A rhetorical interpretation of a geometric diagram of Plato's "Creation Myth" overlaid on the Parthenon's main facade

Estelle Alma Maré
Department of Architetecture, Tshwane University of Technology, Pretoria
E-mail: mare_estelle@fastmail.fm

A visual rhetorical interpretation of the design and symbolism of the pedimented main facade of the Parthenon on the Athenian Acropolis is based on a schematic geometric diagram of Plato's "Creation Myth", as described in his *Timaeus.* Following the aim of Gorgias (fifth century BCE) who claimed that a good speaker casts a spell on listeners, it is likewise postulated that Classical Greek architects strove to cast a visual spell on the viewers of their work by means of geometric composition. As a mind experiment this article proposes to persuade readers that the geometric design of the east facade of the Parthenon can be analysed according to the canons of Classical rhetoric, as explicated by Quintilian, and later expounded visually by Vitruvius and Alberti. The design process (tractatio) of the architects that resulted in the composition of the Parthenon's east facade is analysed in a framework derived from Classical rhetoric: exordium, followed by diegesis, prothesis, pistis, and the five canons (*inventio, dispositio, elocutio, memoria* and *prununtiatio*), until the peroratorio.
Key words: Plato's "Creation Myth", *Timaeus,* visual or silent rhetoric, Parthenon

'n Retoriese interpretasie van 'n geometriese diagram van Plato se "Skeppingsmite oor die hoofaansig van die Parthenon geplaas
'n Visuele retoriese interpretasie van die ontwerp en simboliek van die gepedimenteerde hoofaansig van die Parthenon op die Atheense Akropolis word gebaseer op 'n skematiese geometriese diagram van Plato se "Skeppingsmite", volgens sy beskrywing in die *Timaeus.* In navolging van die doel van Gorgias (fyfde eeu VGE) wat van mening was dat 'n goeie spreker 'n gehoor in sy ban bring, word dit dienooreenkomstig gepostuleer dat Klassieke Griekse argitekte daarna gestreef het om waarnemers by wyse van geometriese komposisie in die visuele ban van hulle werk te bring. As 'n gedagte-eksperiment word daar in hierdie artikel gepoog om lesers te oortuig dat die geometriese ontwerp van die oosaansig van die Parthenon ontleed kan word volgens die kanons van Klassieke retorika, soos deur Quintilian besskryf en later visueel deur Vitruvius en Alberti uitgebrei. Die ontwerpproses (tractatio) van die argitekte wat die komposisie van die Parthenon se oosaansig verwesenlik het, word ontleed in die raamwerk wat van Klassieke retorika afgelei is: exordium, gevolg deur diegesis, prothesis, pistis, en die vyf kanons (*inventio, dispositio, elocutio, memoria* and *prununtiatio*), tot en met die peroratorio.
Sleutelwoorde: Plato se "Skeppingsmite", *Timaeus*, visuele of swygende retorika, Parthenon

"The hidden harmony is better than the obvious" (Heraclitus of Ephesus).

The present research aspires to a visual interpretation of Plato's "Creation Myth", described in obscure terms in his *Timaeus* (32-36D).[1] The proposed analysis by Tons Brunés in his work, *The Secret of Ancient Geometry and Its Use* (1967), in which Chapter 10 deals with "Pythagoras – and a geometric analysis of Plato's *Timaeus"*, will be further expounded by a rhetorical interpretation. It is proposed that the geometric diagram that Brunés reconstructed from Plato's cosmological description may be applied to the facades of various Classical Greek temples, since most of their facades and ground plans are variations of a basic geometric pattern. More specifically, Brunés's geometric reconstruction of the pedimented east (or west) facade of the Parthenon on the Athenian Acropolis, designed by the architects Ictinus and Callicrates (both active during the fifth century BCE) under the supervision of the sculptor Phidias (490-30 BCE), on which construction started in 447 and was opened in 438 BCE during the reign of the Greek statesman Pericles (495-29 BCE), has been selected for further interpretation.[2]

In an innovatory way, as a thought experiment, the geometric design of the Parthenon's main pedimented facade will be analysed according to the rules of the Classical rhetorical canons, which follow a trajectory from the Greek rhetorician, Gorgias (fifth century BCE), to Roman rhetoricians and Italian Renaissance humanists who influenced architectural theory.[3]

The word *rhêtorikê* may have originated with Plato (424-348 BCE) who reviled the rhetoricians of his day.[4] His criticism was aimed especially at the Sophists, who argued for effect, not truth,[5] whereas Aristotle (384-322 BCE) viewed rhetoric as a companion to dialectic which is concerned with logical proof, probabilities and means of persuasion.[6] In Roman times, rhetoric was revived by Cicero (106-43 BCE) and Quintilian (circa 43-circa 118 CE). The latter published his *Institutio oratoria*, a twelve volume textbook on the theory and practice of rhetoric in 95 CE, in which he explicated the manner in which discourse should be performed (i.e. arranged and styled) for the purpose of persuasion of the audience.[7] In this research the orator's methods of oral discourse are followed, but transformed and adjusted to enable a visual or silent rhetorical analysis of the excellence of the geometric design of the main facade of the Parthenon in terms of compositional harmony and meaning.

All visual works of art and architecture are mute physical objects, but their meaningful contents nevertheless communicate with viewers. The manner in which architecture communicates rhetorically has been a subject of interpretation since Vitruvius (80-70 BCE-after 15 CE), a Roman architect and engineer, best known for his theoretical work, *De architectura*. Steven Frith (2004: 40-41) notes that this work's "reliance on rhetoric is extensive, not just in the form of his treatise, but in the 'aesthetic' prejudice he brings to the judgement of architecture". Most importantly, Frith (2004: 41) adds: "If the task of architecture is to represent order, its means are enabled by *eloquence*." Architectural eloquence is achieved in a visual manner, according to criteria borrowed from Classical rhetoric which remained important after Roman times. At Medieval universities rhetoric was taught as a subject of the secular liberal arts syllabus of the Trivium, together with grammar and logic, a practice that continued as a Humanist discipline during the Italian Renaissance. In architecture the value of Classical rhetoric was exemplified by Leon Battista Alberti (1404-72), an architect and architectural theoretician who was influenced by Vitruvius.[8] His treatise on architecture, *De re aedificatoria*, which is composed according to rhetorical rules, is proof of his understanding of the value of rhetoric as an art of persuasion in theory and practice.[9]

What follows is not a continuation of the speculation about the meaning of Plato's Creation Myth as an expression of his cosmology or philosophy of nature,[10] but an attempt to reestablish the validity of the application of rhetorical devices and canons to a great, "eloquent" work of architecture, the Parthenon. Its main facade is treated as if designed by a rhetor[11] whose design process (*tractatio*) – a process referring to the arrangement of the parts of his compositional "discourse" – is analysed.

Exordium (prooimion) [introduction]

Plato did not write about architecture. Consequently his views on the Parthenon, which had been in existence for almost twenty years when he was born, are obscure. The question cannot be answered whether Plato recognised in the prominently elevated building on the Athenian Acropolis – which he must have viewed almost daily – a sacred geometrical design that aspired

visually to philosophical ideals he were to formulate in the *Timaeus* in 340 BCE. It is nevertheless remarkable that he noted in the *Timaeus* (17A) that the soul learns chiefly through the eye.

Since a purely geometric analysis cannot be regarded as a definitive interpretation of the meaning encoded in various Classical Greek temple facades, I propose to take Brunés's analysis of the Parthenon as a point of departure for a visual or silent rhetorical interpretation of its pedimented east (or west) facade (figure 1). This requires that the temple be contextualised with reference to the formal criteria of Classical Greek aesthetics as formulated during the period 510-323 BCE. Furthermore, the meaning of creation in Plato's view is relevant because he held the belief, befitting Classical times, that "if this world is a thing of beauty and its maker good, manifestly his gaze was upon the eternal" (*Timaeus* 29A). In the *Timaeus* the maker is referred to as an artificer or *dêmiourgos*, who was created by the highest god as the primary cosmic craftsman whose task was to craft the spatial-temporal physical world.[12] Milton Nahm (1947: 336) explicitly points out that "The theory put forward in *Timaeus* is one of making, not of creation". By "imitating an unchanging and eternal model [*the dêmiourgos*] imposes mathematical order on a preexistent chaos to generate the ordered universe (*kosmos*)" (Zeyl 2013: 1). The purpose of this visible model, which is a likeness of an eternal Platonic Idea, was to enable order in the physical world, and should be emulated by human artificers whose gaze should, likewise, be upon the truth and the eternal, not the temporal. Sensibles are the physical images of forms, which together result in "the conjunction of immanence and transcendence" (Perl 1999: 340). This model to be emulated by the human craftsman is especially valid when evoking the sacred in temple design.

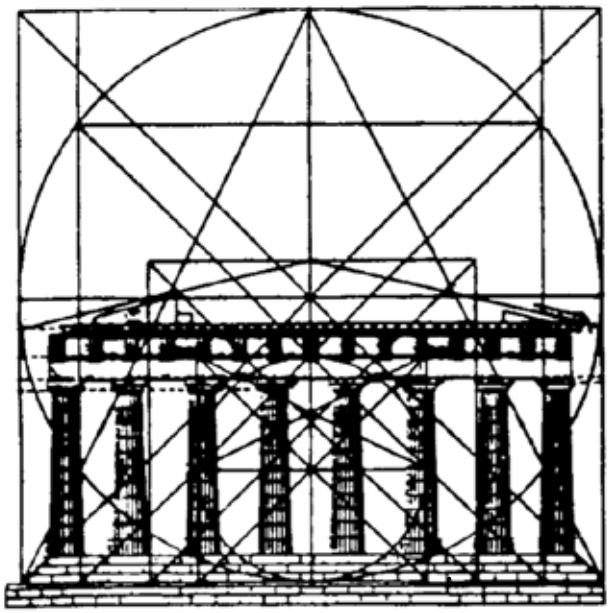

Figure 1
Creation myth diagram.

***Narratio (diegesis)* [exposition of facts / setting the theme]**

Before proceeding with a rhetorical account of the main facade of the Parthenon, based on Brunés's schematic diagram, it is appropriate to elaborate on the importance of geometry in

Greek aesthetics and Plato's philosophy. Plato displayed the famous slogan above the doorway to his Academy, "Let no-one ignorant of geometry enter here". Geometry as the basis for the fashioning of objects and artefacts as copies of a changeless world are at the heart of Platonic ontology. The system of *symmetria*, that is the harmonious arrangement of parts of a craftsman's work of *technê*,[13] is central to Plato's aesthetic belief in harmony, as taught at his Academy under the heading of mathematics, together with arithmetic, geometry and astronomy (Lassere 1964: 15). According to Richard Kraut (2013: 1), "His tribute to the mixed beauty of the sensible world, in *Timaeus*, consists in his depiction of it as the outcome of divine efforts to mould reality in the image of the forms, using simple geometrical patterns and harmonious arithmetic relations as building blocks".

However, the assumption has been questioned that Plato's cosmological insights are those of an initiate in mystical number mathematics, which was of Babylonian origin and developed by Pythagoras (Mandell 1996: 4).[14] Brunés proposal that Plato was influenced by Pythagorean knowledge as an initiate of the Pythagorean school, which may have obliged him to conceal the essence of his insights when he formulated the myth describing the creation of the universe, is doubtful. Whatever the origin, the myth, commonly called the "Creation Myth", is, according to R.G. Bury (1961: 3), central to the *Timaeus*. The first passage referring to the myth states:

> The construction of the world used up the whole of each of these four elements. For the creator constructed it of all the fire and water and air and earth available, leaving over no part or property of any of them (quoted by Brunés 1967: 242).

The invention of the four-element theory is attributed to Empedocles of Agrigentum (circa 492-circa 435-30 BCE),[15] from which the understanding developed that the elemental cosmos is held together in geometrical relationships. The equilateral triangle represents fire, water and air, while the element earth is represented by the square.[16] These elements and their geometric forms are Plato's objects of contemplation of a metaphysical order.

The myth, as described in terms of the four elements and their geometrical equivalents in the passage referred to, was subjected by Brunés (1867: 246-58) to a meticulous exegesis and step-by-step geometrical reconstruction. He contends in the preamble to his exegesis that

> [in] order to explain to his initiate brethren how god had performed his task of creation Plato was obliged to resort to geometry and numbers since the story of creation was from ancient times built upon this sacred teaching, the teaching that everything divine resulted from geometry and its associate, numbers (Brunés 1867: 245).

Clearly, Plato found himself in a dilemma when he decided to write about geometric shapes without mentioning them by name or directly mentioning any of their features. Thomas Johansen (2004: 6) accurately observes that therefore, "The *Timaeus*-*Critias* can in part, then, be viewed as a philosophical *ekphrasis*, or depiction in words, of the whole cosmos". This was a demanding task that required a description of the symbols' symbols. Transforming these symbols into geometric forms, Brunés (1967: 249) testifies that he interpreted the composite geometric forms of the myth diagram strictly in accordance with Plato's esoteric instructions.[17] As such it is overlaid on the main facade of the Parthenon as the subject of a rhetorical investigation.

Propositio (prothesis) [premise / development of a theme]

Having established the composite geometric myth diagram reconstructed from the *Timaeus* in terms of a narrated Creation Myth, the next step is to interpret the meaning of the diagram that forms the design framework of the Parthenon's pedimented facades, and assess whether it is

the key to the temple's symbolic and cosmological meaning. When abstracted as a composite formal diagram it elegantly combines various geometric forms that can be contemplated as an imaginative exercise in sacred geometry, especially the use of circles, squares and triangles – all of which can be discerned in the geometric diagram. Since time immemorial a cosmological meaning have been ascribed to these geometrical figures: they respectively symbolise unity, associated with the heavens; materiality associated with the earth, while the three points of the triangle enable a qualitative transition from the abstract to the tangible.[18] The diversity of circles, squares and triangles in the diagram forms a unity. Thus, diversity and unity as a blending of opposites also evokes transcendence and immanence. By interpreting the relationships of these geometrical figures in terms of a visual discourse it is proposed to draw a silent or non-verbal parallel with Classical rhetoric. It is furthermore the purpose of this thought experiment to derive an interpretation of the Classical Greek world view and cosmology that the Parthenon exemplifies (figure 2).

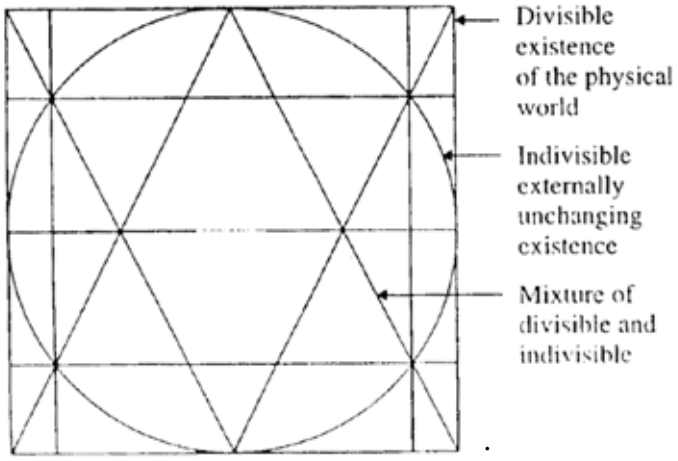

Figure 2
Composite form: squares, circles and triangles

***Confirmatio (pistis)* [proof]**

An analysis of the creation myth figure reveals that it is, in fact, a cosmology, an enquiry into the universe as a whole and the hierarchy of being.[19] When overlaid on the east facade of the Parthenon, the closed framework of the figure can be subdivided into various zones that correspond to the articulation of its architectural elements: crepidoma, stylobate, columns, architrave, frieze and cornice, crowned by the pediment. Different zones are identified on the facade that respectively symbolise, from below to the top, the underworld, the domain of humans, the domain of heroes, the domain of gods and the ultimate metaphysical domain of Ideas. In the *Timaeus* Plato refers to the "middle-soul" (represented by the column zone of the temple) as the soul of human beings who may look upwards to zone of the intelligibles that is comprehensible only to the intellect, thus exercising superior reason, or downwards to the shadow world of the senses and material objects, thus exercising inferior reason. Thus, a hierarchically descending progression of creation is postulated: from the highest to the lowest (figure 3).

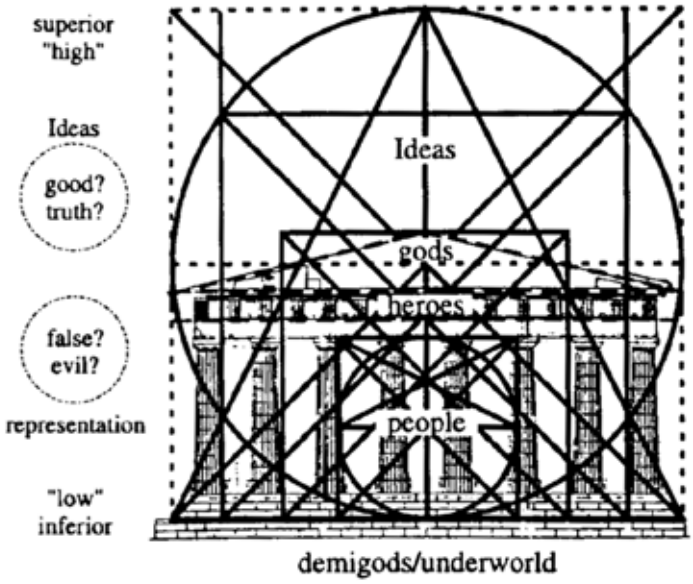

Figure 3
Symmetria: two halves or spheres and rectangles.

The symbolic domains encoded architecturally on the east facade of the Parthenon form a geometric unity with optimal effect that may be interpreted as a visual "text", in which rhetorical devices are identified. Most importantly, the overall *symmetria* articulated by die surface geometry unifies the cosmological representation and reveals various compositional *schemata* that will be illustrated later on.

Classical Greek works of architecture are basically geometric and consist of a balanced or harmonious arrangement of components, denoted by the term *symmetria*. The arrangement of parts was done according to a modular system which Plato acknowledged in the *Philebus* (56B) as the use builders make of measure to attain a remarkable degree of exactness in constructions. In the case of the Parthenon, the system of measure applied has been extensively researched, with the conclusion that a "4 6 9 theme pervades the entire Parthenon: in the symmetry of the architectural elements it leads to the geometric proportion 4:6 = 6:9" (Bulckens 2013: 4).

In the creation myth diagram *symmetria* can easily be recognised when applied to the east facade of the Parthenon as an architectural design motif (figure 4). The vertical centre line of the main square of the creation myth diagram that cuts through the pediment divides it into two equal rectangles. Similarly, the circle that fits into the main square is also divided into two equal parts. The symmetry of the vertical divisions balances the geometric diagram, but the horizontal divisions have further implications because of irregularities. Above the centre line is the peak of the pediment – the domain to which the gods belong. High above the triangular peak of the pediment is the peak of the central triangle. This domain, above that of the gods, is the superior zone of Ideas. Immediately below the pediment the strong horizontal architrave represents the zone of heroes, resting on the vertical columns that represent humanity – a domain that is equal in height to that of the minor circle. Below the square supported by the stylobate the crepidoma represents the underworld of demigods.

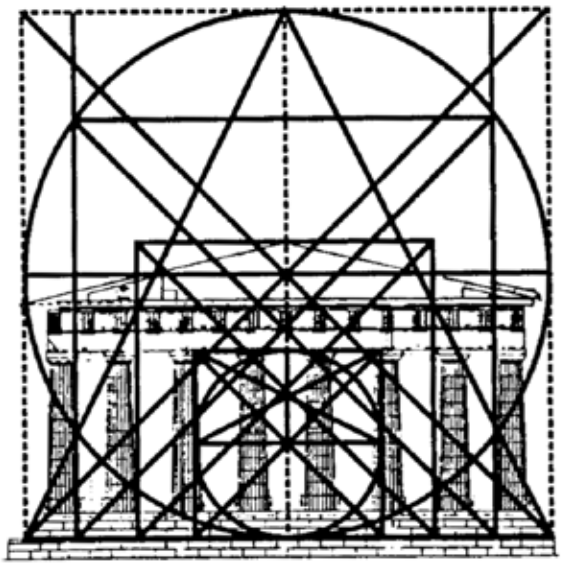

Figure 4
Symmetria: verticle and rectangles.

At this point in the argument, it is necessary to provide motivation for the visual application of rhetoric to a temple facade. In order to apply rhetorical devices to architecture as a visual art, as was done by Vitruvius, and later by Alberti during the Italian Quattrocento, it is necessary to "distinguish [rhetoric] by the task it had to perform" (Tatarkiewicz 1970: 259). Since the invention of rhetoric, its purpose "was neither imitation nor entertainment but persuasion and the achievement of an aim" (Tatarkiewicz 1970: 259). According to Gorgias (5th century BCE), the first outstanding figure in the history of rhetoric, a good speaker casts a spell on his listeners.[20] Likewise, all visual artists and architects aim to cast a spell on the viewers of their work. Indeed, Gorgias believed that "the ideal speaker is indeed an ideal artist" (Tatarkiewicz 1970: 260). If the orator's artistry succeeds, his speech will be effective and spellbinding; people will be persuaded to believe in what does not exist and they might even be convinced that the weak is strong and the strong is weak. Even if Plato had a moral attitude of rejection of rhetoric he did not question the value of *technê*. He required that the gaze of a creator or craftsman be upon the eternal, that is upon the Truth (*Timaeus* 29A).

The preceding explanation regarding the link between geometry and Classical cosmology leads to pertinent questions. First, how could the aims of rhetoric be fulfilled in a geometric design such as a pedimented temple facade? And second, how can the spatial and geometric design of Greek Classical temple architecture be interpreted as symbolically expressive in terms of rhetorical devices?

Cosmological symbolism, as explained above, is an integral part of the geometric essence of Classical temple design. Beside the evidence of aesthetic requirements, of which *symmetria* is the most important because measure [*metriotes*] and proportion are everywhere identified with beauty and virtue (*Philebus* 64E; Fowler 1962: 389), the evidence for the application of the rhetorical canons to the facades and plans of Classical temples become visible when the diagrammatic creation myth scheme is overlaid upon them.

What follows is an attempt to analyse the architect's work or design process (*tractatio*) that resulted in the composition (*compositio*) of the Parthenon's east facade in terms of the five rhetorical canons which are transformed into a visual analysis:

Canon 1 ***Inventio (heuresis)*** **[points of view** ***(loci / topoi)*****][21]**

It can be said that inventio does not necessarity refer to the creation of new or the discovery of original insights, but make the subject (*res*) of persuasion convincing. Historically, sacred geometry and its reference to cosmological symbolism was an ancient *inventio* that existed before the Classical temples were built. The design of the pedimented facades of the Parthenon was a reinvention of the meaning of the geometric symbols it incorporates. The meaning of these symbols are related to the respective ascent and descent of the sacred and the secular realms, of eternity and time, and their integration with intermediate realms, represented by the circle, the square and the equilateral triangle.

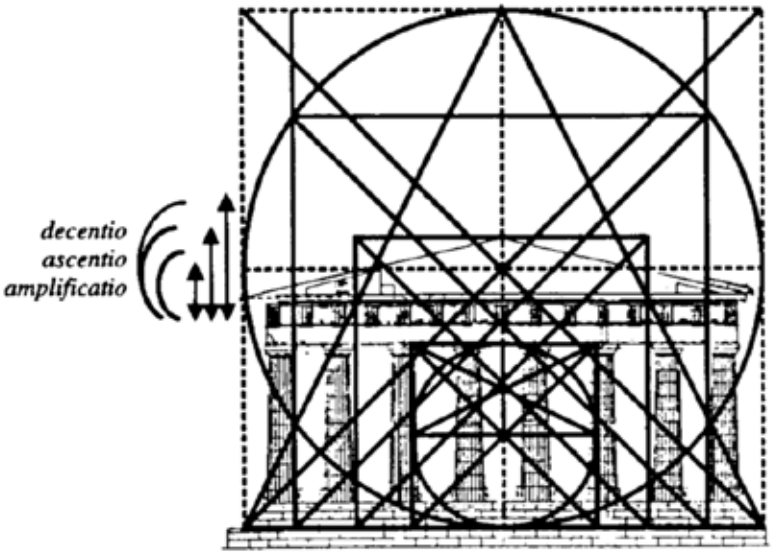

Figure 5
Symmetria: two halves or spheres and squares.

Canon 2 ***Dispossition*** **(*taksis / oikonomia*) [structuring the argument and parts of speech,** ***partes orationis*****]**

The circle that signifies eternity, the square that signifies terrestrial time, and the triangles that signify intermediate realms between the sacred and the profane, feature prominently in the composition of the creation myth diagram. When overlaid on the pedimented temple facade the symbolism of the geometrical forms constitutes an integration of the temporal and the eternal composed into a totality, the former representing a mimesis of the eternal.

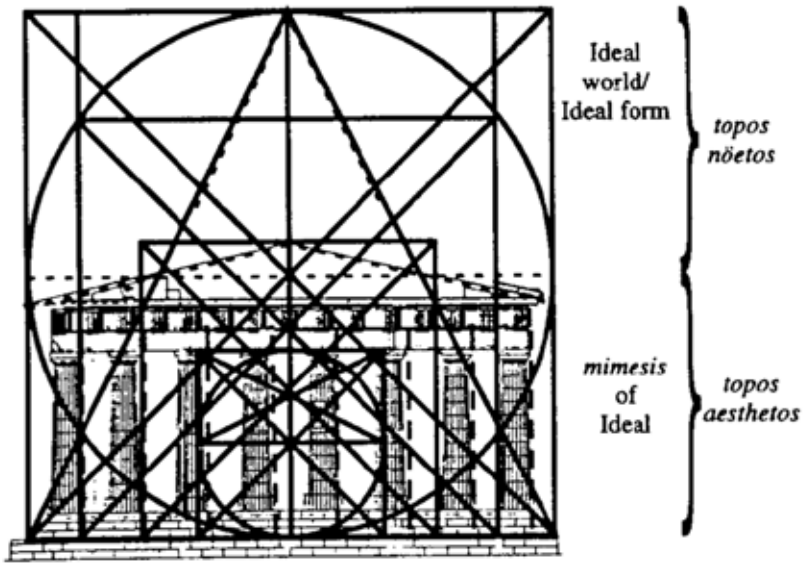

Figure 6
Integration of the temporal and the eternal.

Canon 3 *Elecutio* (*leksis*) [formulation]

The formal structure of the temple as exemplified by the geometric diagram can be interpreted in terms of the main tenets of Classical Greek aesthetics, namely *proportion* (beauty consists of measure and number), and *eurythmy* (subjective harmony: the understanding that beauty depends on how harmony is perceived by humans) (Tatarkiewicz 1970: 339). These tenets are interrelated with the visual *schemata* of the temple facade that links the *topos aestheticos* with the *topos nöetos* (see figure 6).

Canon 4 *Memoria* (*mneme*) [remembering and visualisation of images]

In oratory memoria refers to the rhetor's knowledge of his subject and the recollection of the preceding three canons by means of the visualisation of *topoi*.[22] However, *memoria* may also be interpreted on a different level, since Plato believed that the soul has innate knowledge of the transcendental forms. In Plato's theory of education he proposed the notion that knowledge is remembering or *anamnesis*.[23] The belief in reincarnation assumes that the human soul passes through a series of embodied and disembodied states, and that knowledge acquired during previous cycles remains innate and needs merely to be awakened to be remembered. Therefore, the creation myth diagram may be interpreted as essentially a memory image by means of which the structure of the cosmos as it manifests in the pedimented facades of the Parthenon may be visualised and retained in the memory of future generations of viewers. The myth's symbolic reference, if recognised in the temple design, becomes the physical reminder, of a mimesis of eternal forms (see figure 6).

Canon 5 *Prununtiatio* (*hypokresis*) [visual expression]

The fifth Century observers of the Parthenon – including Plato – were able to experience the inseparable links between aesthetic expression and religious ritual. In fact, viewers were able to experience the meaning of the temple phenomenologically. Moreover, knowledge of the creation myth as a mental abstraction could add layers of meaning to sense-perceived knowledge. By visualising the temple in the form of a geometrical abstraction, as made visible by the creation myth diagram, the viewer would have been reminded that the temporal and the eternal are integrated in the form of the great temple.[24] This ideal unity finds visual expression in the repetition of the triangle as form connecting the squares and circles (figure 7).

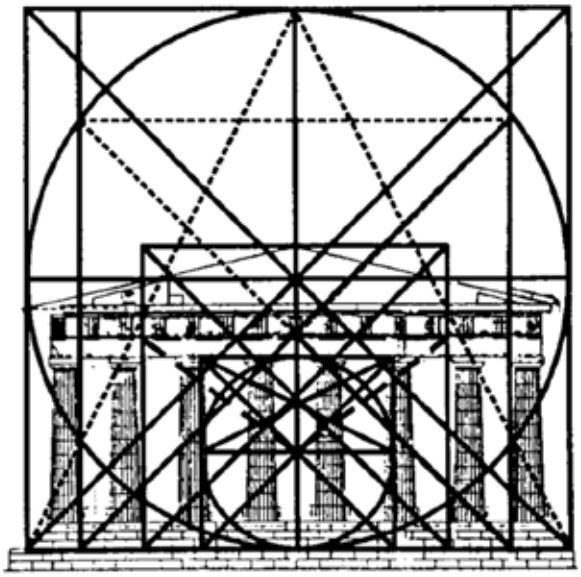

Figure 7
Repetitio: squares, circles and triangles.

The following *figurae elucutionis* that are considered devices enhancing the *prununtiatio* can be identified as sub-groups in the composition of the formal structure of the temple facade. These geometric figures are interpreted as the visual or silent equivalents of various oral rhetorical devices which enhance the complexity of a discourse:

5a *Inversion* (*anastrophe*) [inversions]

The amplification of triangles in figure 7, and likewise of the circles in figure 8, are visual proof of the use of inversion.

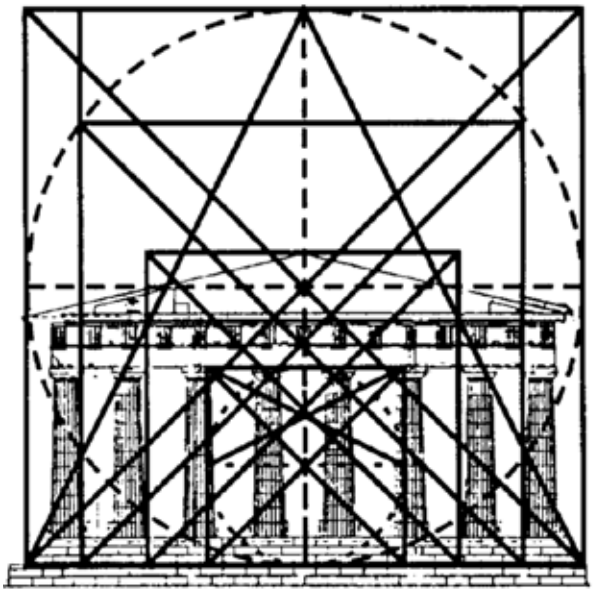

Figure 8
Amplificatio: circle and semicircles.

5b *Repetitio* (*geminatio*) [repetition/doubling]

Repetition is an important rhetorical figure that is evident in the diagram in which emphasis is achieved by means of the repetition of all the geometrical figures: squares, circles and triangles, as illustrated in figures 7, 8 and 9.

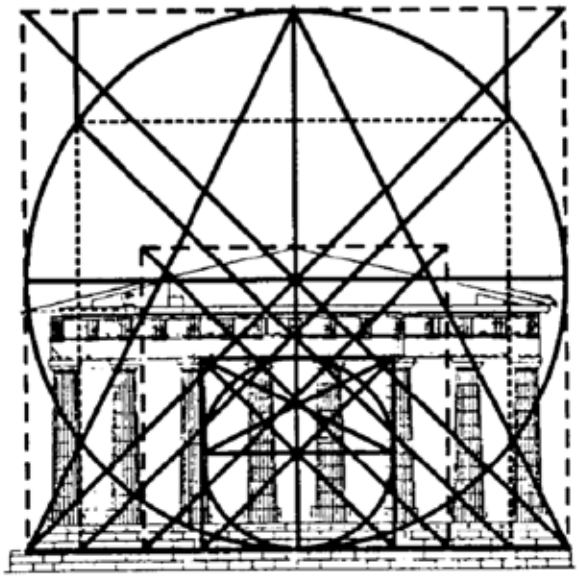

Figure 9
Amplificatio: squares.

5c *Antithesis* (*contrapostium*) [balance of opposites]

The most important quality in this instance, *contrapostium* (*antithesis*), denotes the ideal of balance, consisting of movement and counter-movement. An ideal balance between opposites characterises the visual arts of the Classical period.[25] What is emphasised on the one side of the central axis in the diagram is counterbalanced on the other side in an intricate pattern, visible in the various geometric forms of different dimensions (see figures 8 and 9). Thus, visual balance implies the unification of the physical forms of the temple with the symbolic ideals represented by geometric forms that are symbolic of creation of a higher order.

***Peroratorio* (*epilogos*) [conclusion]**

To conclude, the question may be asked: if the task of rhetoric is to persuade, how does the creation myth diagram persuade the viewer of when overlaid on the Parthenon facade? In a restatement of the theme of the preceding argument it transpires, first and foremost, that, according to Classical theory, the patrons and architects of the temple had a divine mission. By means of geometry which is immaterial, abstract and exemplifies the immutable reality that seemingly exists independent of the material realm, the designers formed an architectural structure composed of figures of thought (not figures of speech as in oratory). They shaped the material realm of the temple in terms of the immaterial, echoing Plato's pronouncement to students of geometry: that they make use of and reason about visible figures, aspiring to resemble the original Forms. Thus, when designers and builders reason about the square, circle and triangle, or whatever geometrical figure they conceive, they should actually have the Absolute Figure in mind. Quite explicitly Plato stated in *Philebus* that the rectilinear, circular or other geometric surfaces composed with precision instruments "are not, like the others [i.e. living things], beautiful under certain conditions; they are always beautiful in themselves". Nevertheless, the figures that the students of geometry draw or model, they should "treat as illustrations only, the real subjects of their investigation being invisible except to the eye of the mind" (*Republic* 510D; Lee 1955: 276-7).

Following the above line of reasoning the conclusion is drawn that the *topos aesthetos* of the main facade of the Parthenon, and by extension the whole temple, is the *mimesis* of an ideal cosmology. The geometric structure is the framework of the rhetorical scheme that relates to the hierarchy of being in terms of Classical cosmology. One may substantiate the preceding analysis of the formal harmony of the temple facade with the already quoted statement from the *Timaeus* (19A): "For if this world is a thing of beauty and its maker good, manifestly his gaze was upon the eternal." If this statement is valid for the intention of the patrons and designers of the Parthenon as a microcosm, their gaze was symbolically directed beyond physical vision, manifesting the eternal in the design. This view calls to mind Heraclitus's mystical insight that "The hidden harmony is stronger (or better) than the visible" (Tatarkiewicz 1970: 89). In order for this insight to be understood, the hidden harmony of a Classical artefact like the Parthenon has to be visualised in its geometric form. It could be that the purpose of the designers and builders of temples was to conceal their intentions in forms not visible to the physical eye, but evident only to initiates as a figure of thought. The spiritual background of Classical architecture owes a debt to Pythagorean symbolic numbers that persisted in Plato's theory of Forms.

Ultimately, the geometry of the Parthenon is persuasive in communicating an insight into the eternal human mind. An analysis of the temple reveals a cosmology that is linked to the secrets of the universe. In this regard P. Davies (1992: 150) expresses the awesome truth that

mathematics, which is a product of the human mind, is still linked to the secrets of the universe, but that can only be understood as a human construct. Finally, it follows that if rhetoric is the art of persuasive communication, then Classical temples in general and the Parthenon in particular are structures that communicate of a visual mental or memory image, that image communicates the truth about the universe, as understood in Classical times.

In the case of the temple as a sacred building situated in a demarcated precinct, it is appropriate that it should incorporate cosmological references to time and eternity: to the physical and the eternal, the secular and the sacred.[26] It can therefore be praised for its suitability of purpose, its *decorum* (*prepon*).

Finally, the Parthenon is composed in a visually vivid way that is bold and forceful in its geometric representation. Its vivid representation of geometric forms is expressive of *energeia* (*hypotyposis*), especially as a mimetic construct of an ideal form. In that sense it is a double *inventio*.

Notes

1 *Timaeus* is one of Plato's dialogues, written *circa* 350 BCE. It deals with the nature of the physical world and human beings. For an analysis of the work, see Zeyl (2013).

2 See my previous research with reference to the Parthenon (Maré 2007 and 2013).

3 For an overview of Classical rhetoric, see Eden (2010).

4 According to Sciappa (1992) the term *rhêtorikê* may have originated with Plato.

5 For a discussion of Plato's arguments against rhetoric and poetry, see Griswold (2012).

6 For a discussion of Aristotle's views on rhetoric, see Rapp (2010).

7 For a overview of Classical Greek rhetoric as the art of persuasion, see Worthington (1994).

8 Krautheimer (1963) discusses the influence of Vitruvius on Alberti.

9 See Grafton (2000) for an analysis of Alberti's application of rhetoric to architecture, and Van Eck (1999) for his application of rhetoric to his theory of architecture.

10 For a study of Plato's natural philosophy, see see Cornford (1997) and Johansen (2004).

11 The rhetor is defined as the persuasive communicator.

12 For an analysis of the numerical construction of the universe by the demiurge, see Ferguson (2010: 130-31).

13 *Technê* is most often translated as either art or craft. Plato's use of the term includes the creation of the cosmos, as discussed by Parry (2007).

14 The Pythagorean legend has continuously been researched by various sceptics and believers. However, there is no reliable evidence that Pythagoras solved any problem in mathematics, music or astronomy. In 1962 Burkert was the first to refute the idea that Pythagoras was a mathematician. Other sceptics include Kingsley (1995), Riedweg (2002)), Joost-Gautier (2006), Ferguson (2008) and Huffman (2011).

15 For a discussion of Empedocles's natural philosophy, see Campbell (2010: 1).

16 In the *Timaeus* Plato associated the four elements (earth, air, water and fire) with the regular solids, respectively the cube, the octahedron, the icosahedron and the tetrahedron.

17 Brunés (1967: 249) statement that he "tried to clear away the curtain of secrecy that Plato intentionally draped over his text to render it incomprehensible to non-initiates – in which he was successful", cannot be substantiated as no information could be traced that Plato was an initiate of a secret sect. See note 9.

18 Lawlor (1982: 12) deals with the historical and general meaning of the triangle and also as a connecting geometrical figure when applied in combination with other figures.

19 Many ancient buildings, both sacred and secular, that were constructed according to strict geometrical principles, of which the most famous – the Egyptian pyramids and the Sumerian ziggurats – had a cosmological reference.

20 For a discussion of Gorgias, see Kahn (1998).

22 *Topos* (plural topoi) refers in the context of Classical Greek rhetoric to a standardised method of constructing an argument.

23 The concept of *anamnesis* is developed in Plato's dialogues *Meno* and *Phaedo*.

24 See Perl (1999: 340), who argues that "immanence and transcendence are not opposed [in Plato's *Timaeus*] but that, on the contrary, the former implies the latter".

25 The aspect of the compositional unity of opposites in a figure is referred to by various authors on Classical Greek art. See for example Grüben (1966: 163) who notes this aspect in the architecture of the period .

26 The theme of the secular and the sacred is dealt with in my articles on the Parthenon. See Maré (2007 and 2013). This article is a revised and expanded version of the paper read at the Second International Conference on Argumentation and Rhetoric (Argumentor), held at Oradea, Romania, from 21-22 September 2012.

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Estelle Alma Maré is an extraordinary professor in architecture at Tshwane University of Technology and the present editor of the *South African Journal of Art History*.