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Framing, filling, linking. The drawing of elements for city description

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Abstract	<p>Representing contemporary cities - real, imagined, virtual, designed, future, efficient, smart, sustainable - also considering their dimension as a scenario of daily life and paradigm of today's living, is a complex activity and no longer entrusted exclusively to designers and scholars. Some of the images that represent them have an evocative and narrative capacity that shifts the attention to the emotional and perceptive state that the place has on its inhabitants. The representation is therefore called to tell the story of the city using multiple languages and produce meaningful images, build narratives composed of material with a high visual and conceptual content. The aim of the current investigation is to explore graphic languages oriented to the construction of meaningful images, studying the compositional dynamics and the devices through which to transfer the system of knowledge to which the research tends. The present research, which is at the same time visual and spatial, experiments with a device of representation of the architecture of the city, starting from the drawing of a map that contains the organization by levels of the structural elements of the facades. The surface is composed of sequences of these elements according to compositional and summative criteria, making them emerge in their linguistic and design autonomy, in order to indicate paths of knowledge, extracting information and connections for thematic areas.</p>	
Keywords (separated by '-')	Architectures - Patterns - Visualization	



Framing, Filling, Linking. The Drawing of Elements for City Description

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AQ1

Abstract. Representing contemporary cities - real, imagined, virtual, designed, future, efficient, smart, sustainable - also considering their dimension as a scenario of daily life and paradigm of today's living, is a complex activity and no longer entrusted exclusively to designers and scholars. Some of the images that represent them have an evocative and narrative capacity that shifts the attention to the emotional and perceptive state that the place has on its inhabitants. The representation is therefore called to tell the story of the city using multiple languages and produce meaningful images, build narratives composed of material with a high visual and conceptual content. The aim of the current investigation is to explore graphic languages oriented to the construction of meaningful images, studying the compositional dynamics and the devices through which to transfer the system of knowledge to which the research tends. The present research, which is at the same time visual and spatial, experiments with a device of representation of the architecture of the city, starting from the drawing of a map that contains the organization by levels of the structural elements of the facades. The surface is composed of sequences of these elements according to compositional and summative criteria, making them emerge in their linguistic and design autonomy, in order to indicate paths of knowledge, extracting information and connections for thematic areas.

AQ2

Keywords: Architectures · Patterns · Visualization

1 Framing Figurative Content and Images of Cities

Drawing and representing the city in its physical consistency, the architecture (languages, elements, typologies, styles, functions, utility, dating, etc.), the spaces through which it is organized, the landscape in its dimension of scenario of daily life and paradigm of today's living, is an activity that has become quite complex and no longer entrusted exclusively to designers and scholars. The role of those who deal with the representation of the environment turns out to be active, stretched in a continuous state of translation (graphic) of theories, norms, facts, information. To translate (from the Latin *traducere* that means «to transport, to transfer»), to turn into another language, different from the original one, word for word, is to draw, to tell about the city using the multiple languages of representation and therefore to produce meaningful images, to build narratives composed of material with a high visual content, to experiment with new translations.

These are, for example, the interesting proposals produced in the experimental field of competitions, images of cities and architecture that invigorate our imagination. The landscape of the “unbuilt”, as an antonym of “built”, is a symbol of our present, which Tadao Ando introduces in his editorial in *Domus* to define that work of designing architecture conceived for construction but never realized, or understood as a representation of the architect’s aspirations, without construction as the goal [1]. Strong and provocative images, which precisely because they remain in an abstract or virtual dimension, without acquiring the physical and imperfect features of reality, are invested with an emotional charge that makes them special and suggestive (Fig. 1) [2]. Like the fantasy works of the visionary neoclassical architects who projected in their drawings “the image of a mysterious world, unusual and profound in its proportions” [3] or the concepts of futuristic cities of the architects of the 1970s, between obsessions and attempts to make sense of a space made up of signs, directions and communications.

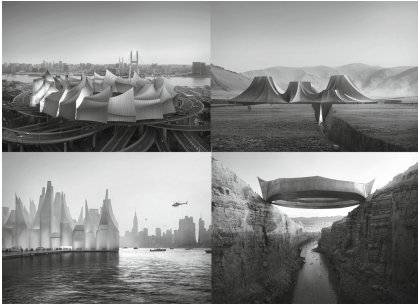


Fig. 1. De Lucchi M., *Stazioni terrestri*, 2018 (Divisare. <https://divisare.com/>)



Fig. 2. DAD, *The thin red line* (Brooklyn-Manhattan new bridge), 2016 (Divisare. <https://divisare.com/>)

Speculative architectures, Ando defines them, reshaped by the global digital revolution and transformed, in the most innovative experiments, into containers of information. Timeless architectures that show a level of sophistication that makes them indistinguishable from real ones and in which conventional notions of function and space have begun to waver.

It is not only the city as such that exists, but also its representations in a flow of images, research, words, and compositional methods that affect our daily lives. Historic cities, modern cities, suburbs, industrial cities. Efficient cities, smart cities, sustainable cities, etc. Real, virtual, imagined, future, futuristic cities. The images of cities are, today, ubiquitous, offered by the media through the many communication systems to which we are connected. The web offers the possibility to explore numerous resources of information and sources of production of images that share reflections, investigations and projects in which man, space and living are the object of representations (Fig. 2) [2]. The images project on the display not simply representations of places, but real visual suggestions, each one with different communication modalities and techniques.

The images of these places have an evocative and narrative capacity that goes beyond the prescriptive content of the urban project or the meaning of an urban reality that one wishes to investigate. Of each place visualized, numerous versions can be traced, multiplied into images to be quickly consumed. They are artificial-looking images, some animated by artistic references, allusions, quotations; others by contaminations, emphases. The data that passes through them come from different fields, from biology to economics, from design to cinema, from mathematics to philosophy, to visual culture.

This repertoire of representations, of very different origins, investigates and tries to understand the world, in a reading that is attentive above all to emotions, ideas and thought.

There are numerous devices of representation with which the project is communicated, the computer model in its two- and three-dimensional configuration, rendered, photomontage, etc., dimensionless compositions defined by signs and symbols. Even the support, fixed, mobile, luminous, understood as that material of various nature that makes possible the visualization of a concrete image [4], contributes to determine the modalities in which the image circulates, migrates, is transformed and is observed within the cultural context [4]. The architects and designers who describe the city today have made their own linguistic tools, figurative models, repertoires of ideas and symbols of related and less related disciplines, giving life to a multiform landscape.

The design of architecture shows, in this field of research, an enlightened expressive and illustrative freedom with which it investigates the city, encouraging the work of creative minds committed to grasping an “uncertain future” [1].

2 Filling_Map Construction for Elements and Shapes

The experimentation proposed in this paper has as its aim the real city and draws on a large amount of data from an archive of surveys and drawings of the architecture of which it is composed (Fig. 3). This “exact” figurative transcription is flanked by the visual material that is the result of investigations on various themes of research on urban representation. It attempts to translate the complex of visual data available into a sort of parallel reality, where material and immaterial data are freely placed in the digital fabric of the narrative of the city. The information coming from different sources, the ways and criteria with which they are composed and associated by connecting with each other, the devices through which they are communicated, the languages with which they are transmitted and transferred to the community, the tools used to extrapolate suggestive and effective narratives, describe a particular dimension of research and its unfolding in different scientific categories.

“The city presents itself as a field of infinite information that follows one another according to an apparently chaotic order. Escaping the paradox of the Map of the Empire, the desire to immerse oneself in this dense and stratified material, which presupposes a compulsory recognition of its compositions and its strategies of formation, imposes an activity of selective discernment that arrives at an interpretative synthesis in which the quality of the representation is measured” [5].



Fig. 3. Urban fronts of a real city: surveys and drawings (Source: archive of BDA_Bari Drawing Architecture, 2007–2021).

The aim of the investigation is to explore graphic languages oriented to the construction of meaningful images, studying the compositional dynamics and the devices through which to transfer the system of knowledge to which the research tends. With the aim of identifying a digital place where to place the set of information (i.e. their mapping), the research refers to all those investigations that propose an interpretation of the complex urban reality through maps, understood as a set of signs, data, themes, types, concepts [6, 7]. They are maps in the sense of abstract digital representations that are not topographic maps, but “non-projective representations” containing schemes, lists, symbols. The meaning and potential are broader because to the topographic sense of the concept of mapping is linked the mathematical meaning of the word, which is “association of elements”.

The code of transmission of these representations message is different from the one adopted by the traditional two and three-dimensional architectural drawing, because the aspects to be investigated and the aims need a different approach. This does not mean to say that the orthogonal projection drawing is not adequate to represent the city, but that it is necessary to investigate it also by using forms and languages that adapt and multiply according to its formal and functional complexity.

The structure of the knowledge path and its outcome determine the codes of information transfer. The city “is composed of an enormous variety of materials that can be used by architecture, it is endowed with a particular capacity for preserving the historical stratification of signs, with a particularly high value attributed to them by the community; that is, it cannot be considered only as a building phenomenon; even more than the territorial environment, it involves values and meanings” [8]. The facades of the city architectures are representative of different aspects of this “historical stratification of

signs". For this reason, one of the possible experiments on a digital model to investigate a certain phenomenon is the construction of a map as previously understood, made using the denotative and connotative elements of the architectures.

The elements are the structural ones of the façades, that is, the elements that Masiero classifies as "denoting primary functions" and the "elements connoting symbolic secondary functions" [9]. For its realisation, the architectures are decomposed and these elements are extrapolated from them and then organised to form the map, a new representation in which the architectures are recomposed within a logical system, a device for interpreting the city, reinterpreted through a visual and spatial investigation (Fig. 4).

The drawing consists of sequences of elements ordered according to compositional and summative criteria, making them emerge in their linguistic and design autonomy. According to a strictly two-dimensional reading, in the map elements are represented in a different figurative order and space: portals, gates, corbels, balconies, string-course cornices, windows, openings and all those elements of the decorative apparatus are displayed in their structural identity and meaning. In the space of the drawing, the original system is disassembled, the façade is fragmented and the single elements are isolated and then placed side by side respecting a certain "critical distance" [10]. Similar elements are repeated and the even if minimal linguistic variations underline the richness of the building, its history, its link with the context.

Measuring, listing, identifying, isolating, stratifying, fragmenting, overlapping, connecting are the multiple actions of composing that Franco Purini defines in order to establish the modalities of aggregation and visualization of the elements that constitute architecture [11]. Relationships, distances, equalities and sequences are established. That is, a pattern is constructed, which aim is to identify objects through their forms, characters, or configurations (Fig. 5). The pattern is the map - representation of a place by means of an abstract digital configuration - which represents, therefore, a cataloging system, a taxonomy - from the Greek *táxis* meaning order and *nómos* meaning norm - to arrange the elements according to a rule, establishing the norm for reading and extracting data. It is a device for organizing and communicating information, to achieve which it is necessary to "isolate, group, make relevant, relate, build in sets the mass of elements that the architecture offers to its analysis" [12].

The configurative process of a pattern consists in the repetition of a modular element (or a combination of elements) according to a scheme, a logical path, an ordered disposition. The "com-position" of the pattern involves the ideation of a basic geometric grid within which "to place" the element according to certain logical criteria.

The construction criterion of the proposed digital map of the city follows the compositional logic of pattern. The process of organizing the graphic space, in which to define a logical interpretative system, develops according to the sequence "Framing, filling, linking" identified by Gombrich as a procedure of "complication by degrees" of a decorative pattern [13]. In the composition of the map/pattern, a uniform and regular grid was defined to "highlight the dimensional and formal relationships between the parts, the relationships that are not random but constitutive of the whole" [14]. The proposed grid, however, does not contain a basic module to be repeated as in an ornamental pattern in the canonical decorative pattern. It frames the series of structural elements of the façades that are different from each other - even if all in the same scale of representation - but



Fig. 4. Identification of the denotative and connotative elements (Source: archive of BDA_Bari Drawing Architecture, 2007–2021).

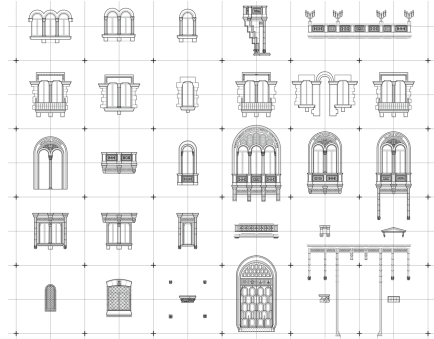


Fig. 5. Measuring, listing, identifying, isolating, stratifying, fragmenting, overlapping, connecting (Source: archive of BDA_Bari Drawing Architecture, 2007–2021).

significant because they are the synthetic expression of the architecture analyzed (elements denoting the primary functions and elements connoting the symbolic functions). As in a repeating pattern, the elements are arranged along “lines of tension” that are orthogonal to each other, in a “directional dynamism” [14] that distributes them in the four directions, according to a continuous and unlimited pattern. The actions of “framing” and “filling” must be completed with the definition of the “connections” that make explicit the compositional logic and the construction aim of the scheme (thus defining the pattern).

To connect, in the case of our device, means to reread the elements following a different path from the one implemented in the direct knowledge of the facade. Different relations from the original ones are established and transversal comparisons are possible, identifying the variation of the theme on the same façade, the reiteration of the form on other façades in a similar way or its variation, the diffusion in the urban context and in time, the use or the variation proposed by the same author or among different authors, the repetition, the copy, the interpretation of the type. “Any regular lattice or symmetrical drawing is always amenable to further development through the creation of connections between its constituent elements. In this process we can see a rich network of progressive intrigue emerge, since it is in the nature of any geometric periodicity that it can serve to generate new periodicity, according to a hierarchy of forms” [13]. The construction of the pattern then allows to configure an abstract vision of urban reality, in which the elements are transfigured in a geometric sense until they become modules of a formal system for comparison and extrapolation of synthetic data (but full of the information that pertains to the original architecture from which they were isolated).

3 Linking No-Stop-Elements. Dynamics of Representation of the City

In the present work, the representation of the city opens up to a different device, understood as “the set of those technical-material elements that arrange and organize in space, in a static or dynamic way, the relationship between the images and the spectator” [4]. The city shows itself in a sequence of data, elements, modules. Architecture, from a concrete art of building, is proposed as a “form of thought that is able to offer theoretical and figurative hypotheses that can represent alternative and definitive solutions to the problems of man’s relationship with his natural and built environment” [15]. Drawing is no longer a reduction in scale of reality, endowed with a functional purpose, but stands as a conceptual datum.

The city thus represented, conceived from the association of data and elements placed on a homogeneous isotropic and neutral surface, is intended to evoke the iconic image of Archizoom’s No-stop-city (1972) (Fig. 6) [6]. Clear visual provocations, together with Superstudio’s [16] “continuous monument”, propose, oppose and superimpose to the urban model the image of another city, obtained by rigorous application of new generative procedures of space and its physical structures [17, 18].

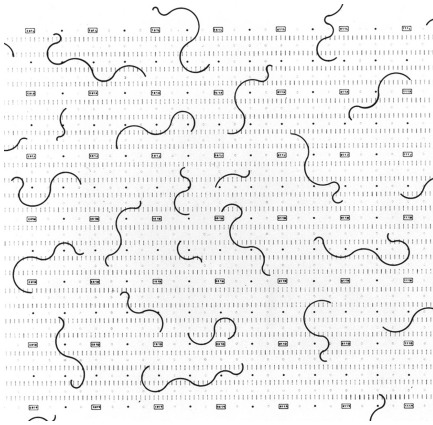


Fig. 6. Archizoom, No-stop-city, 1972.

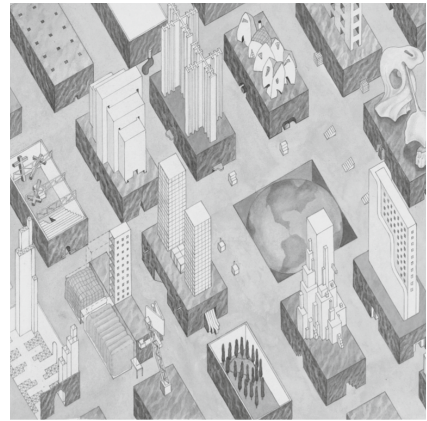


Fig. 7. Koolhaas R., Vriesendorp M., The City of the Captive Globe Project, New York, 1972

The drawings that tell the No-stop-city are made with a typewriter, emphasizing the radical refusal to use traditional drawing tools. Archizoom, in fact, develops the matrices of No-Stop City with the help of typed grids. On a typed page, the grid remains implicit as the print bar advances in regular increments. The typewriter is Archizoom’s chosen design tool for No-Stop City, which refers to the grid as a framework and infrastructure and as a structure to be programmed [18]. The typewritten characters show the city as an experiential and non-formal reality, outside and through the perimeters of architecture. The image, with a strong graphic impact, has no recognizable and consolidated physical connotations, there are no volumes or concluded spaces, but only directions, points

of accumulation and signs. The mapping of places preserves the traces of a built city, where every single organism/element is expressed through lines and points, patterns, repetitions and superimpositions. A representation of the city that is not only figurative but conceptual and whose device of representation is a mesh that holds the contents together, associates the data with each other and builds layers of knowledge of the physical world that are infinitely implementable. The image of Archizoom is flanked by the fantastic, as much as unreal, image of Manhattan in the City of the Captive Globe by Rem Koolhaas (1972) (Fig. 7), in which the blocks, organized in the Grid, according to a rigorous geometric scheme, are attributed multiple functions and desires. In the axonometric view of the project drawing, Koolhaas “traces an archipelago of city within the city”. The more diverse the values celebrated by each of the islands, the more the unity of the archipelago as a system is reinforced” [7].

In the experimentation started on No-stop elements (Fig. 8), the design tool for the knowledge of the city and its architectures is the drawing, computerized, realized by line on two-dimensional support, whose projective characters preserve recognizability, proportion, connection and visual coherence. If the radical thrust linked to the conditions of crisis of the No-stop city is absent in this study, just as the tension towards possible solutions for a delirious New York, in it remains the will to define a language where

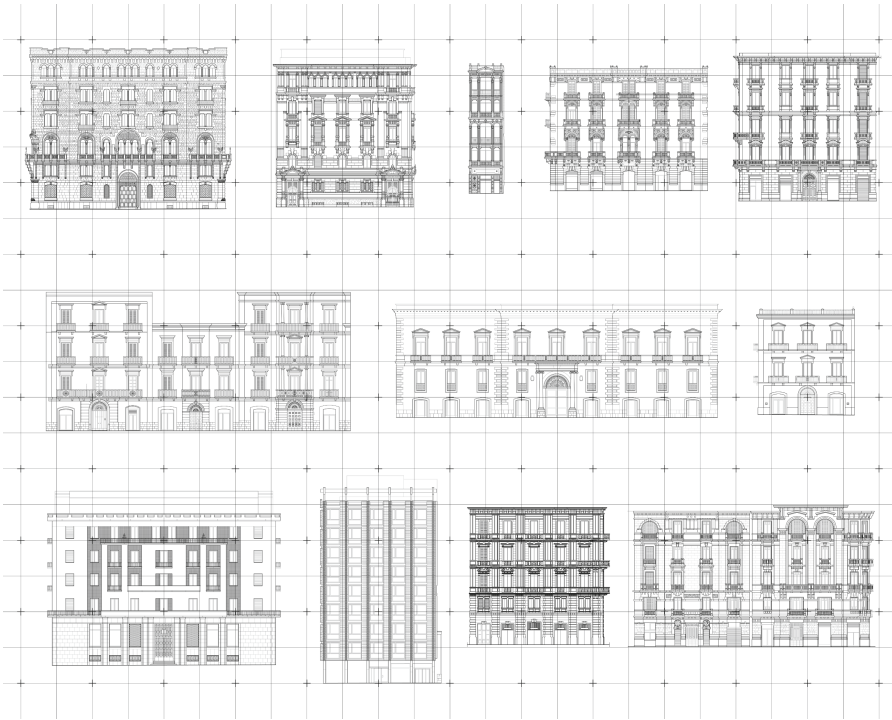


Fig. 8. No-stop-elements. Reasoned sequence and device of representation (Source: archive BDA_Bari Drawing Architecture, 2007–2021).

city, architecture, sign, drawing, process and order confront each other in a meaningful representation.

In the non-hierarchical space of No-stop elements (Fig. 9), which hosts an infinite number of data, elements and fragments of the built reality, it is possible to experiment with a meaningful drawing of the city, extracting information and connections by thematic areas, composing narratives by signs, by small, minimum units of analysis. The open structure of the system described shows the categories of investigation in Mongiana's projection that reach an increasing degree of abstraction according to the scale of investigation, while maintaining, in the sign and the stroke, a recognizability that favors the reading.

A geography of signs belonging to the “reality observed and projected into a parallel spatiality in which the experience and cultural quality of the re-presentation project is grafted” [19].¹

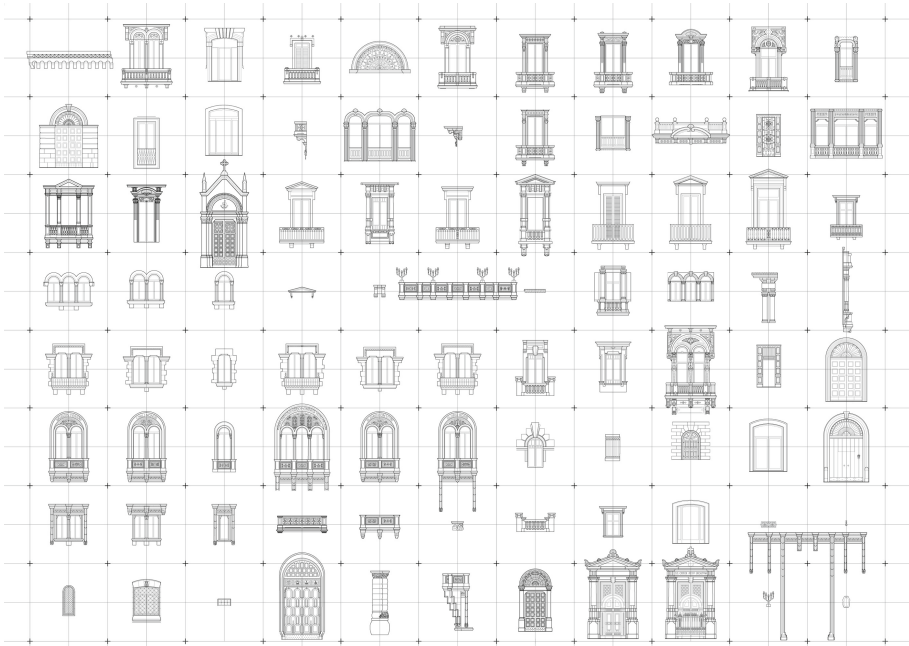


Fig. 9. Facade mapping and identification of survey units. Archive of surveys and drawings (Source: BDA_Bari Drawing Architecture, 2007–2021).

¹ The paragraphs “Framing_Figurative content and images of cities” and “Linking. No-stop-elements. Dynamics of representation of the city” are by First Author; the paragraph “Filling_map construction for elements and shapes” is by Second Author.

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