Leonardo's "Prospettiva Composta" in the History of Pictorial Composition

Claire J. Farago

Leonardo da Vinci's concerns with visual order developed in the context of planning large-scale wall paintings—his earliest notes, of c. 1490, predate the Last Supper by a few years and the majority coincide precisely with the main campaign of work on the ill-fated Battle of Anghiari abandoned in 1506. In a magisterial new book, Leo Steinberg has given fresh consideration to Leonardo's ideas on formal visual order as he wove together the perspective construction and the arrangement of figures in the Last Supper. In the commission for the even more colossal Battle of Anghiari, Leonardo was presented with the additional challenge that a close viewing point for a large wall painting makes any system consistent with direct vision problematic on a wide expanse of wall, because foreshortened figures at the periphery of vision appear distorted. In his later verbal formulations, Leonardo frequently combined considerations of perspective and figurative decorum that had appeared as separate passages in earlier notes. This enabled him to describe in general terms how the figures are related to the three-dimensional space, the position of the light, and the spectator. We can almost hear him thinking aloud about visual order in terms of the unity and grezze of the ribario requiring the painter's sensitive judgment. Listen to Leonardo's own words on the unity of the work of art based on the observation of reflected colors in nature. This passage is preserved in Madrid 8936, contemporary with the Battle of Anghiari:

Ma si debbe assecondare col farlo a fare un riscontro dell'ordine delle spolette ecc. verdi, ocra, erba e simili concordanza, accio che l'ordine, prevedando del color d'inciucio solo, non venga a rigenerare et a parete ordina d'altro corpo, che verde; perche se vi mettessi il rosso alinato a riscontro de fumbo, la quale è in verde, questa

* Thanks to Martin Kemp for (inadvertently) suggesting the topic of this essay when he queried my unorthodox translation of prospettiva composita, and to Thomas Frangenheg, both for consulting with me on the translation of a difficult passage in the Italian text and for commenting on an earlier draft of the argument. All translations are by the author unless otherwise noted.
The same gradual but directed process of synthesis is clearly discernible in the clusters of passages I have dubbed the "trattato sequences," insofar as the order and form of discussion follows Alberti's treatise on painting of 1435. [23.1] Since his earliest writings on optics, Leonardo bore a terminology and ideas from his predecessors and contemporaries. 2 The category prospettiva composita, however, seems to be an original coinage recorded for the first time in the late 16th c. (f. 10r). 3 Although the category appears only incidentally in Leonardo's notes it has been the subject of some debate in the specialized scholarship on his writings. 4 The fact that prospettiva composita appears only in the late period has encouraged investigations of its meaning in a specific textual context, with respect to problems of pictorial perspective. Leonardo was investigating at the time. Of wider concern than the term itself has been the issue of Leonardo's possible development of "curvilinear perspective" to overcome distortions of artificial perspective on a large scale. 5 Prospettiva artificiale, which Leonardo, also called prospettiva accidentale, refers to artistic constructions on a flat surface. Leonardo investigated discrepancies between the curved field of vision and the picture plane.

The purpose of the following argument is not to steer a course through Leonardo's exact literary sources, however, or to take sides in a debate over the invention of curvilinear perspective. The purpose of the discussion is to investigate a key concept in western art. Leonardo's overriding, long-standing concern with normalizing vision should immediately cause us to suspect that the late-appearing term prospettiva composita involves more than the compounding or combination of "natural" and "artificial" perspective. I hope to suggest today that prospettiva composita has aesthetic dimensions that Leonardo himself associated with the excellence of painting, beyond scientific truth, and that his writings on the subject played a formative role in the history of pictorial composition. Leonardo produced an unprecedented body of writings that enable us to see that the modern concept of pictorial composition is more richly conceived than the primary sources credited with its invention indicate.

Prospettiva semplice and prospettiva composita designate a pair of categories consistent with Leonardo's extensive interest in optical distortions toward the end of his life. 6 Thomas Franckenberg maintains that, although Leonardo

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1 But green subjects, such as meadows and other similar tints, should be suitably arranged opposite the shadows of green bodies so that the shadows that take on the color of such an object do not lose their quality and appear to be the shadow of a body other than green. Should you paint bright red facing a green shadow, the shadow will become reddish of a most ugly color, and be very different from the true shadow of green. And what is said of this color is meant for all of the others. [Madrid 2536, f. 126v; Codex Urbinas f. 226v, Parte Quarta, part of a section on reflected colors; Mahon n° 795]. Transcript taken from Leonardo da Vinci, Libro di Pittura, Codice urbano lat. 1270 nella Biblioteca Apostolica Vaticana, a cura di C. Pedretti, Tracciature critiche di C. Vezzi, Firenze 1995, vol. II, p. 444, n° 767.


6 In his latest writings on the subject, in ms. E and G, c. 1513-1516, Leonardo distinguished at least four kinds of perspective: "natural" perspective corresponding to the effects of direct vision; "accidentale" or "artificial" perspective, referring to artistic constructions on a flat surface; and "simplex" and "composita" perspective (ms. E, f. 15r-15v; ms. G, f. 13v, 15v).
did not define the term with complete consistency, *prospettiva semplice* designates "simple vision," that is, the way things appear without the distortions which straight intersections through the curved field of vision may cause. 7 *Prospettiva semplice* always has positive connotations in Leonardo's discussions. It is far more difficult to pin down what Leonardo meant by *prospettiva composta* and what critical values he associated with it. Generally, *prospettiva composta* combines foreshortening projected onto the picture plane with the natural foreshortening of the planes themselves under certain viewing conditions. 8 Leonardo's definition in ms. G f. 13v is to the point but vague: "La semplicità prospettiva è quella che è fatta dall'occhio senza mai essere distante dall'occhio con ogni sua parte. *Prospettiva composta* è quella che è fatta sopra sul sito, quale che non possa mai essere distante dall'occhio." 9 There is insufficient evidence that he actually worked out such a system and no scholarly consensus exists on the extent to which he thought about doing so.

The visual evidence for Leonardo's compositional procedures has been explored extensively, while the rich and varied texture of his writings and of the preceding literature on the nature of composition has been largely ignored or understood in reductive terms by specialists in other fields dependent on the filtering lens of secondary scholarship. Indeed, we are so used to thinking of any work of visual art as a "composition" that it is difficult to imagine ourselves in Leonardo's position in the art-theoretical tradition, before the word had fully acquired its modern meanings. Earlier discussions on the topic appear in ms. A c. 1490-92, ff. 1r, 92r, 98r and 110r. On Leonardo's investigation of optical distortions with pictorial appearances see M. Kemp, *In the Beholder's Eye: Leonardo and the Errors of Sight* in Theory and Practice, in "Accademia Leonardo Vinci", V, 1992, pp. 153-162. 7 FELZENBERG, The angle of vision, cit., p. 20, noting that while "simplific" is an alternative to "compounded perspective." Leonardo did not consistently employ the term even in the late period. The generalization holds that the intersection of "simple perspective" is spherical, thereby making the distance of objects from the eye equal in all directions.


9 *Simple perspective* is that made by an eye on a plane equally distant from the eye at every point. *Prospettiva composta* is that made on a plane in which none of its parts is equally distant from the eye. The immediately following paragraph on the same page, in matching doctrine and color of ink, is entitled "On the science of weight (Della scienza de 'poi')", on the connection, see the following discussion. Transcription cited from a Manuscripto dell'Institut de France, Ms. G, Edizione nazionale dei manoscritti e dei disegni di Leonardo da Vinci, transcribed and ed. A. MARENO, Florence 1987.

Leonardo is without doubt the most significant writer on art to follow Leon Battista Alberti who, in his treatise on painting of 1435, quite self-consciously introduced the Latin term "compositio" into discussions of visual art. 10 That Leonardo developed discussions of painting from a close reading of Alberti's treatise on painting has long been recognized—Kenneth Clark published a detailed study in 1944 and Vasilev Zobov developed his analysis further in an article of 1961. Alberti is Leonardo's single most important source for a prescriptive language of art and Leonardo's notes record many problems he encountered with Alberti's advice, not only on how to construct a pictorial space according to the laws of optics, but also on how painters should compose their figures in a narrative scene. Leonardo was preoccupied with Alberti's discussions of the arrangement of complex figurative movement and the disposition of colors and shadows in a painting. No other aspects of Alberti's prescriptive advice appear so often as the subject of Leonardo's observations. From this one-sided dialogue we learn that Leonardo's concept of *prospettiva composta* belongs to his ongoing critique of Alberti's theory of pictorial composition. In Leonardo's loosely, but in my opinion covertly organized bolognese manuscripts, discussions of pictorial relief are intertwined with discussions of figurative decorum initially derived from Alberti's 1435 *Treatise on Painting*.

This aspect of Leonardo's theorethical approach to painting is fundamental to his writings, developed a century and a half before the French "discovery" of pictorial composition, as Thomas Puttfarken claims in his recent study on the origins of academic art theory. Puttfarken credits Alberti's treatise with an extensive formative role in French art theory, but omits Leonardo from the discussion altogether. Yet the same pair of topics—perspective and the arrangement of figures in the narrative—that Puttfarken locates at the foundation of seventeenth-century discussions of pictorial composition, recurs numerous times in Leonardo's intact manuscripts spanning the course of his literary career from c. 1490 to 1515. 11


Fundamental connections between the scientific and artistic sides of Leonardo's statements about "composed perspective" lie buried in a network of language ultimately derived from Aristotle's writings on the physical sciences. The central axis that supports the different senses of composition in Leonardo's discussions, as in those of his contemporaries, is the Aristotelian understanding of ratio or proportion. Composition always implies ratio or proportion, whether the parts can be measured or not. In the Physics and other writings on the natural sciences, Aristotle described various ways in which compositions are produced in nature—by mixture, continuity, position, time, place, and affection. A composition can be made by compounding solids, by the reciprocity of active and passive parts, by juxtaposing particles in an aggregate, or through mutual contact (as when a bundle is held together by a hand). The term *prospettiva composta* emerged out of Leonardo's longstanding concern about composition and painting. As early as, a. c. 1490-92, he criticized Alberti's system of central-point pictorial perspective. Related to these discussions, Leonardo's mature concept of *disegno* and shadow is indebted to Aristotle's discussion of types of composition, diffused in the scientific sources that Leonardo is known to have read.

Separate discussions by Aristotle on the subject of composition were fused and diffused so widely by Leonardo's time, however, that a variety of intermediate sources ranging from medical literature, Vitruvius, Boethius, to the ancient rhetorical literature on which Alberti also drew, extensively served to reinforce Leonardo's understanding of composition as congruency perceived by sense. Alberti also synthesized Aristotle's discussions of composition with his remarks on sense judgement (the former in *De partibus animalium*: the latter developed primarily in *De anima* and *De sensu et sensibilibi*). Following Aristotle, via Vitruvius, in *De re aedificatoria* (XIX 5), Alberni described the beauty of the edifice arising from number, figure, and the collation of its members. Accordingly to Alberti, speaking in Aristotelian terms, congruity is the origin of all that is graceful and handsome; it puts together members differing from each other in their nature in such a manner as to form a beautiful whole. Wherever such a composition offers itself to the mind through any of the senses, we immediately perceive its congruity, for every production of nature is directed by the law of congruity.

Leonardo's understanding of composition in painting is, at least indirectly, also indebted to Aristotle's discussions of the production of art (*Metaphysics* 1032b, 12: *Physics* 194b). Aristotle differentiated between the essence of form and that concrete thing which gets its name from that essence; this is the difference between the geometric figure of a sphere and an actual brass sphere (*Metaphysics* 1033b). Both the sphere and the brass existed before, but the concrete unity, with its own substance and its specific quality, quantity, and other similarly intrinsic to the concrete, particular nature of the brass object is the product of art (*Metaphysics* 1034b, 10-12). This understanding of composition as substantive artifice is implicit throughout Leonardo's well known comparisons of the arts. Aristotle's discussion of artistic production first and foremost concerns an orderly series of intelligible actions carried out for the sake of an end. Alberti and Leonardo both maintained this Aristotelian sense of artistic production by treating composition primarily as a process, not a final product. Leonardo, preserving Alberti's Aristotelian parallel between nature and art, developed a further set of observations with pictorial applications. Discussing harmony in music, for example, Leonardo claimed that painting is a harmonious configuration of parts, the congruity of which can be sensed immediately. This history of issues, in *tace*, precedes seventeenth-century discussions of pictorial composition.

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In the early ms. A, for example, Leonardo wondered why the eye judges objects differently from the way they are shown by perspectival means—why a row of evenly spaced columns drawn on a long wall appear flattened from a close viewing angle, for example (ms. A, f. 44v, c. 1496-97), or why a luminous object appears larger in stereometric vision than in a projection on a picture plane and, conversely, why the modeled surface of objects of an object looks larger in painting than the real object does at the same distance. A decade later, by the time he compiled *Codex II*, c. 1503-05, a notebook that coincides with his commission for the ceiling of the *Battle of Angiò*—which presented Leonardo with an exceptionally difficult challenge in reconciling pictorial perspective with direct vision—he was investigating discrepancies between vision and perspective by studying the
Listen to Leonardo’s own words on the unity of the work of art based on the observation of reflected colors in nature. This passage is preserved in Madrid 8936, contemporary with the Battle of Anghiari: “Ma si debbe acomodare co’ l'arte a fare a riscontro dell'ombra dell'ali, verdi cose verdi, come prati e simili convenienzie, acciò che l'ombra, partecipando del colore di tale obietto, non venga a digenerare et a parere ombra d'altro corpo, che verde; perche se tu metterai il rosso aluminato a riscontro de l'ombra, la quale è in sé verde, questa tale ombra rosseggerà e farà colore d'ombra, la qual sarà brutissima e molto varià dalla vera ombra del verme; e quel che di tal color si dice, s’intende di tutti gli altri”.

The same gradual but directed process of synthesis is clearly discernible in the clusters of passages I have dubbed the “trattato sequences,” insofar as the order and form of discussion follows Alberti’s treatise on painting of 1435. Since his earliest writings on optics, Leonardo borrowed terminology and ideas from his predecessors and contemporaries. The category prospettiva composta, however, seems to be an original coinage recorded for the first time in the late ms. E (7, 16r), c. 1513.

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To summarize my argument so far, in Leonardo's notes, *composto* frequently designates compound shadows that are the mixture of light and dark, or compound colors that are the mixture of simple ones like blue and yellow, but Leonardo is also indebted to Alberti's prescriptive, rhetorical notion of *composto* that results in the pleasing and emotive union of the elements in a successful painting. How are the scientific and rhetorical sides of Leonardo's thinking related in his writings and artistic practice? Let me address this question by considering the range of meanings Leonardo associated with *composto* and its cognates:

I. Above all, Leonardo used *composto*, with distinctions ultimately derived from Aristotle's *Physics*, when he wrote about motion. Leonardo wrote about compound motions, weights, and forces. With application to art, he described the complex (*composto*) movements that the artist integrates in his compositions.

II. He recommended that painters combine (*composto*) blue and yellow to make a beautiful green; and using the same distinction between simple effects of pupil variation under different conditions on the perception of light, color, and size, he compared the function of the pupil and the inner senses in bifocal vision to a camera obscura into which light enters through multiple apertures. Leonardo's theoretical interest in the anomalies of vision developed further over the next few years. By the time of his *D. di. c. 1507-66*, a treatise on the eye that might have been part of a larger (lost or unfinished) work on perspective, he described discrepancies between pictorial perspective and direct vision with far greater sophistication than ever before as due to the refraction of rays at the surface of the eye. Leonardo did not altogether reject Alhazen's simplified model of the "visual pyramid" adopted by Alberti, but instead of trying to reconcile the physical evidence to this problematic mathematical model, he concentrated on the converse problem—explaining the physical dimensions of the sensitive visual power. James Ackerman suggests that around 1566 Leonardo equated the curved surface of the eye with the picture plane and with the intersection of the visual pyramid in Albertian central-point perspective. From my own reading of the evidence, it is doubtful that Leonardo concerned this over-simplified equation—and how would it have solved his pictorial problems?—but he did finally write about the discrepancy between the curved field of vision and the picture plane.

This subject extends beyond the scope of the present paper and merits a study of its own. The following passages in the Codex Urbains use *composte* or its cognates in discussions on the related topics of vision, weight, and force (the first number refers to the folio, the second refers to McMahon): Libro 2. Carta 26-27 40. Codex Urbains f. 111r (555) compound motion f. 112r (342) compound weight f. 12r (356) compound force f. 122r (557) *composto* movements integrated in *composizioni*: f. 123r (332) *composto* figure of a man sustaining weights with different motions (diversi modi).
and compound that he employed in his writings on motion. He discussed other compound (composto) colors, and light and shadows.\textsuperscript{16} His warren painters not to make a specialty of a single figure for fear that they will delight in their own defects, that is, they will mistake perfect proportion for the composition of their own particular bodies (comporre del suo corpo).\textsuperscript{17} Throughout the “Paragone,” that is, his defense of painting compiled in the first section of the Codex Urbinus, he wrote about the body composed (composto) of human members.\textsuperscript{18} Similarly, he described human beauty composed (composto) of beautifully proportioned members.\textsuperscript{19} At a greater level of generality, he also described the soul as composed of harmony.\textsuperscript{20}

He developed extensive arguments for the superiority of painting based on the proportionality of its components, that is, the ordered harmony of the parts which compose (comporre) it.\textsuperscript{21} He wrote frequently in terms and language directly indebted to Alberti’s \textit{della Pittura} about composing (comporre) the \textit{istoria} or narrative, and about its components (composimentum).\textsuperscript{22}

The successful composition (composizione) of the narrative also depends on details (disezioni), that convey the beauty of the world through the “ornaments of nature.”\textsuperscript{23} From his knowledge of optical treatises, Leonardo defined these “ornaments” on the model of Aristotle’s ten categories of predicates that combine with subjects to form the propositions from which reasoned arguments begin (Categories 1b, 25 and Topics 100b, 25ff.).\textsuperscript{24} V. He also defined the other arts in terms of “composition.” Music is composed (composto) of proportion;\textsuperscript{25} melodies composed (composto) of various voices are comparable to paintings composed (composto) of all its members.\textsuperscript{26} He referred to poetics as composers of verses.\textsuperscript{27} He accused poets of making lying or fictitious compositions (composti); sculptors of composing (compongono) figures in the round simply by combining two reliefs.\textsuperscript{28}

Leonardo’s terminology and the many shadings of composto and its cognates in his writings make better sense to us if we keep in mind the centrality of Aristotle’s discussion in the \textit{Physics} (21b, 25), where nature is defined as motion under three categories: rotary motion, a simple movement that may be eternal because it stays still; rectilinear motion, also a simple movement that involves change of place and compound motion, composed of two simple motions.\textsuperscript{29} In \textit{De \textit{flauta} e \textit{remo}}, Leonardo’s paired categories of “simpler” and “compound” perspective follow the form of Aristotle’s distinction.

\textsuperscript{16} \textit{Libro} 4. Carta 15, f. 19r; \textit{Libro} 4. Carta 1 1. 29, 30, 51, 30, 52, 34, 68, 39, 83, 40, 38, 40, 58. The same subjects are treated in passages compiled from other sources into the Codex Urbinus: ff. 57r (169); 75r (170); 67r (179); 76r (177); 60r (178); 65r (207); 116v (53r and 53c); 15r (519). Leonardo’s designation of simple and compound colors may derive from his designation of simple and compound shadows, on which see \textit{Libro} 4. Carta 34, 68, which reads in part: “The kinds of shadow are divided into two parts, one of which is called simple, and the other compound. That is simple which is caused by a single light and a single body; that is compound which is created by several lights on a single body or by several lights on several bodies.” (La specie de l’ombra si divide in due parti, l’una delle quali è detta semplice e l’altra composta. Semplice è detta quella che da un sol fume e da un sol corpo è causata. Composta è quella che da più fumi sopra un medesimo corpo si genera, o da più fumi sopra più corpi.) Translation and transcription of \textit{Libro} 4 cited from C. Pedretti, \textit{Leonardo da Vinci On Painting. A Lost Book \textit{(Libro 4)}, Berkeley-Los Angeles 1969 p. 63. Cfr. ALBERTI, \textit{On Painting}. Book II 40. See further references cited in op. 7 and 27.

\textsuperscript{17} \textit{Libro} 4. Carta 28, 45.

\textsuperscript{18} Codex Urbinus ff. 15r (43); 16r (43); 16r (41).

\textsuperscript{19} Codex Urbinus f. 11r (42).

\textsuperscript{20} Codex Urbinus f. 14r (23). In other sections of the Codex Urbinus he treats the same subject of the composition of the body: \textit{Libro} 4. Carta 23, 45; \textit{Libro} 4. Carta 28, 46; \textit{Libro} 4. Carta 50, 101 (where he uses the word “compostezione”) instead of \textit{composto}. \textit{Codex} Urbinus ff. 18r (25b); 16r (28).\textsuperscript{18}

\textsuperscript{21} Codex Urbinus ff. 16r (40); 11r (12r); 42r; 13r (41); 14r (26); 16r (30 and 45); 17r (41); 16r (41).

\textsuperscript{22} Codex Urbinus ff. 2r (29); 24r (23); 42r (92); 34r (94); 35r (76); 53r (255); 59r (262 and 266); 60r (249); 10r (264 and 267); 66r (259); 108r (572); 107r (438); 117r (312); 122r (357); 125v (367); 125r (20r (391); 131r (439); 140r (426); 140v (436 and 435).


\textsuperscript{24} Codex Urbinus f. 17r (44).

\textsuperscript{25} Codex Urbinus f. 16r (41).

\textsuperscript{26} Codex Urbinus f. 15r (41).

\textsuperscript{27} Codex Urbinus f. 15r (41).

\textsuperscript{28} Leonardo frequently identified perspective as a form of motion, especially during the period beginning around 1495-1500 when he studied Aristotle’s \textit{Physics}; see further, FARAIO, Leonardo’s \textit{Paragone}, cit., p. 307; Leonardo’s concept of motion also informs Alberti’s discourse of figurative movement. In \textit{De statio} as well as \textit{De Pictura}, he discussed the composition of heterogeneous parts into a unified whole in terms of the viewer’s chance of position—the topic of composition and motion both ultimately derive from Aristotle, as the following discussion will clarify. See ALBERTI, \textit{De pictura On Painting}. Book II 43, and \textit{On Painting and On Sculpture. The Latin Texts of De Pictura and De Statuo}, ed. C. GRASSO, London 1972.
between “simple” and “compound” motion—as they do in many of his other discussions of motion that employ the same terms.\textsuperscript{30}

Not surprisingly, Aristotle’s concept of motion also informs Alberti’s discussions of figurative movement, set forth in his treatises on sculpture and on painting, both of which Leonardo read critically. Beyond Aristotle, Alberti also discussed the composition of heterogeneous parts into a unified whole and oriented to the spectator’s position. Leonardo, following Alberti almost verbatim in his early notes recorded in ms. A, c. 1490-92, with echoes reverberating until his last recorded statements in ms. E and related notes of c. 1510-1515, described how painters represent emotions through the movements of limbs by treating their change of position or direction, and how the disposition of colors and shadows renders this arrangement legible and pleasing from the spectator’s point of view.

The published scholarship to date has treated Leonardo’s individual borrowings, rather than his overall debt, to Alberti’s theory. Alberti described composizione as both the “fitting together” of surfaces observed in nature and concrescenza, or concrescenza loco, in the Italian version, as the ideal correspondence of elements in an istoria based on a Ciceronian literary model of style. When Leonardo similarly described the composi toile of figures in a narrative painting, he understood Alberti on the foundation of Aristotelian science. It is unlikely, however, that Leonardo caught the humanist munce of his source when he read Alberti’s adaptation of composizione escolastica to the visual arts. To offer a case in point, he overlooked Alberti’s rhetorical principle of varietà, based on antithesis and distinguished in critical terms from copia, or sheer abundance.\textsuperscript{31} As many Albertian statements recorded in his surviving notes and the Tavole on Painting attest, Leonardo’s discussions of variety set out series of details, not Alberti’s ordered pairs of contrasts.\textsuperscript{32}

point could be made about Leonardo’s interpretation of Alberti’s composizione as the conjunction of surfaces projected onto a plane. Leonardo overlooked Alberti’s allusion to the literary principle of harmony, or harmone, originally a technical term of illusionistic painting transferred to discussions of smooth literary style by Pliny the Elder, Cicero, and Hellenistic literary critics who used the terminology metaphorically, no longer referring directly to visual images.\textsuperscript{33} Alberti’s definition of pictorial relief is greatly enhanced by ancient literary metaphors that evaluate figuration in terms of its splendore, asperitas, teneo, and harmone, which referred once upon a time to the fitting and joining together of planes. Leonardo, on the other hand, supplemented his understanding of the harmonious conjunction of surfaces with scientific sources, primarily in mechanics and optics.\textsuperscript{34}

Leonardo’s visual and verbal productions are in keeping with Alberti’s understanding of varietà insofar as both are based on the fundamental rhetorical construction of antithesis, but not in terms of the recommended level of ornamentation. When Alberti presented his classicizing ideal of moderation as the only model to which painters should aspire, Michael Baxandall suggests, his discussion is a veiled critique of excessively embellished prose. Leonardo followed Alberti’s prescriptive advice from a position that was neither as wary of pictorial artifice as his source, nor attuned to the series of parallels that Alberti forced between painting and language for the benefit of his humanist audience.

\textsuperscript{30} See e. g. 6. The ductus and color of ink are consistent in both passages, and with the following passages in their immediate physical vicinity, ff. 13r-14r, paragraphs 2.; 6. paragraphs 41 and 2.; 6r (on painting); 17rv (on painting and a mechanical drawing for a cart); 54v (on pictorial perspective).

\textsuperscript{31} The classic study of Alberti’s compositional principles (derived from Cicero) is M. BAXANDALL, Giotto and the Origin: Humanist Observations of Painting in Italy and the Discovery of Pictorial Composition, Oxford 1971. On Alberti’s debt to Quintilian, see also D. WRIGHT, Alberti’s De Pictura In Literary Structures and Purpose, in “Journal of the Warburg and Courtauld Institutes”, XV, 1952, pp. 52-71.

\textsuperscript{32} See, for example, Codex Urbinse ff. 9r (29); 10r (40); and 11r (42); 37r (95); 39r (96); 51r (252-255); 55r (270); 61r (268); 61r-7v (271); 127r (433).

In the process of synthesizing Albertian prescriptions for riferimento with his equally Albertian discussions of figurative movement, Leonardo transformed Alberti’s moralizing theory of painting into a discussion almost entirely about visual form. In keeping with this transformation, Leonardo thought about pictorial space in terms of figurative movement and the play of light, color, and shadow. Prospettiva composita supports the harmony of the figure composition, that is, the unity of the storia that Alberti held to be the painter’s highest goal. Prospettiva composita, in other words, contributes to the formal unity of the figures. The operative principle in Leonardo’s reading of Alberti is that the figures should appear free of visual distortions, and not only from the single ideal point of view.35

Let us remember that the extant evidence is extensive, including four intact notebooks constituting a relative chronology that spans the entire course of Leonardo’s “Prospettiva Composita”.

Leonardo’s writings from, c. 1490 to 1515, I have argued that Leonardo understood Alberti’s range of meanings in a limited fashion—his scientific training far outstripped his knowledge of humanist literary theory—but, nonetheless, Leonardo read Alberti’s theory of pictorial composition critically, from his perspective as a practicing painter. I think it is fair to infer on this basis that Leonardo’s coinage of the term prospettiva composita stems from unresolved tensions among his scientific and literary sources. Leonardo’s overriding concern with normative vision betrays the aesthetic dimension of his scientific concerns with pictorial perspective. Prospettiva composita connotes not only “compound perspective,” it also carries the imperative of visual order implied in Alberti’s word “composition.” Viewing Leonardo’s literary considerations of the visual force of painting in the developmental context that his intact notebooks provide, prospettiva composita appears to be Leonardo’s hypothetical solution to complex problems of visual distortion that grew immediately out of his considerations of large scale mural paintings.

Leonardo da Vinci’s most significant artistic contributions until the publication of manuscript facsimiles at the end of the nineteenth century were not his paintings and sculptures, or other works of art, which were largely inaccessible before they entered public museums, at which point the corpus of works attributed to him was very different from what is now considered autograph. For over three centuries, the main vehicle for the dissemination of Leonardo’s ideas on art was the Libro—or Discourse, as it is called in several early manuscripts on painting, compiled from 18 autograph notebooks and abridged sometime before 1582, the date of the earliest dated ms. copy. Published in abridged form in French and Italian in 1651, the Trattato della Pittura, as it has been called ever since, was soon translated into all the major European languages.36

Long before Umberto Eco coined the phrase "open work," long before Barthes and others who called for the birth of the reader-celebrated texts as "multi-dimensional space[s] in which a variety of writings, none of them original, blend and clash," students of Leonardo's Trattato on Painting noticed incongruities, redundancies, and non sequiturs. To the present day, misgivings about the coherence of Leonardo's writings collected in the so-called Trattato have fundamentally shaped the history of this influential text. The bulk of modern scholarly effort has been directed to affirming its sole attribution to Leonardo. It is now known that the original editor(s) used a method for keeping track of excerpts that Leonardo developed himself and that the scribe was an extremely accurate amanuensis. With Carlo Pedretti's 1995 publication of a facsimile edition of the Codex Urbins Vaticanus Latinus 1270, parent manuscript of the Trattato, we can add that, in addition to being extremely adept at deciphering the artist's mirror-image handwriting, the compiler(s) of the manuscript were able to estimate in advance how many pages to allot to each of eight sections of the treatise, how much space to leave for the illustrations that accompanied the text, and where to leave it [III, 2]. The circumstantial case is stronger than ever before for the leading role played by Francesco Melzi, Leonardo's student and the inheritor of all papers in the artist's possession at the time of his death in 1519.

Yet close attention to the variety of literary structures in the Trattato, especially to the ways in which the text omits codes and conventions on which it seems to rely, casts into a different light the researches of modern scholars whose primary aim has been to determine the authenticity of the words on the page. The Book on Painting was compiled, edited, and originally published during a period when editorial practices that maximized authorial intentions did not yet dominate. Plainly stated, Leonardo's authority in the Trattato on Painting was posthumously constructed by his editors, is it ironic that we should still know so little about Leonardo's contribution to the main document that disseminated his ideas for three centuries? In a forthcoming publication I show that in the Codex Urbins, the parent ms. of the Trattato, developmental aspects of Leonardo's thoughts are replaced by a concern with the painter's repertory of representational skills. Ostensibly, the rearrangement was for the sake of bringing together passages of various dates on the same subject. But in effect, the editor destroyed the organic unity of Leonardo's discourse of pictorial relato. Editorial interventions intended to clarify Leonardo's ideas actually diminished what was clearest about them.

Whenceever the editor tried to follow through on Leonardo's own categories, such as the two principal parts of painting, he was faced with structural inconsistencies—one time, Leonardo would write that painting has three principal parts, the next time that it has two different ones, and so on. Gathering passages by topic exacerbated this effect. Most significantly, gathering passages by subject compromised the real conceptual unity of Leonardo's writings on painting, which are conceived not as an orderly taxonomic scheme but in much less predictable terms, as a scientific investigation.

As it turns out, however, the two-part structure that Leonardo took over from Alberti, namely the sequence of discussion that begins with pictorial perspective and ends with narrative figure composition, that is typically found in Leonardo's autograph notebooks, is clear in the organization of the Codex Urbins and even clearer in the abridged Trattato. Did Leonardo's early editors, namely those sixteenth-century individuals who abridged the Codex Urbins, parent manuscripts of the Trattato—the identity of the editors and the purpose of their project are currently unknown—intentionally reinforce the Albertian component of Leonardo's theoretical considerations of painting? And what about the second editorial campaign that led to the 1651 Paris publication?

Puttenken's argument that pictorial composition is a seventeenth-century French invention notwithstanding, readers of the abridged Trattato had every opportunity to recognize the two Albertian components in Leonardo's discussion of painting—despite the rearrangement of his texts and incoherencies resulting from these rearrangements by two editorial campaigns (the first in the mid-sixteenth century and the second leading to the printed edition). Structurally, the 1651 edition of Leonardo's Trattato still reproduces Alberti's sequence of discussion. Leonardo's writings on painting are organized under two main headings as pictorial perspective (part two) and the
arrangement of figures in a narrative (part three). The original compiler(s) of the Codex Urbinae had already disturbed the organic relationship in his intact notebooks between these two fundamental parts of his ongoing considerations of painting. That is, the Parte seconda, which forms the first section of the abridged treatise, entitled "Rules for the Painter", collects statements of all dates dealing with nonlinear perspective and also includes some preceptive statements about the arrangement of figures in narrative painting. The remainder of Leonardo's lifetime of now-alberrian observations on the expression and arrangement of figures in narrative paintings comprises the Parte terza, which is the only other major section of the abridged Treatise.

The construction of legible but not harsh relievò with the aid of empirical observation rather than by strictly geometric means is one of the overriding features of the most famous Parte seconda of the Trattato on which the original editors expended a great deal of effort. And sfumato relievò defined in terms of unified pictorial space became an important artistic issue in seventeenth-century French academic art theory, where Leonardo's Treatise had its most famous reception. Aside from acknowledging the Trattato's role

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90 These are Codex Urbinae, Parte seconda, fol. 58r and following chapters 173 to 189, composing figures in narrative paintings.

91 The fourth section, on draperies, consists of four short chapters only, Parts 1 (composition of the arc), 5 (light and shadow), 6 (trees and greenery), 7 (clouds), and 8 (the horizon), were not included in any abridged copies of the Trattato.

94 As early as 1653, only two years after publication of the abridged Trattato, Charles Le Brun with prominent members of the newly formed French Academy proposed a curriculum that emphasized the importance of translating perception into pictorial form on the same terms that Leonardo advocated in the Trattato, namely by the pictorial representation of natural phenomena such as aerial perspective, color, and luminosity. As Fontain and Franconberg (both as in n. 13) emphasize, Boss also drew heavily on Leonardo's writings despite his vocal opposition to them. M. KEMP, "Il Cono di Intelligenza", p. 21, summarizes the course of events favoring Charles Le Brun and leading to the expulsion of Boss from the Academy in 1661. Jacques le Riche's Traité de Perspective, written in 1657 and published in 1660, was dedicated to Le Brun; followed five years later by (the translation of Leonardo's Trattato) Fréart de Chambray's Idea della perfezione della pittura, 1662, meant as a supplement to Leonardo's Treatise and used by Le Brun in his attack on Boss, then by Grégoire Deferret, Optiques de la perspective et de la peinture, Paris, 1670, which also emphasized the importance of translating perception of phenomena into pictorial form. Discussions at the Académie Royale in the 1660s revolved around problems of representation developed in these texts, the immediate legacy of Leonardo's writings on perspective although they were not always recognized as such.

in these debates, modern scholarship has overlooked both the text of the abridged Trattato and the significance of the historical continuity to which this messy but historically important text attests. Alberti's della Pittura was included in the same volume as the abridged Trattato when it was first published in 1651. In other words, in the original publication of 1651, Leonardo's so-called Trattato serves as an amplification or commentary on Alberti's authority. Even if they could not always make out what Leonardo meant, as we know from acrimonious debates at the French Academy over the value of his approach to painting, the terms of discussion that had most interested Leonardo in his reading of Alberti were shared by others, even his opponents, and developed further into a prescriptive theory of pictorial composition. Charles Le Brun and other members of the French Academy proposed a curriculum that emphasized the importance of translating perception into pictorial terms by representing aerial perspective, color, and luminosity. These developments in the history of writings on pictorial perspective—although they were based on the same terms that Leonardo advocated in the Trattato—took place at an increasing distance from Leonardo's own understanding of painting as a philosophical investigation. Most often, seventeenth- and eighteenth-century writers did not acknowledge Leonardo's authorship, but alone the key position his writings played in the intergenerational effort that produced one of the most powerful concepts of modern western art. In conclusion, I hope to have been able to suggest that the emerging principles of pictorial composition were shaped from a richly-manured history of the work of art understood as a unified composition—a history that Leonardo's writings enable us to bring back to light. At this temporal, cultural, and philosophical juncture, a number of critical trajectories come into view—such as the role played by the Trattato in shaping institutionalized ideas about art around the globe. But that is a subject for another day.

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92 The compilation of both manuscripts has been firmly connected with the illustrator Carlo Urbino, who may have been involved with the Codex Urbinae, too, although the drawings are likely to be by Francesco Melzi himself, as argued by Pedretti and Vecch. Libro di Pittura, vol. 1, pp. 75-76 (who consider Melzi to be the scribe as well); and pp. 35-42, on the Codex Haymian, citing important studies by Ugo Ruggia, Sergio Marzilli, Frank Kellner, and others. With the Codex Urbinae, they form a family of published and unpublished Leonardesque writings on perspective that served instructional needs.