Pairing and Plus-ing the Godhead: An Algebraic Analogy

Carlos R. Bovell

This essay is an exercise in the integration of mathematics and theology. Its purpose is to show the usefulness of mathematics with regard to theological discourse. The author explores the problem of the Trinity and illuminates certain factors that contribute to our failure in comprehending it. An algebraic analogy is employed that (approximately) represents the doctrine of the Trinity. The analogy serves to illustrate the means by which humans innately group and combine individual objects. Such combining and grouping, it is argued, obtains by means of a pairing mechanism. This binary mechanism, though capable in most mathematical enterprises, is inadequate when one considers the relations within the Trinity. Moreover, the very operations that define our means of arithmetic conception fail to apprehend the divine perichoresis.

Taking as an example a mathematical exploration of the Christian doctrine of God, I will show that math is able to enlighten theological discourse.

Commonplace in contemporary Christian academia is the investigation of the advantage of a "Christian perspective" to such-and-such academic discipline and this-or-that academic problem. Practitioners of this reformational approach to general knowledge also have extended their line of inquiry to mathematics.[1] The converse application, however, is very seldom explored. Can there be any advantage to a "mathematical perspective" of Christian theology? Can mathematics inform theological problems? These questions may appear threatening to some and arcane to others, but a little creativity may deliver more than a mean theological yield. To date, those who have undertaken the integration of math and theology have produced mainly historical studies and excursions into cosmology. This essay endeavors to convince readers of the serviceability of mathematics for specific areas of theology proper. Taking as an example a mathematical exploration of the Christian doctrine of God, I will show that math is able to enlighten theological discourse. The argument below propounds an inherent limitation upon our mathematical (or better, arithmetic) faculties. By introducing these limitations along with the generic nature of basic algebraic algorithms, we can gain certain insights into what the problem of the Trinity specifically entails.

Many explanations have been given for the Church's inability to fully understand the doctrine of the Trinity. One Asian theologian "contextualizes" the doctrine, finding fault with the Greek logical axiom of non-contradiction, and posits that an Asian "both/and" type logic is better equipped to apprehend the doctrine. One Christian philosopher claims that it is because we lack appropriate conceptual categories to describe the triune God that we cannot fully explain him.[2] Neither claim delves deeply enough into the nature of the problem at hand.[3] This essay aspires to a more precise explanation for the incomprehensibility of the Christian doctrine of God. While being mindful that the doctrine of God is sacred territory, I will argue that the binary limits of our arithmetic processes will forever keep humans from comprehending the Trinity. By integrating insights from theology, mathematics, and cognitive science, I will argue that humans' arithmetic capacity is designed in such a way that we cannot cognitively assimilate the historic doctrine of the Trinity.

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Belief in the Trinitarian God of Christianity and in the incarnation of the second person of the Trinitarian God is what distinguishes Christianity from every other religion. If these two inseparable doctrines are relinquished, then Christianity reduces to simply one of myriad forms of expression of the human religious impulse. The orthodox creeds, then, are of singular importance to Christianity. The "Athanasian" Creed has been said to entail at least the following propositions:

1. The Father is God.

2. The Son is God.

3. The Holy Spirit is God.

4. The Father is not the Son and the Son is not the Holy Spirit and the Holy Spirit is not the Father.

5. There is one and only one God.[4]

Many have dismissed the above propositions as contradictory or unintelligible. For present purposes, we will presume the non-contradictory status of the above five statements.[5] It is the business of non-intelligibility that may find a few answers here. The charge of non-intelligibility means to say that even if the propositions are not formally contradictory, they do not contribute anything meaningful to one's understanding of God.[6] Non-intelligibility implies that the doctrine of the Trinity is so difficult or obscure that its content (whatever it is) is vacuous. I will argue that though the doctrine teaches an articulate, coherent reality (it is intelligible), Christians will always fall short of complete cognitive assimilation (it is not comprehensible). We will see that this failure seems to occur on account of binary tendencies in our innate process of collecting and combining individual objects and on account of the very nature of the arithmetic processes themselves.

Trying an Equation

The situation at face value is such that Christians assert that the Christian God is three-in-one and one-in-three. A simple way of trying to present such a belief in terms of numeric operations yields: $1 + 1 + 1 = 1$, where the first "1" represents the Father, the second the Son, the third the Spirit, and the fourth the total number of existing gods.[7] There are at least two immediately obvious options open to the learner of arithmetic that would relieve her of this absurdity. The first and most obvious is to correct the sum by replacing the one with a three. Though this adjustment would satisfy arithmetically, when we recall the theological assertion that the arithmetic equation is supposed to represent, it is at once jettisoned as impermissible. The second option is to amend what lies on the opposite side of the equality symbol by emending the numerals in any number of ways. One suggestion that seems to commend itself is to reason that $1 + 1 + 1$ is not an entirely accurate representation because what the first "1" is, the second is also; what the second "1" is, the third is also. Therefore, given our peculiar circumstance, it is legitimate to rewrite

the equation as $1 + 0 + 0 = 1$, since the second and third 1's are the same as the first. In other words, it is not technically the case that we have three different 1's here, but the same 1 repeated three different times. Thus, it is not right to say we have three because in the end, there is only the one and same 1.[8] The ground covered here, albeit in a grossly simplistic manner, has shown with what ease one can arrive at the ancient opposite errors of (1) polytheism and (2) monarchianism.

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To maintain our bearings in what follows, it might prove helpful to rewrite these twin perils in alternate forms that would include other possible formulations of the same unorthodox scenarios. Let us say, then, that if any formulation can be reduced to either of the following two formulas then they have ceased to reflect the historic Trinitarian confession. Accordingly, we will remember:

(1) $F +^9 S + Ħ = \Theta \leftarrow \rightarrow \Theta \bmod 3 = 0$ or

(2) $F + S + Ħ = \Theta \leftarrow \rightarrow F = \Sigma = Ħ$, where $F + F + F = F$.[10]

Moreover, F, S, and Ħ can signify only one of an object.[11] In other words, we are ruling out the possibility that F can be a sum of more than one object. Therefore, F = 2 oranges cannot be true; F can only be one of whatever it is that F is and likewise with S and Ħ. The same, however, cannot automatically be said to hold for Θ since it is $F + S + Ħ$ by definition. Indeed, the task at hand is to make this hold for Θ also without lapsing into (1) or (2).

In the case that one has $x + y + z$, it is only possible to simplify the expression if one variable can be rewritten in terms of another[12] or, better still, if all three of the variables could be rewritten in terms of a fourth. Perhaps, the latter strategy can prove serviceable. Let F be an apple, S an orange, and Ħ a pear. F + S will not reduce to anything but an apple and an orange respectively. We can recognize the two objects separately, but we lack a linking variable to conjoin them (i.e., we cannot say we have two apple-oranges). Still, if there existed a fourth variable that could hold F, S, and Ħ in common, we might be able to progress a bit. Let us rewrite F, S and Ħ in terms of a fourth variable $\prod$. (Normally, a new variable v, for example, would be introduced such that $v = 2x + 5$, $y = 5v$ and $z = v^2$ and the like in order to manipulate x, y and z in terms of v. For our purposes, we must unfortunately trade these quantities for a conceptual analogy to this standard algebraic algorithm. Instead of the algebraic expressions [2x + 5, etc.], we will call upon various categories [e.g., fruit], as described by

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Aristotle, for example.[13]) Let $\prod$, therefore, denote any type of fruit. Now it appears that $\prod$ can rightly be substituted for any of F, S or Ħ. Hence, $F + S + Ħ = \prod + \prod + \prod = 3\prod$. So we have moved along to the following:

(1a) $3\prod = \Theta \leftarrow \rightarrow \Theta \bmod 3 = 0$ or

(2a) $3\prod = \Theta \leftarrow \rightarrow \prod = \prod = \prod$, where
$\prod + \prod + \prod = \prod$.

On account of our substitution above, it seems that (1a) is unavoidable and (2a) is impending, if we overreact to the threat of (1a). (1a) *is* inevitable if Θ is divisible at all.[14] Fruit, as we have constructed it, is divisible and it is evident that we have not only three types of fruit, but three individual fruits. Θ (whatever it is), in other words, is three and not one, divisible into three "smaller" parts. Θ, for us, is the number of gods that exist; there is only one divine substance. The Christian faith, however, holds that God is indivisible; he is utterly simple. Or is he?

Gregory of Nazianzus wrote: "For they are divided without division, if I may say so; and they are united in division." Gregory confesses that he speaks of a paradox, but we must explore the paradox a little further to accomplish our goal. The Cappadocian Father must have meant, among other things, that "God is divisible in a way that is different from the way that he is indivisible, and he is a unity in a way that is different from the way that he is divisible." This is quite a mouthful, but it is an important mouthful nonetheless. The significance lies in the implication that there are different "ways" to God. But before inquiring of these different "ways," it is appropriate to remember that "we can speak of simple things only as though they were like the composite things from which we derive our knowledge."[15] It is only on account of our frailties that we must conceive God in such complexity. In reality, he is utterly simple.

If there are different "ways" to God (i.e., the ways in which he is divided are not the same ways in which he is united), then it becomes apparent that the relation that obtains in our formulas is not strictly accurate. Not only is the relation (=) inaccurate, but the operation (+) may be also. Nevertheless, we will continue to employ the operation while qualifying the relation.

When a Christian affirms that $3\prod = \Theta$ (that F, S and Ħ are the one God), it may be the case that the Christian considers God to be three in ways that are different from the ways in which he is one. In other words, $3\prod = \Theta$ is not an adequate rendering of the theological confession. When one writes $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$, etc., one is expressing the fact that each term refers to the same exact quantity. For our purpose (for better or for worse), we have lapsed from quantities to categories, but the same relation is implied by the "=" symbol we are using at present. $3\prod = \Theta$, therefore, might be understood to convey that $3\prod$ and Θ refer to the exact same category (and not necessarily quantity), yet this is contrary to the orthodox description. The matter can be set in bolder relief by realizing $3\prod = \Theta \leftarrow \rightarrow 3\prod - \Theta = 0$ must be true if the equals symbol signifies its normal "equal quantity" relation. With equal *quantities*, the difference is always zero. Can it likewise be said that if you were to subtract the *category* "substance" from the *category* "person" that the result would be zero?[16]

We are already familiar with this problem. Earlier we saw that we could not add one apple and one orange. The same would be the case if we sought to subtract one orange from one apple; we are forced to hold the tension between the two objects without reducing them to one type. In order to continue, we saw that we must search for another variable in terms of which the others could be expressed. Thus, we are forced to keep the "persons" and the "substance" in tension without reducing one category into another, for no extant category will ever become available for useful deployment. This is the impasse of the mystery beyond which humans cannot progress. Still, it is well known that by using mathematics, humans can sometimes proceed beyond that which would ordinarily impede him.[17]

Examining the Operation

Some readers may be of the opinion that we have abandoned our quest too hastily and that $3\prod = \Theta$ or $F + S + Ħ = \Theta$ should be revisited. Surely other possibilities abound, but, as mentioned above, it is not the varied possibilities that are of interest. It is the *operation* that merits scrutiny. Revisiting the formulas will lead invariably to (1a) or (2a), and the

reason for these outcomes lies in the operations involved. It should be clear that every restatement of the "Athanasian Creed" can be expressed in either of these forms:

(3) $3\prod = \Theta$ or

(4) $F + S + Ħ = \Theta$.

Since (4) is the commonest, it will occupy our attention from here on out.[18]

As we have implicitly surmised above, "Father *and* Son *and* Holy Spirit" is not technically the same as "Father *plus* Son *plus* Holy Spirit." The concept behind the word *plus* has the intrinsic connotation of bringing together the objects under consideration (whether abstract or concrete) and combining them in such a way that there appears a "new" object (the sum). By contrast, to simply "*and*" objects together means to collect the objects in question without necessarily combining them in any particular way. In other words, the collecting stops short of combining (i.e., there is a mere collection in the end and not a sum). The "obvious" meaning of *plus* is notoriously difficult in that it is not always clear how the "new" object relates to the initial objects prior to their being "*plus*-ed." Fundamentally and non-trivially, it is at least understood that the whole is greater than its parts.[19] Inherent in this relation is a notion of *measurement*, and not only measurement, but also a *method* by which one is able to ascertain a measurement. Both the method and the resulting measurement normally require spatial and temporal considerations including density, locality, velocity, temperature, span, height, weight, form, and so on. Even when dealing with abstractions, corresponding abstract equivalents to measurement and method obtain; a similar mental process along a suitable calculus is used. It is this very act of "measuring" that occurs prior to, during and after *plus*-ing that proves inadequate when applied to the Trinity.

The phrase "during *plus*-ing," aside from its awkward construction, may come as a surprise to some. Is there really a "during *plus*-ing" phase to adding one plus one? A child is given one animal cracker and then another. Immediately, it is obvious to her (whether she can articulate it or not) that she no longer has one but two. Prior to *plus*-ing she had only one cracker; subsequently she had two. Whence this "during *plus*-ing" stage? That is just the problem. Practically speaking, when adding one plus one (or anything at all), there is no "during *plus*-ing" stage. One may object that when a student adds 27 + 18 and resorts to scrap paper in order to affect the computation he is experiencing the "during *plus*-ing" stage, but this is not true. The busy student only *appears to experience* the "during *plus*-ing" stage with the help of his stationery aids. We must not confuse the time taken or the materials used with the actual act of *plus*-ing.[20] Though the entire computation may take a student five or ten seconds, real *plus*-ing takes (or better, lasts for) but an instant. "Seven plus eight is fifteen" is the first act of *plus*-ing involved in the given exer-

cise. Or if the student resorts to the bane of his tutor—counting on his fingers—he will proceed: "Seven. Eight, nine, ten … fifteen!" Thus we have eight instances of *plus*-ing to accomplish the first step of the exercise.[21]

What possible relevance does this have for the Trinity? It is pertinent in every way. The crucial feature that precludes a more comprehensive understanding of the doctrine of the Trinitarian God lies in the *measurement* process (utilized by all humans) mentioned earlier. Granted, it is not "seven plus eight" with which Christian believers must wrestle constantly, but with a situation that is actually much simpler and very similar to "*one plus one plus one*." This is not to claim that God is linear or piecemeal, but rather that the measurement process which humans instinctively apply to all objects is the same in both "seven plus eight" and "one plus one plus one."

It is this very act of "measuring" that occurs prior to, during and after plus-ing that proves inadequate when applied to the Trinity.

The measurement process that I have in mind is akin to what Brian Butterworth calls "numerosity."[22] This term refers essentially to cardinal numbers. Determining numerosity (i.e., determining exactly how many of something there are) requires the ability to specify individual objects and then to organize them into a collection. These abilities are innate; some scientists are now arguing that infants along with many different types of animals possess a sort of "number sense."[23] This innate sense is limited to distinguishing among one, two, and three of a given thing.

More specifically, though, I have in mind what I call the *pairing mechanism*. In their study, Lakoff and Núñez have posited a "pairing capacity" whose function it is to match a person's count to the corresponding object in a given collection since the count must be distinguished from the collection of objects.[24] The *pairing mechanism* propounded here, by contrast, is the process by which a person pairs an already counted item (or a cumulative sum) with the next item to be counted. Whereas Lakoff and Núñez are concerned with the pair that has one member in a source domain (object collection) and a second member in a target domain (arithmetic), I am concerned with relating a pair of objects that are both within the same domain (be it source or target). In other words, instead of focusing on the "cognitive mechanism that enables us to sequentially pair individual fingers with individual objects" (speaking of counting on one's fingers),[25] I am focusing on the mechanism that pairs two individual objects (or a running sum

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and an individual object or even two running sums) together in order that they might then be combined or *plus*-ed. The best example of what is meant here is the algebraic explication of the associative property of addition:

$$(a + b) + c = a + (b + c).$$

Notice that the only difference between the two sides of the equation is that different pairs are set apart by parentheses. The function of the two sets of parentheses is to signify which two terms are meant to be combined first each time. It matters not whether one adds (a + b) and then c (as on the left) or first adds (b + c) and then a (as on the right). The two sums will be equal. These parentheses signal the reader to pair terms in a particular manner. The process that the parentheses describe is the *pairing mechanism* set forth here.

Pairing and *plus*-ing are not the same action. Pairing is logically first, even if in simple cases they seem to obtain simultaneously. In order for any *plus*-ing to occur, objects (concrete or abstract) must first be brought "together," organized or *measured*. The pairing mechanism is an inherently binary operation. I posit that it can only operate on a single pair of objects at any given time (whether the pair consists of two single objects, a collection considered jointly as a single collective and a single object, or two collectives). Though operations many times give the appearance of being far more complex, it will always be the case that it can be reduced to the repeated organization of pairs of objects if carried out by humans. Multiple examples of this can be found in the algorithm known as the order of operations. To arrive at a solution or an equivalent expression of a given expression, if a choice exists as to which operation should be applied first, one must work through parenthesis first, then exponents, then multiplication, and so on. Algebraic expressions of virtually every sort must be approached with this algorithm.

Consider $5 • 3 + 4 + 5 • 7 – (2 • 2 • 2)^2$. All operations here are binary; only two numbers can be "operated on" at a time. Every act of "combining" is at its most fundamental level the exercise of the pairing mechanism. Within the parenthesis, for example, we have three two's being multiplied (2 • 2 • 2). One with a familiarity with these types of exercises may simply count

the two's and know from memory that $2^3=8$, but recall that memorization circumvents the actual operation. The analogy will not hold for rote memorization since memorization is more an act of association than combination.[26] However, if one approaches the parenthesis by means of the operations themselves, he would combine two of the two's ((2 • 2) • 2) and then combine the product (4) with the last two to get a final product (= 8).[27] The same holds for 15 + 4 + 35: two numbers would be paired together and that sum then would be added to the third. The pairing mechanism is inherently binary which may explain why most (I would argue all) operations are also binary. Thus, mathematics has been used to uncover an implicit limitation within many (if not all) mental gathering processes.

These tacit processes extend to Christian discourse as well. For example, a theological corollary to the natural employment of an innate "pairing mechanism" is that if God demonstrates a plurality of any sort, humans would automatically consider a duality first and then proceed from there. In other words, a bi-une God is easier to recognize than a tri-une one. This is precisely what has happened historically. Both the Father and the Son were soon recognized as somehow being God where the Father was not the Son and the Son was not the Father.[28] The precise nature of their relationship (or at least what their relation was not) took centuries to establish before moving on to consider a third divine person, the Holy Spirit.[29] I think that the proposed pairing mechanism contributed in large measure to the order of theological discovery. The reason that the early church first wrestled with the relationship between the Father and the Son and then that among the Father, Son, and the Holy Spirit is because the early church leaders were limited by the pairing mechanism. If it is unclear how the pairing mechanism would help us better *understand* a bi-une God, minimally, we can say that it causes us to *recognize* a bi-une God more easily. Insofar as the pairing mechanism assists us in recognizing a bi-une God, it would assist us in understanding him. By definition, however, the *binary* pairing mechanism offers no assistance whatever in recognizing our *tri*-une God. To the extent, therefore, that it hinders us from recognizing our God, it is an impediment to our understanding him.

Applying the Observations

In the last section, it was suggested that most operations are binary, or at the very least, that they are approached as if they were on account of the employment of a pairing mechanism. We will now apply these observations to the earlier discussion of the Trinity. (4) $F + S + Ħ = \Theta$ is the equation with which we will resume.

It was surmised that, based on categorical failures, there existed an impasse beyond which we could not explore. A new problem that emerges is that the pairing mechanism that we naturally and necessarily employ as an early step in combining objects is fundamentally inadequate for the present task. The inherent binary nature of the pairing mechanism does not have the range for the Trinitarian formula. It is not enough to combine F and S and then consider $(F + S) + Ħ$. Nor will $F + (S + Ħ)$ or $(F + Ħ) + S$ suffice. The Patristic idea of perichoresis, or the interpenetration of the Father, Son and Holy Spirit, prohibits each of these isolated combinations.[30] In fact, the only combination that is consistent with perichoresis is $(F + S + Ħ)$, and this at once ceases to be the essential grouping of pairs. Therefore, it is not only a categorical failure that stands in the way, but also an operational failure. The operation needed here is one that acts upon three objects simultaneously, but it is one with which we are unfamiliar, and (based upon the binary limitations that have been placed on our pairing mechanism) may be one that we cannot discover or invent or, in the least, properly perform. If this is the case, it follows that we are unable to combine $(F + S + Ħ)$ in a single stroke for it is without our binary parameters. Hence, we can expect our descriptions of the Trinitarian God of Christianity to be necessarily either broad and vague (and in many ways inexplicable) or inaccurate and erroneous as were those espoused by the heretics. The *plus*-ing that Christians need is one that involves the gathering of triples and not that of pairs. If what I have argued is true, then the intercourse between mathematics and theology has discerned an inestimable hindrance to the appreciation of the doctrine of the Trinity.

Furthermore, the binary restriction is not the only problem that humans face in understanding the Trinity. A salient feature of the *plus*-ing operation itself, beyond its binary approach, is not able to mirror the relations of the Trinity. Above, a distinction was made between *plus*-ing and *and*-ing. Whereas the former involves a sum that subsumes the objects that were considered separately prior to the operation, the latter does not always result in a sum. The sum is a collective entity that considers all objects together without reference to their individuality.

It was also pointed out that there are three phases to *plus*-ing: before-, during- and after-. The after- phase will have obtained whenever a sum is apparent and the individual objects are not. The before- phase includes all that is done in preparation for the calculation of a sum (i.e., when individual objects are present and the sum is not). The during- phase was defined as that instant when *plus*-ing actually occurs. The problem was that a during- phase never really seems to exist. The final connection to make here is that in order to properly conceive of the Trinity, we must recover that during- *plus*-ing stage. That is, we should seek out the instant when the objects under consideration are no longer merely individual objects but are not yet a full sum either. Rather, they are neither individual objects (strictly speaking) nor a sum. This is the closest we can come to the idea of interpenetration. In other words, $(F + S + Ħ)$ needs to be combined as a triple (not by pairs) in such a way that they are *plus*-ed, but the combining process must freeze itself in the during- stage.[31] That elusive moment when $(F + S + Ħ)$ is combined must be preserved in a "snapshot" and not allowed to pass by, else the sum will formally result and the individuals will disappear. The measurement of $(F + S + Ħ)$ at that precise moment would allow for a more faithful understanding of the Trinity.[32] However, such precision is a perennial chimera. Alas, in the end, it may be the case that a certain amount of illusion lies at the foundations of arithmetic.[33]

Conclusion

To sum up, there is no real problem with the doctrine of the Trinity. The doctrine is not contradictory nor non-intelligible. The Christian church has effectively articulated the doctrine of the Trinity in her creeds; the reality described is a legitimate one that involves no contradiction. Still, Christians (and non-Christians for that matter) do and will continue to have problems with the doctrine of the Trinity. It describes a wondrous God whom we cannot cognitively assimilate. The human arithmetic capacity is designed in such a way that its tendencies account for a significant part of why the historic doctrine of the Trinity cannot be properly appreciated. This is due, it was argued, to the inadequacy of a binary pairing mechanism that humans inevitably employ when contemplating the three persons of the Godhead. Moreover, the moment in which the actual operation obtained proved elusive. The conclusion was drawn that even with the expansion of the pairing mechanism to an equivalent that worked with triples, the nature of the *plus*-ing operation itself fails to accurately reflect the nature of the Trinity. Therefore, humans will always have a problem understanding the Trinity.

These conclusions were couched within the contours of a broader argument that proffered the usefulness of mathematics for theology proper. The analogy presented above, for example, can be applied to both the economic and imminent Trinities insofar as the latter is revealed in the former.[34] An imaginative and careful mind should be able to find other creative ways to incorporate mathematics into theological discussions.[35] The present exercise was an attempt at such incorporation: an algebraic exposition of

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the Christian doctrine of God. In due course, legitimate obstacles were identified that reflect inherent limitations upon simple, everyday operations. Obviously, this is not to say that these limitations are the *only* reasons that the Trinity remains incomprehensible or that an algebraic analogy was the *only* way to isolate these features. Nor has it been claimed that mathematics can "solve" the problem of the Trinity. Suffice it to say that a "mathematical perspective" can prove quite useful to Christian theologians, even if it only plays a negative role (as it did here). So, without being impious, the next time someone asks, "Can any good thing come from mathematics?" we should give more credence to the reply, "Come and see." ✼

Notes

[1] E.g., Russell W. Howell and W. James Bradley, *Mathematics in a Postmodern Age: A Christian Perspective* (Grand Rapids: Eerdmans, 2001).

[2] The conclusions of Jung Young Lee, *The Trinity in Asian Perspective* (Nashville: Abingdon, 1996); and Stephen T. Davis, *Logic and the Nature of God* (Grand Rapids: Eerdmans, 1983), respectively. Interestingly enough, it seems that not a few unwary evangelicals unwittingly lend credence to Lee's both/and claim. For instance, in trying to explain the relationship of the Old Testament to the New Testament, G. Goldworthy writes:

> It is generally recognized that the relationship of the two Testaments is one aspect of the unity and diversity … within the canon … This is one form of a philosophical and theological issue which underlies all attempts to understand reality: the relationship of the one to the many, of unity to plurality.

He continues:

> While the natural tendency is to solve these problems by allowing unity or diversity to dominate (an either-or solution), the Christian gospel suggests a distinctively Christian perspective embracing both unity and diversity (a both-and solution).

A problem arises, though, when he attempts to demonstrate the Christian pedigree of "both/and solutions" by appealing to Chalcedon:

> The apostolic understanding of Jesus pointed to the mystery of the one person who was both fully God and fully human. It required a "both-and," rather than an "either-or" approach. Later the church formalized this perspective in the doctrine of the incarnation, and particularly in the formula of the Council of Chalcedon in AD 451.

He adds:

> *The doctrine of the Trinity is the epitome of 'both-and' formulation. God is conceived as both one and many (three). The early heresies about God tried to define his being in ways that compromised either the unity of the three Persons or their distinctiveness*" (G. Goldsworthy, "Relationship of the Old Testament and New Testament," in *New Dictionary of Biblical Theology: Exploring the*

Unity and Diversity of Scripture, ed. T. Desmond Alexander, et. al. [Downers Grove, IL: Inter-Varsity, 2000], 82–3, from the section "Unity and diversity in the history of interpretation"; italics are mine).

The selection of such language is, perhaps, due to the cavalier (even though conservative) anti-modern drive of the dictionary as a whole. Though his way of wording his explanation is unfortunate, his point is easily grasped. Even so, the paragraphs just cited may lead to misunderstanding, for I suspect that if he were pressed for further explication, Goldsworthy would readily admit that God is *either* one person *or* three, one God *or* three, etc. In other words, his "both/and" solution is metaphorical only. It would have been better if he had clarified what he meant by "an either-or solution" by removing the ambiguity between the fallacy of bifurcation and the law of non-contradiction.

[3] Davis' observation concerning categories is right as far as it goes. Still, there seems to be more involved with Trinitarian parlance than namely a lack of appropriate categories. For the shortcomings of both Davis' and Lee's conclusions, see notes 16 and 17 below. [Note to the reader: With hopes of improving the readability of the main argument, many such ancillary arguments and explanations are confined to endnotes.]

[4] See, for example, John S. Feinberg, *No One Like Him* (Wheaton: Crossway, 2001), 438, and Davis, *Logic and the Nature of God*, 132–44.

[5] Leeway might be granted in the referent of "God" (e.g., "The Father is not God as such; for God is not only Father but also Son and Holy Spirit," etc. (A. J. Augustus, *Systematic Theology* 1, 605), or better, in the function of "is" (predication in (1), (2) and (3) and existence in (4)).

[6] It is important to remember that Christians do not believe these five statements on account of logical inventiveness or theological imaginativeness, but precisely because they believe them to be revealed by God in Scripture. Since these statements are believed to be a part of God's self-disclosure, it is no cause for alarm if they survive as mysteries.

[7] It seems proper here to acknowledge works that I have consulted. In a chapter devoted to the problem of the Trinity, Cartwright refines Peter Geach's relative identity and reviews its aptitude when applied to Trinitarian language (Richard Cartwright, *Philosophical Essays* [Cambridge, MA: MIT Press, 1987], 187–200). Geach, for his part, sees a need to establish identity in relation to a specific "something": "X is the same so-and-so as." What follows attempts to build upon Geach's suggestions (*Logic Matters* [Berkeley: University of California Press, 1972]). I first learned of Geach's application of relative identity to the Trinity through Peter van Inwagen's *God, Knowledge and Mystery: Essays in Philosophical Theology* (Ithaca: Cornell Press, 1995). Though I have not seen his name in the literature, it seems to me that the entire Christian tradition is heavily indebted to the medieval (dare I say patristic?) theologian Boethius (c. 480–524), for his *Theological Tractates*. His discussions concerning identity with reference to the Trinity are invaluable and anticipate contemporary explorations in relative identity.

[8] If I call out for pizza three times in one night, though the pizzeria may in a sense say that it had three customers, the fact still remains that I am a

single customer. Cf. Bertrand Russell, *The Principles of Mathematics* (New York: W. W. Norton, 1996), 135: "When we say 1 + 1 = 2, it is not possible that we should mean 1 and 1, since there is only one 1: if we take 1 as an individual, 1 and 1 is nonsense, while if we take it as a class, the rule of Symbolic Logic applies, according to which 1 and 1 is 1."

[9]Readers who are mathematicians may be uncomfortable with the use of "+" here. They are free to substitute "□," "◊" and the like, understanding that we are considering an abstract commutative and associative operation for the sake of illustration. For the benefit of non-mathematicians, the ordinary "+" symbol has been retained. Equations (1) and (2) are, after all, mock trials with real addition. At the appropriate time (note 16 below), a brief rationale is given for the use of "+." In section "Examining the Operations" below, nuances between "+" and "and" are discussed in some detail, especially with respect to the Father, Son, and Spirit relations.

[10]"mod n" is the operation under which x is divided by n with or without remainder. For example, "100 mod 10" is 0 since 10 divides 100 without remainder. In the same manner, "101 mod 10" is 1 since 10 divides 101 with remainder 1. So Θ mod 3 = 0 would indicate that Θ is divisible by 3. It is the duty of this formula (1) to detect a form of polytheism, namely "tri-theism." The "mod" function was chosen because it facilitates future qualifications with minimal revision.

[11]As hinted at above, the variables were chosen with the following in mind: F denotes the Father, S the Son, Ħ the Spirit and Θ God. However, initial trials will involve other substitutions.

[12]This line of inquiry does not seem promising since to express the latter two variables in terms of the former is what got us to (2) in the first place.

[13]This has no noticeable effect on the argument since it is the nature of the operation itself (or any operation for that matter) and not the quantities employed that are later called upon to argue my point. The coefficients are what interest us here. An infinite number of combinations would provide the desired coefficients. For example, x = 2v, y = v and z = 0 yields the target 3v = q. The description of F as being only one of whatever F is does not nullify these types of substitutions. Even if it did, the myriad that take the form F = ½v+9, S = 2v-1 and Ħ = ½v-8 and the like accomplish the desired result. The ambiguous function of the equals symbol will be discussed briefly below.

[14]Θ has intentionally been left undefined. What Θ might be need not detain us here, at least, as far as the fruit analogy goes. It is without the limits of this essay to rehearse the long journey to the final formulation of the Christian doctrine of God. Briefly, for us, 3∏ will refer primarily, *but not exclusively*, to *tres pragmata kai tria proswpa* (three realities and three persons) and Θ will refer primarily, *but not exclusively*, to the divine *ousia* (substance). The equations aim to approximately depict the whole Godhead. It is agreed that every analogy of the Trinity falls short of that which it purports to represent. Each variable here should technically include the substance and the persons since, though the substance and the persons can be distinguished, they cannot be separated. It is only for the sake of the argument that one side of the equation focuses on the persons and the other on the substance. For the categories "person" and "substance" as adapted by the Fathers, see Christopher Stead, *Divine Substance* (Oxford: Oxford University Press, 1977), 241 for Greek above.

[15]Aquinas, *Sum. Th.* 1.3.3.1; for Gregory, see *Orat.* 5, *On the Holy Spirit*, 14.

[16]Herein lies the reason for opting for an arithmetic or algebraic analogy and not one solely based upon symbolic logic and set theory as is commonly done by philosophers. Discussions that incorporate set theory into analyses of the Trinity (e.g., those that search out the implications of Relative Identity) tend to obfuscate the nuances that distinguish equality (and there are several headings under equality) and identity. Perhaps, attempting to answer questions of equality before establishing different kinds of identity amongst the persons of the Godhead would further illuminate the exact nature of the paradox. I am willing to admit a certain degree

of inadequacy in the arithmetic alternative presented here (for starters, it is not "purely" arithmetic), but the perceived inadequacies by no means invalidate its didactic utility. Arithmetic and logic have fuzzy bounds; the activity of one is very often the activity of both. Variables in algebra, after all, often stand for bare mathematical concepts (e.g., "real number") and, for all intents and purposes, not for a hypothetical set of discrete quantities (e.g., [-∞,∞]). A preponderance of algebraic work abstains from discrete quantities altogether. The same can be said for the "+" sign as well. The "+" sign, at times, can be a "stand-in" for any other operation that a practitioner can imagine (assuming it is commutative and associative). For this reason, the conclusion of the present argument, in my judgment, survives unscathed. For a similar view concerning the use of concepts and operations in algebra, see W. W. Sawyer, "Algebra," in *Mathematics in the Modern World: Readings from Scientific American*, ed. Morris Kline (San Francisco: W. H. Freeman and Co., 1968), 102–10.

[17]In this case, mathematics may prove especially useful by exploring the realm of "what if?" If a pertinent category does exist or will exist in the future, we will not be able to employ it in order to reduce the tension. Such employment will either collapse into (2a) above or simply return us to our initial point of departure at the beginning of this essay. For example, let us imagine that a satellite in the near future is able to transmit an ultraviolet photograph of a physical relation (infinitesimally high-speed electrons or what have you) that obtains within the sun that no scientist has encountered to date or has ever even thought possible. Let it be supposed that they assign a category, "ƒabric ŵarp" or some such name, to encapsulate the essence of the phenomenon. If we were to posit that "ƒabric ŵarp" is such a category that it were to categorically subsume both "person" *and* "substance," we may try to substitute in ƒŵ as follows for each: 3 ƒŵ = ƒŵ (or ƒŵ + ƒŵ + ƒŵ = ƒŵ, which is, of course, (2a)). This is no help at all, and is, in fact, worse than 3∏ = Θ, for it leaves us with an absurdity since its single solution is "zero." For this purpose, Davis' observation above (that we lack the categories to proceed any further), though revealing, is not definitive, for if we did have the categories, they would not afford resolution.

[18]Once again, the objection might be raised that the divine substance is not merely the three persons of the Godhead considered collectively, but is a substance itself and not a combination of persons. In other words, the divine substance exists *along side* the persons so that what is really taking place is this: F + S + Ħ + Đ = Θ, where Đ is the divine substance and Θ is the Trinitarian God. The objection is noteworthy, even if the "arithmetic" representation of it is quite problematic. (Incidentally, Lee's "both/and" approach in *The Trinity in Asian Perspective* seems to fall prey to the error of this equation. His contextualized "Asian" Trinitarian God is, unfortunately, nothing but a *quaternium quid*.) The objection has force because Christians recognize a distinction between substance and person and between person and person. However, if Θ is the whole Godhead (i.e., the Christian Trinitarian God), Θ is not simply substance, but the whole God. We must remember that the Đivine substance is essential to each variable—it is not only essential to Θ, but also to each of F, S, and Ħ. In other words, what is intended by F + S + Ħ = Θ is more accurately reflected by FĐ + SĐ + ĦĐ = Đ (F + S + Ħ) = Θ. This alternate form, however, was judged to be too cumbersome for an essay of this length. It is hoped that the simpler equation will suffice to analogously present the point that is being made.

[19]It is arguable that there may be times when the result of a *plus* will be no different from that of an *and*. When this occurs, one can claim that no *plus* ever really took place or that the nature of the objects was such that the *plus* did take place but that it did not have its usual effect on the objects. A similar scenario arises in discussions concerning the relations between classes or sets and their terms. For example, is a set just its members or something more? For a critical discussion on a set's relation to its terms, see J. R. Lucas, *Conceptual Roots of Mathematics* (New York: Routledge, 2001), 311–39.

[20]Recording the numbers, crossing out digits, "carrying," etc. are only preparation for each of the instances where the student actually brings the two numbers together mentally and comes away with his sum. After all, "… mathematical notation no more *is* mathematics than musical notation is music … It is in its performance that the music comes alive; it exists not on the page but in our minds." The same can be said of math (which Devlin does say in the sentences that follow. Keith Devlin, *The Math Gene, How Mathematical Thinking Evolved and Why Numbers are Like Gossip* [New York: Basic Books, 2000], 9).

[21]For good measure, lest anyone begin to worry, it should be noted that the following does not apply to adding machines, computers and the like because a programmed abacus does not *experience* anything! In a similar vein, rote memorization is discounted for it circumvents the very process upon which we are attempting to focus. If one objects that everyone counts from memory, we need only substitute an unfamiliar multiple (counting by three or eight, etc.) to find an analogous operation. If that still fails to satisfy the objector, he will still agree that counting does at least demonstrate the use of a pairing mechanism (see below).

[22]Brian Butterworth, *What Counts: How Every Brain is Hard-wired for Math* (New York: Free Press, 1999), 10.

[23]See Stanislas Dehaene, *The Number Sense: How the Mind Creates Mathematics* (Oxford: Oxford University Press), 1997.

[24]George Lakoff and Rafael E. Núñez, *Where Mathematics Comes From: How the Embodied Mind Brings Mathematics into Being* (New York: Basic Books, 2000), 51.

[25]Ibid.

[26]To the degree that counting is performed from memory, the analogy seems to weaken because it involves more of an associative capacity (associating one entity with another and recognizing an ordered relationship between numbers) than a faculty for combining (one combined with one is two, two combined with one is three). Nevertheless, the pairing mechanism can then be identified with Lakoff and Núñez's "pairing capacity." To reiterate, counting from memory circumvents the *plus*-ing operation, but requires some sort of pairing. Counting by other multiples than one may prove analogous.

[27]The same holds for "shortcuts." If the shortcut circumvents the operation entirely, it is back to memorization. Many shortcuts, though, inevitably proceed through the required operations, only at some simpler level.

[28]See, for example, Larry W. Hurtado's "The Binitarian Shape of Early Christian Worship," pages 63-98 of his *At the Origins of Christian Worship: The Context and Character of Earliest Christian Devotion* (Grand Rapids: Eerdmans, 1999).

[29]For these and other developments, see J. N. D. Kelly, *Early Christian Doctrines*, rev. ed. (New York: HarperCollins, 1978).

[30]See the excellent work, G. L. Prestige, *God in Patristic Thought* (London: SPCK, 1959), especially pp. 282–300.
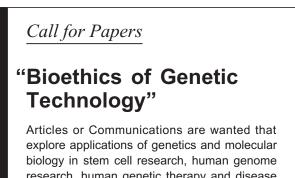
[31]$(F + S + Ħ)$, with parenthesis (as opposed to without parenthesis) means to signify the all-at-once-ness of the original $F + S + Ħ$. The parenthesis will serve to remind us that it will not do to add from left to right or in any other binary way; rather, an immediate measurement of the triple is required.

[32]As already mentioned, I am not at all convinced that this dilemma is forced upon us by "either/or" logic or solely by a lack of appropriate categories. The dilemma is caused by the fact that God is three in a way that we cannot fully appreciate. The dilemma is caused by the fact that there is no way for us to "freeze" the during-*plus*-ing stage in order to observe or experience how a combination can obtain that comes after a mere gathering of objects, yet before the final sum. The snapshot must be of a time when F, S, and Ħ combine with each other in such a way that: if one were to look for F, one would find that S and Ħ inhere in F; if one were to look for S, that F and Ħ inhere in S; and if one were to look for Ħ, he would find that F and S inhere in Ħ. Such an operation would be unique, but it seems that the operation could not exist within time. It is time that causes *plus*-ing to have a prior to, during and after phase. The fact that all operations are performed "in time" causes the result to

have the lasting influence. But if the analogy presented here is in any way valid, it appears that it is the process itself, or the actual act of *plus*-ing as we have termed it, that is the dimension of the operation that would need to obtain as a constant, long-lasting reality. And this is impossible "in time." An act endures for but a moment (or for an indefinitely short span, as some would argue), but this act would need to endure for an eternity (or, at the very least, endure for long periods of time at the command of an individual perceiver). It is not a repeated act that will do here or a long act comprised of many smaller ones, but one act performed at one time that obtains continuously throughout time. For this to be achieved it seems that it would have to be performed "outside" time; moreover, in order to view it, one would also have to do so from "outside" time. Of course, I digress too much; the metaphysics of time is a fascinating and perplexing study in its own right.

[33]"I distinguish what I call objective from what is handleable or spatial or actual. The axis of the earth is objective, so is the centre of mass of the solar system, but I should not call them actual in the way the earth itself is so. We often speak of the equator as an *imaginary* line; but it would be wrong to call it a *fictitious* line; it is not a creature of thought, the product of a psychological process, but is only recognized or apprehended by thought." (Gottleb Frege, *The Foundations of Arithmetic*, 2d ed., trans. J. L. Austin [Oxford: Blackwell, 1980], 35.) It may be the case that arithmetic itself, though not a "creature of thought," is similarly only recognized by thought but not fully apprehended by it.

[34]For an overview of the issues that pertain to the various views, see "Economic Trinity, The" in Michael O'Carroll's fine work *Trinitas: A Theological Encyclopedia of the Holy Trinity* (Wilmington, DE: Michael Glazier, Inc., 1987), 94–6. I consider the economic Trinity to be an ontological "subset" of the immanent Trinity, but not a proper one.

[35]For example, devise an analogy that attempts to illustrate the divine perichoresis.