

20-Some-advice-regarding- dimension

My advice regarding the 4th principle

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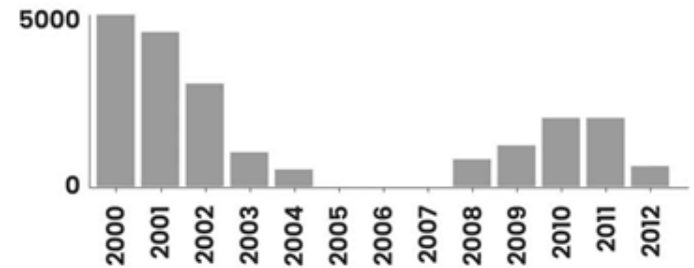
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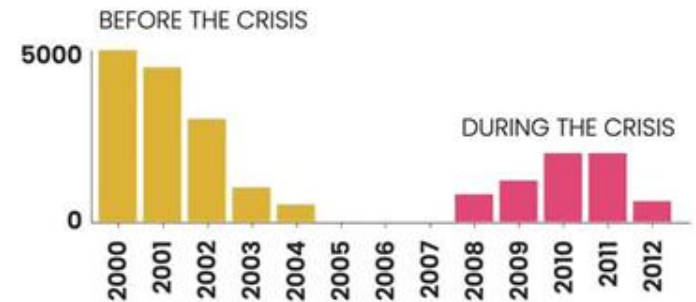
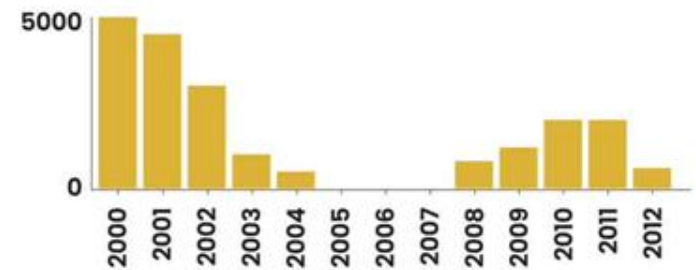
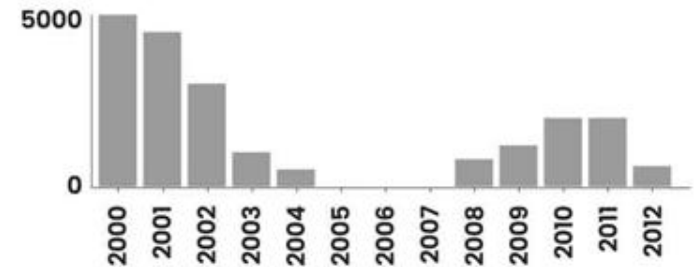
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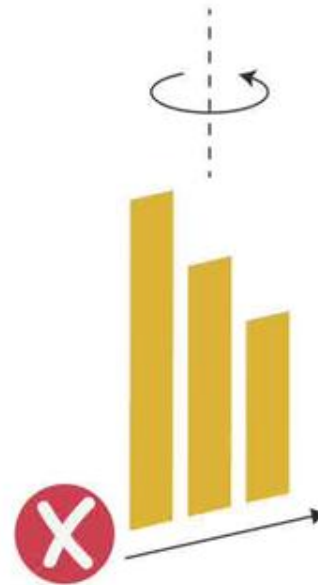
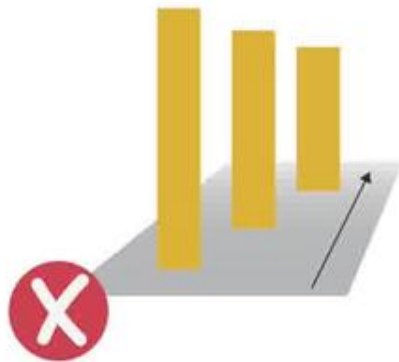
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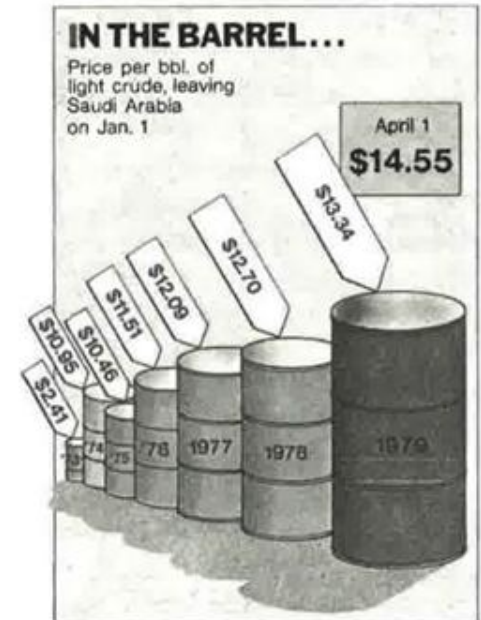
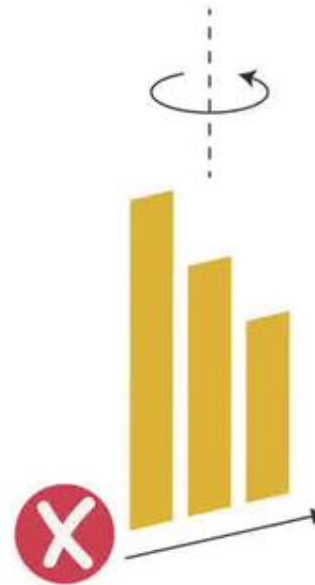
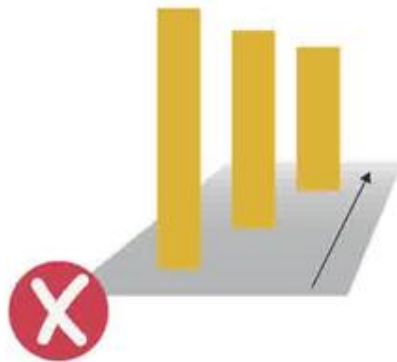
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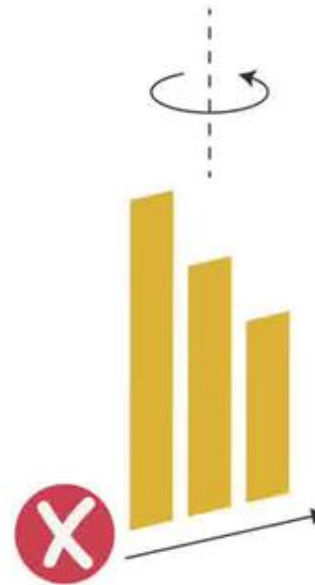
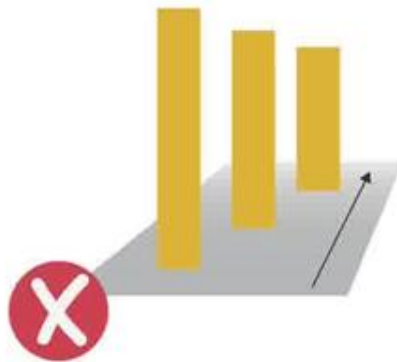
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SOURCE: THE VISUAL DISPLAY OF QUANTITATIVE INFORMATION, E. TUFTE

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NAILED IT

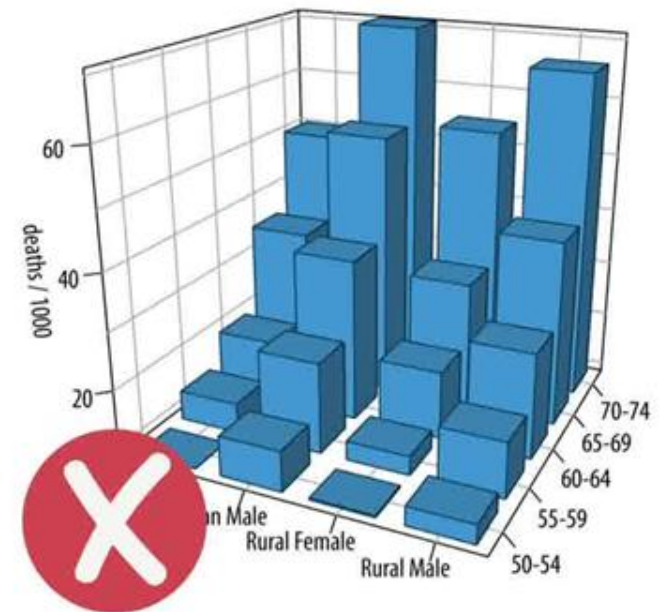
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- Don't use more dimensions than those you need. The more dimensions, the more difficult it is to interpret. **Every dimension has to be there for a reason.**
- Don't use extra color unless it means something.
- Don't use weird perspectives.
- In general, stay away from 3-D plots.

Actually...

Never ever use 3-D plots unless strictly necessary, that is, upon reasoned justification and under certain circumstances

(Data Visualization Course Law 1)



Okay, so you want to draw a 3-D plot.

Let me ask you some questions first...

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Do you think you really need it?

No, I just think it looks nice

Do you think you really need it?

No, I just think it looks nice

Yes

Forget it, most 3D plots don't look nice

Do you have more than 2 dimensions in your data?



Do you have more than 2 dimensions in your data?

No, actually not.




```
graph TD; A[ ] --> B[Do you have more than 2 dimensions in your data?]; B --> C((No, actually not.)); C --> D[Then you don't need a 3D plot!];
```


Do you have more than 2 dimensions in your data?

No, actually not.

Then you don't need a 3D plot!



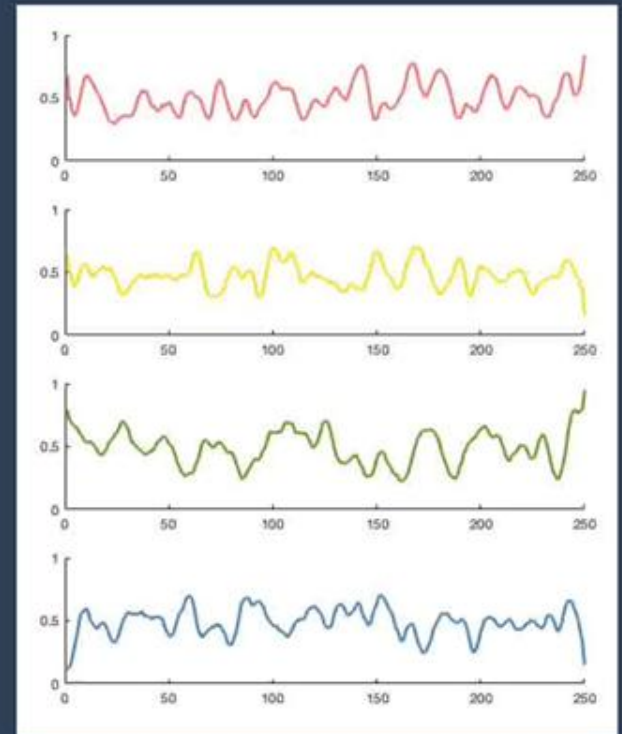
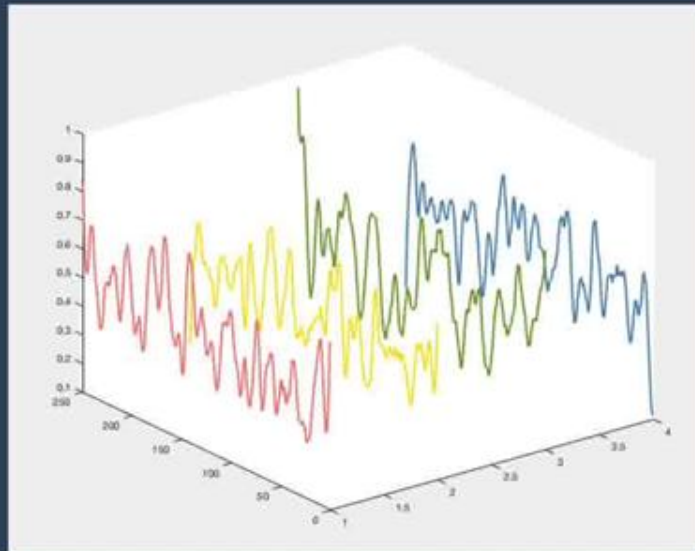
**Do you really have three dimensions?
Are you sure it's not two dimensions and multiple instances?**



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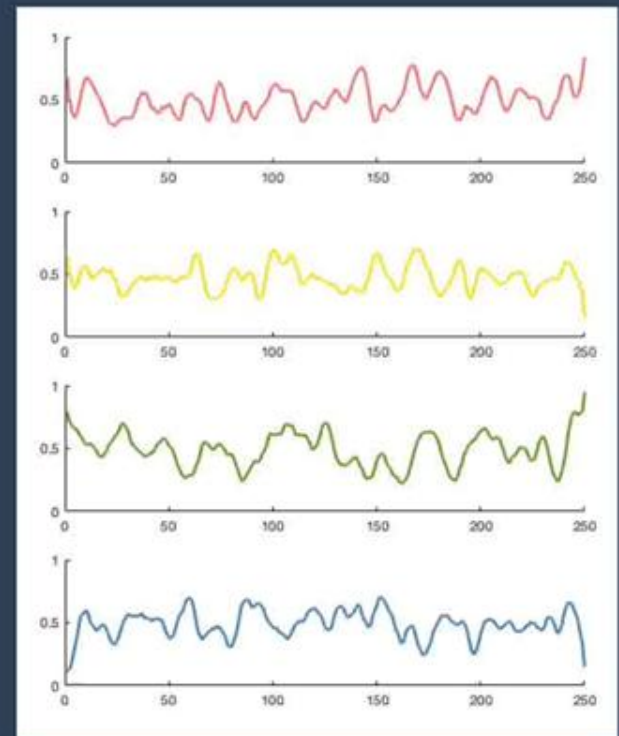
No



Do you really have three dimensions?
Are you sure it's not two dimensions and multiple instances?

No

Then you should do multiple 2D plots



**Do you really have three dimensions?
Are you sure it's not two dimensions and multiple instances?**

No

Yes

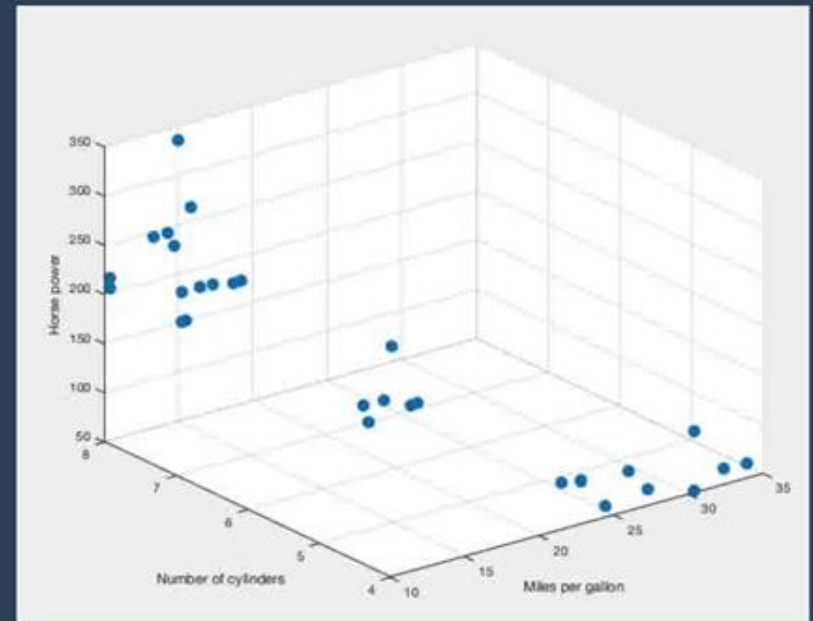
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**Is it really important to show the relation between the three
(or more) variables you want to plot?
Or do you just want to save space?**

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No, I don't care about the relationship



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graph TD; A[Is it really important to show the relation between the three (or more) variables you want to plot? Or do you just want to save space?]; B((No, I don't care about the relationship)); C[Then you should separate the plots. One plot = one message.]; A --> B; B --> C;
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One plot = one message.

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that does not require 3D?**



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No,

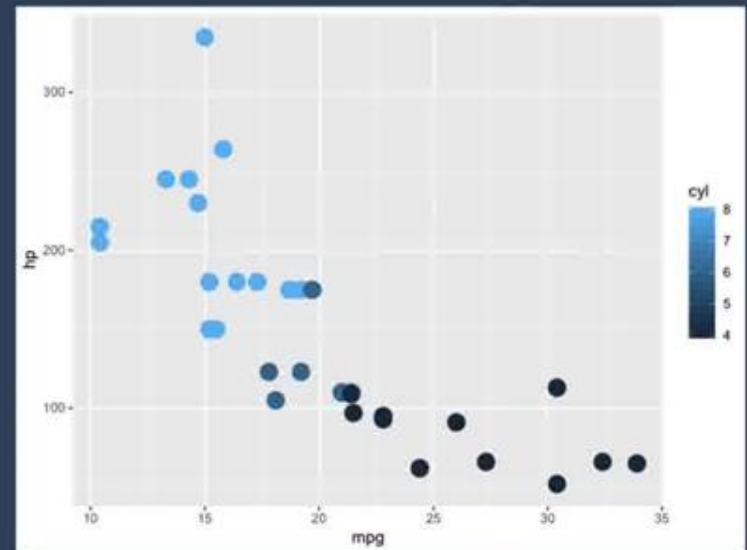
**I'm not sure.
I have not thought about it.**

Are you sure there is no other way to represent this data, that does not require 3D?

No,

I'm not sure.
I have not thought about it.

You should consider mapping your 3rd variable to color, shape, area...



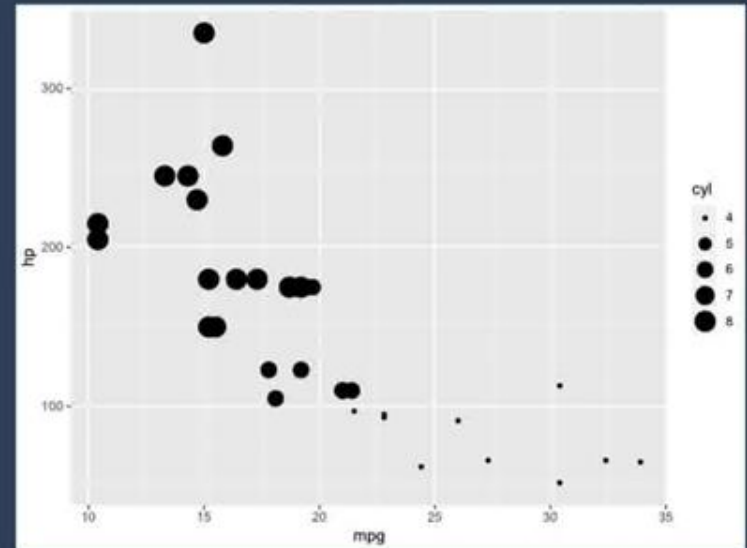
3rd variable mapped to color

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3rd variable mapped to area

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Or do you have to spend 10 minutes trying to decode it?**



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See? This is why nobody likes 3D plots,
they are very hard to understand.
Please, go draw several 2D plots.

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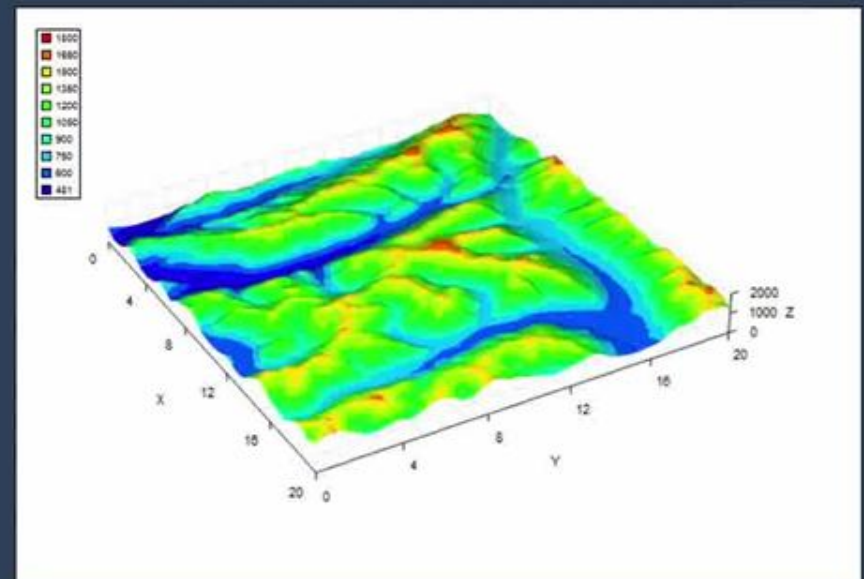
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A plot that naturally "lives" in 3D



If you answered "Yes" to all the previous questions...



**Congratulations! You're lucky!
Go and draw your 3-D plot.**

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Otherwise...

