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The Four-Position Foundation as a Tetrahedron and its Relevance to Biblical Numerology and the Natural Sciences

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Four-position foundation (4PF) diagrams[1] aid understanding of the discussions in the Divine Principle; they offer uncluttered pictures of God's plans and also of how Satan constantly frustrated God's plans and took them over. The conventional 4PF diagram, however, comes short of elucidating one discussion in the Principle that involves the 4PF; this is the "mode of existence" of the entities in the 4PF. This paper presents a solution to this shortcoming by re-configuring the 4PF, and the give and take actions involved in it, into a tetrahedron.

Moreover, this paper will demonstrate that the tetrahedron has other functions besides illustrating the 4PF and the concepts behind it. Firstly, it will show that the 4PF is a source of some philosophical concepts in the Unification Church, such as yin and yang and horizontal and vertical relationships. But the more significant discovery that this paper makes about the tetrahedron, which may be a milestone in understanding the 4PF, is in the ability of this geometric figure to derive biblical numbers and geological periods.

Granting this, the 4PF may function not only as a principle by which God models relationships in the creation but also as His geometric basis for deriving durations of significant events. The 4PF can thus be regarded as one of the Creator's fundamental tools in designing and re-designing our world.

The 4PF as a Tetrahedron

The 4PF is a basic concept of the Unification doctrine as explained in *Exposition of the Divine Principle* [EDP], resulting from the more elemental principles of subject and object, give and take action, and origin-division-union.[2] It is composed of four entities: origin, subject and object partners (division), and union. The Divine Principle stipulates that each entity in the 4PF engages in give and take action with the other three entities, giving rise to give and take action in six directions. Ideally, all give and take actions in the 4PF should be equal in order to signify evenness of interactions between the four entities. No one should take more than what he or she gives, and no one should give to an entity more than he or she gives to others. Give and take action in the 4PF should be balanced.

To illustrate this evenness in interactions, we will use six sticks of equal length, each representing a give and take action. First, we envision the conventional 4PF diagram on a flat surface, where the four entities are one stick apart. Using five of the sticks, we link each pair of the four entities in the 4PF except the origin and the union. The top corner is the "origin," the middle corners the "division," and the bottom corner the "union." To connect the top and bottom corners ("origin" and "union") with the one remaining stick, we move the top corner towards the bottom corner hinging on the middle corners, until their distance is one stick length (Figure 1). After connecting the two corners with the last stick, our effort results a three-dimensional geometric figure called *tetrahedron*. A

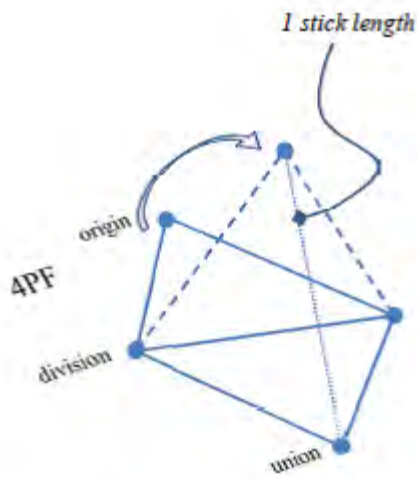


Fig 1 From conventional diagram to tetrahedron

tetrahedron has four triangular sides, as distinct from the normal square-based pyramid. With six equal sides representing evenness in interactions, the tetrahedron represents the ideal 4PF.

The tetrahedron, with its three-dimensional configuration, can illustrate the mode of existence of the entities in the 4PF, a concept discussed in *EDP*, Creation 2.3.4 as the overall movement or dynamism of the creation.[3] It is stated that subject and object partners create a circular motion when they form a common base through give and take action; and through this they produce union. When the subject partner, having a relationship with the object partner and thereby producing union, forms a common base with the origin, they create a spherical motion. The origin then becomes the center around which the subject and object partners revolve, achieving their “mode of existence.”

Examples are adduced from the natural sciences: the sun which the planets orbit and atomic nuclei which electrons orbit.

The tetrahedron can remarkably depict the circular and spherical motions that the entities in the 4PF create. We shall rename these circular and spherical motions *rotation* and *orbit*, respectively, based on the motions of this geometric figure. To see how the rotation and orbit of a tetrahedron can illustrate the motions described in Creation 2.3.4, we first insert the give and take actions along the edges of the tetrahedron. Viewing edges vertically one at a time, we draw lines along the edges pointing upwards on the left side and pointing downwards on the right side. Notice that, after drawing all the lines, each triangular side of the tetrahedron acquires a circular action composed of 3 lines (Figure 2). This means that the give and take actions between the 4 entities eventuate in circular actions in 4 trinities. These circular actions in the trinities, upon analyzing how the forces among them behave, gives rise to the rotation and orbit of the tetrahedron.

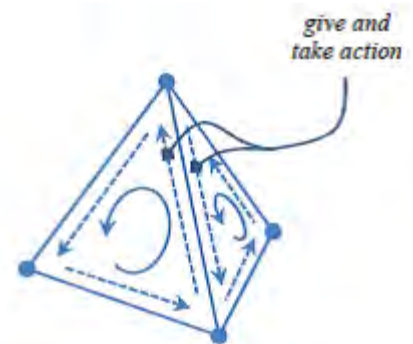


Fig.2 Circular actions in the trinities due to give and take actions

We shall, for simplicity, call the subject and object partners and their union together a *trinitarian object*, with the origin as its subject.

The trinitarian object revolving around the origin can be visualized when the tetrahedron is viewed from the top. In this view, the prominent triangle is the trinitarian object while the top vertex, which is at its center, is the subject or origin (Figure 3). Because *EDP* states that the trinitarian object revolves around the origin, such revolution can only be ascribed to the

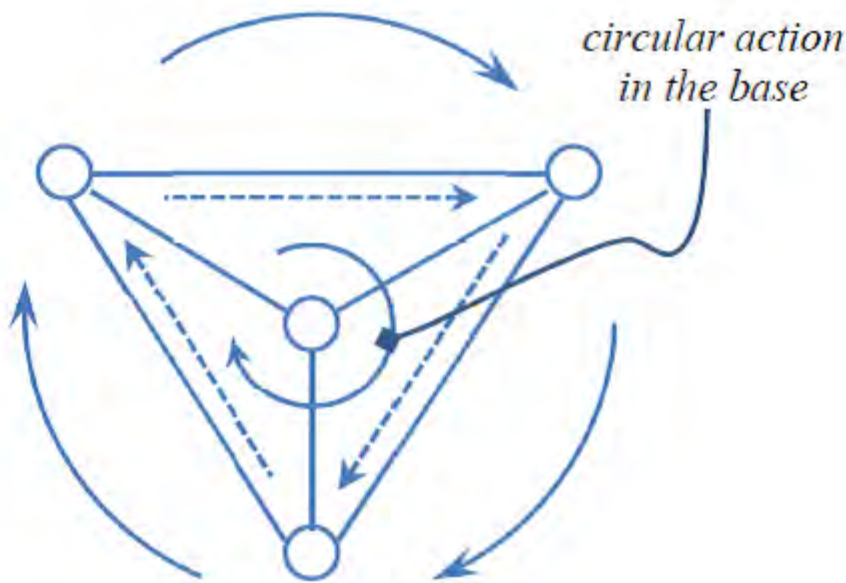


Fig.3 The rotating tetrahedron

circular action in the trinitarian object. This means that the trinitarian object mandates the rotation of the

tetrahedron, and its circular action mandates the direction of rotation.

While the circular action in the trinitarian object provides the rotation of the tetrahedron, the three other circular actions contribute to another movement of the tetrahedron: its orbit. The tetrahedron is caused to orbit when the rest of the horizontal forces (in the sides of the tetrahedron) are added to the vertical forces. While the horizontal forces pull the tetrahedron sideways, the vertical forces pull it up and down. Their merging results in the orbit of the tetrahedron. Thus, the tetrahedron exhibits a complex movement: it orbits as it rotates (Figure 4).

By rotating and orbiting, the tetrahedron illustrates EDP's examples from natural science: as the earth rotates, it also orbits the sun; as the moon rotates, it also orbits the earth. The tetrahedron when viewed from the top also presents a simple illustration of the human being as the center of harmony in the cosmos. Thus, the three-dimensional depiction of the 4PF well illustrates the mode of existence of the 4PF in the Principle.



Fig.4 The tetrahedron illustrating Creation 2.3.4

The tetrahedral form of the 4PF, through geometric analysis of the give and take actions between the entities, illustrates rotation and orbiting. This tells us that the tetrahedron is the most appropriate illustration for the 4PF, because even as it represents the interactions in the 4PF it also illustrates its complex movement and dynamism.

But the tetrahedron not only aids in better understanding discussions about the 4PF; it also embeds some other Unification concepts.

Some of these have already been touched upon above. First there is the interacting subject and object. While the top vertex of the tetrahedron represents the origin in the origin-division-union, it may also represent the subject in the interacting subject and object; and its object is the triangular base, a trinitarian object. The tetrahedron in this context suggests that the subject will have to fulfill the Unification concept with 3 entities as objects. This gives rise to a modified form of the principle of subject-object.

The second basic concept in the Divine Principle which may be found embedded in the 4PF as a tetrahedron is horizontal and vertical relationships. The edges of the triangular base of the tetrahedron may represent the horizontal relationship, while the other edges angled toward the top vertex represent the vertical relationship. This illustrates the relationships of God and the individual (vertical) and of an individual and his/her kin (horizontal), as well as other horizontal and vertical relationships in human society. As evinced in our geometric analysis, the horizontal relationship causes the rotation (circular motion) of the 4PF while the vertical relationship causes its orbit (spherical motion). The 4PF thus achieves internal dynamism (rotation) due to the horizontal relationships, and external dynamism (orbit) primarily due to the vertical relationships.

In addition to illustrating these Unification concepts that are essentially unique to the Unification Church, we find concepts originating in other religions that also relate to the 4PF as a tetrahedron. For example, the hexagram, most famously known today as the Star of David, has 2 triangles. With a history of usage in the non-monotheistic religions Buddhism and Hinduism, the hexagram can be linked to the triangles in the tetrahedron. The Tetragrammaton, the name of God in Hebrew, can also be linked to the tetrahedron, in that its 4 characters tallies with the tetrahedron's 4 sides.

The *scutum fidei* or Shield of the Trinity (Figure 5) that diagrams the Trinity according to Athanasian Creed reflects a tetrahedral figure viewed from the top. The trinitarian object in the *scutum fidei* is composed of “the Father, the Son and the Holy Spirit,” while the subject is “God.”

These religious symbols may relate to the tetrahedron, which is the 4PF incognito, but they incline more to the mystical aspect—an inclination that is avoided in this paper. The 4PF is a principle; relating its three-dimensional configuration to mystical religious symbols can be a distraction.

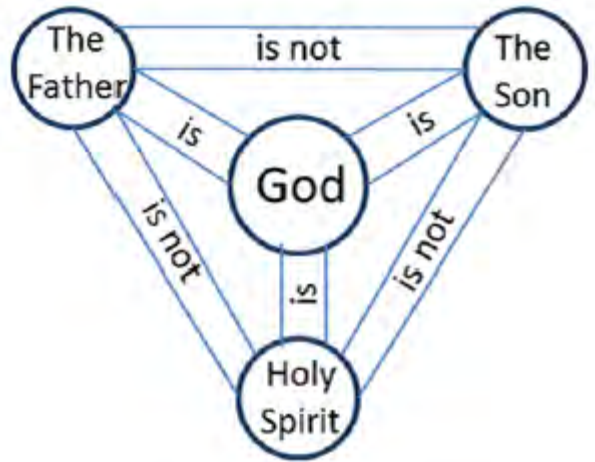


Fig.5 Scutum Fidei



Fig.6 The rotating yin-yang

In my search in the religious arena, I

found two noteworthy concepts exhibiting a link to the tetrahedron, both of which the Unification Church has adopted from other religious thought. The first of these is yin-yang philosophy. Yin-yang philosophy states that entities are created through the push and pull of yin and yang (Figure 6). To see how the yin-yang relates to the tetrahedron, consider that the 4PF as a tetrahedron when viewed from the top rotates due to the circular action in the base, generating energy due to interaction. (Figure 3) It rotates just as the yin-yang rotates. Further, as the yin-yang creates entities because of the push and pull of its forces, the tetrahedron as a 4PF generates energy because of the circular actions in its trinitities that result from the

give and take actions between the entities. The rotating tetrahedron thus behaves similarly to yin and yang. Accordingly, the concept of yin-yang can be considered to be embedded in the 4PF. The distinction between the tetrahedron and the yin-yang is in the complexity of its movement, because while the tetrahedron orbits as it rotates,^[4] the movement of yin and yang is only one, unidirectional rotation.

The second religious concept that can relate to the tetrahedron offers an entirely different perspective on the 4PF, showing another function of the Unification concept quite different from its being a source of philosophical concepts. This is biblical numerology. Many biblical numbers are employed in the Unification Church, especially those appearing in providential history. These numbers, called “providential numbers,” can be derived from the three-dimensional configuration of the 4PF—the tetrahedron. The tetrahedron in this case serves as the practical, geometric base for deriving biblical numbers.

The method of deriving numbers using the tetrahedron does not only apply to biblical numbers. An extended consideration of this method will show that it also applies to significant geological periods of time, extending the scope of the tetrahedral 4PF to natural science.

The Tetrahedron in Biblical Numerology

The Bible repeatedly cites numbers, usually with variations. The numbers 40 and 400, for example, are apparently variations of 4. Such variation suggests the ancient Hebrews' particular choice of the number 4. In this line of thought, it is reasonable to think that the events the Hebrews experienced did not last exactly as recorded in the Bible, but that they rounded off the time period to a number which they had particular eye on. Let us take, for example, their slavery in Egypt. This period might have lasted for more or less than 400 years, but not exactly 400. It could have been 403 years or 395 years. The times that Moses twice fasted in Mt. Sinai might have lasted for more or less than 40 days—perhaps 41 or 38.

The notion that the ancient Hebrews may have rounded off numbers is not a speculation. The Divine Principle

implicitly attests to this in its dissection of Christian history. For example, *EDP* notes that the Christian persecution in the Roman Empire ended in 392 CE when “Theodosius I established Christianity as the Roman Empire’s state religion.”^[5] The period-ending 392 CE came 12 years after the emperor declared Christianity as the only authorized religion with the Edict of Thessalonica on February 27, 380. Thus, the period of “Christian persecution,” starting from 0 CE when Christ is believed to have been born, lasted for 392 years and not 400. The Divine Principle, however, considers it 400. The Divine Principle thus influences us to conceive that the ancient Hebrews might have considered their slavery in Egypt to have lasted 400 years, though it might not have lasted exactly that long. It imparts the notion that they rounded off the exact chronology to the numbers which they preferred.

The ancient Hebrews’ preference for particular numbers indicates that these numbers recurred many times and were close approximations to the actual chronology of events significant to their nation. But the question is raised as to why these events should be so closely approximate, and why these numbers constantly recurred. Why did the slavery in Egypt last for about 400 years and not 500? And why did Moses fast for around 40 days and not 50? Or, as a theologian would query, why does God choose the number 4 and not 5? How did God come up with this number, and with all the other numbers repeatedly cited in the Bible?

These questions ask for a basis for biblical numbers, about which biblical numerologists frequently enquire. By and large, numerologists have followed two different paths in seeking out a basis for biblical numbers, which we shall label the pragmatic and the religious. The pragmatic undertakes historical investigations, while the religious engages with mysticism. Both, however, come short of delivering a credible basis. While the pragmatic fails to unearth a basis of biblical numbers from ancient materials, the religious emerges with speculations that can be no more proved than the vast diversity of mystical interpretations.

The method of this paper in deriving biblical numbers is neither historiographical nor mystical, but geometric because it employs the tetrahedron. The method being geometric, plus the fact that the tetrahedron is the 4PF, forestalls any claim of superficiality. It does not wallow in speculation, and it minimizes the presence of mysticism in deriving numbers. This renders the method viable.

In determining Biblical numbers, we will configure a few tetrahedra into two patterns, called *conjoined tetrahedra* and *cascading tetrahedra*. Each pattern has stages, and each continues to exhibit symmetry when it jumps to a higher stage. As the numbers we are interested in are only those which are repeatedly cited in the Bible, only a few stages of each of the tetrahedral patterns will be studied.

The numbers we are interested in are common biblical numbers: 1, 2, 3, 4, 7, 10, 12, 40 and 120. These numbers are only a handful of all the numbers used in the Bible. They are, nevertheless, mostly “providential numbers,” numbers that the Bible constantly cites and which also appear in providential history.

The Unification Church implements these biblical numbers in many of its activities. These activities can be generalized as of two types: 1) the length of time for an action, e.g., a 7-day fast or 40-minute daily prayers for 120 days; and 2) the number for a structure, e.g., the 36 couples (12 x 3) blessed in 1960 who are meant to restore the positions of the 3 families of Adam, Noah and Jacob.^[6] Implementing providential numbers is believed to help improve the probability of achieving the objectives of church activities, which are mainly to achieve restoration.

Some providential numbers, such as 21 and 400, are not in the set but are by-products of the numbers in the set; their derivations will be covered *en passant*. 8 is also not in the set, but neither is it derivable in our tetrahedral patterns. The number can be noted in *An Shi Il*, the tradition of Pledge recital occurring every 8 days. Our tetrahedral method, however, cannot produce 8, regardless of any attempts to configure tetrahedra into patterns. This is to say that no vain or forcible attempts are made to derive numbers if our method cannot produce them (e.g., 6 and 8).

The numbers 2 and 10 seem the odd ones in the set because they neither appear in providential history nor are used in Church activities. Fasting for 2 or 10 days, for example, is unheard of. Yet as mentioned below, the number 2 stands out in Unification Thought, while the number 10 is significant in the providence.

The numbers 12 and 120 are not exactly derivable in our tetrahedral method. What are derivable are the numbers 13 and 121. We will, however, deliberate on these providential numbers in relation to 13 and 121. The number 13 stands out because it is derivable in both tetrahedral patterns. This implies that 13 may have a significant role in the providence that the religious sphere generally overlooks. The Unification Church, although only recently, has made perhaps the first and most significant proclamations about this number. We shall therefore in our discussion treat 13 like any other prominent providential number.

Our usage of tetrahedron in deriving numbers, knowing that the tetrahedron is the 4PF, supports the proposition that the 4PF is the basis of providential numbers, and that the Creator may have come up with the biblical numbers through the 4PF.

Conjoined tetrahedra

Conjoined tetrahedra, as the name implies, describe polyhedral patterns made up of a number of tetrahedra joined together by one vertex. In our derivation of providential numbers, only three stages of conjoined tetrahedra are relevant: the twin tetrahedron, the tri-star tetrahedron, and the quartic tetrahedron.

In the twin tetrahedron[7] there are 2 tetrahedra and 7 vertices (Figure 7), conveying the providential numbers 2 and 7. The number 2, though not found in providential history, can be seen in many dualities in Unification Thought, such as *hyungsang-sungsang*, spirit world-physical world, mind-body, male-female, and so on. The number 7 signifies perfection, which is its most accepted meaning.

The twin tetrahedron, in conveying 2 and 7, apparently illustrates that perfection of a being may be attained when a base (or trinitarian object) is established in each realm of the cosmos.[8] Concerning God, with whom the number 7 is largely associated, it suggests that His perfection lies in possessing or maintaining a base in each realm, by which He rules the cosmos. With regards to a human, he or she attains perfection when he or she becomes the mediator or center of the cosmos, having

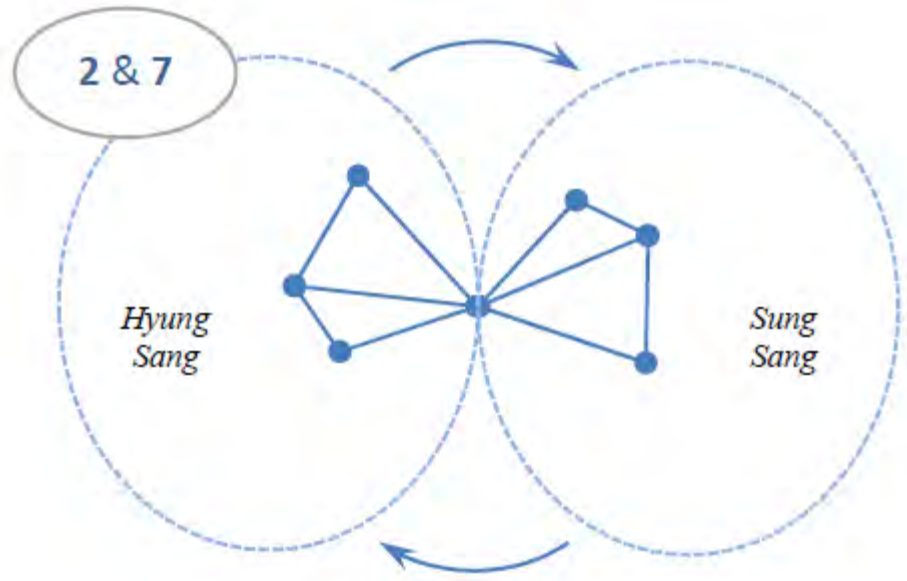


Fig.7 Twin tetrahedra

bases in both the spirit world and the physical world. As David Hanna states in his book *Living in Two Worlds*, “The human being is... originally created as a unique bridge between these two worlds that co-exist.”[9] In other words, the perfected human being lives with the task, or privilege depending on one’s perspective, of bridging the spirit world and the physical world, or of realizing the mutual existence of the two worlds.

The next conjoined tetrahedron is the tri-star tetrahedron, where 3 tetrahedra are conjoined. By this pattern, aside from deriving the providential number 3 from the number of tetrahedra, is also derived the number 10 from the number of vertices. These numbers, however, do not appear in providential history as numbers of years; neither do their possible variations of 30, 100, and 300.[10] Rather, the numbers 3 and 10 are seemingly employed as multipliers of other providential numbers. The Period of Israel’s Exile and Return, for example, lasted for 210 years, as did the Period of Papal Exile and Return. Using 3 and 10 as divisors for 210 discloses the providential number 7. The number 400 also appears frequently in providential history, but our tetrahedral patterns can only produce 4 and 40, not 400. The number 400 may therefore have been produced by multiplying 40 and 10. These facts bring us to the notion that the numbers 3 and 10 have been employed in providential history as multipliers of other providential numbers. The tri-star tetrahedron must have presumably been the pattern used as a source of multipliers.

As multipliers, the numbers 3 and 10 signify segmentations or divisions. Any other signification will not explain the usage of 3 and 10 in providential history; and perhaps no theological thought other than that of the Unification Church may hold to such an explanation. Among other numerologists, Grove and Gardner say that 3 is the number of creation and the number 10 signifies perfection.[11] Bullinger, on another hand, regards 3 and 10 as perfect numbers (apart from 7 and 12), where 3 signifies divine perfection and 10 ordinal perfection.[12] Their interpretations of these numbers as signifying creation or perfection lack the capacity to explain the usage of the numbers as multipliers, because they do not connote segmentations or divisions.

The significance of the numbers 3 and 10 in the Divine Principle, on the other hand, connotes segmentations,[13] specifically as levels of growth: 3 signifies the 3 stages of growth, and 10 signifies 10 sub-levels of growth[14] where 9 of these sub-levels are the 3 stages of growth each divided into 3, and the 10th sub-level is God’s direct dominion, the main objective of spiritual growth.[15] In this interpretation, the Divine Principle elaborates that a created being must undergo the 3 stages or 10 sub-levels of growth to attain maturity. In much the same way, we can say that an event must mature or ripen by undergoing the 3 stages or 10 sub-levels of growth.[16] The span of time for a providential event must be multiplied by 3 or 10 in order that the event attains maturity and reaches its objective. The Divine Principle can thus explain why the numbers 3 and 10 were used as multipliers.

The mystery that still remains concerns which number is to be applied. For an event to successfully achieve its objective, why should it employ 3 as multiplier and not 10 (e.g., 12 or 21), or 10 and not 3 (e.g., 400), or both (e.g., 210)? At present, no workable arguments are found that provide a viable explanation concerning this. What can be ascertained, though, is the usage of 3 and 10 as multipliers of other numbers in providential

history.

The last conjoined tetrahedron that yields providential numbers is the quartic tetrahedron. In this pattern there are 4 tetrahedra and 13 vertices, providing the numbers 4 and 13. 4 is undoubtedly a providential number, but the number 13 appears quite odd as a providential number because of its apparent absence in providential histories and the negative superstitions associated with it. Nevertheless, the Unification Church recently made a pronouncement on the significance of the number 13 in the providence, which is worth considering in this paper.

Generally, numerologists consider the number 13 either as irrelevant to the providence or as a number plagued with negativity. Grove and Gardner, for instance, say that the number 4 “symbolizes matter, something solid.” It plays a role in reaching perfection, symbolized by the number 10, by adding $1 + 2 + 3 + 4$.^[17] While they perceive 4 as such, they do not even mention the number 13.

Bullinger also finds the number 4 to be the number of creation, of material completeness.^[18] Yet he stands out for devoting considerable effort in studying the number 13. He mentions two verses in Genesis that associate the number 13 with rebellion.^[19] Then, using Gematria, he finds the name of Satan in both Hebrew and Greek as multiples of 13, and so with his other names such as “Beelzebub,” “Dragon,” “Serpent,” and “Murderer.” But then, he also found the 13 in several names of God (“Adonai,” “Jehovah,” “Ha-Elohim”) and the Messiah (“His Anointed”).^[20] All in all, his results are inconclusive.

The Unification Church, on the other hand, has recently found the number 13 significant for the providence. It associates this number with the substantiation or materialization of God’s Kingdom, the Cheon Il Guk, where God can begin exercising dominion over the earth. Specifically, the number 13 figures heavily in the establishment of “Foundation Day” on the 13th day of the first month of the Heavenly Calendar in 2013.

This notion on the substantiation of Cheon Il Guk on the 13th year of the new millennium correlates with the establishment of Christianity in the Roman Empire after a 12-year period following the Edict of Thessalonica. It can be said that Christianity was established in the Empire on the 13th year of the Edict. Since the number 13 has an association with the substantiation or establishment of God’s plans, we may say that 13 signifies the foundation of substance.

While the number 13 may signify foundation of substance, the number 4 is associated with foundation of faith. The number 4 is, according to the Divine Principle, “necessary to restore foundation of faith”; it is “characteristic of the dispensation for the separation of Satan.”^[21] *EDP* cites examples such as the 40 years of wandering in the wilderness, Moses’ two 40-day fasts on Mt. Sinai, 400 years of Slavery in Egypt and 400 years of Persecution in the Roman Empire. Thus, while the number 13 signifies the foundation of substance, the number 4 signifies the foundation of faith.

Finally, we note that the significations of each pair of numbers in the conjoined tetrahedra are apparently linked. The twin tetrahedron links 2 and 7: the number 7 signifying perfection through, perhaps, the establishment of bases in 2 realms. The tri-star tetrahedron links 3 and 10: the number 10 signifying maturity by the attainment of the 3 stages of growth. And lastly, the quartic tetrahedron: the number 13 signifying the foundation of substance, which, according to the Divine Principle, has a basis on the foundation of faith, signified by 4.^[22]

Cascading tetrahedra

Let us now go back to deriving providential numbers. While the three types of conjoined tetrahedra use one vertex as common to all the tetrahedra in the pattern, the cascading tetrahedra use the base vertices of existing tetrahedra as top vertices of another set of tetrahedra, proliferating at the base. Let us illustrate this beginning with one tetrahedron. One tetrahedron has 3 base vertices. Three tetrahedra will therefore utilize the base vertices of this tetrahedron as their top vertices. The 3 tetrahedra, in turn, have a total of 9 base vertices that will be used by 9 tetrahedra as their top vertices. This creates 3 levels of cascading tetrahedra: the first level has 1 tetrahedron, the second level has 3 and the third level has 9. Together they constitute Stage 3 of the cascading tetrahedra.

Next, the 9 tetrahedra at the base of the Stage 3 cascading tetrahedra have 27 base vertices, which become top vertices of 27 tetrahedra making up the 4th level. This is Stage 4, which has 81 base vertices (Figure 8). And so on and so forth.

Observably, each level of the cascading tetrahedra is an

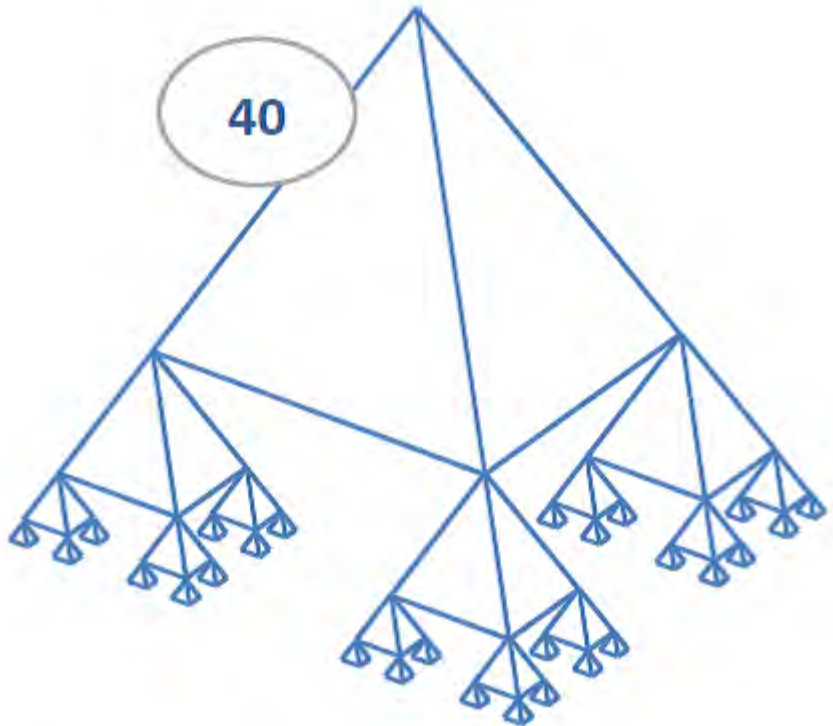


Fig.8 Cascading tetrahedra (Stage 4)

exponential expression of base 3. The number of tetrahedra increases exponentially with the level in the pattern. At level 1 there are 30; at level 2 there are 31; level 3, 32; level 4, 33; etc.

Similar to conjoined tetrahedra, the total number of tetrahedra and vertices in the cascading tetrahedra yields providential numbers.

However, there is a call to simplify our derivation, as the

pattern apparently exhibits redundancy. That is, the number of base vertices in a particular stage is the same as the number of tetrahedra in the next stage. 4, the number of vertices in Stage 1, is also found in the number of tetrahedra in Stage 2. To eliminate redundancies, we will use only one manner of deriving providential numbers in the cascading tetrahedra, that is, by the total number of tetrahedra, given in the equation:

$$T = 3^0 + 3^1 + 3^2 + 3^3 + \dots + 3^n$$

Or, using the summation operator \sum ,

$$T = \sum_{i=1}^n 3^{i-1}$$

In this equation, the exponent, $i-1$, always starts from 0, because i starts from the initial value of 1 and increases up to n . n represents the stage of the pattern. At Stage 4, for example, n is equal to 4, and the total number of tetrahedra is given by $T = 3^0 + 3^1 + 3^2 + 3^3 = 1 + 3 + 9 + 27 = 40$. n in the equation may approach infinity, but in deriving providential numbers we will cover only 5 stages of the cascading tetrahedra. Table 1 shows the values of T when $n = 1$ to 5.

Table 1: Values of T

n	1	2	3	4	5
T	1	4	13	40	121

In Table 1, the T values of 1, 4 and 40 are without question providential numbers. The other T values, 13 and 121, [23] are 1 more than the recognized providential numbers 12 and 120. Although 12 and 120 may simply be explained by multiplying a providential number by 3 (i.e., 4×3 and 40×3), they may also manifest a relationship with 13 and 121.

The number 12, in relation to 13, suggests that it discounts the leader. It is the 12 sons of Jacob without Jacob, or the 12 disciples of Jesus without Jesus. The ancient Hebrews might have judged it absurd to add Jacob to his sons just to produce 13 when in fact he stands as their father; or to include Jesus to his disciples when in fact he stands as their spiritual leader. 12 and 1 in these cases seems to fail to add up.

Such a pragmatic view, however, is overshadowed by a theological one. In a theological sense, or more accurately in a spiritual sense, the leader is purposed to subsume his or her spirit within his or her constituencies. When the leader has done so, he or she as a seed, metaphorically speaking, has died to become a tree. The 12 constituents then become the new seeds, embodying the spirit of their leader and ready to embark

to disseminate his or her spirit by forming 3 groups of 4 ($n = 2$). This connotes the existence of leadership in 13; and the incorporation, and the beginning of dissemination, of the spirit of the leader in 12.

The removal of 1 from 121 to become 120 may connote the same thing—a dissemination of the spirit of the leader, but may imply a new, higher stage of dissemination by forming 3 groups of 40 ($n = 4$).

Our discussion on the number 13 produced by the cascading tetrahedron apparently differs from the previous discussion of that number as produced by conjoined tetrahedra. In that earlier discussion it was said that 13 signifies foundation of substance, but here it apparently connotes the existence of leadership. Perhaps 13 signifying the foundation of substance appears in conjunction with a length of time (such as the 13th year of Christianity in the Roman Empire after promulgation of the Edict of Thessalonica), while 13 connoting the existence of leadership is in connection to structure (such as Jacob and his 12 sons).

The Tetrahedron in the Natural Sciences

So far, we found the 4PF as a tetrahedron undergirds idealistic concepts and gives rise to certain significant numbers. These concern mainly the religious sphere, particularly those found in Unification Thought. This is not, however, exhaustive of the scope of the 4PF as a tetrahedron. As a geometric figure, the 4PF is also able to demonstrate similar functions in the natural sciences. In chemistry, for example, three chemical compounds exhibit an almost perfect tetrahedral structure – methane (CH_4), phosphate (PO_4), and sulphate (SO_4). In each of these chemical compounds, 4 x -atoms bond to 1 y -atom to produce the compound. The x -atoms constitute the vertices of a tetrahedron, symmetrically arranged around the y -atom at their center. Thus, as a geometric figure, the 4PF seems to embed concepts for chemical structures.

Such an argument, however, comes short of delivering significant weight to the 4PF as a tetrahedron. The vast number of non-tetrahedral compounds dwarfs the number of tetrahedral ones. Although applicability of the 4PF as a tetrahedron can be perceived in certain chemical compounds, putting much emphasis on this would be an exercise in futility.

A second application of the 4PF as a tetrahedron in the natural sciences may be more fruitful. Just as the tetrahedron functions in the religious realm for deriving providential numbers, it functions in the natural sciences for deriving the lengths of geological ages. For this purpose we will utilize the cascading tetrahedra. In deriving providential numbers the cascading tetrahedra was limited to Stage 5; with respect to geological time periods, however, we shall go further and look into its T values when $n = 6$ and beyond.

When $n = 6$, the value of T is 364. This T value is approximately the orbital period of the Earth. In this, Stage 6 of the cascading tetrahedra appears to conform to the apocryphal Books of Enoch and Jubilees because of their citations of 364 days in a year.[24] Yet, there is not the slightest evidence that the writers of these books knew of any tetrahedral pattern, must less the cascading tetrahedra. They might have employed simple mathematical analysis in order to come up with the number 364, i.e., by noting that the lunar-solar Hebrew calendar year has 354 days and is intercalated with a month every 2 or 3 years. Neither is there any evidence that the writers came up with the number 364 from knowledge of astronomy.[25]

If we employ 13 ($n = 3$) as a divisor of 364, we come up with the approximate orbital period of the moon: $364/13 = 28$. The numbers 364 and 28 do not convey the exact orbital periods of the Earth and the Moon,[26] yet our discussions earlier on providential history show that T values need not be exact. We surmised that the periods in providential history did not need to conform exactly to the T values because it depended on how well restoration was being executed. Using the same argument, the orbital periods of the said celestial bodies would not need to conform exactly to the T values due perhaps to other astronomical factors.

If we go beyond $n = 6$, we will find more geological time periods in the cascading tetrahedra:

$n = 17$, $T = 64,570,081$: Science hypothesizes that 65 million years ago (mya) a notable event caused the extinction of many dinosaurs. This is called the Cretaceous–Paleogene Extinction event.

$n = 19$, $T = 581,130,733$: Science finds through archaeological explorations that earth experienced an explosion of life 580 mya. A great diversity of life came in this period, which is called the Cambrian Explosion.

$n = 20$, $T = 1,743,392,200$: It has been recently postulated that when the Earth was 1.7 billion years old oxygen filled the atmosphere, killing species that find oxygen lethal to their system. Scientists find that this Great Oxidation Event started 3.3 billion years ago (bya) and ended 2.8 bya, corresponding to the age of the Earth at 1.2 and 1.7 billion years.[27]

The first two events are referenced to the human present; this is based on humankind's unique position as the culmination of all the Earth's species. That these numbers can be derived from the tetrahedron, being the 4PF, suggests that these events were aimed at producing humans as the dominant species. On the other hand, the third geological period, referring to the time when oxygen finally filled the atmosphere, is reckoned from when

the Earth first formed.

Theologically, this bears a multi-faceted meaning. First, the Deity who has always been present since the beginning of time preparing the Earth for the emergence of humans finished injecting oxygen into the atmosphere when the Earth was 1.7 billion years old. Next, the Deity's work of creating all possible sorts of life on Earth some 580 mya was aimed toward the creation of the human species as the main objective. Finally, in order to make the world safe for humans to take dominion over it, the Deity eliminated the dominant reptilian creatures 65 mya.

Establishing a firm theological basis for these three events may help quicken the theistic theory of intelligent design. More significantly, it will breathe new life into the concept of evolutionary creationism advocated in the Unification Church.[28] The church can cite these events to support its stance for evolutionary creationism, because each event corresponds to numbers derived from the 4PF analyzed as a tetrahedron.

Conclusion

The 4PF is a principle that establishes relationships amongst entities: between celestial bodies, between chemical elements, and amongst mankind and the cosmos. This general function of the 4PF as stated in the *EDP* can be geometrically demonstrated when the Unification concept is represented three-dimensionally as a tetrahedron. The tetrahedral 4PF, as our geometric analysis shows, rotates and orbits due to the give and take actions between its 4 entities, thus vividly elucidating the dynamism that arises from their relationships, the so-called "mode of existence."

In its three-dimensional form, the 4PF embeds such basic Unification concepts as the interaction of subject and object partners, horizontal and vertical relationships, and the concept of yin and yang. This, however, does not convey an entirely new outlook on the 4PF, as these concepts are all well established in *EDP*. What may be seen as new and innovative in this paper is the analysis of the tetrahedral 4PF to derive numbers significant to providence. This is disclosed when the 4PF as a tetrahedron is manipulated in conjoined and cascading geometrical structures.

The other interesting discovery in this paper is that from the 4PF can be derived significant numbers found in geological periods. Achieved through the cascading tetrahedra, they include numbers approximating the orbits of the earth and of the moon (364 and 28) and significant geological dates (65 mya, 580 mya, and 1.7 bn). It is conceivable that there might be other highly significant events in geological and biological histories still to be discovered by science and whose periods correspond to other *T* values of the cascading tetrahedra.

In our study we find that providential numbers derived from the tetrahedral 4PF are used in two ways, as numbers signifying structures and as numbers signifying lengths of time. Yet the usage of these derived numbers as lengths of time ends up dwarfing the other usage, especially as we have arrived at the numbers that correspond to geological periods. Both in the providence and in geology, the derivation of numbers as durations of events comes as a newly found *a priori* function of the 4PF. This underscores the significance of the 4PF as the fundamental principle at work in both creation and re-creation. These functions of the 4PF can only be ascribed to the Creator.

Perceived as a tetrahedron, the 4PF becomes a gateway to learn about other aspects of the cosmos. But more importantly, it opens a way to supplement our knowledge of the Creator. In the words of the 12th century Islamic philosopher Averroes (Ibn Rushd): "The more perfect becomes our knowledge of creation, the more perfect becomes our knowledge of the Creator." [29]

Notes

[1] *Outline of the Divine Principle, Level 4* (New York: HSA-UWC, 1980), pp. 19-27.

[2] *Exposition of the Divine Principle* (New York: HSA-UWC, 1996), pp. 17, 22-24.

[3] *EDP*, pp. 25-31.

[4] At times one of the three objects in the 4PF may take the subject position ("origin"), while the subject takes an object position. This is suggested in the time when Moses managed to forestall God from pouring out his wrath against the Israelites. Moses in this scenario took the subject position. It is hence possible that, since the subject shifts its position from time to time, the tetrahedron may also shift its direction of rotation, which will consequently alter its orbital direction. The tetrahedron may thus exhibit a more complex movement.

[5] *EDP*, p. 307.

[6] Sun Myung Moon, *God's Will and the World* (New York: HSA-UWC, 1985), pp. 11, 306.

- [7] Our twin tetrahedron has no relation to the Merkaba symbol of the star tetrahedra, which is basically a three-dimensional version of the Star of David. There is no certainty on the origin of this contemporary mystic Merkaba. Most claim it is of Egyptian origin, as “spiral of light” believed to surround the body. Some link it to the chariot-throne driven by the four living creatures in Ezekiel’s vision in Ezek. 1:15-21, as a “vehicle of ascension.”
- [8] *EDP* states that the number 7 is achieved when a being undergoes the 3 stages of growth and helps build the 4PF (*EDP*, p. 297). Despite some differences, both interpretations relate the number 7 to the 4PF.
- [9] David Hanna, *Living in Two Worlds*, UK, 2014, p. 57.
- [10] Although not appearing in providential history as numbers of years, the numbers 3 and 10 are cited in the Bible hundreds of times. Biblestudy.org claims that the number 3 has 467 citations in the Bible while 10 has 242.
- [11] Daisy E. Grove and E. L. Gardner, *Mystery Teaching of the Bible* (Montana: Kessenger Publishing, 1925), pp. 43, 48-49.
- [12] E. W. Bullinger, *Numbers in Scripture* (New York: Cosimo, 2005), pp. 107, 243.
- [13] Interestingly, *EDP* says that “God granted Moses 3 signs and 10 plagues with which to prevail over the Egyptians” (*EDP*, p. 238). Both numbers come from the tri-star tetrahedron.
- [14] Rev. Moon in one of his speeches said, “10 implies the fundamental number 12” (*God’s Will and the World*, p. 306). I find this statement difficult to unravel because he seems to imply that 10 and 12 signify one and the same thing.
- [15] *EDP*, p. 298.
- [16] *EDP* explicitly cites different significations of 3 and 10: the number 3 signifies perfection (*EDP*, p. 297) while the number 10 signifies unity (*EDP*, p. 200). But the prominence of the signification of the number 3 as the 3 stages of growth dislodges its other signification (as perfection) in the Principle, prompting us to employ 3 signifying growth. We apply the same for the number 10.
- [17] Grove and Gardner, pp. 44-45.
- [18] Bullinger, p. 123
- [19] Bullinger, p. 205. These verses are Gen. 14:4, in which King Chedorlaomer experienced a rebellion in the 13th year of his reign, and Gen. 17:25, in which Ishmael was circumcised at 13 years of age.. Bullinger said that Ishmael rebelled and was rejected, with an insinuation that his rebellion happened when he was 13. However, nowhere can this rebellion of Ishmael be found in the Bible. Neither did Flavius Josephus, who seemed to have a hold of oral tradition, mention of this in his account of Ishmael in *Jewish Antiquities*.
- [20] Bullinger, pp. 219, 228. Bullinger’s equivocal findings regarding the number 13 only compels us to agree with Davis in his dismissal of Gematria; see John Davis, *Biblical Numerology* (Baker Academics, 1968), p. 149.
- [21] *EDP*, pp. 200, 296.
- [22] *EDP*, p. 181.
- [23] Davis, p. 138, claims that the Bible cites the name of Moses $847 = 7 \times 121$ times.
- [24] See for example, 3 Enoch 72:35, 75:4, 74:13, and 82:10; Jub. 6:23-38. Scholars ascribe the Essenes’ use of 364-day calendar to these apocryphal books; see Jonathan Ben Dov, “The 354-Day Year in the Dead Sea Scrolls and Jewish Pseudepigrapha,” n.d. www.academia.edu/523554/The_364-day_Year_in_the_Dead_Sea_Scrolls; and Michael E. Stone, “The Dead Sea Scrolls and the Pseudepigrapha,” *Dead Sea Discoveries* 3.3 (1996): 270-95.
- [25] Benjamin W. Bacon, “The Calendar of Enoch and Jubilees,” *Hebraica* 8 (1892): 130.
- [26] The earth orbits the sun in $365\frac{1}{4}$ days, 1.25 units away from 364; while the moon orbits the earth either by the sidereal month of 27.2 days or the synodic month of 29.5 days, 0.8 or 1.5 units away from 28.
- [27] David and Alm, “Rapid evolutionary innovation during an Archaean genetic expansion,” *Nature* 469 (2011): 93-96.
- [28] The Unification Church’s advocacy of evolutionary creationism is unequivocal and firm, most notably on geological evolution. This is evident in the founding book (*EDP*, p. 40) and confirmed in at least one prominent academic book (Sang Hun Lee, *Unification Thought* (New York: Unification Thought Institute, 1973), p. 61).

Evolutionism is also fiercely refuted on the grounds of the arbitrariness of events, particularly on the emergence of man; see Sun Myung Moon, *True Family and World Peace* (New York: FFWPU, 2000), pp. 61, 149; Jonathan Wells, “**Evolution and Unification Thought**,” *Journal of Unification Studies* 12 (2011): 115-42;

Jonathan Wells, “Unification Thought vs Darwinian Evolution,” *16th International Symposium on Unification Thought*, Sofia, 2004. <http://www.tparents.org/library/unification/talks/wells/Wells-040000.htm>.

Due to its advocacy of evolutionary creationism, some in the Unification Church embrace the notion that Adam and Eve, upheld as the “first man and woman,” were not the only members of homo sapiens on earth during their time but may have been the first to have spirits. This notion, though, has not been unambiguously articulated by the leadership, leaving human biological evolution a grey area in Unificationism.

[29] Averroës, *On the Harmony of Religion and Science* (c. 1190).