

Why $f:\text{domain}\rightarrow\text{codomain}$ instead of $f:\text{domain}\rightarrow\text{range}$?

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 - *Date:* Mon, 30 Jan 2006 15:29:08 +0000 (UTC)
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I never understood why the notation

$f:X\rightarrow Y$

instead of

$f:X\rightarrow f(X)$

In other words, I don't understand the utility of the notion of a codomain. Why not make the definition of "function" be so that every function is surjective? I'm sure there are very good reasons for this, but I don't see them.

The only explanation I can think of is that there are often times when it is much easier to describe a function's codomain than than its range. Is this it? Or are there more fundamental reasons behind this practice?

I suspect the answer has to do with category theory (or its antecedents), but this is a wild, ignorant guess.

Does anyone know who generally gets the credit (fairly or not) for realizing that the codomain was more suitable than the range in the definition of concept of a function?

Pardon my rambling.

Any clues would be appreciated.

kj

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NOTE: In my address everything before the first period is backwards; and the last period, and everything after it, should be discarded.

- *Follow-Ups:*

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- ◇ *From:* Marc Olschok

- ◆ *Re: Why $f:\text{domain}\rightarrow\text{codomain}$ instead of $f:\text{domain}\rightarrow\text{range}$?*

- ◇ *From:* Kees

- ◆ *Re: Why $f:\text{domain}\rightarrow\text{codomain}$ instead of $f:\text{domain}\rightarrow\text{range}$?*

- ◇ *From:* G. A. Edgar

- ◆ *Re: Why $f:\text{domain}\rightarrow\text{codomain}$ instead of $f:\text{domain}\rightarrow\text{range}$?*

- ◇ *From:* Robert Low

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