

## Re: Orthography supporting sound changes?

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*Source:* <http://sci.tech--archive.net/Archive/sci.lang/2006-01/msg01280.html>

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- *From:* "Seán O'Leathlóbhair" <jwlawler@xxxxxxxx>
  - *Date:* 12 Jan 2006 12:07:04 -0800
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Brian M. Scott wrote:

> On 12 Jan 2006 04:40:54 -0800, Seán O'Leathlóbhair  
> <jwlawler@xxxxxxxx> wrote in  
> <[news:1137069654.532020.152110@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:1137069654.532020.152110@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx)>  
> in sci.lang:  
>  
>> Brian M. Scott wrote:  
>  
>>> On 12 Jan 2006 02:25:27 -0800, Seán O'Leathlóbhair  
>>> <jwlawler@xxxxxxxx> wrote in  
>>> <[news:1137061526.982634.167620@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:1137061526.982634.167620@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx)>  
>>> in sci.lang:  
>  
> [...]  
>  
>>>> Also, it is hard to draw a clear line between maths and  
>>>> physics.  
>  
>>> Actually, it isn't. The separation is very clear, despite  
>>> the fact that much mathematics was inspired by physical  
>>> questions and, conversely, much mathematics is used in  
>>> physics. The existence of non-Euclidean geometries, for  
>>> instance, is a purely mathematical result; that some of them  
>>> are useful in describing the spacetime in which we exist is  
>>> a matter for physicists.  
>  
>> Non-Euclidean geometries have as much chance of being  
>> "real" as Euclidean ones. They are both, at times,  
>> useful models of real things. How real either is, is a  
>> difficult philosophical question.  
>  
> But I'm not talking about 'real'. They exist in the usual  
> mathematical sense, independent of any possible application  
> as models of reality.

So why did you introduce non-Euclidean geometry? I presumed that as a contrast with "real" Euclidean geometry. If it is just an example of maths that was not inspired by physics then it has plenty of company. Uncountable cardinal numbers are an example of something far more

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abstract. It is hard to imagine physicists making use of them but I guess that it is not impossible. Often enough, maths that was once thought to be so pure that it would never have an application, has later turned out to be useful. Number theory is a good example of that, once it was as pure as it gets and now it is used for internet security.

> [...]

>

>

> >>> Physics is surely the archetypal science. How about  
> >>> statements such as "You cannot travel faster than light"?

>

> >>> OK, a physicist's "cannot happen" is a bit weaker than a  
> >>> mathematician's but it is still a strong statement.

>

> >> It isn't the same kind of statement at all. The  
> >> mathematician's 'cannot happen' refers to a logical  
> >> impossibility within a well-defined abstract system. The  
> >> physicist's 'cannot happen' by no means has the force of a  
> >> logical impossibility.

>

> > The physicist's statement is nonetheless a strong  
> > statement and if a physicist said: "X cannot happen . .  
> > .", I would expect him to be prepared to justify his  
> > assertion. That is what I see as common between the  
> > mathematician's "cannot happen" and the physicist's  
> > "cannot happen".

>

> Strength is not the point. The point is that the two have  
> completely different logical status. And the expectation  
> that the speaker be prepared to justify the claim seems to  
> me wholly irrelevant.

The strength is my point. The only reason I introduced this topic was to explain that in some disciplines, justification is likely to be expected for statements such as "cannot happen" and "does not happen". It was not intended to spark a discussion of the status of maths, interesting though that may be.

> > Of course, the justification is likely to take a different  
> > form but the justification of "cannot exceed the speed of  
> > light" is more mathematical than experimental.

>

> 'In a universe in which conditions  $C_1, \dots, C_n$  are true,  
> one cannot exceed the speed of light' can probably be cast  
> as a mathematical result; 'one cannot exceed the speed of  
> light' is in no sense a mathematical result.

>

> Brian

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So why do physicists say that we cannot exceed the speed of light? Have they tested it in fast spaceships? I see it that observations suggested a model (special relativity), mathematical analysis of the model made many predictions including the speed limit, some of these predictions were tested and the results were in good concordance with the theory, hence the belief in the other not yet tested predictions. Maths did not justify the belief in the speed limit by itself but it was an essential component of the justification. Similarly, but longer ago, maths was essential to the development of Newton's theory of gravity. Was Newton a mathematician or a physicist? He was both. Was his calculus maths or physics? It is taught in maths today but where would modern physics be without it?

I am happy to continue this discussion but it does seem to have strayed way out of the realm of sci.lang. Which reminds me to ask, why is the newsgroup for maths SCI.math? It should be sci.maths (joke).

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Seán O'Leathlóbhair

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### • *Follow-Ups:*

- ◆ **Re: Orthography supporting sound changes?**  
◇ *From:* Brian M. Scott

### • *References:*

- ◆ **Orthography supporting sound changes?**  
◇ *From:* Joachim Pense
- ◆ **Re: Orthography supporting sound changes?**  
◇ *From:* Helmut Richter
- ◆ **Re: Orthography supporting sound changes?**  
◇ *From:* Peter T. Daniels
- ◆ **Re: Orthography supporting sound changes?**  
◇ *From:* Aidan Kehoe
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- ◆ **Re: Orthography supporting sound changes?**  
◇ From: Seán O'Leathlóbhair
- ◆ **Re: Orthography supporting sound changes?**  
◇ From: Colin Fine
- ◆ **Re: Orthography supporting sound changes?**  
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