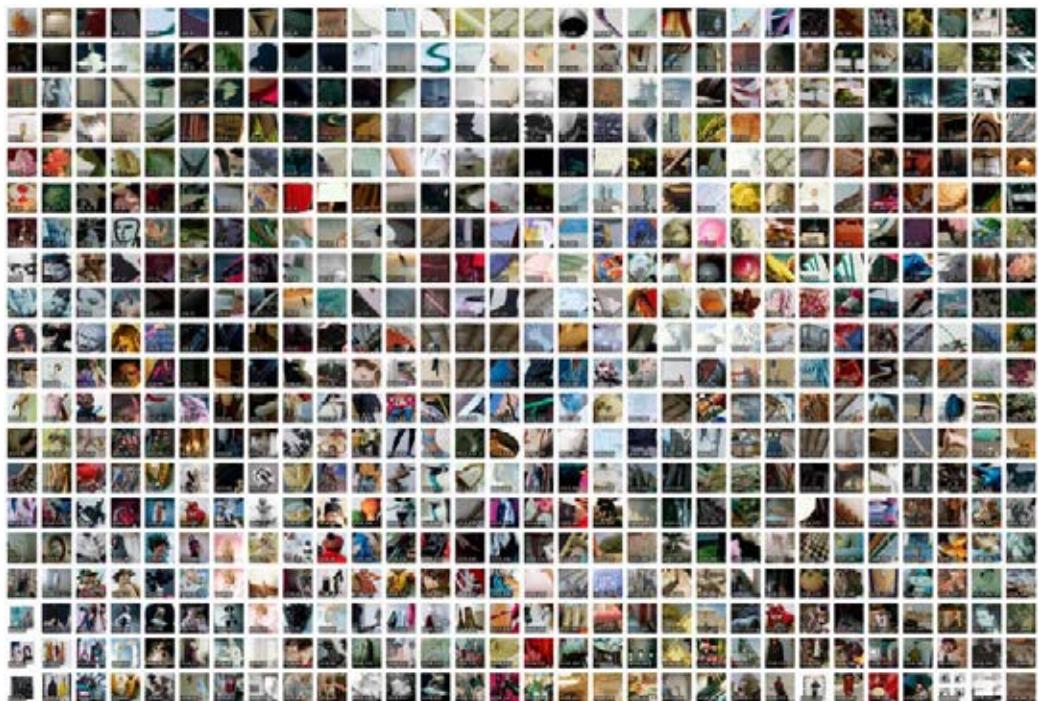


Figure a4:1 - SOM of cropped Tim Walker photographs embedded through CLIP

After which each cropped image was paired with the top 5 words from the Roald Dahl vocabulary. Across all 651 photographs this produced a used vocabulary of 1224 words with a minimum threshold of 3.

The cropping of the images by using SAM allows for a reading of the image, as if it were along the lines of reading a text. If vectorising, and therefore labelling the image whole, the emphasis of the image determines the majority of the vectorial encoding. Using SAM to break up the image allows for a reading of the scene through its detail and careful choice of its variety of contents, something inherent to scenography, and arguably a skill that Tim Walker masters in his photography.

An example of this can be seen by the labelling this photograph of his which is part of the V&A's collection (Figure a4:2, Figure a4:3).



Figure a4:2 - Photograph by Tim Walker (V&A object O240238). Source: Victoria and Albert Museum, London. Used per museum terms for scholarly reproduction.

```
[ 'catastrophe', 'disco', 'landlady', 'impossible', 'washing',
'gramophone', 'music', 'tracer', 'spinster', 'spinning' ]
```

If instead we take the top 5 words of all of it segments we achieve a much broader variety of labels:

```
[ 'adapter', 'aerosol', 'altimeter', 'anything', 'bandage',
'burglar', 'cable', 'caramel', 'cardboard', 'chair', 'choc',
'cord', 'crutch', 'curtain', 'dancer', 'deckchair', 'disco',
'door', 'dress', 'easel', 'egg', 'electrical', 'everyone',
'eyeball', 'fairy', 'flare', 'floor', 'funnel', 'gown',
'hammer', 'ironing', 'key', 'kilo', 'lamp', 'lighter',
'loudspeaker', 'matter', 'mattress', 'meter', 'microphone',
'nightdress', 'nipple', 'nose', 'parquet', 'piano', 'pipe',
'plug', 'queer', 'raincoat', 'shoe', 'sixty', 'sol', 'solo',
'something', 'stool', 'strafe', 'straw', 'string',
```

```
'subconsciously', 'sun', 'super', 'swoosh', 'ten', 'umbrella',  
'wand', 'washing', 'weighed', 'wooden']
```

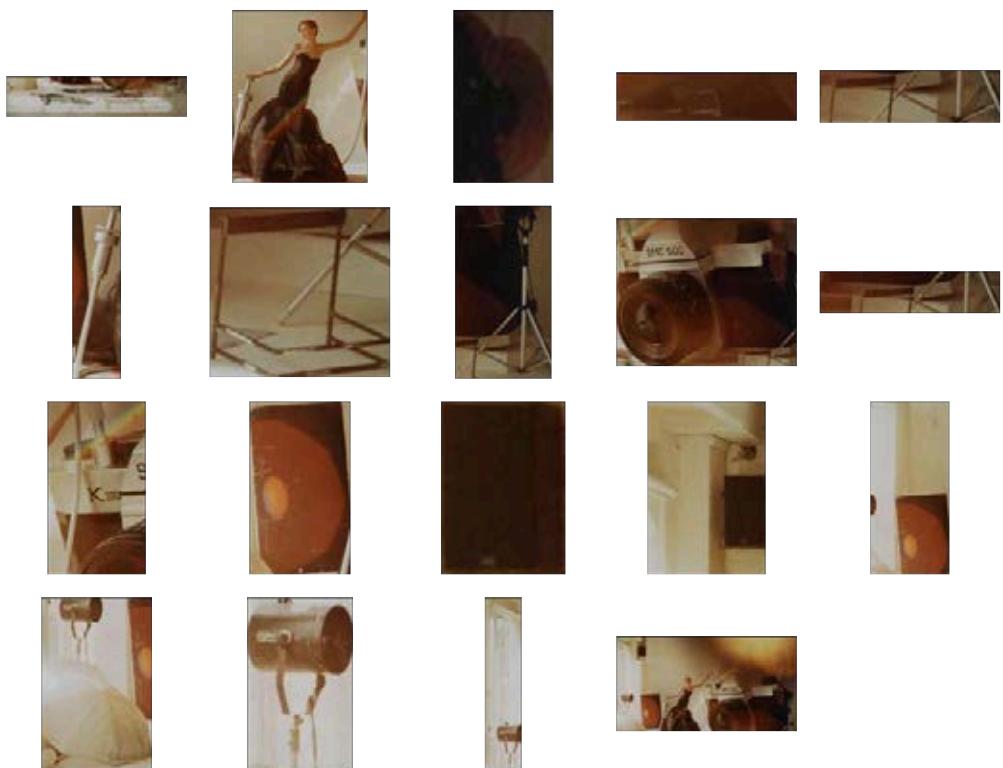


Figure a4:3 - Cropped out segments of a Tim Walker photograph shown in Figure a4:2.

Finally this produces a matrix of 1224x651 dimensions. Each dimension representing one scenography of Tim Walker, facilitating a domain of concepts structured by his style of composition in his images, but given a voice in Roald Dahl's words.

Within Tim Walker's scenography, umbrella evokes *tarpaulin, parachute, silk, brolly, baton, strap, kite, knickers* from Roald Dahl's filtered vocabulary. Here the image domain acts as a cast shaping a literary voice: the projection produces a tonal weave (whimsical → grotesque) consistent with both authors, not a literal description. This demonstrates resonance across domains that are not inherently paired, extending the instrument beyond found multimodality to constructed multimodality.

1. Walker, Tim. ‘Tim Walker’. Tim Walker. Accessed 1 January 2026.

<https://www.timwalkerphotography.com/>.



2. Kirillov, Alexander, Eric Mintun, Nikhila Ravi, et al. ‘Segment Anything’. arXiv.Org, 5 April 2023. <https://arxiv.org/abs/2304.02643v1>.



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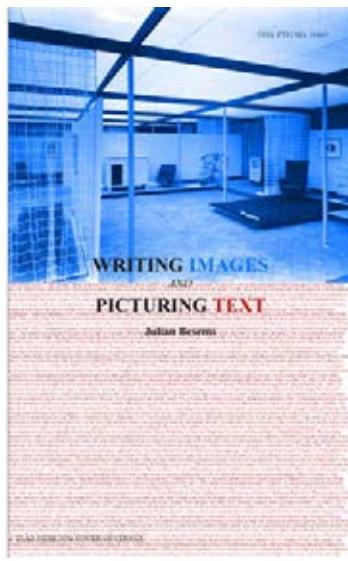
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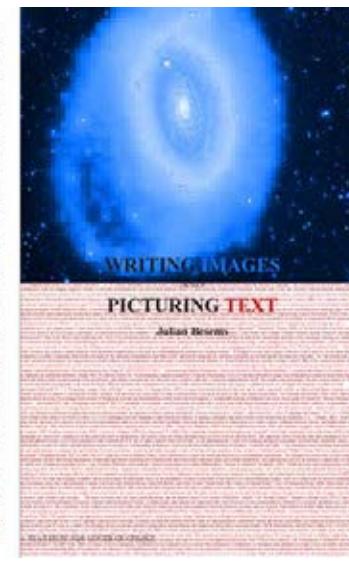
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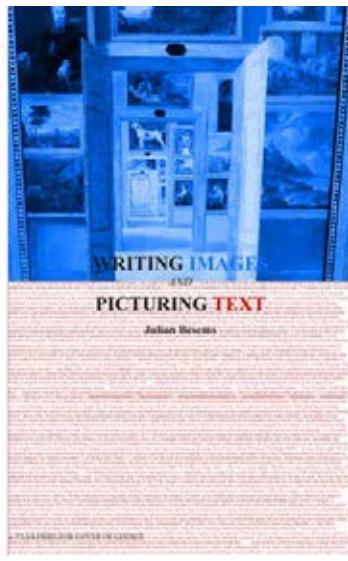
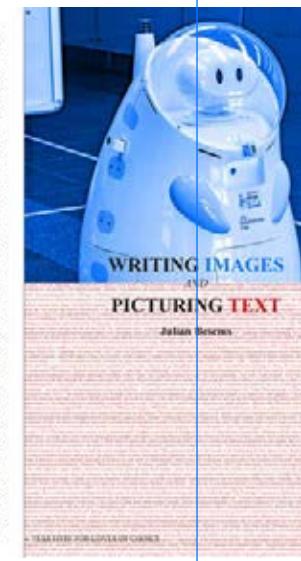




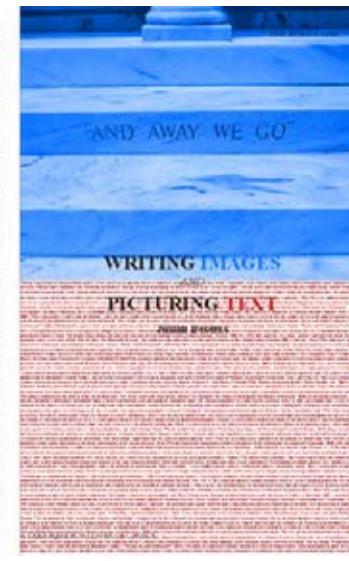
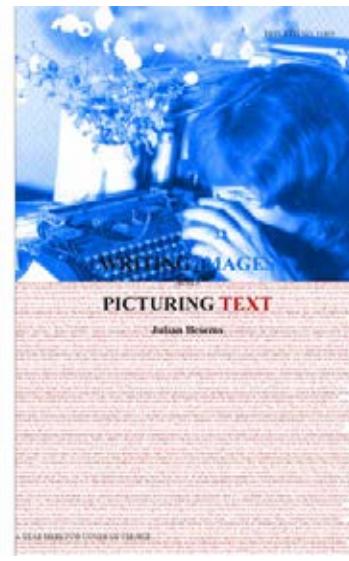
AN ARCHITECTONIC PLAYGROUND BETWEEN DIGITAL MULTIMODALITIES



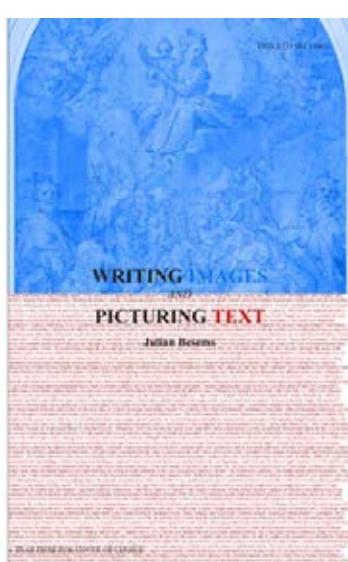
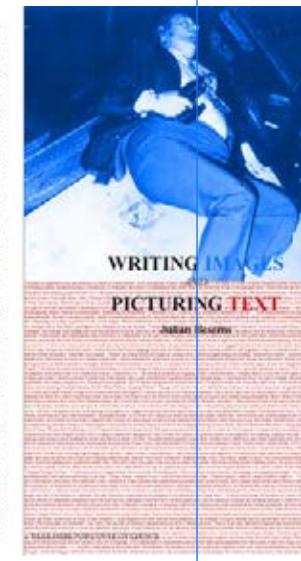
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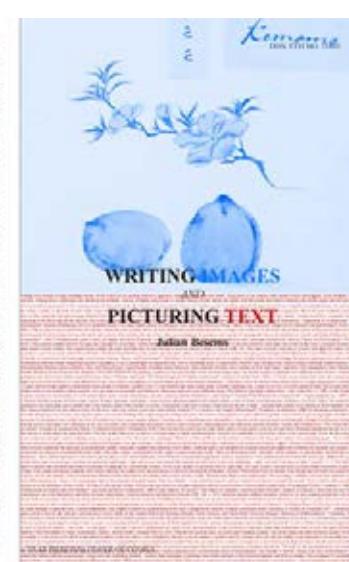
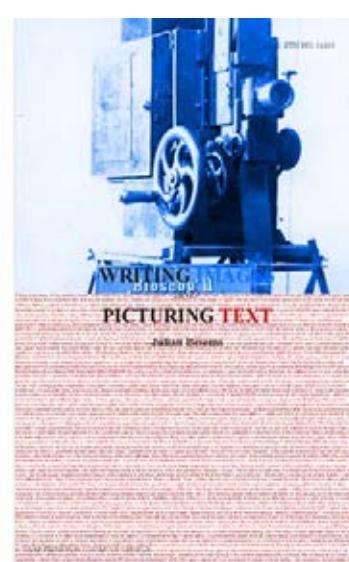
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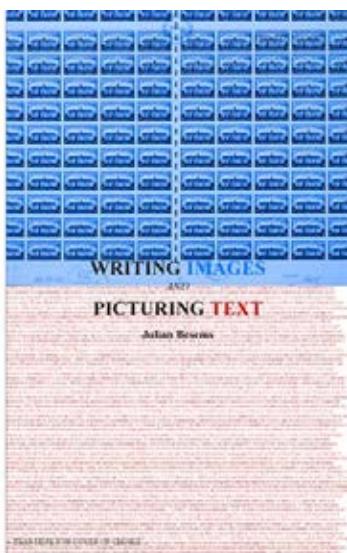


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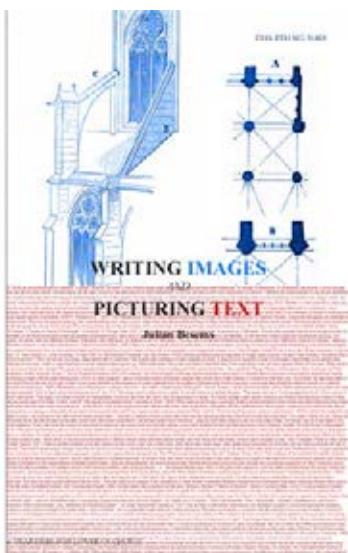




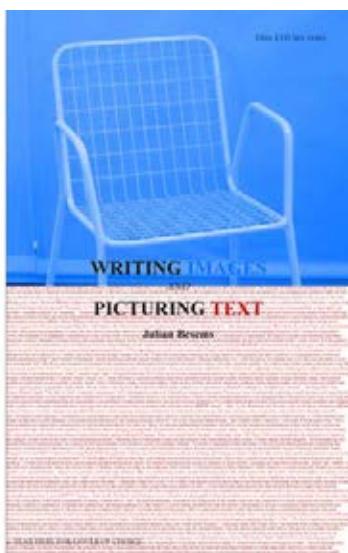
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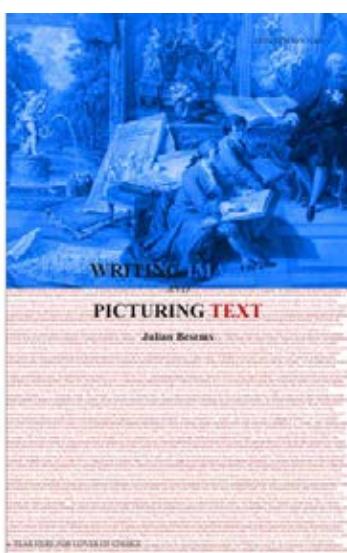
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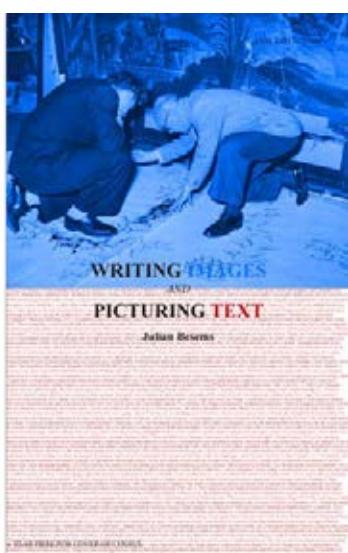
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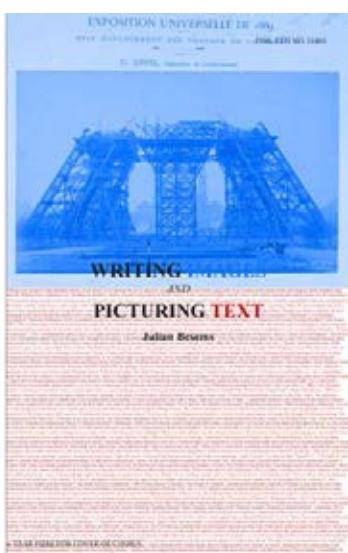
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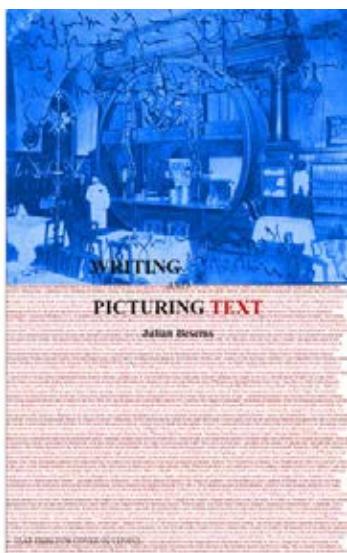
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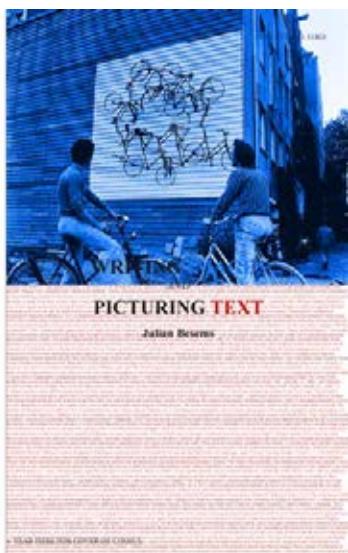
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