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A blog about Missions and Integral Mission

Centered Sets vs Bounded Sets – 40 Years Later

Forty years ago, Dr. Paul G. Hiebert wrote an article called "Conversion, Culture, and Cognitive Categories" in *Gospel in Context* that introduced a pair of abstruse mathematical concepts from non-cantorian set theory to the world of missiology. These two concepts, the Bounded Set and the Centered Set, sparked a quiet revolution in missions as pastors, theologians, and missiologists confronted Hiebert's question. "Should Christianity be viewed as a bounded set or a centered set?"

Forty years later, it is worth trying to clarify and expand upon the discussion of bounded and centered sets that Dr. Hiebert so innovatively introduced. The concept of bounded and centered sets are amazing tools. As with all tools, they are good at some things, and bad at others. A hammer is great for pounding in nails and for tearing down walls. It is terrible for painting. We will start out by defining the terms, and then by looking at the strengths and weaknesses of each tool.

Bounded Set – A Cat is Not A Dog

" **A bounded set is a collection of all objects which possess the defining characteristic(s) which determine the membership of the set.**

A bounded set is a very easy concept to grasp. It is humanity's default conceptual grouping. "Dog" is a bounded set. Every object in the universe can be classified as either a dog or not a dog. Different people (and different ages of people) may classify things differently, but everyone has a conception in their head of what a dog is. There are some "defining characteristics". We do this every day in very complex ways. For example, a 3 legged dog is still a dog while a four legged fox or wolf is not. "Food" is a bounded set.

A bounded set is defined by its boundaries. The boundaries define what is in the set, and what is not in the set. This is simplest example to see is math. A set of numbers is bounded if it has a maximum and a minimum value, which make up the boundaries. The set of all numbers between 1 and 3 is a bounded set. Any number you can think of is either between 1 and 3, or it is not. That's a very simple boundary. Think of another set "friends". Take a moment to think of the people who are your friends. Could you write a list of characteristics that make those people and their relationship with you different from all other people who are not your friends? That is a much more complicated boundary!

There are a few important facts to notice about bounded sets. First, a bounded set *is defined by its boundaries and the position of an object with relation to those boundaries*. We will often use spatial / locational metaphors as we talk about membership in a bounded set. An object is either "in" or "out". It is very important to note that there are no objects that are both in or out. There is no gray area in a bounded set, nor is there partial credit. A cat is not "almost" a dog because they are both small, furry mammals, omnivores, and have four legs most of the time. A cat is never a dog.

Second, a bounded set is a *static* set. That's a corollary of being based on position. Locations change over time, but at any one moment, they are static. The bounded set "children living at home with their parents" is filled with the children who live at home right now. Children who moved out yestereday or who will move back tomorrow are not in the bounded set today.

Third, the friendship group earlier is a great example of the possible complexity of the defining characteristics of a bounded set. The characteristics are limited only by the ingenuity of the set's creator. Facebook advertising campaigns create bounded sets called marketing segments. A marketing segment for a Valentine's Day promotion might be based on gender, relationship status, profession, ethnicity, and religion.

That leads us to point 4, which is closely related to point 3. Regardless of how complex or simple the defining characteristics are, if the boundaries are unclear or ambiguous, the set becomes ill-defined and contentious. The classic example of the failed bounded set is the category called "race". How does one define "race"? By appearance? By heritage? How far back does one have to go? A bounded set *is defined by its boundaries*. If the boundaries aren't clear, neither is the set.

Finally, bounded sets *emphasize similarities and differences in essential characteristics*. They emphasize the differences between the "in" group and the "out" groups. Bounded sets also emphasize the similarities among the members of any group. This is very apparent when people talk about politics. "Oh, that person is a Conservative. All conservatives support that issue, I'm sure they do too." Or "That person is part of the Labor party. I don't understand how they can believe that. They are so different from us."

Bounded sets are great tools when the difference between in and out is clear and important. They are most powerful when the differences are *essential* or *ontological* differences. Differences that will never change over time. Bounded

sets are a great tool when the list of criteria for membership is clear and can be stated without ambiguity. But the bounded set does not function well when similarities between groups are important, when there is a lot of gray area, or when there are many unclear boundary cases. Bounded sets are also not dynamic. They are not the best tools to visualize change.

Centered Set – Trending Stories

" **A centered set is the collection of all objects moving towards a well-defined center.**

The centered set is also relatively easy to grasp. Spatial language makes an intuitive understanding simple. A bounded set is based on location. It is "in" or "out". A centered set is based on direction. Each person is either moving "towards" or "away". A bounded set is defined by its boundaries. A centered set *is defined by its center*. The centered set can be thought of as the inverse of the bounded set.

Forty years ago, Dr. Hiebert struggled to find examples of centered sets, but many are available today. YouTube's "trending videos" are a perfect example of a set centered on popularity. YouTube has an algorithm that decides which videos are growing more popular. A station with only a few thousand views can be trending up. More and more people are watching the video every day. On the other hand, a massively popular video with hundreds of millions of views may be trending down because less and less people are watching the video every day. That's the key difference between the bounded set and the centered set. The bounded set is based on location (e.g., videos with more than a 100 million views), but a centered set is based on direction (e.g., videos with 20% more views today than yesterday).

There are several key points to notice about the centered set. First, a centered set is *defined by its center and the direction of objects with relation to the center*. The center must be clearly defined, and its position is very important. But the location of the objects are irrelevant. An object may be 10 meters away from the center, or 10,000 kilometers. The only relevant factor is whether the object is moving towards the center. That implies that the direction of the object, in a conceptual sense, must be measurable. If we can't define the center and measure direction, then the centered set approach does not make sense. This is an easy task when we talk about videos trending towards popularity. It is much harder to do with "Christian orthodoxy" or "artistic perfection".

Third, the farther a person is from the center, the less precise the definition of the center and the measurement of their direction can be. If a person is in Spain, and the center of the set is the Apartheid Museum in South Africa, the exact address and the exact direction don't really matter. If the person is heading generally south, they are heading towards the center. However, if a person is already in Johannesburg, then they are going to need the address and the determination of their direction must be much more precise to be useful.

Finally, centered sets *emphasize similarities and differences in goals or destinations*. Where a bounded set emphasizes similarities and differences based on what something is like right now, a centered set emphasizes similarities and differences in what something will be like in the future. If "stable democracy" is a center, then it may be far more important to understand if a government is moving towards or away from stable democracy than trying to define precisely what a stable democracy is and list which governments are and are not members.

Centered sets are great tools when future changes are more important than current conditions . Centered sets are most powerful when characteristics are *mutable* or *non-ontological*. In other words, in situations where change can and will happen. Centered sets function well when the center is clear and

unambiguous, or when possible boundaries are unclear and ambiguous. The exact location of the border of Ukraine and Russia may be in doubt in some locations, but the capitals of Russia and Ukraine are not. The centered set does not function well with static categories (there is no change to see), or when group cohesion is very important. Black and white categories do not do well with centered sets.

The Next Step

Forty years ago, Hiebert offered the following words for our consideration.

"What does it mean to be a Christian? Before we can answer this question we must look more closely at our own thought patterns—at what we mean by the word "Christian." This word, like many other words, refers to a set of people or things that we think are alike in some manner or other. It refers to a category that exists in our minds. To be sure, God, looking at the hearts of people, knows who are his. It is he who one day will divide between the saved and the lost. But here on earth, we as humans pass judgments, we decide for ourselves who is a Christian, and, therefore, what it means to be a Christian. What criteria do we commonly use? Before we answer this question, we must ask an even more fundamental question: what kind of category are we going to use? … Ultimately the question of whether we should see the term "Christian" as a bounded or as a centered set must be decided on theological, not pragmatic principles. But this demands that we think through all of the basic theological terms and decide which of these should be viewed as bounded sets, and which as centered sets."

That is a significant challenge. In the next post, we will look at the conclusiosn that Hiebert drew and reexamine the implications of viewing Christianity as a bounded or centered set.

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