

Re: Formulating sentences in a possibly consistent ZF

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- *From:* herbzet <herbzet@xxxxxxxxx>
 - *Date:* Wed, 26 Nov 2008 02:22:56 -0500
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Nam Nguyen wrote:

herbzet wrote:

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Aatu Koskensisilta wrote:

[...]

Again, how sure are you about "entirely unproblematic"? For example, if we can't know which one of GC and cGC is arithmetically true, then we'd have to acknowledge that the notion about the naturals is *subjective*, since you might take them to contain the truth of GC, while I of cGC, right? And if arithmetic is subjective, then Godel's assertions such as "G(Q) is true" is consequently subjective as well.
Right?

You might be interested to know that Goldbach's weak conjecture, that every integer greater than 5 can be written as the sum of 3 primes, is known to have, at most, a finite number of exceptions.

See http://En.wikipedia.org/wiki/Vinogradov%27s_theorem#A_consequence

Of course, by "every integer greater than 5", it's meant to be

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"every *odd* integer greater than 5".

You are correct: That every odd number greater than 5 is the sum of three primes is the weak Goldbach conjecture, and Vinogradov showed there are at most a finite number of exceptions.

That every integer greater than 5 is the sum of three primes is a stronger conjecture, equivalent to saying that every even number greater than 2 is the sum of two primes, and is how Goldbach actually phrased his conjecture in a letter to Euler (modulo 18th century conventions).

Found out today (http://en.wikipedia.org/wiki/Goldbach%27s_weak_conjecture):

In 2002, Liu Ming-Chit and Wang Tian-Ze lowered [the upper bound] to approximately $n < e^{3100} \approx 2 * 10^{1346}$. If every single odd number less than 10^{1346} is shown to be the sum of three odd primes, the weak Goldbach conjecture will be effectively proved.

As such it seems make a huge difference on the nature of difficulties between GC and wGC (the weak GC mentioned above).

Yes, it's a weaker conjecture.

If we recall, an even number *could be purely defined* by a non-inductive multiplicative way (as a product of primes one of which must be the smallest prime). On the other hand, we can't define odd numbers in the same manner!

An odd number is a number that doesn't have 2 as a factor.

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hz
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