Geometry, Modularity and Proportion in the Extraordinario Libro by Sebastiano Serlio: 50 Portals Between Regola and Licentia

SERLIO'S FIFTY PORTALS BETWEEN *REGOLA* AND *LICENTIA*

Introduction (Roberta Spallone, Marco Vitali)

The *Extraordinario Libro* by Sebastiano Serlio, published in Lyon in 1551, is an interesting field of experimentation for the dialectical relationship, central to the Mannerist period, between *regola* (rule) and *licentia* (license). De Fusco explained this dialectical relationship:

> the culture of Mannerism requires a new accent: the 'unusual' [and this for Serlio will have the character] of a very vast variation on the theme of the classical code. In fact, the unusual will be admirable if founded on reason, hence the continuous references to the norm (the basic paradigm indispensable to the derogation itself) (De Fusco 1968: 388, our trans.).

Thus the *regola* found by Serlio in classical orders is for him the occasion for countless *licentie*, or variations. This volume is composed of copper plates engraved with rich captions: 'thirty gateways of Rustic work mixed with various Orders, and twenty of delicate work in different styles' (Serlio 1551: Title page; Serlio 2001: 459) (Fig. 1).

Fig. 1 Sebastiano Serlio, 1551. *Extraordinario Libro*, title page

The book, not foreseen in the original editorial plan for drafting an architectural treatise, is related Book IV, concerning architectural orders, which was the first to be published in 1537. Indeed, in the monumental door, or portal, the architraved or arched entrance combines with the order to form an architectural element with a specific functional, formal, and decorative character (Chitham 1985: 99-101).

In the twentieth century, the *Extraordinario Libro* was the object of several historical-critical studies that defined it *una sorta di enorme, maniaca variazione decorativa su pochissimi temi e schemi fondamentali* ('a sort of huge, maniacal decorative variation on a few very fundamental themes and schemes') (Rosci 1966: 48), or a collection of *eresie inibite* ('inhibited heresies') (Tafuri 1966: 46-47), and highlighted the character of this *strana collezione di portali e cartigli capricciosi* ('strange collection of portals and capricious cartouches') (Rykwert 1993: 7). However, there are no studies that analyze the geometric structure of the Serlian models, linking them to the modularity of the orders and to the unit of measurement of the period.

We have undertaken this path with the aim not only, as in Fiore's auspices, to reproduce, following the text, the proposed graphic examples (Fiore 2001: 17), but also to interpret, represent, and finally relate the proportional criteria underlying the iconographic *corpus* of the book.

Firstly, a comparison between the fifty portals aimed to classify their formal features allows us to:

– compare and classify Serlian models;
– highlight recurrent and exceptional compositional criteria.

Secondly, after identifying the ten portals for which Serlio states modules and dimensions, the geometric-modular relationships that rule their composition are investigated using graphical analysis, which involves recognition, de-composition and re-composition of the elements, and philological reconstruction, aimed at:

– identifying variants and invariants between proportions of 'rustic' doors and 'delicate' doors;
– establishing connections to the rules of orders stated by Serlio in Book IV.

Several historians' researches on the *Extraordinario Libro* were pertinent to our analyses and inspired new interpretations of the book that are important to take into consideration. They will be recalled during the discussion below regarding the case studies. It is possible to recognize currents of thought that underline the issue of variation and restoration (that is, the dichotomy between *licentia* and return to the *regola*) expressing opinion about Serlio's strong desire to suggest how to return to the architectural canon (De Fusco 1968: 453-455; Carpo 1993: 63-83), about his intention to overcome and relativize the value of the variations (Tafuri 1966: 44-47), about his desire to surrender to the architectural furor (Onians 1988: 280-282), and about the balance between fantastic imagination and rationality in his compositional method (Fiore 2001: 34-39). The results of this present research add new elements of knowledge, and could also support new critical interpretations of the *Extraordinario Libro*.

Portals in the Architectural Literature and Serlio's Treatise (Roberta Spallone)

The Renaissance rediscovery of antiquity and the consequent search for a canon of the architectural orders, of which Serlio was one the first theorist, connects to the portals theme, which interprets the order according to the 'trilithic' system. Riccardo Migliari, analyzing the five architectural orders, established a hierarchy through which, by successive partitions, he created a sequence of constructive level, functional level, and decorative level (Migliari 1991: 53-55). The constructive level, based on the trilithic system, consists of pedestal, column, and entablature. We will use these definitions and the hierarchization that follows, sharing his methodological framework. The issue of the proportioning of portals has been addressed in some previous texts. In the *Hypnerotomachia Poliphili*,

written in 1499, Francesco Colonna described a monumental door designed through a geometric construction and proportional relations (Colonna 1978: 223-229). Colonna's rather obscure description was interpreted through graphical analysis by Jacques Kerver (Colonna 1546) and Giovanni Pozzi (Casella and Pozzi 1959) (Fig. 2). This allows us to see how the overall geometric approach enters the design process as a method that goes from the general to the particular (Bruschi 1978: 223-229).

Fig. 2 left) Jacques Kerver's engraving of 'Magna Porta' of the *Hypnerotomachia Poliphili* (Colonna 1978: 221); middle) Jacques Kerver's *Quadratura* of gateway (Onians 1988: 209); right) Giovanni Pozzi's geometric analysis of the portal (Colonna 1978, 228)

About twenty years after Colonna, Cesare Cesariano (1521), illustrating the translation of Vitruvius, presented two portals, Doric and Ionic, appropriate to the temple, in which he accurately described the main proportions between the parts (Fig. 3).

Fig. 3 Proportions of Doric and Ionic portals. Images: Cesariano (1521: LXVIIIv-LXIXr)

As has been noted, the theme of portals is recurrent in Serlio's treatise. In chronological order, the doors' theme appears in: Book IV (1537), dedicated to the five architectural orders; in Book III (1540), which contains Roman antiquities surveys; in Book I (1545), where the principles of geometry are exposed; in the manuscripts of Book VI (Munich Manuscript n.d., New York Manuscript n.d.), where the portals appear in the perimeter walls of some domestic houses; in the Vienna Manuscript (Serlio n.d.), preparatory to Book VII, where there are portals of other private houses and city gateways; and, finally, in the *Extraordinario Libro* (1551). The analysis of the theme, according to this sequence, could reveal the progressive maturation of a compositional method, fully applied in the *Extraordinario Libro* (Fig. 4).

Fig. 4 The theme of portals in Serlio's Treatise plan. From top: Book IV (1537: XXVIr, XXVIIIr); Book III (1540: CV, CXXXI); Book I (1545: 23r); Manuscript of Book VI (Munich Manuscript: folio 15r, folio 12r); Manuscript of Book VII (Vienna Manuscript) (Serlio n.d.: folio 75r, folio 105r), and *Extraordinario Libro* (1551: delicate portal VI, rustic portal XXIX)

Book IV and Book I as References for the *Extraordinario Libro* (Roberta Spallone)

The main references for the *Extraordinario Libro* are included in Book IV and Book I. In Book IV, while systematizing the orders, Serlio first created a new *corpus* of rules, which became a genuine architectural grammar, then linked the orders with the rustic ornamentation, and finally showed – for each order – possible combinations to realize a number of different portals.

In Book I, Serlio affirmed the idea of geometry as an ordering criterion and, as an example, applied a compositional method to a portal whose diagram is based on the *ad quadratum* used in the late Middle Age (Wittkower 1949: 127).

Book IV: Architectural Orders, Rustication, and Models of Portals

In Book IV, Serlio stated a canon for proportioning the architectural orders, classifying them as Tuscan, Doric, Ionic, Corinthian, and Composite. The book was established as the first fully illustrated architectural grammar of the Renaissance, becoming 'the architectural bible' of the civilized world (Summerson 1964:10). The five orders are arranged in a regular mathematical progression: each column is one diameter higher than the one before it, and each pedestal is likewise loftier in proportion than its predecessor (Onians 1988: 217). The pedestals' shapes refer to the rectangular proportions that Serlio develops in Book I.

In Book IV, the *regola* presents a series of transgressions of Vitruvius's instructions, motivated by the direct reference to Roman antiquities. Moreover, Serlio integrates the Vitruvian teachings with regard to the pedestals, the Composite capital, and the Tuscan, Corinthian, and Composite entablatures, in a clear and innovative design that would determine a large number of imitations and repetitions.

The *regola* identifies as a module the column diameter repeated a certain number of times at the 'constructive level', which, using the successive partition method, allows for proportioning the elements at the 'functional level' (Migliari 1991: 49-66). The functional level arises from the tripartition of each of the elements of the constructive level, which was defined above. This represents an overcoming of the naturalistic description of the orders by Cesariano, whose treatise Serlio knew (Fiore 2001: 16). Cesariano's orders are illustrated as luxuriant, fantastic forests of columns and capitals, contrasting to the unadorned opening page of Book IV (Serlio 1537: VIr). Serlio's five schemes are strictly organized on the rectangular ratios of the pedestals and the linear partitions of columns and entablatures (Rosci 1966: 26) (Fig. 5).

Fig. 5 Comparison between Cesariano and Serlio's five orders, Serlio's rectangular proportions. Images: Cesariano (1521: Liber Quartus, LXIII), Serlio (1537: VIr), Serlio (1545: 21). Graphic overlay: Roberta Spallone

Serlio makes it clear that the five orders form a series not only of rising proportions but also of increasing ornament and decoration. Moreover, he first connects them to their treatment through the so-called 'rustication'. In particular, he says: 'Since Tuscan work is the roughest and least ornate, as it seems to me, rustic works suits it and matches it better than it does any other' (Serlio 1537: VIv, our trans.).

Rustication, as is apparent in the illustration, is the word Serlio applies to rough stonework, and this can be recognized as appropriate to the simplicity of the order. At the end of the section on the Tuscan order, the whole problem of rustication is treated separately. Four bands of masonry present a progressive increase in polish, refinement, and ornament. Both columnar orders and masonry types create a complexity scale, from simple to refined (Fig. 6). There is an intentional parallelism between the scale of the orders and the scale of the masonry (Onians 1988: 271).

Fig. 6 The scale of rustic masonry. Image: Serlio (1537: XVIIIv)

In Book IV, several models of portals are presented after the description of the proportioning rule of each order. These represent a field of experimentation for the links between architectural orders and ornamentation. Some of these portals seem to be a prelude to the *Extraordinario Libro*. In addition to the example of the Tuscan portal, there is also the door of the house of the cardinal of Ferrara in Fontainebleau (Grand Ferrara), which is the same as that which opens the *Extraordinario Libro*. Other doors have a trilithic structure and pediment, mostly without a pedestal. The Tuscan and Doric orders are subject to the application of the rustication, which breaks the architrave and frieze and, in some cases, enters into the pediment.

Book I: Geometric proportioning for the portals

In the concluding part of Book I, Serlio illustrates some applications of geometry, among which, as said above, the *ad quadratum* method is used to proportion the main door of a temple. The general dimensions of the door are governed by the width of the central nave, through the construction of a square where the diagonals and the inscribed isosceles triangle define the two main dimensions of the opening and the proportional relations between its width and the cornice, and between its width and the height of the pediment.

Rudolf Wittkower highlights an essential aspect of this Serlio's geometric layout: the graphic construction leads to finite subdivisions of the square that dominate the composition of the door. Observing that this operation does not necessarily require a drawing, he concludes that the construction follows, rather than precedes, the establishment of the proportional ratio chosen for the portal. Indeed, modular ratios of 1:3 and 2:3 between the parts are highlighted through the geometric construction proposed by Serlio. Wittkower (1949: 126-127) also noted the existence of other 1:3 and 1:2 ratios and suggested the presence of other relationships between small integers, which our analyses have verified (Fig. 7).

Fig. 7 *Ad quadratum* method for proportioning a temple's portal. a) Serlio's construction; b) Superimposing of Serlio's construction; c) Superimposing of Wittkower's interpretation (1994); d) Superimposing of authors' analysis. Images: Serlio (1545: 23r). Graphic overlay: Roberta Spallone

Although Serlio does not mention this geometric criterion for proportioning in the *Extraordinario Libro*, it is recognizable in the portals that we have analyzed, and which are described in the case studies below.

Extraordinario Libro: A Synoptic Overview of the Fifty Portals (Roberta Spallone)

> …finding myself continually in this solitude of Fontainebleau, were there are more beasts than there are men, … the desire came into my to form in a visible design several gateways in the Rustic style … I advanced so far as to make a total of XXX, almost carried away by an architectural frenzy. Nor was this sufficient – sensing as I did that my mind abounded in new fantasies – hence I decided to make up to XX of delicate work… (Serlio 1551: *Al Christianissimo Re Henrico*; Serlio 2001: 460)

The first edition of the *Extraordinario Libro*, published in folio format with non-numbered pages, opens with a dedication to Henry II, King of France, followed by a note to the readers, in which Serlio attempts to justify the licenses he has taken by explaining how to restore the integrity (the first form) of the portals, illustrates a general criterion of proportion between the parts, and explains the possibility of modifying the portals dimensions proportionally. This is followed by the textual description of the fifty portals and, finally, the plates that represent them, starting from the rustic types (Fig. 8).

Fig. 8 Thumbnails of the plates in the *Extraordinario Libro*: the fifty portals. Images: Serlio (1551)

In an overview of the fifty portals, Onians noted that the portals were all rather strange, especially the first thirty: in his opinion, the rustic examples represent extravagant irrational designs, and the delicate ones are relatively rational and correct (Onians 1988: 280).

We have compiled a comparative table (Table 1) that takes into consideration selected features of the portals described in the text: the order, the type of rustication, the possible functions, and the references to Antiquity. The portals are also analyzed from a morphological point of view that distinguishes the opening structure (arched or architraved) and any lateral openings, the type of vertical support (column or pilaster strip), the entablature characters (continuous or interrupted by rustication or inscription), the pediment shape (triangular, tripartite, tripartite with volutes, interrupted by rustication and/or panels), and points out the presence of: single or double piers, superimposed order or giant order, single blocks or continuous courses of rustication, fluted or unfluted columns. The table allows us to highlight recurrences and variations in the design of the fifty doors. This survey confirms the remarks by Onians, who also observed that almost all of the rustic portals are Tuscan and Doric, and almost all of the delicate portals are Ionic, Corinthian or Composite, so that the simpler order is associated with the greatest creative license (Onians 1988: 281).

An increasing level of complexity can also be observed, from the first to the last, for both rustic and delicate portals (merging of orders, rustication or rustication that progressively enters the pediment, flutings, presence of two levels of orders, use of fragments of antiquities). In the rustic portals, a balance between rustication and order can be observed (banded column, strong rustic, delicate rustic, and 'bestial' rustic).

Serlio tells the readers that the mixture of rustication with an order 'represents... partly a work of nature (*opera di natura*) and partly a work of art (*opera di artificio*)' (Serlio 1537: 133v). An increase in rustication gives an impression of natural strength, while an increase in carved ornament, even applied to Tuscan, enhances the impression of artful refinement and wealth (Onians 1988: 273).

Moreover, some morphological recurrences can be pointed out. They indicate, as sometimes reported in the text, the formal constancy of the elements for different orders or the taste for variations on the theme thanks to the placement of the inscriptions, the use of rustication, and the decorative apparatus.

Table 1 Architectural features of the fifty portals. In black the features evidenced by Serlio, in red these gathered from the analysis at the constructive level (colour figure online)

Working Methodology (Roberta Spallone)

In the dedication to the readers, Serlio provides general indications on how to use dimensions:

> Since I have been very brief as regards my descriptions of the measurements, the careful architect will find all the detailed measurements by acting as follows. He should consider how wide the doorway has to be in feet, divide one of those feet into twelve parts to make the inches and divide one of the inches up into six parts called minutes… With this rule all the measurements can be found, part by part (Serlio 1551: *A gli lettori*; Serlio 2001: 461).

Readers are cautioned that they will find some of the fundamental dimensions, but will have to find for themselves those dimensions not specifically indicated: 'You will find the measurements for these if you are diligent in your compartitioning an your measuring' (Serlio 1551: *Descrittione delle trenta porte rustiche*, V; Serlio 2001: 467). A description of dimensional/modular references is only made for rustic portals I, II, III, IV, V, and VII and delicate portals V, XV, XVIII, and XX.

The presence of measures in Vicentine feet (1 Vicentine foot is about 0.356 m) of these portals allows a dimensional comparison of them, brought back to the same scale. Most of these have an opening height between 13 and 16 feet (which corresponds to about 4.60 and 5.60 m). Therefore, these are portals suitable for public and private buildings, as sometimes Serlio declares. Rustic portal VII appears out of scale: with an opening height of 22 feet (about 7.80 m) and is defined by Serlio as a

model for a triumphal arch. Even the delicate portals XV (intended for a temple) and XX have openings of considerable height, equal to 20 feet (app. 7 m) (Fig. 9).

Fig. 9 Dimensional comparison and graphical analyses of ten portals at the same scale. Images: Serlio (1551). Graphic overlay: Marco Vitali

The graphical analysis began from these models, through the connection between drawings and texts, in search of an analysis protocol for the definition of the compositional hierarchy and sequence, the testing of correspondence between modules and dimensions, and the identification of hidden geometries. This protocol, in this study applied to the ten portals with dimensions mentioned above, will be extended to the other models in the future phases of our research.

Regarding the drafting of this protocol, it is necessary to point out that the dimensions indicated by Serlio always follow the general logic and the sequence stated in the dedication to the readers:

– the dimensions in feet (width and height) of the opening;

– the value of the module in feet (corresponding to the base diameter of the column shaft);

– the height of the column (including base and capital) and other elements related to the constructive level.

The reader is left with the task of finding from the drawing the dimensions necessary for the subdivisions of the functional level into the base, shaft, and capital (for the column); base, die, and cap (for pedestal); architrave, frieze, and cornice (for the entablature).

Sometimes the height and width of the elements placed above the entablature are indicated, and more often the dimensions of the lateral bands and the intercolumniation are provided. However, the overall dimensions of the portal and the compositional criterion based on geometric constructions – that is, the *ad quadratum* method treated in Book I – are missing. Nevertheless, these are quite easily recognizable in the drawings (Fig. 10). Other geometric techniques related to the proportioning of the elements of individual orders, for example, Serlio's instructions for constructing the pediment of a portal (Serlio 1537: XXVv) or for dimensioning the basement using the rectangular proportions (Serlio 1537: VI) have not been examined in depth in this phase of the work, but could be addressed in the future developments. Therefore, modular and dimensional indications freely alternate; the latter is then subdivided, almost always, with a modular criterion, which derives from the division of elements into fractions of the whole.

Fig. 10 Implementation and check of the *ad quadratum* compositional method. Image: Serlio (1551), rustic portal II. Graphic overlay: Marco Vitali

In relation to the lack of uniformity of the information in the captions, Serlio often refers to the 'diligent architect' who can integrate the text through the reading of the drawing and vary the size of the module in order to obtain scalar variations: 'To find the measurements of the whole you should consider how wide the opening is to be in feet, dividing a foot into twelve parts, and with that foot you will find the measurements of the whole' (Serlio 1551: *Descrittione delle trenta porte rustiche*, XX; Serlio 2001: 482). Moreover, in the incipit, Serlio specifies: 'And so having a small pair of compasses for the small work and a large pair of compasses for the large work, you may scale up the small thing to the large form with the result that it will be perfect' (Serlio 1551: *A gli lettori*; Serlio 2001: 461).

The graphic reconstruction of the captions concerning each portal, superimposed on the plates, made it possible to identify numerous recurrences in the texts, as previously illustrated. The graphic solution adopted, based strictly on the sequence of dimensions and modules provided in the captions, has produced schemes showing the result of the interpretation based on the unit of measurement (feet) (in the figures on the right, in blue) and the result of the interpretation referring to the module (on the left, in red).

Concerning the constructive level (Table 2), analyzed and graphically identified for each of the ten selected doors, thick continuous lines represent the graphic transposition of measures/modules indicated directly in the text, while dashed lines represent the translation from feet to modules and vice-versa. A complete reading of the functional level has been developed on rustic portal I, which is described below.

Figure 11 illustrates the reading process and the graphic overlay through successive steps that strictly follow the sequence proposed by the caption, applied to rustic portal II. The logical sequence used by Serlio in the caption provides, as the first dimensions, the width and height of the opening in feet (shown in black), the dimension of the column module (shown in red), of the lateral bands and of the intercolumniation (in feet), followed by the size of the pedestal (in feet) (Fig. 11a-b). Then, the height of the column (in feet) is shown (Fig. 11c). The height of the entablature is equal to one-fifth of the height of the column (Fig. 11d). The dimensions of the pediment refer to the geometric proportioning: a square having the side equal to the width of the door defines the height of the pediment and identifies the position of the pilaster strips (Fig. 11e). In the final diagram (Fig. 11f), it is possible to recognize the measures directly indicated and the ones that are translated, the proportioning criteria, the values in feet and in modules (in this case the module is equal to one foot) of the heights of the main elements at the constructive level (pedestal, column, entablature and pediment), and of the widths in relation

to the width of the portal. The dimensions taken from the drawing and not written in the text are represented by dotted lines and noted in gray. The total dimensions of the portal are in black.

Table 2 Modular and dimensional analysis of rustic portal II at the constructive level. In black the modules and dimensions given by Serlio, in red the translation from modules to dimensions and vice-versa (colour figure online)

Fig. 11 Steps of the graphical analysis at the functional level. In red: modular analysis, in blue: dimensional analysis (colour figure online). Image: Serlio (1551), rustic portal II. Graphic overlay: Marco Vitali

A Paradigmatic Model: The Tuscan Rustic Portal I (Roberta Spallone)

Rustic portal I represents the doorway of the House of Cardinal of Ferrara, the design of which Dinsmoor (1942: 119) attributed to Serlio himself. As mentioned above, this portal is present in the plates of both the *Extraordinario libro* and Book IV. The drawing in the *Extraordinario libro* varies in having five voussoirs breaking through the frieze and three acroteria bases on the pediment, while that in Book IV returns to the three great voussoirs but has the pediment filled and interrupted by rustication (Dinsmoor 1942: 145). Moreover, in the plate in Book IV, there are Tuscan half-columns with heavy rustication: Serlio insists that this represents great strength. About this, Onians highlighted that

> not only are the order itself and the rough rustication expressive but the particular way they are combined, as when here the great blocks 'bind' the columns to the walls, is in a way emblematic of the strong containment of a fortress or prison. Moreover, the reference to *artificio* alerts us to yet another way in which the balance between rustication and order can be significant (Onians 1988: 272).

Returning to the analysis of portal I, drawn in the *Extraordinario libro*, the application of the geometric method proposed by Serlio in Book I proved effective in defining the opening width. The geometric construction is not perfectly consistent with the drawing and the modular analysis of the portal, but it must be taken into account that the drawing show some overhanging and receding elements that are represented in perspective: for this reason, the elements that do not belong to the picture plane undergo dimensional reductions; moreover, while the geometric analysis represents our *a posteriori* reading, the modular analysis is based on the textual description by Serlio himself. The measurements and modular ratios defined by Serlio (1 module = 1.5 feet), allow us to safely investigate the constructive level and the functional level, described in Table 3. In particular, the Tuscan order has a pedestal of two modules, a column of nine modules, an entablature of one and one-half modules, and a pediment of two modules. As Serlio notes in the text, in Book IV, the same order was used for structural purposes, which has a pedestal of two and one-half modules, a column

of seven modules, an entablature of one and one-half modules (Serlio 1537: VIv). The modular proportions of the order are flanked by the definition of the openings measures of 8 × 16 feet, equal to a double square, and the rustication height of 1 foot per stone course (Fig. 12).

Table 3 Rustic portal I. Modular and dimensional analysis of the portal at the constructive and functional levels. In black the modules and dimensions given by Serlio; in red the translation from modules to dimensions and vice-versa; in gray the modules and dimensions gathered from the graphical analysis (colour figure online)

Fig. 12 From top left: Portal of the House of Cardinal of Ferrara in Fontainebleau, rustic portal I in the *Extraordinario Libro*, Tuscan portal in Book IV, implementation of *ad quadratum* compositional method, and graphical analysis at the functional level. In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Dinsmoor (1942: I, fig. 12), Serlio (1551), Serlio (1537, XIIII), Serlio (1551). Graphic overlay: Roberta Spallone

From *Regola* to *Licentia*: Comparisons between Couples of Portals (Marco Vitali)

With the aim of comparing the features of some couple of portals by means of graphical analyses, it is useful to recall the debate on the theme of variation and restoration between Manfredo Tafuri and Renato De Fusco. Tafuri argued that Serlio's experimentalism, based on the idea of variation, always had its starting point in a determinate form of classical derivation, which, during subsequent variations, articulates and deforms itself, and essentially demonstrates its relativity, thereby undermining the *presunzione assolutistica* ('absolutist presumption') of the model (Tafuri 1966: 46-47). On the other side, De Fusco observed that, in the *Extraordinario Libro*, the *licentia* appears under various forms that can be restored to *regola* by remaining within the system of architectural language (De Fusco 1968: 454).

Rustic Portals IV and V

The two doors are comparable, from the point of view of both dimension and composition. As Serlio emphasizes in the caption of rustic portal V: 'It might appear to some that the gateway here is the same as the preceding one in that the columns are bound with Rustic, just like the other. However, anyone who considers all the parts carefully will find it quite different' (Serlio 1551: *Descrittione delle trenta porte rustiche*, rustic portal V; Serlio 2001: 467).

In both cases, the portals consist of an arched opening flanked by Doric columns banded with rustication, and a triangular pediment surmounted by three acroteria (Fig. 13). The main differences are concentrated in the entablature:

- in door IV it is created by interposing the architrave with 'pillows' and the cornice with a large panel which also partially occupies the space of the pediment;

– in door V, this is composed more traditionally: metopes and triglyphs are inserted in the space of the frieze and, on axis with the columns, two small corbels support the cornice. Only the architrave is broken by the radial voussoirs of the opening.

As is usual in the text, the size of the pedestal is given (in feet), together with the size of the module (corresponding for both the doors to 1 and 1/2 feet), and the height of the columns (in feet; for the rustic portal IV Serlio states that the height of 12 feet is 8 modules). The height of the entablature is identified as a subdivision (a quarter) of the height of the column.

Fig. 13 Comparison at the same scale and graphical analysis at the functional level of rustic portals IV (left) and V (right). In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Serlio (1551). Graphic overlay: Marco Vitali

Delicate Portals V and XV

The two delicate portals that were considered for the comparison present interesting similarities from the compositional point of view, although they have considerably different dimensions. In both cases, the composition of the portal is made up of a scheme with twin columns on two levels, in which the impost of the arched opening corresponds to the entablature of the first level. In the space of the intercolumniation, niches and openings are created. The tripartite pediment is composed with a raised central part crowned by a triangular tympanum (Fig. 14).

The two examples make explicit reference to the use of re-used elements (the columns): 'However, you should be aware that an architect once found four very beautiful Ionic columns … and he had the same number of very much smaller ones of the purest alabaster … he wished to use these columns to build a gateway' (Serlio 1551: *Descrittione delle venti porte dilicate*, delicate portal V; Serlio 2001: 497). Given the apparently arbitrary dimensions of the columns, the modules obtained in the graphic interpretation assume dimensions consisting of fractions of a foot (11/12 ft, 1 ft, and 2/12 ft): in fact, in these two examples, Serlio never refers to the modules, while it seems that he worries about dimensioning (in feet) the pedestal and entablature elements to guarantee the proportions of the opening (2:1). The dimensional references are almost exclusively expressed in feet, while the modular proportioning criterion is used exclusively through the subdivision of the module or the height of the columns to define the heights of the entablatures of the first and the second level of door V. In neither case are measures provided for the sizing of the pediments.

Fig. 14 Comparison at the same scale and graphical analysis at the functional level of delicate portals V and XV. In red: modular analysis, in blue: dimensional analysis. Images: Serlio (1551). Graphic overlay: Marco Vitali

Rustic Portal II and Delicate Portal XX

Some interesting considerations also emerge from comparisons of rustic portal II and delicate portal XX. In the case under examination, the formal and compositional assonances are evident: the two openings have the same height:width ratio (2:1) and are flanked by double pilaster on a slender pedestal. Above the entablature, there is a tripartite pediment with a large central opening and lateral volutes (Fig. 15).

The interesting aspect, which encourages comparison beyond formal assonances, consists of the similarities that can be found in the captions: both seem to rely on the same descriptive scheme, which geometrically describes the proportion of the central part of the pediment, inscribed in a square, as Serlio states in the text: in rustic portal II the square is built with a side equal to the width of the door, in delicate portal XX the side of the square is defined by the distance between the pilasters. However, there are many missing measures in reference to the delicate portal XX. In the caption, Serlio justifies this loss: 'Even though I have made so many gateways that I am now weary, I nevertheless wished to make one which can be recognized as different from the others and entirely of Composite work' (Serlio 1551: *Descrittione delle venti porte dilicate*, delicate portal XX; Serlio 2001: 512).

Fig. 15 Comparison at the same scale and graphical analysis at the functional level of rustic portal II and delicate portal XX. In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Serlio (1551). Graphic overlay: Marco Vitali

Rustic Portal VII and Delicate Portal XVIII

Also, in this case, a rustic portal and a delicate portal are compared, the first with imperfect columns banded with rustication, the second with columns and pilasters of the Composite order. Beyond the considerable difference in the dimensions: Serlio intends rustic portal VII as a triumphal arch, and its size is almost twice that of delicate portal XVIII, although there are many similarities regarding the general compositional scheme.

The doors consist of arched openings flanked by twin columns of a giant order on an impressive pedestal: in the intercolumniation, there are niches (delicate portal XVIII) or openings (rustic portal VII). In both cases, the entablature is interrupted by panels and inscriptions. On the other hand, the two pediments, have completely different shapes (Fig. 16).

Of particular interest is the caption of delicate portal XVIII, which is very accurately described: in fact, the relationship between module and height of the column (1/11) and between the height of the column and the height of the opening is reported:

> If this doorway is to correspond with the columns it will have to be the height which is commonly accepted, that is, two sqares. As a result, pedestals which are IIII and half feet tall

> will have to be placed under these columns – this will make a total height of XVI and a half feet up to the underside of the architrave. The arch should be half a foot, and so the doorway will be XVI fett tall (Serlio 1551: *Descrittione delle venti porte dilicate*, delicate portal XVIII, Serlio 2001: 510).

Moreover, the particular layout with detached columns and applied pilasters is why Serlio includes – only for this door – an excerpt of the plan in the plate (see Fig. 8).

Fig. 16 Comparison at the same scale and graphical analysis at the functional level of rustic portal VII and delicate portal XVIII. In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Serlio (1551). Graphic overlay: Marco Vitali

From *Licentia* to *Regola*: A Graphical Interpretation of Rustic Portal VI (Marco Vitali)

While in the description of the orders in Book IV, Serlio had regarded the Composite as the most 'licentious', being by implication opposed to a 'regular' Doric (Onians 1988: 271-277), in the *Extraordinario Libro*, he adopted an opposite scale in which the simpler orders are associated with the greatest creative license and the richest with the least. The rustic portals with their predominantly simpler orders are called bizarre and collectively constitute a body of 'licentious things', while the delicate portals with their richer orders form a body of 'regular things'.

In the text accompanying many rustic portals, Serlio points out that if the rustication is removed, the architecture underneath will be found to be quite correct. It is almost as if he is admitting that the architectural *furor* 'is only a pose, a transitory state of mind. Thus, when describing the coating of rustication on the columns of rustic portal VI, Serlio says they are 'Doric, but disguised [*stravestita*] and masked [*fatta mascara*]… once they have all been removed the gateway is left pure, and all the measurements and the distribution of the trigliphs and metopes can be found' (Serlio 1551: *Descrittione delle trenta porte rustiche*, rustic portal VI; Serlio 2001: 468).

In the 1990s, Mario Carpo and Francesco Fiore began a discussion concerning the possibility of discovering a classical morphology of the portals hidden by the variations. Carpo affirmed that a regular (that is, Vitruvian) model is disfigured by superficial and mechanical addition of 'licenses' that do not interfere with the structure of the model: the good reader can simply cancel them (Carpo 1993: 68). Fiore, disagreeing, answered that it is not possible to circumscribe the most heterodox proposals of the *Extraordinario Libro* within the hypothesis of a masked classicism, interpreting the portal as a monstrous Silenus that enclose the rule (Fiore 1994: XXV).

In light of this debate, the authors attempted to discover the physiognomy of rustic portal VI by removing the licenses. Starting from the caption and the drawing, the general structure of the portal was re-constructed, although the columns are drawn 'unfinished' and the elements of the composition are interrupted by a panel, dressed blocks and rustricated voussoirs. The only measurement provided by Serlio is the module, equal to 1 1/2 ft: in the graphic interpretation, the height of the columns is 8 modules (including the base and capital); that of the entablature is 2 modules; and that of the pedestal 2 3/4 modules. By analogy with the descriptions of the other portals, we have identified the dimensional values of the columns and the intercolumniation. As repeatedly stated by Serlio, starting from a single measurement (that of the module) it is possible, through the graphic analysis and interpretation of the plates, to reconstruct the entire portal. In our interpretation, the door appears to be 8 ft wide and 16 ft high and the overall dimensions of the artifact are approximately 18 ft in width and 26 1/2 ft in height (Fig. 17).

Fig. 17 Rustic portal VI, modular analysis and restoring of classicist morphology. The red horizontal line through the left column represents the entasis (color figure online). Image: Serlio (1551). Graphic overlay and drawing: Marco Vitali

Conclusion (Roberta Spallone, Marco Vitali)

Our graphical analysis confirms the consistency between text and drawings: it is used as a mediation tool between two proportional criteria: that of subsequent partitions of the module, and that which refers to dimensions. Moreover, the analysis highlights the precise correspondence of the dimensions with the exact fraction of the module.

Wittkower's remarks, together with the fact that in the *Extraordinario Libro* Serlio does not explain the role of geometry as a compositional criterion but refers to it by establishing additional geometric relations between the parts (e.g., the ratio between height and width of the openings is a double square), support our choice to carry out the graphical analysis through the combination of the metric and modular data reported in the text and the a posteriori geometric reading, and comparing these results.

In the ten portals analyzed, the relationship established between module and unit of measurement make the integration of the two criteria (geometric and modular) more complex: in some cases, the *ad quadratum* method is identifiable in determining the width of the opening, the height of the keystones, or that of the entablatures, but it seems to lose its value of regulatory criterion of the whole composition. Future developments of the research could verify this result, also extending the geometric analyses to the constructions of the elements.

In our opinion, the interpretative tools based on drawing and geometry confirm that the creative process adopted by Serlio constantly takes into account the Vitruvian lesson: even when *licentia* is given free rein, it produces controlled results derived from an overall organization that is not evident in the text. Therefore, re-drawing is a heuristic tool that, critically, goes back to the compositional process of the models and highlights its logic, tracing sequences, structures, and hierarchies through the selection of information and graphical synthesis.

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Table

number	opening	order	rustication	pillar
1R	arched	Tuscan	rustic	banded single column
2R	architraved	Tuscan	rustic-delicate	rusticated double pilaster
3R	arched	Tuscan	rustic	double column
4R	arched	Doric	soft rustic	banded single column
5R	arched	Doric	rustic	banded single column
6R	architraved	Doric	stravestita (rustic column)	rusticated double column
7R	arched with lateral openings	Doric	imperfect (rustic column)	rusticated double column, giant order
8R	architraved	Doric	rustic-delicate	banded double pilaster
9R	arched		imperfect (wood)	double column
10R	arched	Doric-Ionic	rustic (mixed with masonry)	banded double column
11R	architraved	Doric	wood	double column
12R	architraved	Doric	rustic	banded single fluting column
13R	arched with lateral openings	Ionic	rustic	banded double column, giant order
14R	arched with lateral openings	Ionic-Composite	rustic	
15R	arched	Ionic	rustic	banded double column
16R	arched with lateral openings	Corinthian	rustic	banded double column, giant order
17R	arched	Doric-Ionic-Composite	rustic-delicate	rusticated double pilaster
18R	architraved	Corinthian	rustic	rusticated single pilaster
19R	architraved	Corinthian	rustic	banded double fluting column
20R	arched	Doric	strong rustic	banded single column
21R	architraved	Doric mixed	strong rustic	banded single fluting column
22R	arched	Corinthian mixed	rustic (column, wall)	rusticated single column
23R	architraved	Doric-Corinthian	rustic-delicate	banded double fluting pilaster
24R	segmental-arched	Ionic mixed	rustic	banded single fluting column
25R	architraved	Ionic-Doric	rustic	rusticated single pilaster
26R	arched	Doric-Composite	ashlar rustic	double pilaster, two levels
27R	arched	Doric	ashlar rustic	rusticated single pilaster
28R	architraved	Doric	rustic	banded single fluting column
29R	arched	Doric-Corinthian	bestial rustic	banded single fluting column
30R	arched with lateral openings	Tuscan	rustic	banded double column, two levels
1D	architraved	Corinthian		single pilaster
2D	architraved	Ionic-Doric		double pilaster, two levels
3D	arched	Composite		double fluting pilaster
4D	architraved	Doric		double fluting pilaster
5D	arch with lateral openings	Ionic-Doric		double column, two levels
6D	arch with lateral openings	Doric		double fluting column, giant order
7D	arched	Ionic		double column
8D	arched	Corinthian		double column
9D	architraved	Ionic		single fluting column
10D	architraved	Ionic		double fluting column
11D	arched with lateral openings	Corinthian		double column, giant order
12D	architraved	Corinthian		double fluting column
13D	architraved	Corinthian		single fluting column
14D	arched with lateral openings	Ionic		double pilaster giant order
15D	arched	Ionic-Corinthian		double column, two levels
16D	architraved	Corinthian		double fluting pilaster
17D	architraved	Doric		single column
18D	arched with lateral openings	Composite		double (column, pilaster), giant order
19D	arched with lateral openings	Corinthian		double (column, pilaster), giant order
20D	architraved	Composite		double pilaster

Table

entablature	pediment	function	reference
broken by voussoirs	triangular		Grand Ferrara
continuous	tripartite with volute	private house	
broken by panel	triangular		Vitruvius' round temple
pulvino, broken by panel	triangular broken by panel and stone blocks		
broken by voussoirs	triangular broken by stone blocks		
broken by voussoirs	arched broken by stone blocks		
broken by panel	tripartite	triumphal arch	
broken by panel	triangular		
continuous	triangular		Vitruvius
broken by voussoirs	tripartite		Pompeo's arcades
continuous	triangular	garden entrance	
broken by voussoirs and panel	triangular broken by panel		
broken by voussoirs and panel	tripartite		
broken by panel	tripartite		
broken by panel	triangular broken by panel		ancient capitals
broken by voussoirs	tripartite		Roman triumphal arch
continuous	tripartite		
broken by voussoirs	triangular broken by stone blocks	antiquity fragments	
broken by panel	triangular broken by stone blocks	garden entrance	
broken by voussoirs and panel	triangular broken by panel		
broken by voussoirs	triangular broken by panel and stone blocks		
broken by voussoirs and panel	triangular broken by panel and stone bolcks		
broken by voussoirs	tripartite		
broken by voussoirs and panel	triangular broken by panel		
broken by panel	attic and tympanum	private house	
broken by voussoirs and panel	tripartite		Colosseum
broken by voussoirs	triangular broken by panel		
broken by voussoirs	triangular		
broken by voussoirs and stone blocks	triangular broken by panel and stone blocks		
continuous	tripartite	triumphal arch	
continuous	tripartite with volute	house vestibule	Vitruvius
continuous	attic and tympanum	house vestibule	
continuous	tympanum	house vestibule	
continuous	tripartite		
continuous	tripartite	antiquity fragments	
continuous	tripartite with volute		
broken by panel	tripartite		Vitruvius
broken by panel	tripartite	private house	
broken by panel	triangular broken by panel		ancient frieze
continuous	tripartite		
continuous	attic	triumphal arch-temple	
broken by panel	tripartite	house vestibule	
broken by panel	triangular		Salomone's arcades
continuous	attic	temple-triumphal arch	
continuous	tripartite	temple	
continuous	tripartite		
continuous	tripartite	house vestibule	
broken by panel	triangular		
continuous	tripartite with volute		
continuous	tripartite with volute		

Table

Rustic Door II		
	Modules	**Feet and Inches**
Shaft diameter	**1**	**1**
Opening modules (W x H)	6 and 1/2 x 13	6 and 6/12 x 13
Lateral bands	1/2	6/12
Order modules — Constructive level		
— Pediment	6 and 6/12	6 and 6/12
— Entablature	2 and 1/10	2 and 1/10
— Column	10 and 1/2	10 and 6/12
— Pedestal	2	3

Table

Rustic Door I		
	Modules	**Feet and Inches**
Shaft diameter	**1**	**1 and 6/12**
Opening modules (W x H)	5 and 1/3 x 10 and 2/3	8 x 16
Lateral bands	1/2	8/12
Order modules — Constructive level — — Functional level		
— Pediment	2	3
— Entablature:	1 and 1/2	2 and 3/12
— — Cornice	1/2	9/12
— — Frieze	1/2	9/12
— — Lintel	1/2	9/12
— Column:	9	13 and 6/12
— — Capital	1/2	9/12
— — Shaft	8	12
— — Base	1/2	9/12
— Pedestal:	2	3
— — Cymatium	1/3	1 and 6/12
— — Dado	4/3	2
— — Base	1/3	1 and 6/12

Figure

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Extraordinario Libro di Architettura di Sebastiano Serlio, Architetto del Re Christianissimo,

Nel quale si dimostrano trenta porte di opera Rustica mista con diuersi ordini: Et venti di opera dilicata di diuerse specie con la scrittura dauanti, che narra il tutto.

IN LIONE,
PER GIOVAN DI TOVRNES.
M. D. LI.

Con Priuilegi del Papa, Imperatore, Re Christianiss. & Senato Venetiano.

Figure

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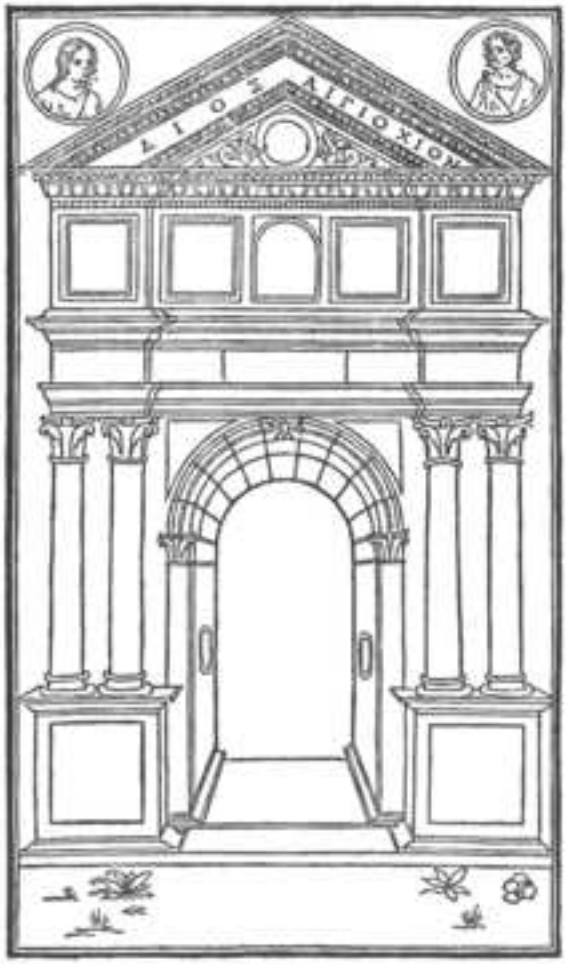

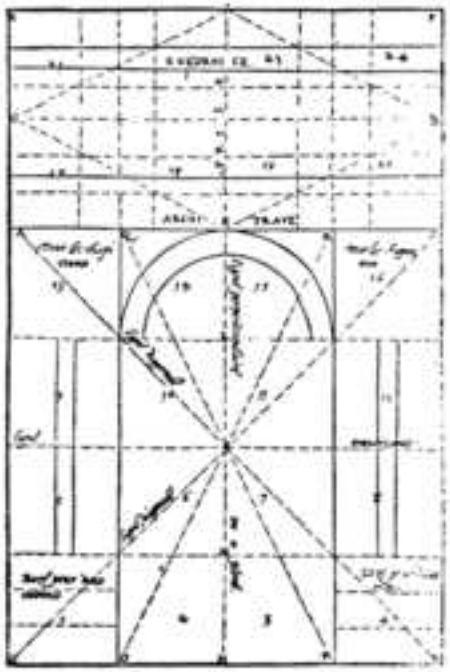

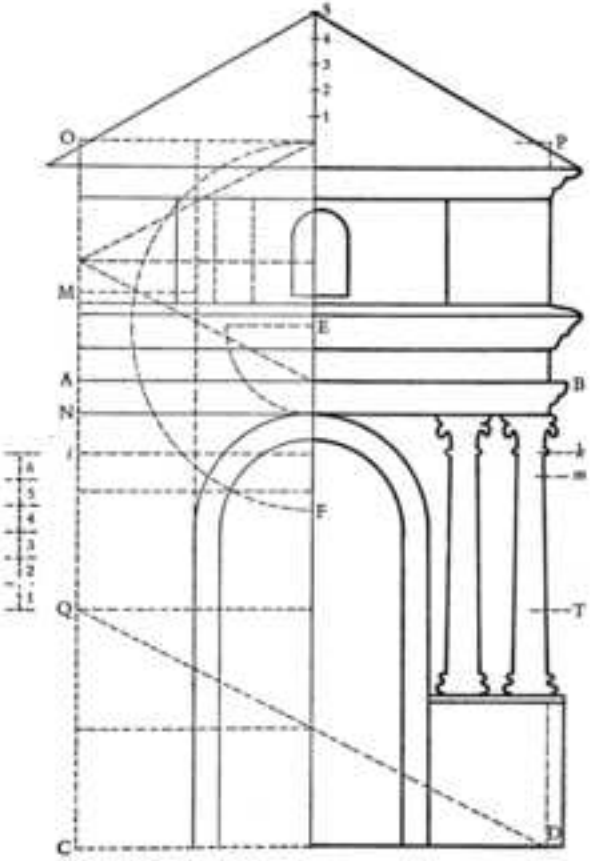

Figure

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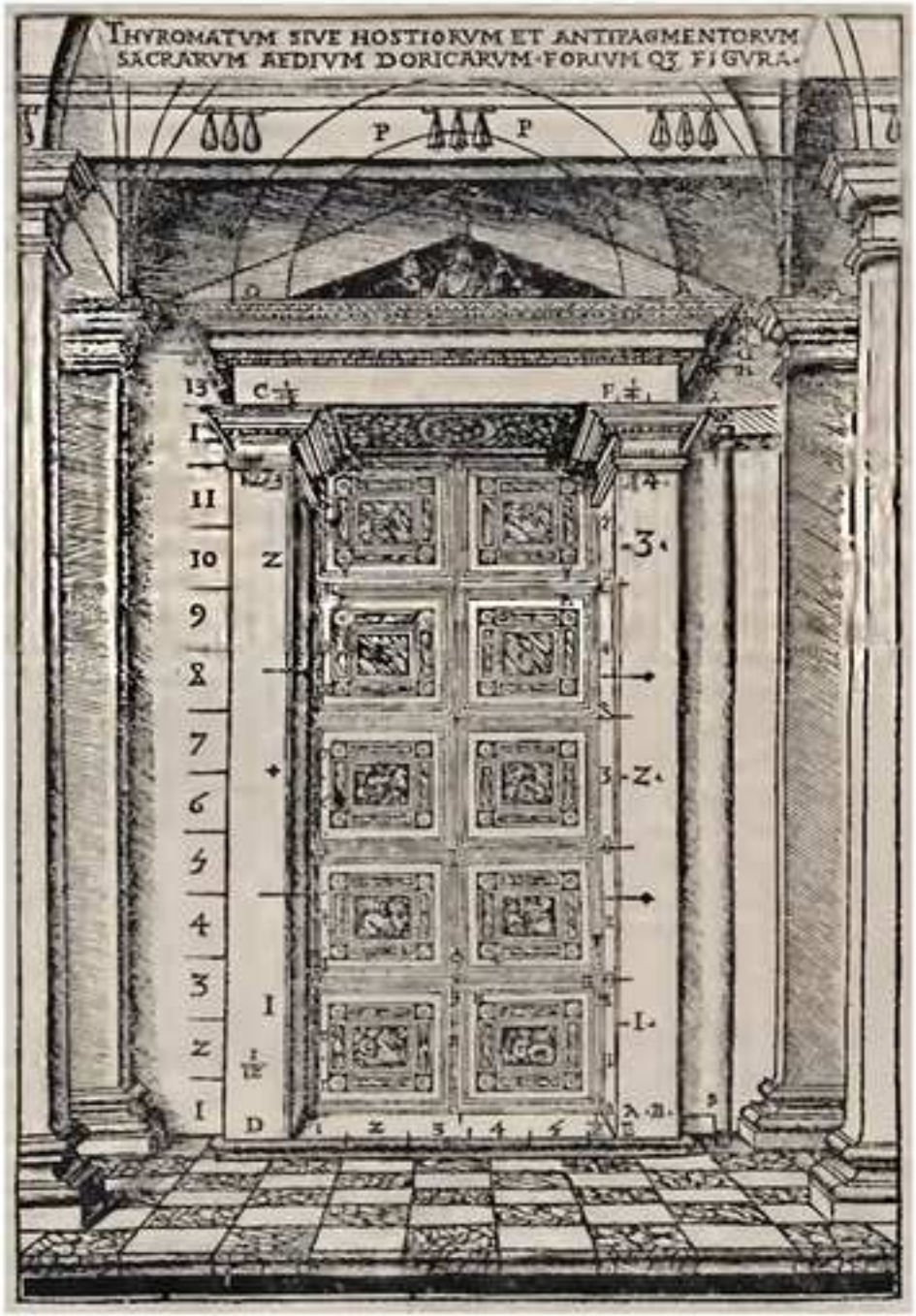

Figure

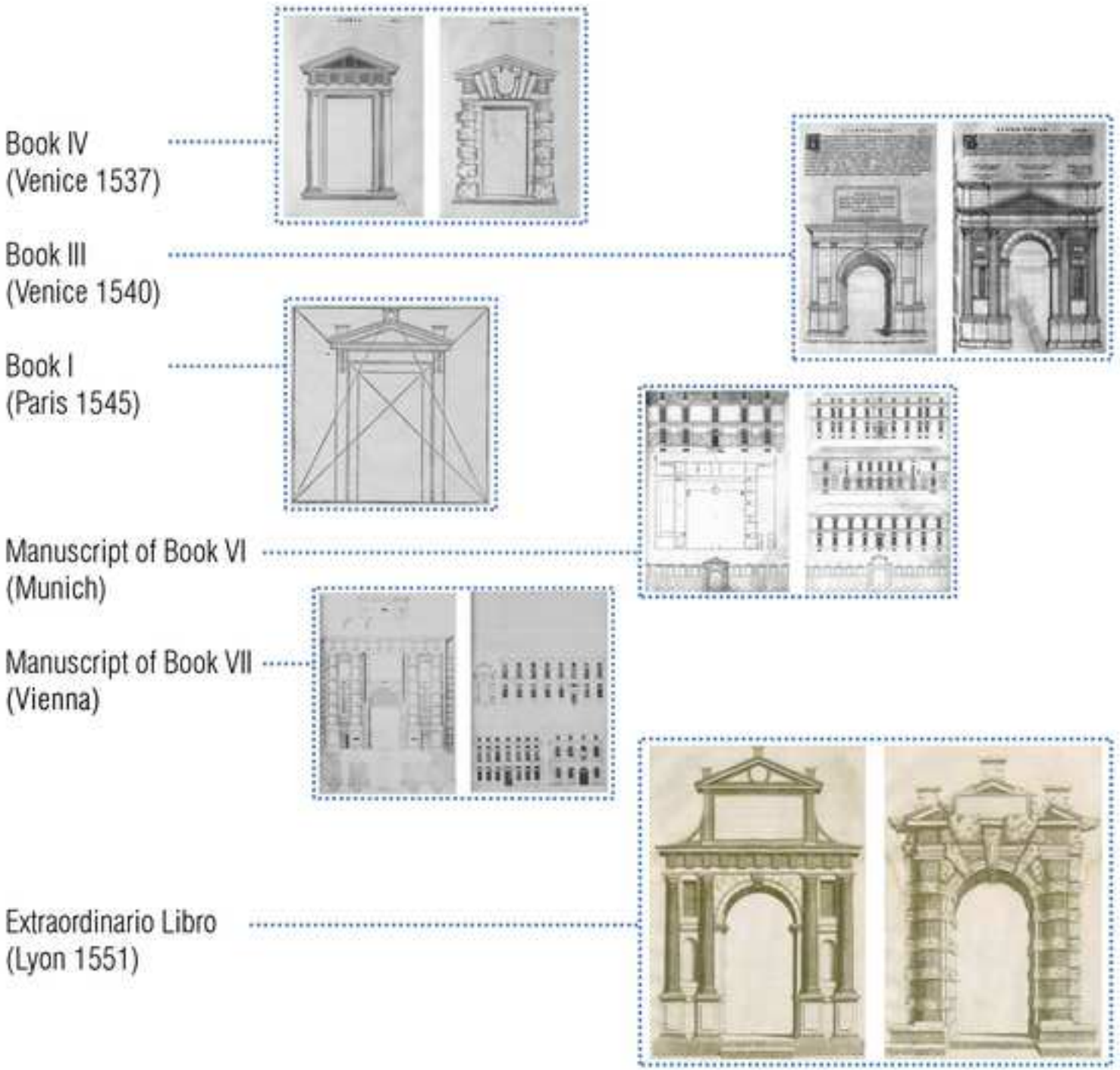

Figure 5

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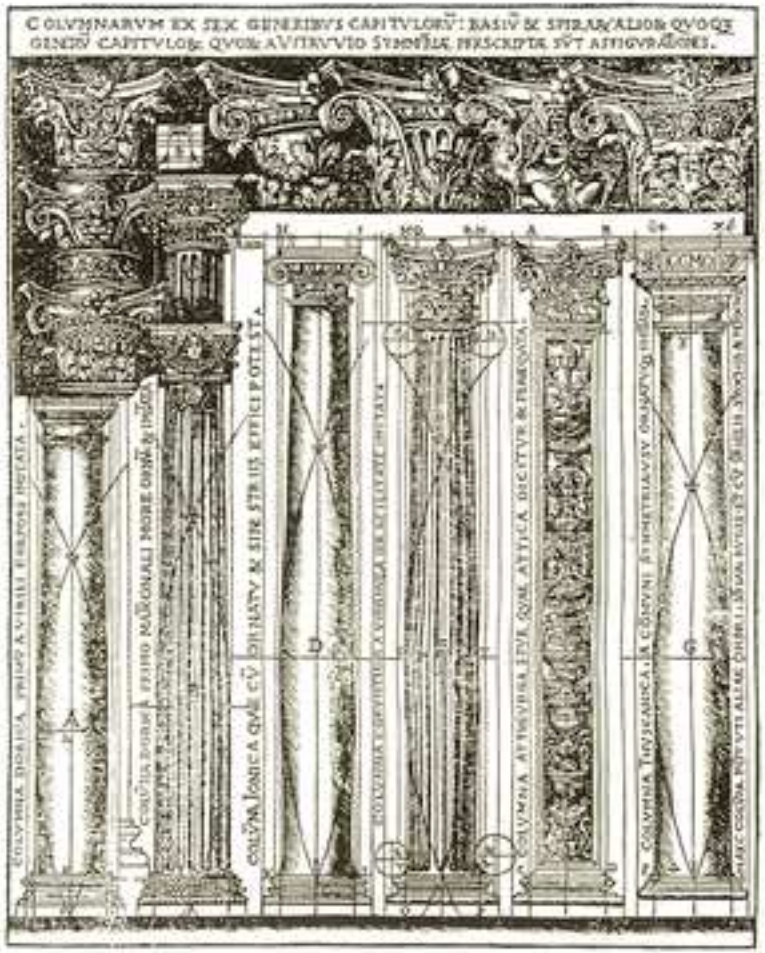
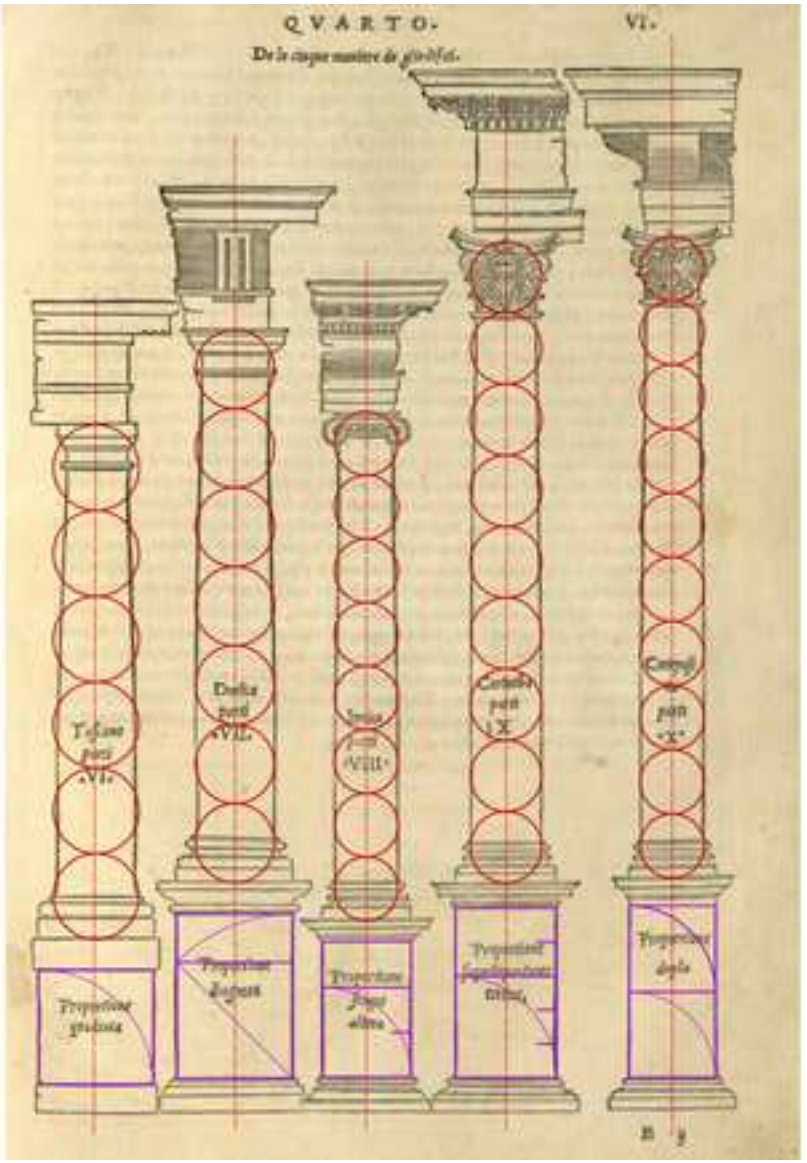
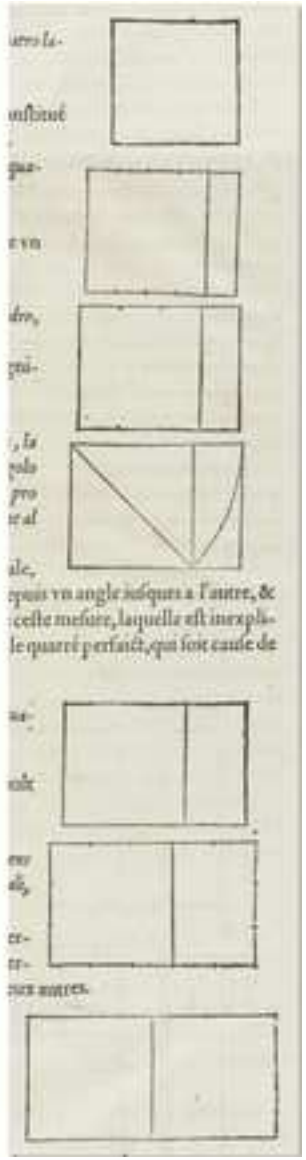


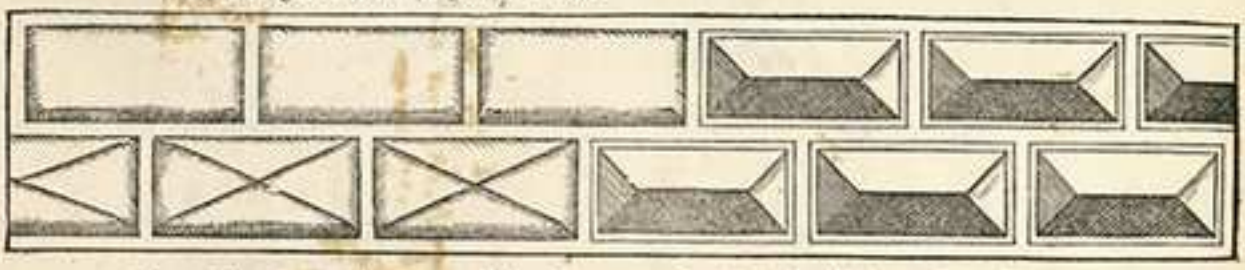




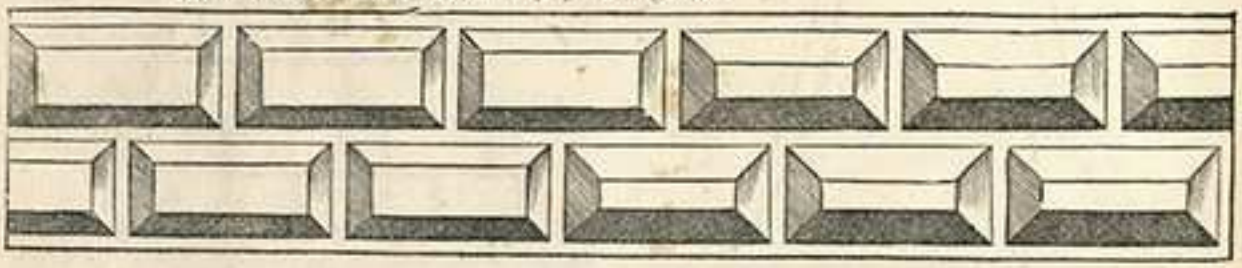
Le prime opere Ruſtiche furon fatte in queſto modo, cio è pezzi de pietre abbozzate, coſi groſſamente; ma le ſue commiſſure ſono fatte con ſumma diligentia.

Dipoi con alquanta piu dilicatezza compartirono i quadri con queſto piano, che gli divide facendogli con piu diligentia lavorati, & appreſſo gl'aggiunſero queſti Spigoli incrociati per piu ornamento.

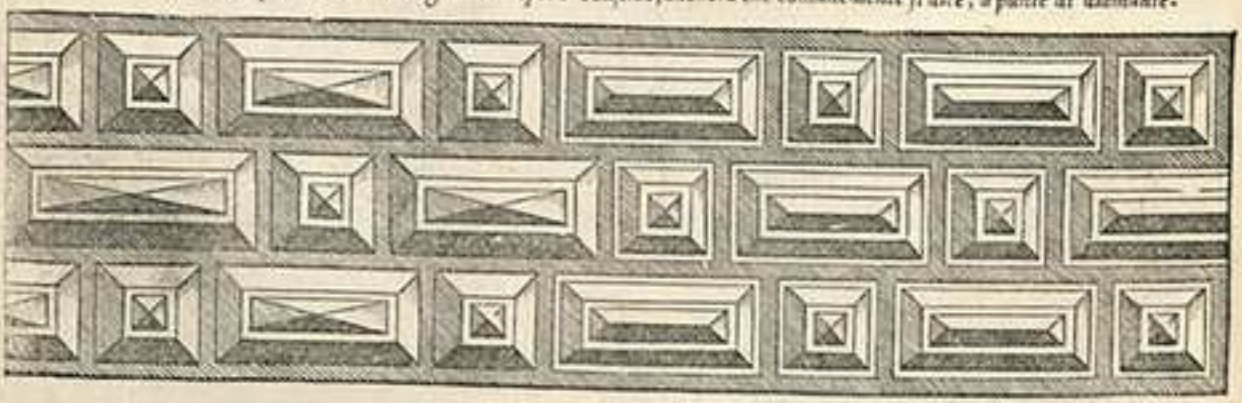
Altri Architetti volendo immitare diamanti lavorati fecero in queſto modo lavorandogli con piu pulitezza.



Et coſi di eta in eta ſi è venuto variando tal opera: quando ad imitation di diamante in tavola piana, & quando con maggior relievo, ſi come ſi vede qui ſotto diſegnato.



Alcuni altri Architetti hanno voluto uſar maggior dilicatezza, & piu ordinato compartimento, non dimeno, tutta tal'opere ha havuto origine da l'opera Ruſtica, anchora che comunemente ſi dice, a punte di diamante.



FINITO L'ORDINE THOSCANO ET RVSTI-
CO INCOMINCIA IL DORICO.

Figure

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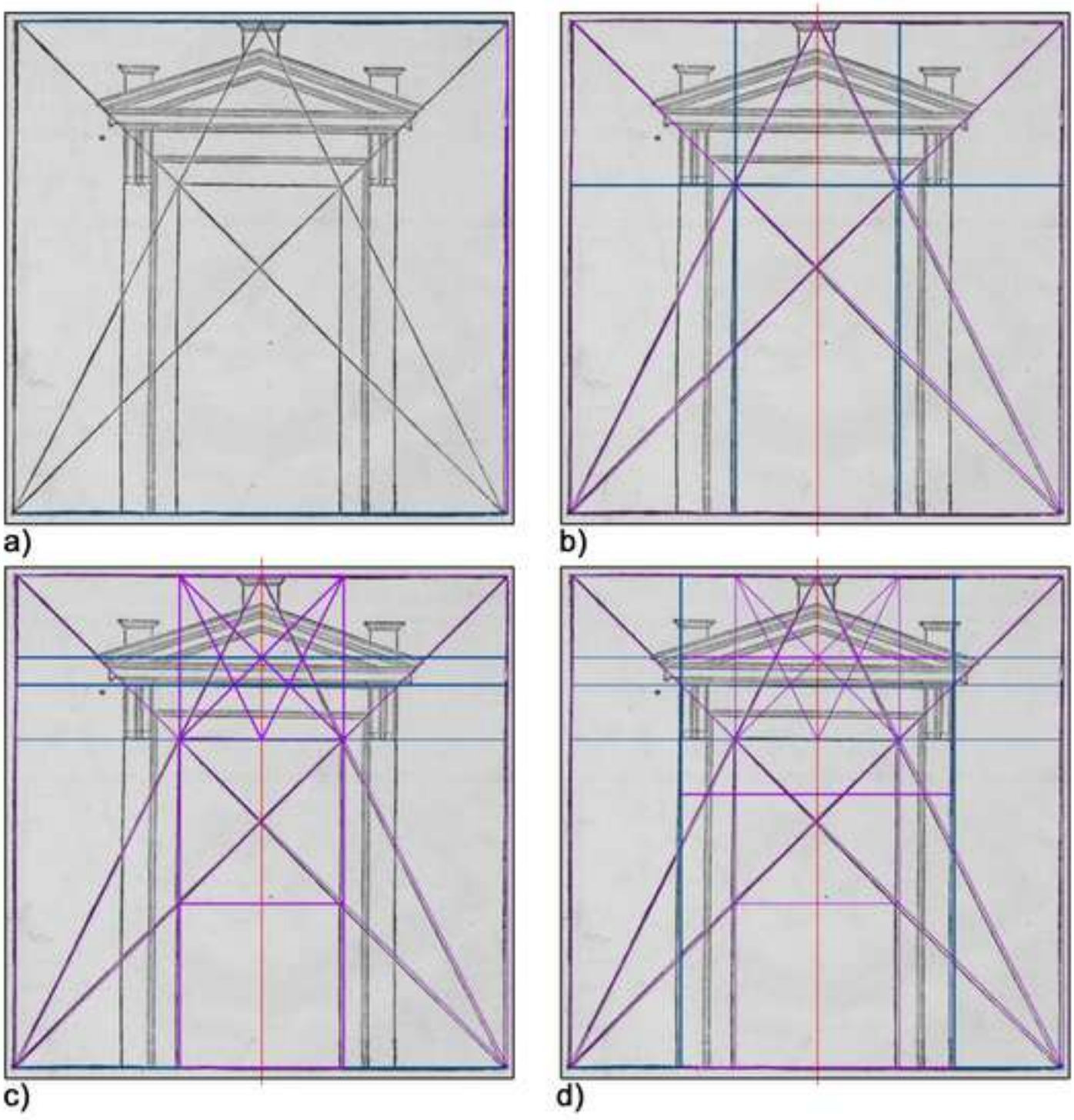

Figure

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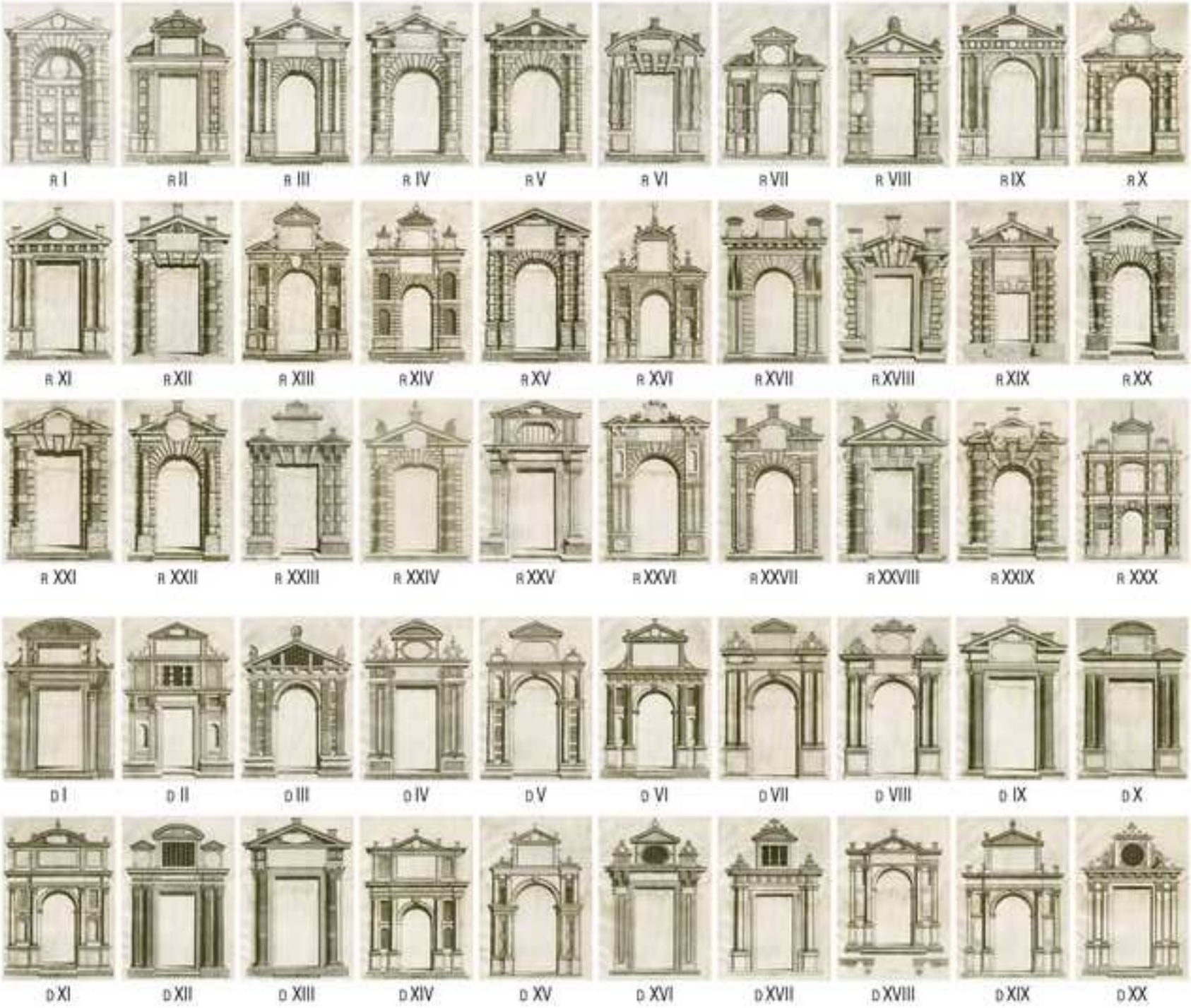

Figure

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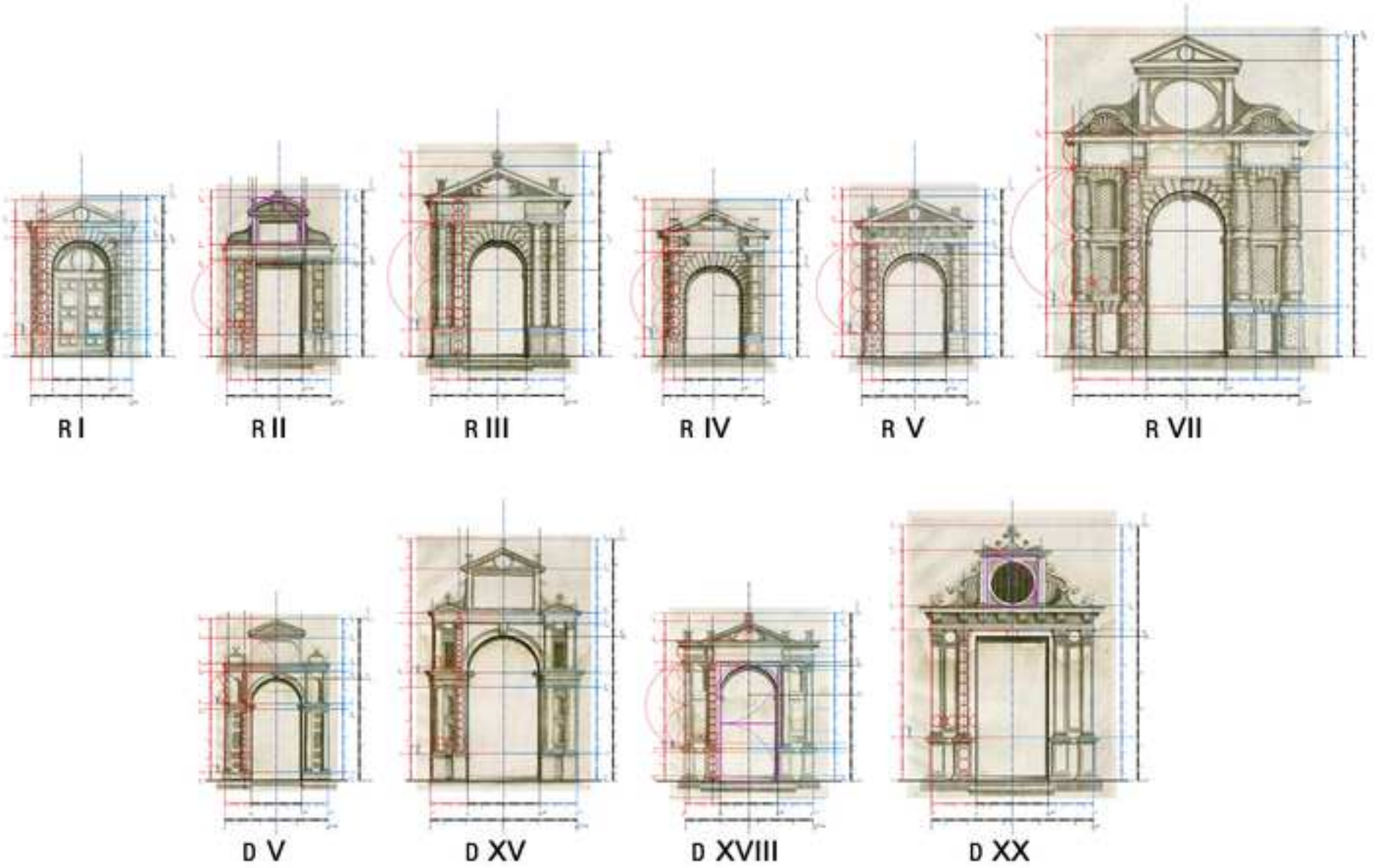

Figure

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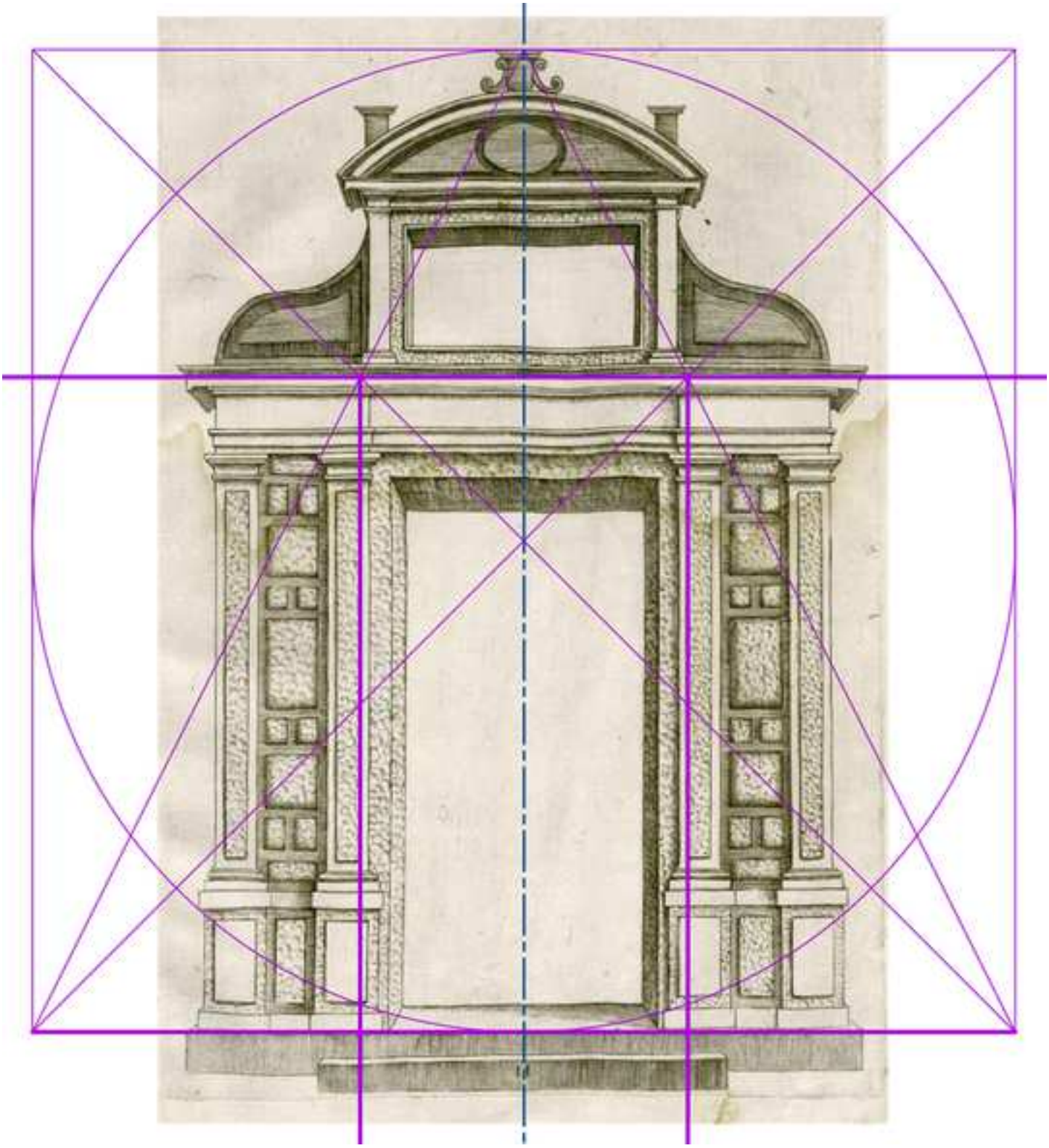

Figure

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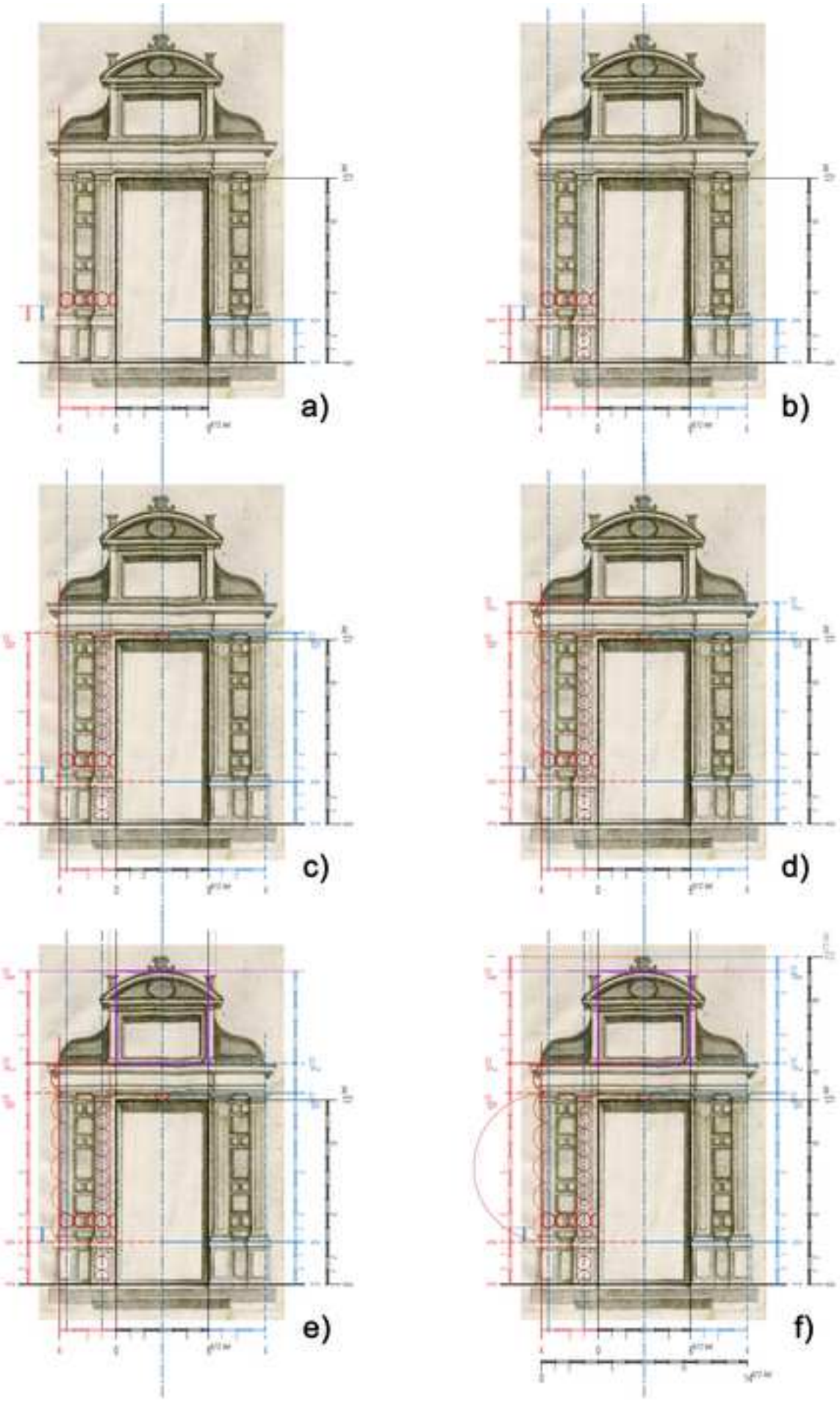

Figure

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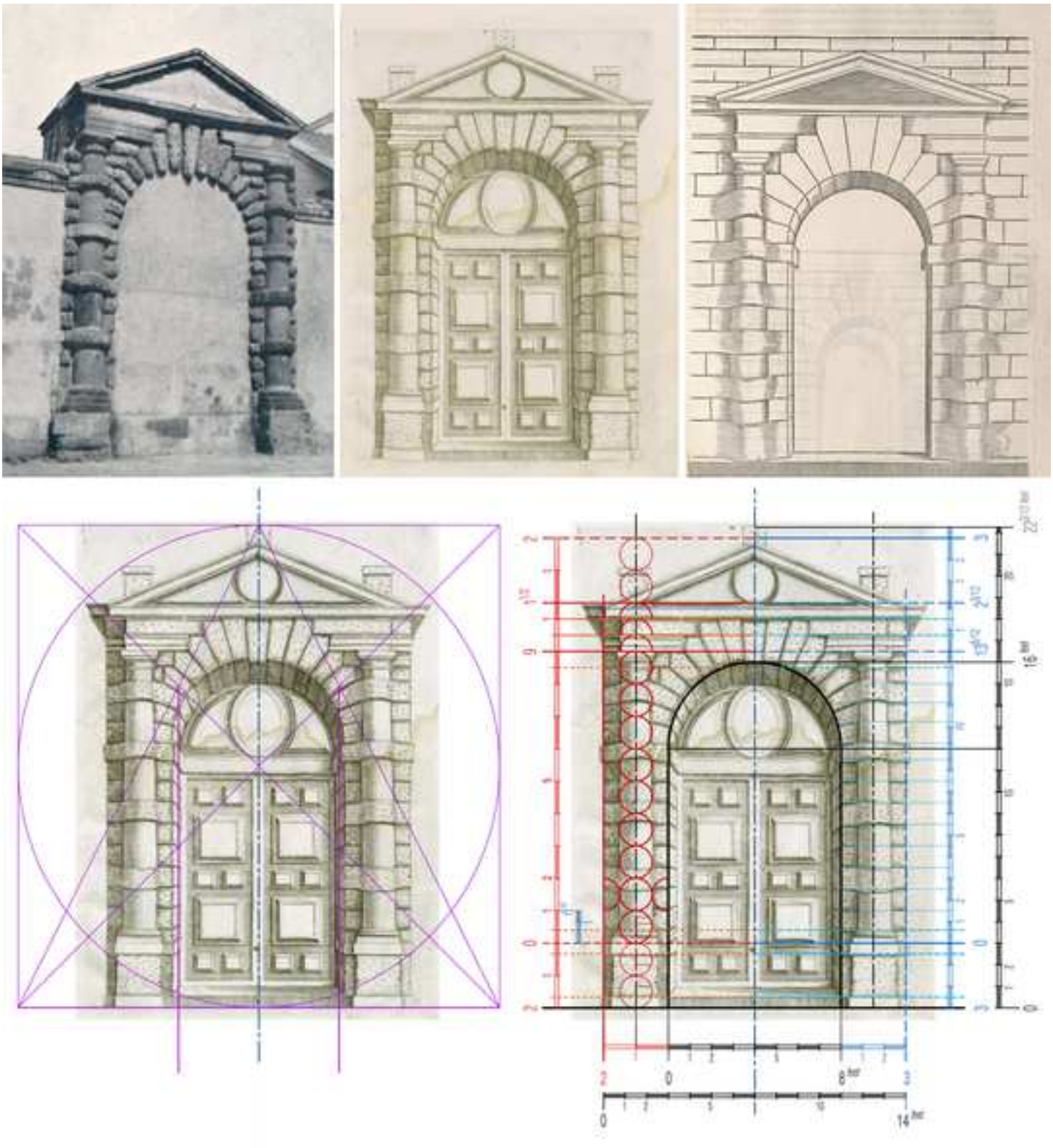

Figure

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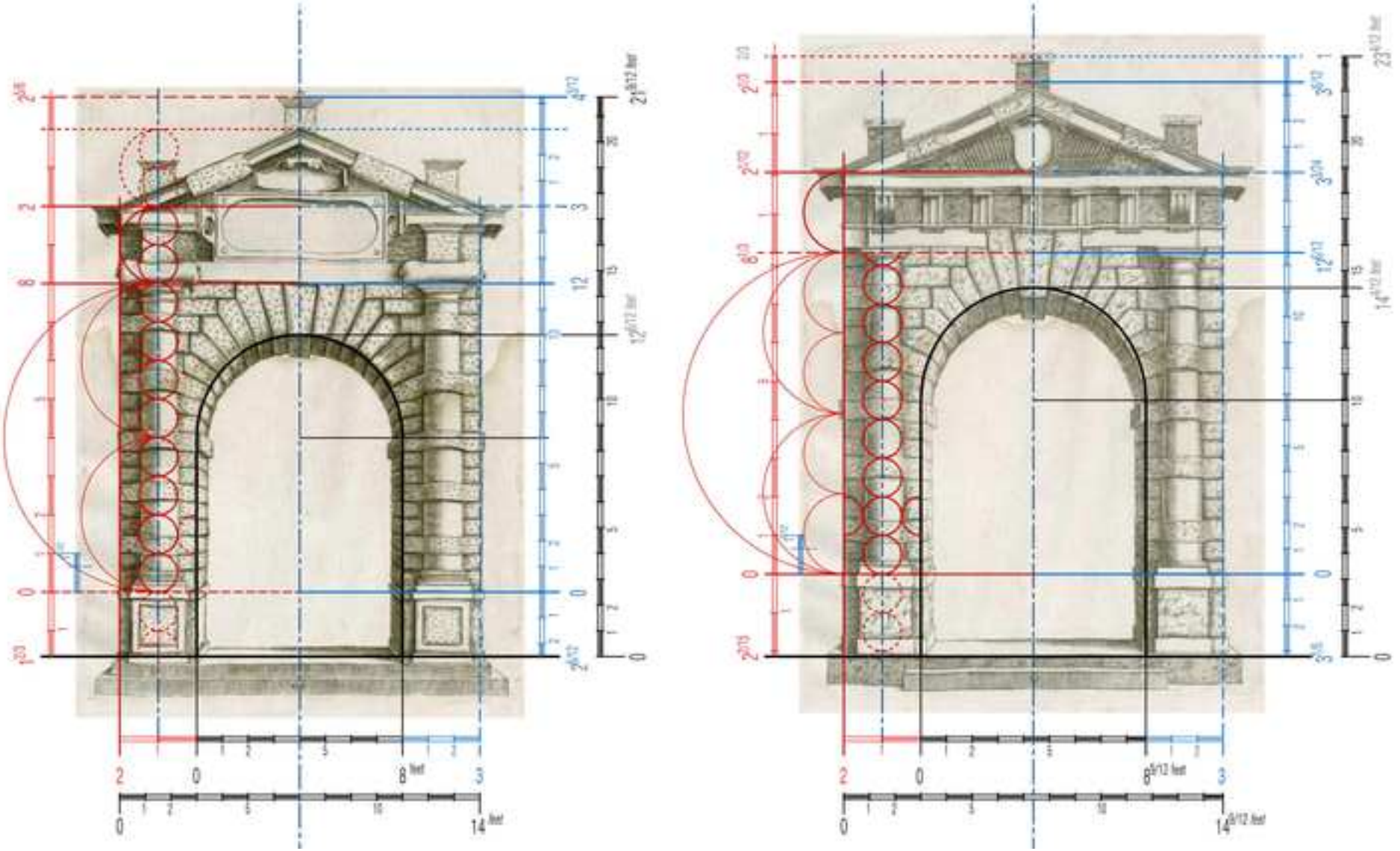

Figure

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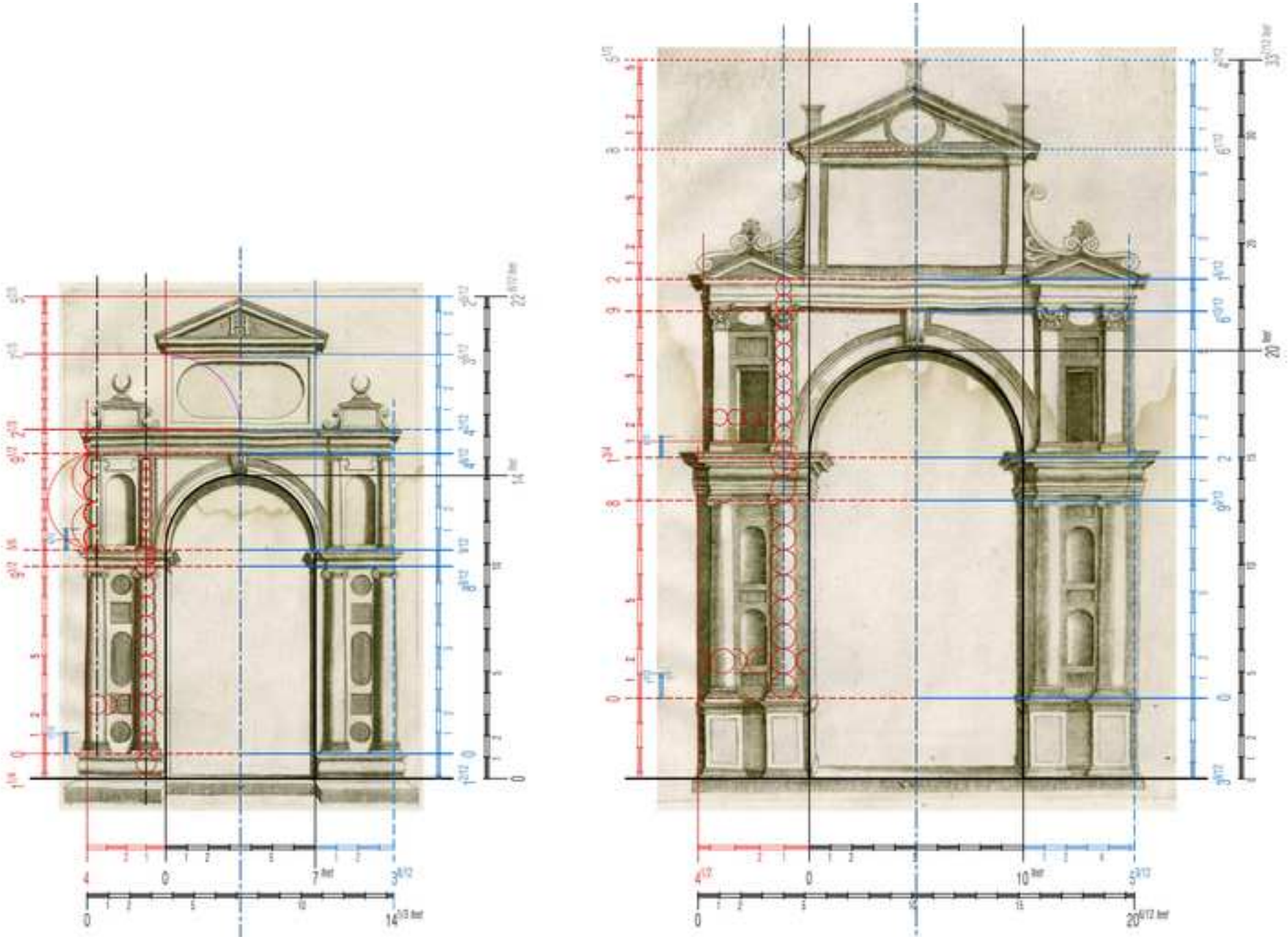

Figure

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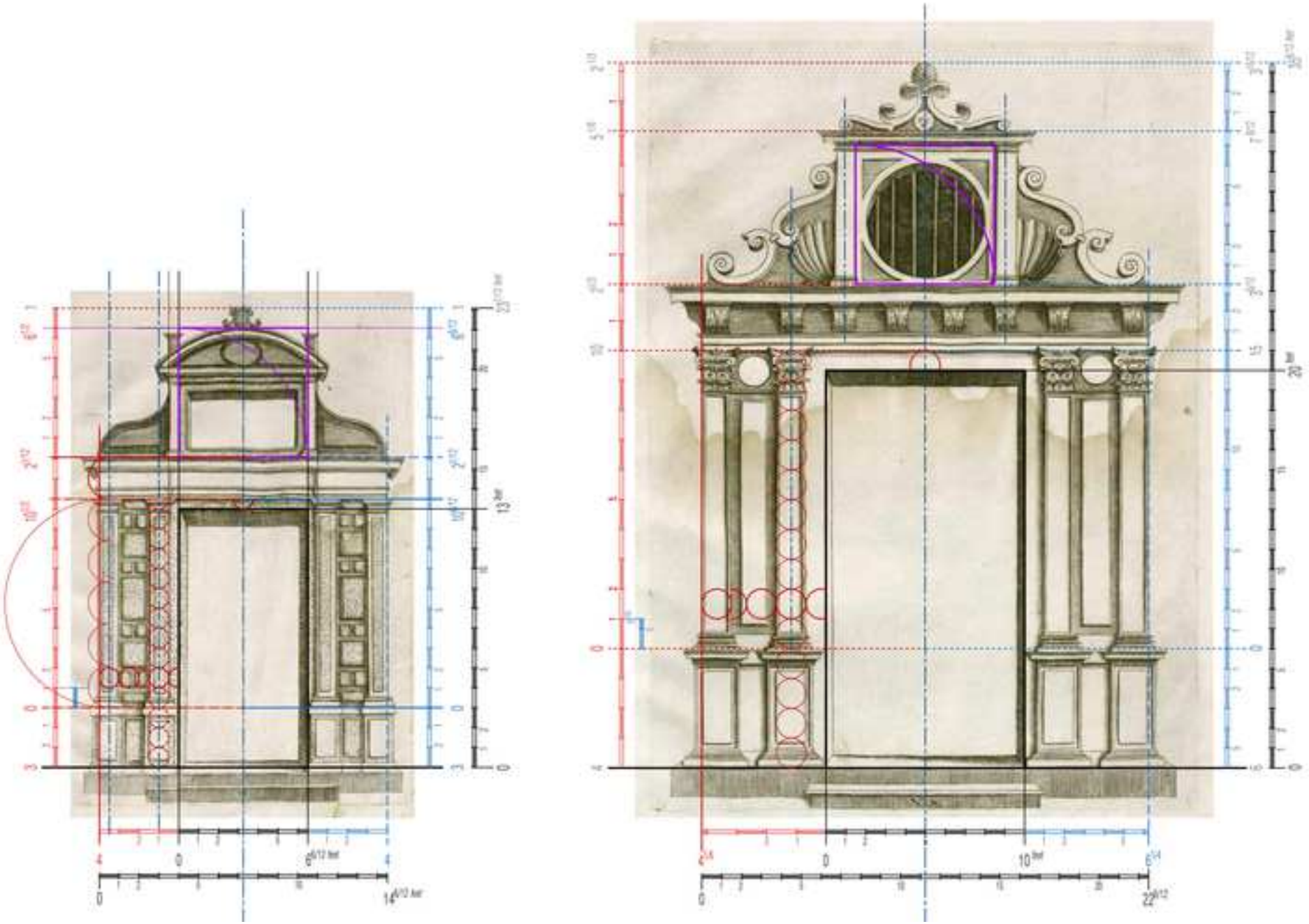

Figure

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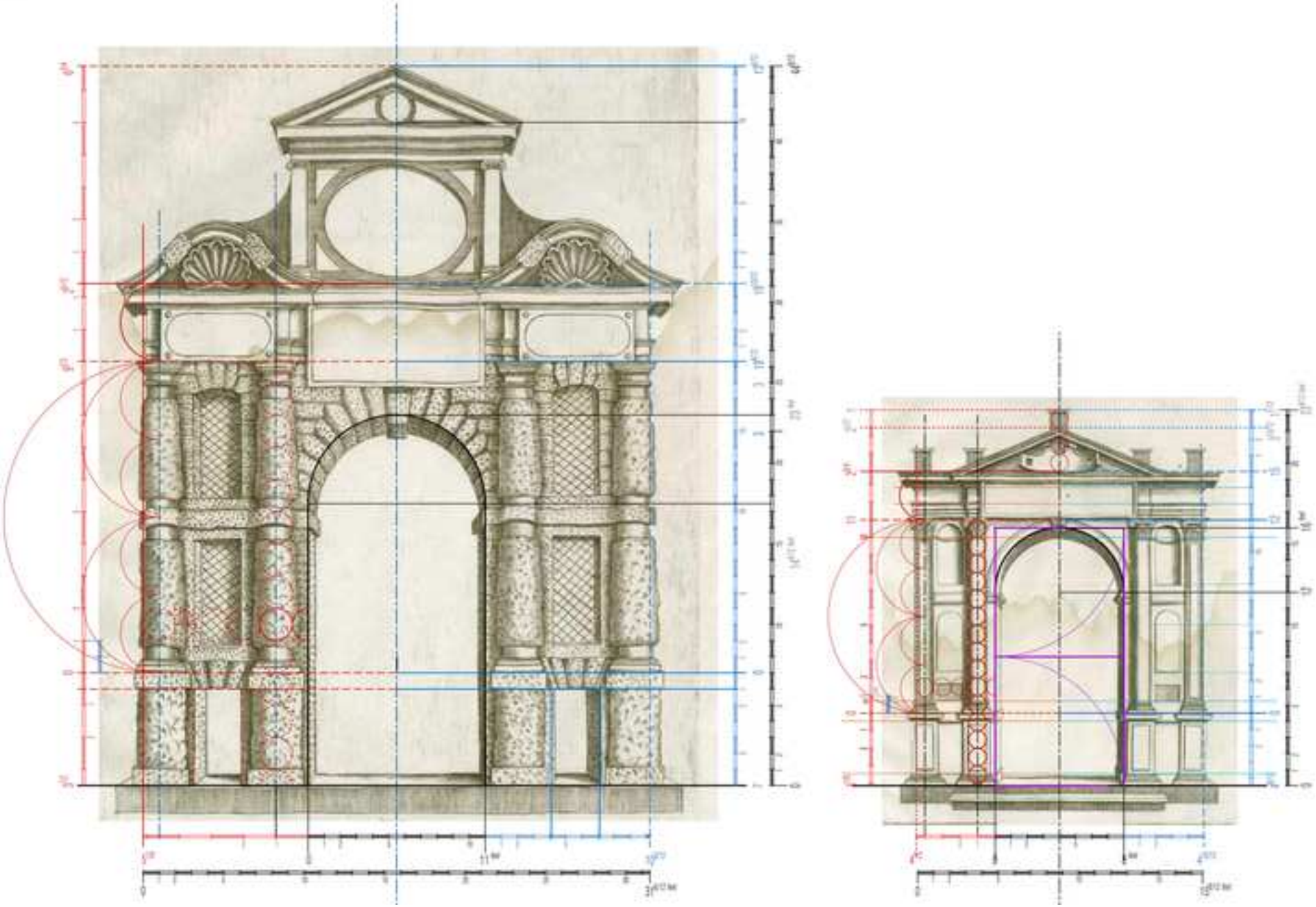

Figure

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