

Ki Tissa – 18 Adar 1, 5782 (February 19, 2022)

Minyan Ma'or

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Shabbat Shalom.

Nobody in the Torah has as intimate, ongoing, and as direct a speaking relationship with God as Moses does, and the zenith of that relationship occurs in Ki Tissa on Har Sinai, when Moses experiences God's kavod, translated as glory or essence. Since the burning bush, Moses has been in conversation with God, but the dialogue they hold in the Tent of Meeting is most intimate and urgent. God is angry with the stiff-necked people who impatiently made the golden calf, and God tells Moses that the Israelites would need to proceed with an Angel and not with God's immediate presence. In the aftermath, Moses pleads with God: "pray let me know your ways, that I may know You." God responds to this request on Har Sinai with the enumeration of the 13 attributes of mercy, that we repeat many times during Yom Kippur - Adonai, adonai, el rachum vi chanun..., which speaks of mercy, compassion, forgiveness, kindness, slowness to anger, etc. Clearly, the commentators see God's recital of these 13 attributes as a direct response to Moses' request to understand God's behaviors and actions, that is, God's "ways."

Next, Moses made a different request and boldly asked to see God's kavod, God's glory, the unknowable and unfathomable essence of God. And God responds by passing in front of Moses, shielding him with a hand from seeing the face of the divine, as these cannot be seen or experienced by man. The descriptions in Ki Tissa make clear that Moses' experience of being with God was something beyond our understanding, and somewhat overwhelming for anyone else. And yet, Moses seems to have had only a glimpse of God's essence.

Many of us yearn for that tiniest glimpse of the unknowable. Some may achieve it through davening, others with meditation, and others by running marathons, or communing with nature. If we are fortunate, we may experience the fleetest of moments when we realize that, just a moment before, we had a sense of something indescribable and profound. For me, I have had these moments when thinking

about things like – what came before the world was created? What is beyond the outer edge of the universe? And what is infinite and infinity? These are all questions about the unknowable in terms relevant to our physical world, and represent, for me, the unknowable in spirituality.

For hundreds, if not thousands of years, an understanding of God and God's unknowable essence has been intimately entwined in philosophy with the concept of infinity; in many cases, not just an abstract concept of infinity, but the equally challenging and ethereal mathematical concept of infinity. In Judaism, we recognize the infinite as a metaphor for God every Shabbat in Adon Olam, where we describe God as "beli tachlit" - without end, another perfect, concise description of infinity. This, then is the theme of the rest of this drash – the contrast between the enumerable and knowable aspects of God, and the unknowable, infinite aspects. From the counting of the census and the 13 attributes of mercy to God's kavod. From the ten s'ferot of Kabbalah to the infinite or ein sof. By way of a little elementary school math.

Mathematical infinity is something that is endless and without bounds, and the concept has been with us since at least the 7th century BCE. The religious and philosophical wars over infinity and related mathematical concepts have spanned the common era and philosophical arguments. Aristotle's arguments opposed to the idea of infinity and later religious decrees literally halted progress in mathematics for millennia. Societal acceptance of infinity and related ideas was historically the key to science, freedom of thought and a tolerant society, according to the historian, Amir Alexander. The reemergence of infinity in the Renaissance was intertwined with art as well, with Brunelleschi's development of the vanishing point in perspective drawing.

In his brilliant and sometimes infuriating book on infinity, David Foster Wallace said that "there is nothing more abstract than infinity...It's sort of the ultimate in drawing away from actual experience. Take the single most ubiquitous and oppressive feature of the concrete world – namely that everything ends, is limited, passes away – and then conceive, abstractly, of something without this feature. Analogies to certain ideas of God are obvious."

In Judaism, infinity became entwined with God through the Kabbalah and the Zohar. The Kabbalist described the awesome, unknowable, and uncountable aspect or essence of God as *ein sof*, literally “without end,” which is a fairly concise description of what we call infinity. Contemplating and meditating on the infinite was for Kabbalists a way to get a glimpse of the *ein sof* and God. And, of course, in modern Hebrew *ein sof* has become the word for mathematical infinity. So, any discussion of infinity typically starts where *Ki Tissa* starts – with counting.

Counting is an essential part of any civilization, and it is a way for us to understand ordinary aspects of our lives. Counting is something we all take for granted – one, two, three... it is a basic human skill. Yet, counting is actually a very abstract concept. When we count, we are creating a relationship between a word (one, two, three...) and some tangible thing. Children learn to count with their fingers and our entire decimal number system was adopted because we have ten fingers. We can count anything we can distinguish - people, days, half shekels, anything. We point to a thing and say one, and to the next thing, and say two, three, etc. Mathematics describes this relationship as a one-to-one map.

We can also transfer a count by building a one to one map between one object and another. This is what the census in *Ki Tissa* does, by using half shekels to count the Israelite men at Mt. Sinai. The first half shekel into the treasury is mapped to the first person counted, and on and on. By summing up all the half shekels collected, we would know the count of Israelites, using the one to one correspondence between numbers, shekels, and people. King Saul’s census is counted with shards of pottery and later, goats – again all one to one mappings or correspondences. Why not just count people? There are many reasons given for this, and is the topic of an entire *drash*. A collection of things that are counted – whether people, shekels, or numbers was called a set in elementary school, and it has a “count” of the items in it. When we compare two sets or groups of different things, if they have the same count, they are equal in size to each other.

The “count” of the counting numbers is infinity, because they go on forever, one number larger than another, forever. Infinity is their size, and any set of things that can be put into a one to one map with the counting numbers is considered the same size infinity, which we call a “countable infinity.”

In the 16th century, Galileo, made an amazing discovery about countable infinities that surprised him and disturbed many others. Galileo realized that the square of every number was a countable infinity, because it was in a one to one map with the counting numbers. Thus, 1 mapped to 1 squared (which is one), 2 mapped to 2 squared, or 3 to 9, and so on, counting as you go, indefinitely. So the squares of the counting numbers were a countable infinity. But, the set of squares was selected from the same counting numbers, by removing all the non-square numbers like 2, 3, 6, 7, 8, 10, etc. Even though it seemed that the squares were only a part or subset of the counting numbers, they were one to one mapped to the counting numbers, and were therefore a countable infinity of the same size. In fact, you could do the same thing with the even numbers, or the odds, and with the cubes, etc. This result was a paradox, and eventually, working with infinity and related topics led Galileo to the calculations of the Earth revolving around the Sun that got him imprisoned and excommunicated from the Church.

Not much more was done with infinity until the late 19th century when the brilliant mathematician, Georg Cantor, forever changed the world of mathematics. Born of Jewish but converted parents and married to someone of Jewish heritage, Cantor lived as a very religious Lutheran, but some believe that he actually identified as Jewish in private. Cantor’s concepts of infinity shocked mathematicians of his time and created substantial resistance to his views, which may have contributed to his recurring admissions to what were then called “insane asylums.” As he studied infinity, Cantor became convinced that mathematical infinity was as a bridge between finite humans and an infinite God that was represented by a higher order, unknowable infinity. He believed that it was his mission on Earth to convey this idea and bridge the divide between God and man.

Cantor first thought about the countable infinity that makes up the counting numbers. He wondered whether the fractions, which were made up by dividing one counting number by another were much

larger than that, because between any two counting numbers – say 1 and 2, there were an infinite number of fractions. Using a clever proof, he showed that all the fractions could be put in a one to one map with the counting numbers. Fractions were the same size infinity as the counting numbers and the squares of Galileo. And all the irrational roots, too, like the square root of two. All were countable infinities. Does that bend the mind a bit? Or maybe it is just a boring result, and consistent with your belief that, after all, “infinity is infinity.”

But that is where Cantor’s genius led him to his first startling observation that there was an uncountable infinity that was infinitely larger than all the countable infinities. This uncountable infinity was that of the transcendental numbers, like pi and e. You may remember transcendental numbers from high school; they were the ones whose decimal parts continued on forever, meandering without ever repeating and without ever coming to an end. Cantor proved that the transcendental numbers are uncountable – there is no way to put them into a one to one map with counting numbers like you can with even numbers and fractions. In fact, there are infinitely more transcendental numbers than there are counting numbers. If you randomly pick a number on the number line between 1 and 2, the probability that your number would be a whole number, fraction or root would literally be zero. There is a 100% probability that it would be a transcendental number. Cantor followed this up by showing something even more spectacular - he went on to show that there is an unending hierarchy of infinities, with each unfathomably larger than the last.

For me, reading about and contemplating this expanding, Russian Doll idea of infinity gives me goose bumps and a shiver on occasion, and perhaps a momentary glimpse into something beyond words and beyond human understanding. Perhaps a glimpse of the ein sof. Which brings us right back to Jewish thought, our parsha, and the contrast between the countable and the infinite.

In Kabbalah, God’s unknowable essence, the infinite or ein sof interacts with the s’firot, the ten knowable aspects of God’s being or activities in creating the physical and higher realms. Although we speak of the s’firot as “spheres”, radiances, or eminences, the term was originally taken from a text on

the nature of numbers and letters, Sefer Yetzirah, and is associated with numbering or counting. They include, in English, such things as wisdom, understanding, mercy, beauty, justice, and glory. Thus, the s'firot are the 10 countable and knowable aspects of God, similar in many ways to the 13 attributes of mercy in the parsha. Maimonides says that the 13 attributes aren't inherent qualities of God, but rather the methods of God's activity, similar to the s'firot. So, the two are overlapping and related, and are clearly countable aspects or definable actions of God. And, just as Kabbalah describes the hidden attributes of God as ein sof, the infinite, Moses experiences the divine presence on Har Sinai and in the Tent of Meeting as an encounter with the infinite, unknowable aspects of God. The contrast between the countable and the infinite, and between the ordinary and the divine is unmistakable, and I believe the parallel structure is intentional and apparent in the beginning and end of Ki Tissa, as it is in the Kabbalistic formulation.

May we all be blessed to know and experience God's attributes, and to have even the briefest glimpses of God's kavod in our lives, by whatever brings us closest to it. Shabbat Shalom.