

Re: Relative Cardinality

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- *From:* mueckenh@xxxxxxxxxxxxxxxxxxxx
 - *Date:* 3 Jul 2005 08:20:24 -0700
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David Kastrup wrote:

> mueckenh@xxxxxxxxxxxxxxxxxxxx writes:
>
>> Relative Cardinality
>>
>> Given two finite or infinite sets A and B with elements $a \in A$ and $b \in B$. The union of these sets does exist. If the elements can be put into an order $<$ (not necessarily a well-order) such that in this order
>> 1) there are all elements $a \in A$ and $b \in B$
>> 2) there are never two elements $b, b' \in B$ without an element $a \in A$ between them with respect to $<$
>> then the cardinality $\text{Card}(B)$ of B is not larger than the cardinality $\text{Card}(A)$ of A:
>> $\text{Card}(B) \leq \text{Card}(A)$.
>
> So $\text{Card}(\{1,3\}) \leq \text{Card}(\{2\})$.
> And $\text{card}(\{1\}) \leq \text{Card}(\{\})$.
>
> Great. Do you even check your ideas with trivial examples?

Of course, by posting them here. Someone will certainly find the error if there is one. I did not check the finite case, because it is not so interesting. I have to correct my theorem:

Given two finite or infinite sets A and B with elements $a \in A$ and $b \in B$. The union of these sets does exist. If the elements can be put into an order $<$ (not necessarily a well-order) such that in this order
1) there are all elements $a \in A$ and $b \in B$
2) there are never two elements $b, b' \in B$ without an element $a \in A$ between them with respect to $<$ then the cardinality $\text{Card}(B)$ of B is at most by one larger than the cardinality $\text{Card}(A)$ of A: $\text{Card}(B) \leq \text{Card}(A) + 1$.

> Apart from that, cardinality of a set is a property of the number of elements, and not of their values. So orderedness is not fundamental to cardinality.

Re: Relative Cardinality

Of course order is not fundamental, but if an order can be established, then my definition is a sharp criterion to determine whether other criteria are meaningful.

> Bijections are

leading to false results and, therefore, they are worthless.

Regards, WM

- *Follow-Ups:*

- ◆ *Re: Relative Cardinality*

- ◇ *From:* Virgil

- ◆ *Re: Relative Cardinality*

- ◇ *From:* David Kastrup

- *References:*

- ◆ *Re: Relative Cardinality*

- ◇ *From:* David Kastrup

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