

Highlighting

What Is Highlighting?

- Brushing special color
(Becker & Cleveland, 1987)
- A visual link across multiple views
(Seo & Shneiderman, 2004)
- Used in dynamic motion/interactive vis
(Ware & Borrow, 2004)

What Is Highlighting?

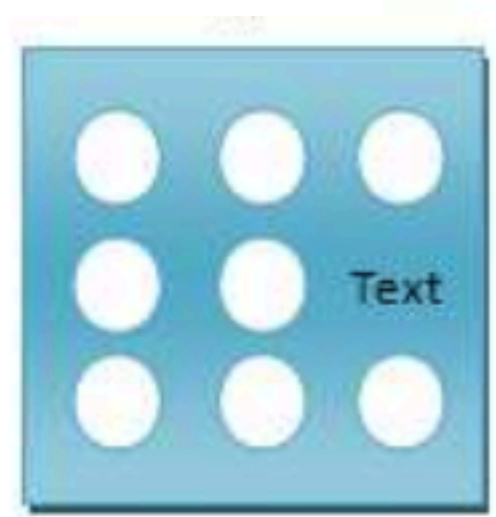
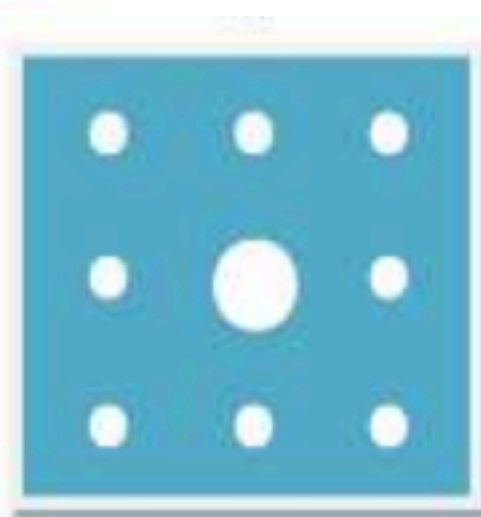
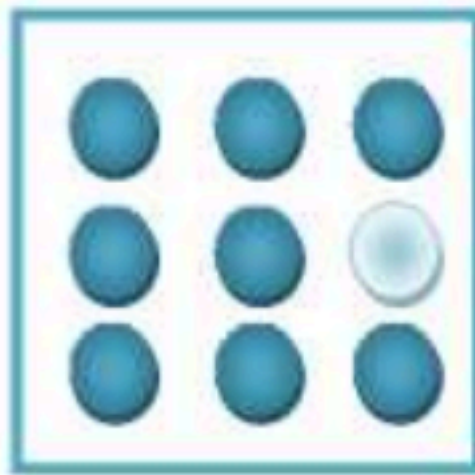
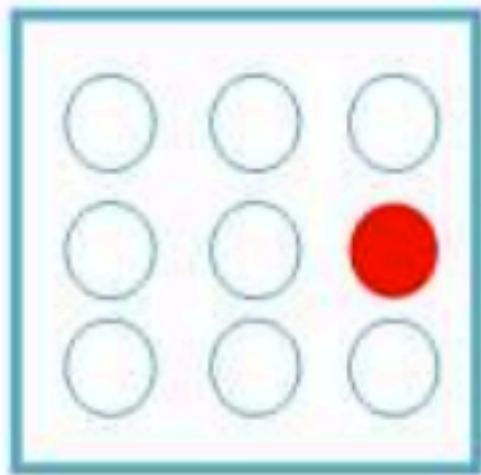
- Attract viewer's attention within
- For interactive vis, navigation control to reach a target
- For visual analytics, part of an AI process making graphical recommendations for decision-making

(Liang & Huang, 2010)

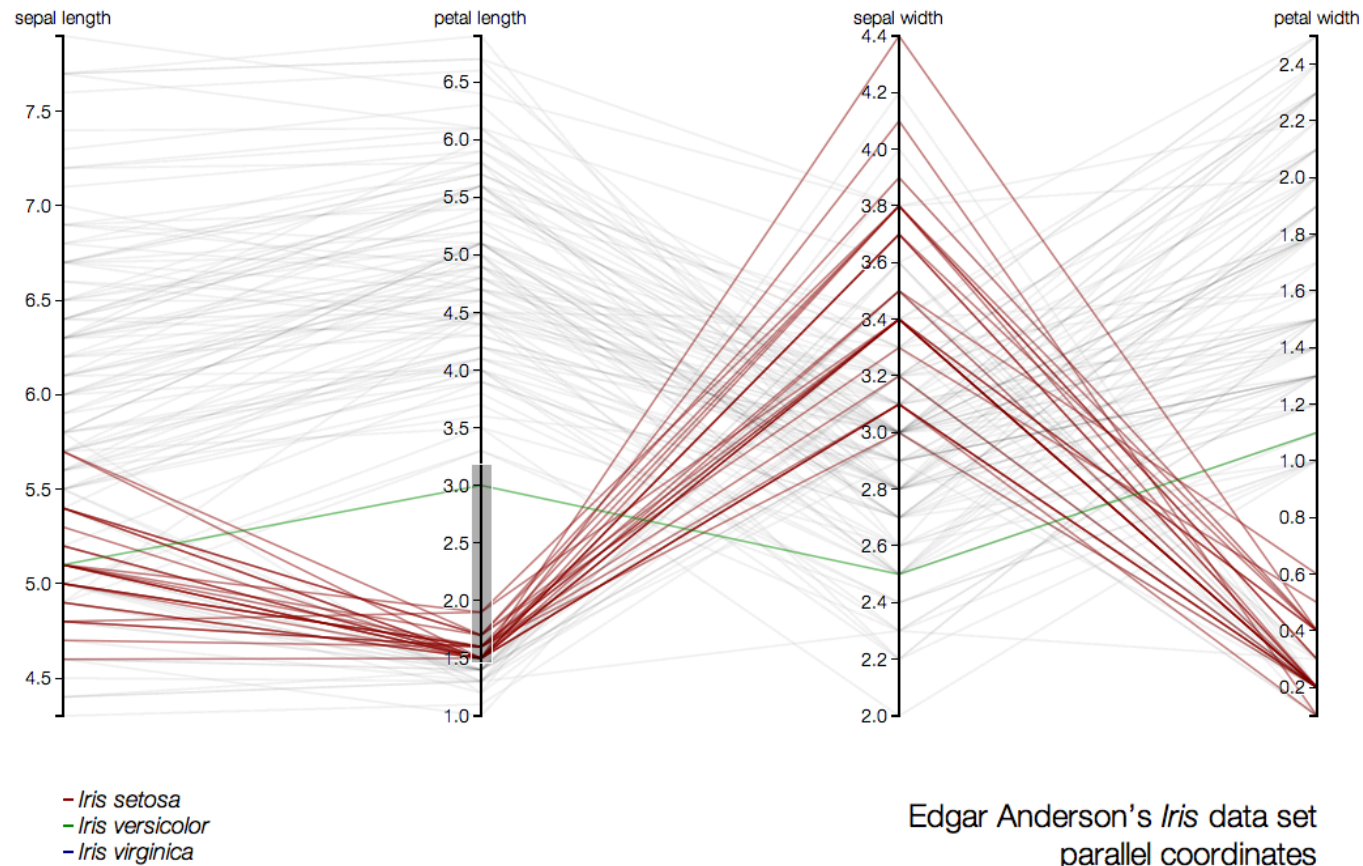
What Is Highlighting?

- Attract viewer's attention within a view
- For interactive vis, navigation control to reach a target
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(Liang & Huang, 2010)



Liang, J., & Huang, M. L. (2010, July). Highlighting in information visualization: A survey. In *Information Visualisation (IV)*, 2010 14th International Conference (pp. 79-85). IEEE.

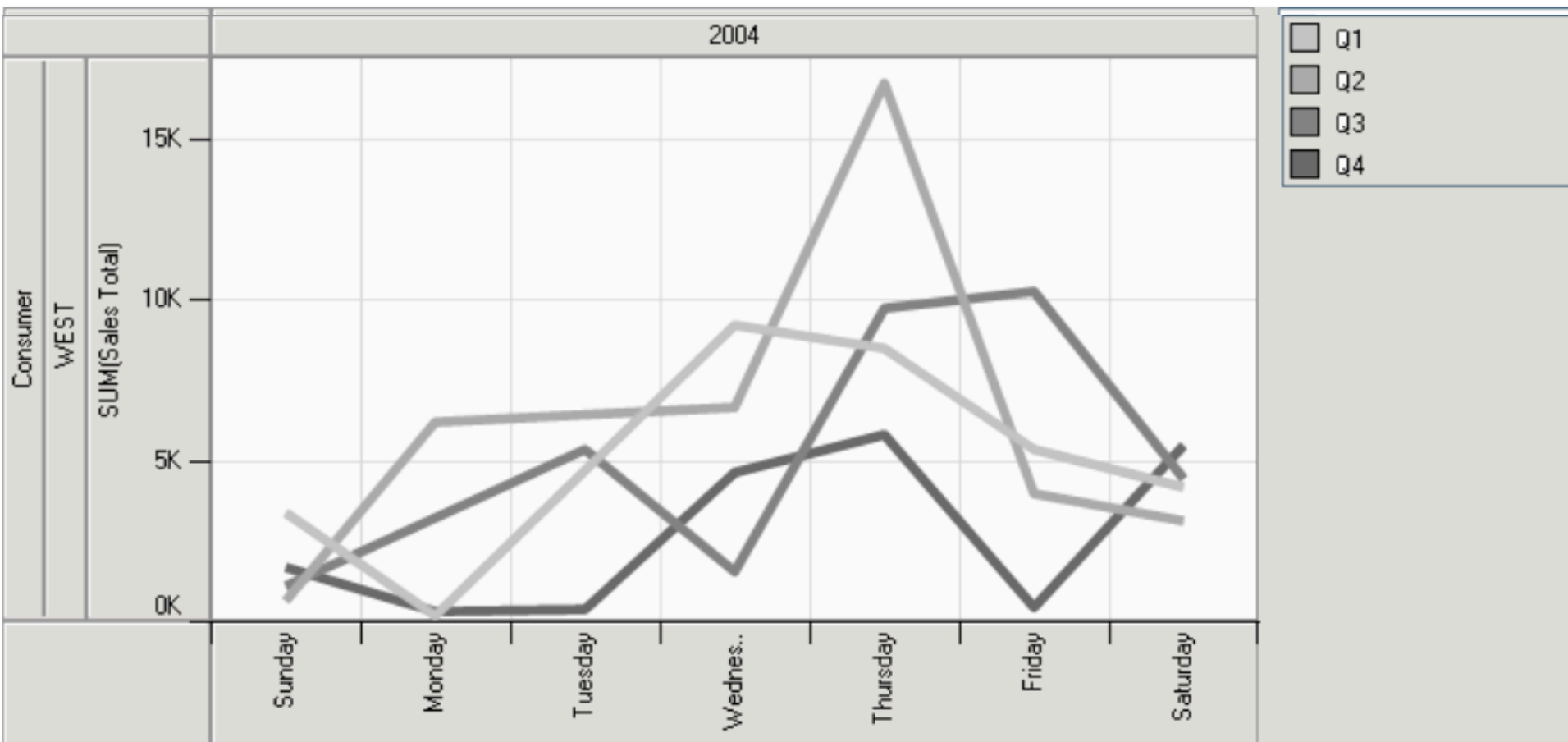


Use a graphical dimension not used elsewhere in the design

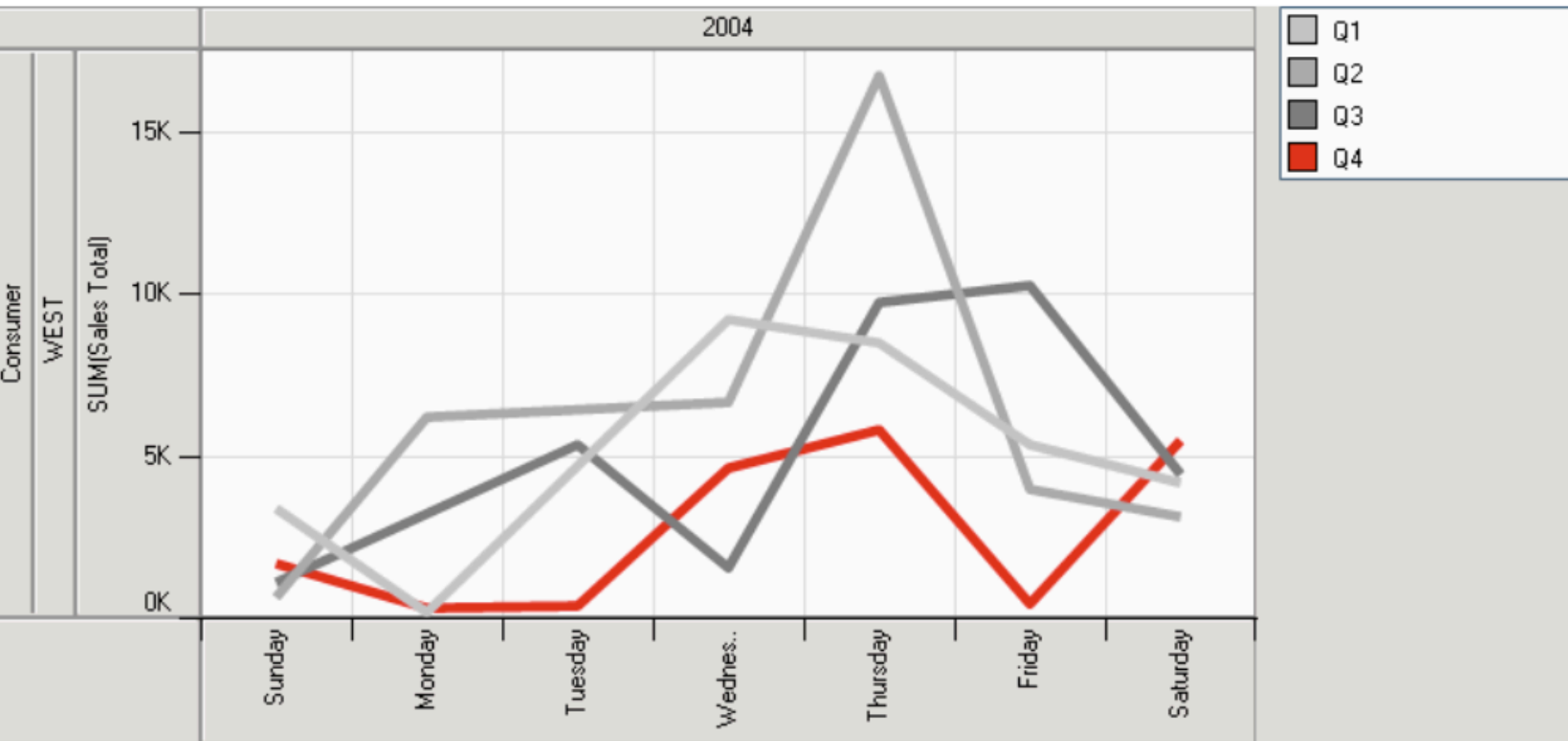
(Ware, 2013)

Behold, the power of gray.

Behold, the power of **gray**.



Source: Stone, M. (2006). Choosing colors for data visualization. *Business Intelligence Network*, 2.



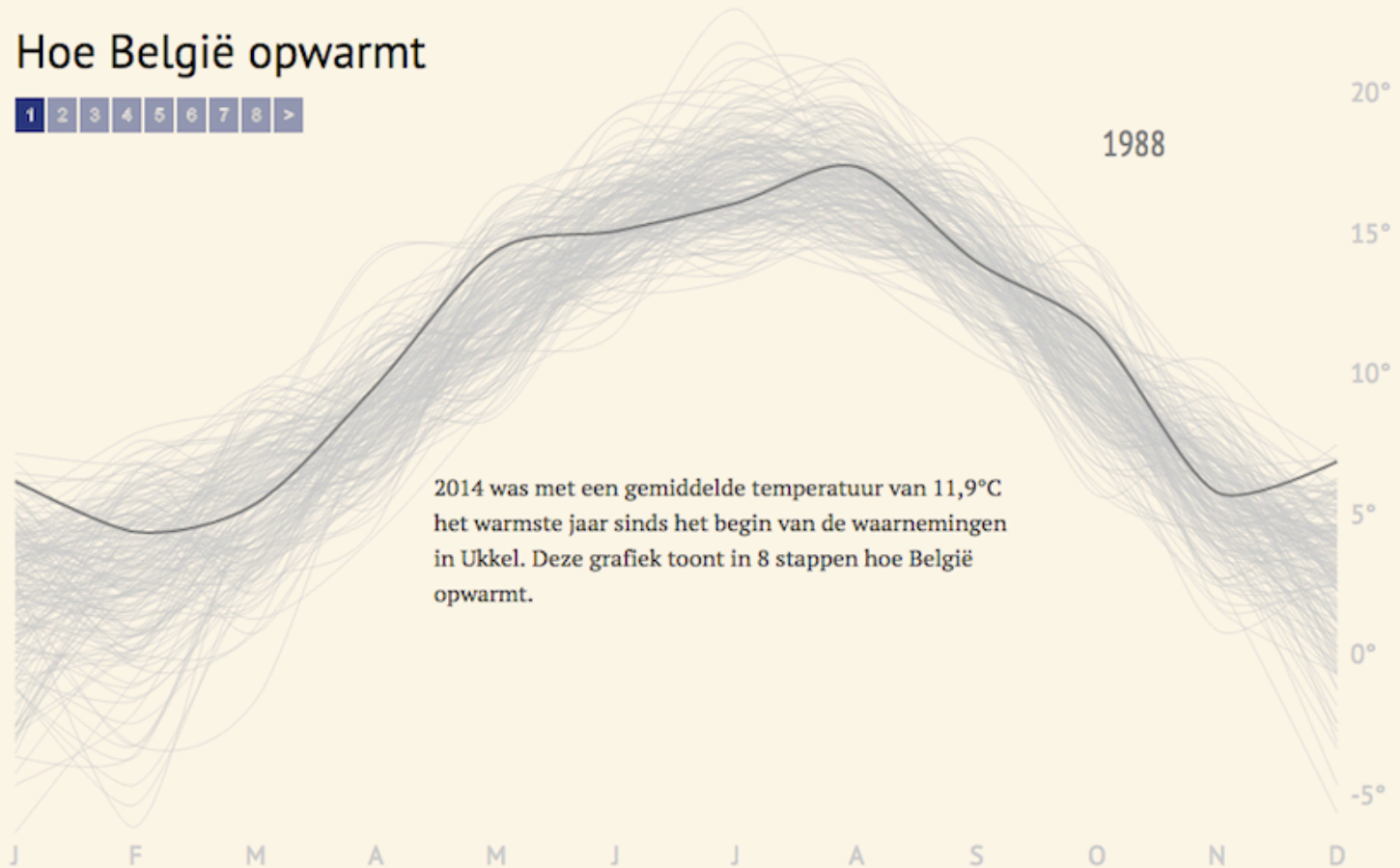
Source: Stone, M. (2006). Choosing colors for data visualization. *Business Intelligence Network*, 2.

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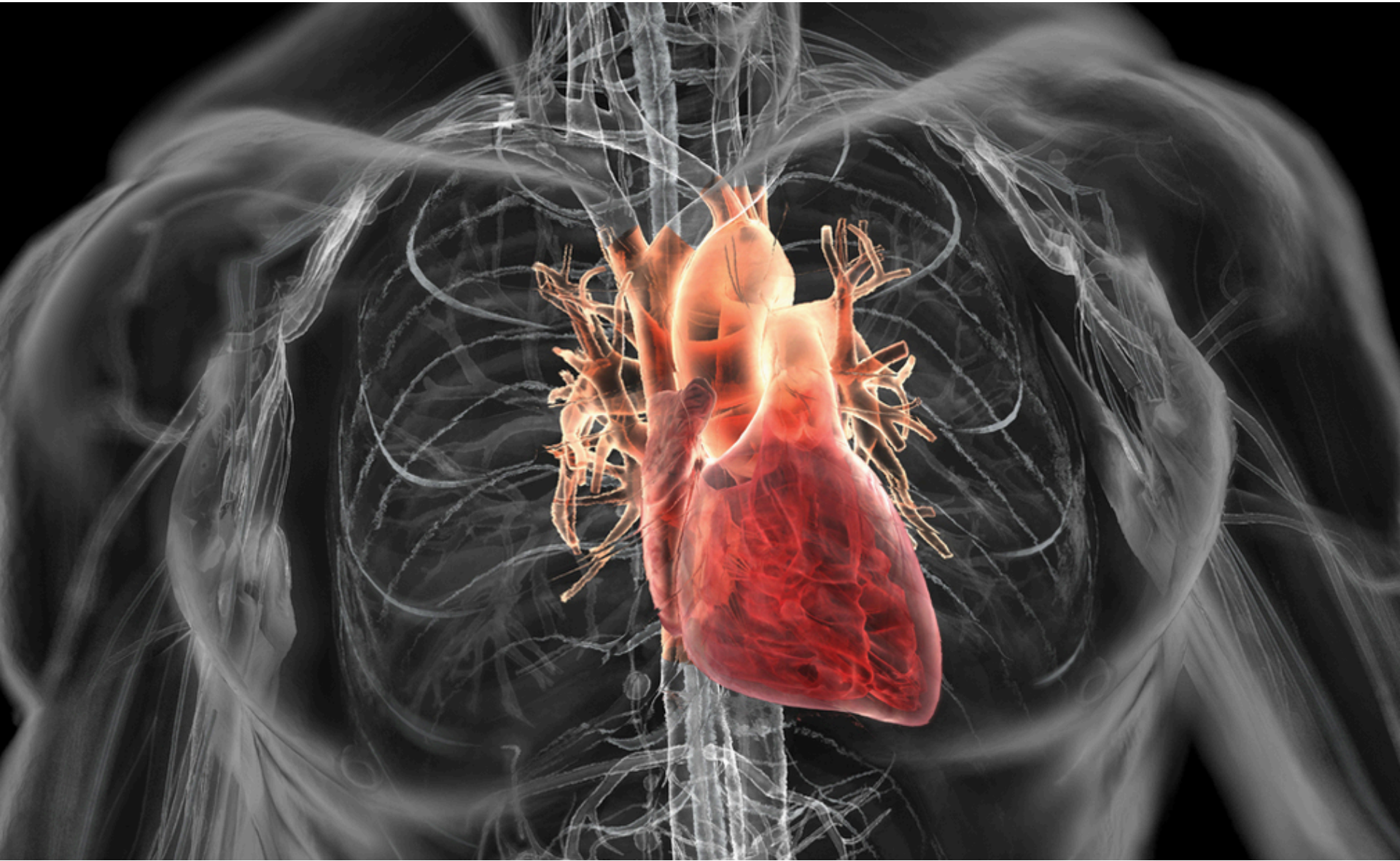
Hoe België opwarmt

1 2 3 4 5 6 7 8 >

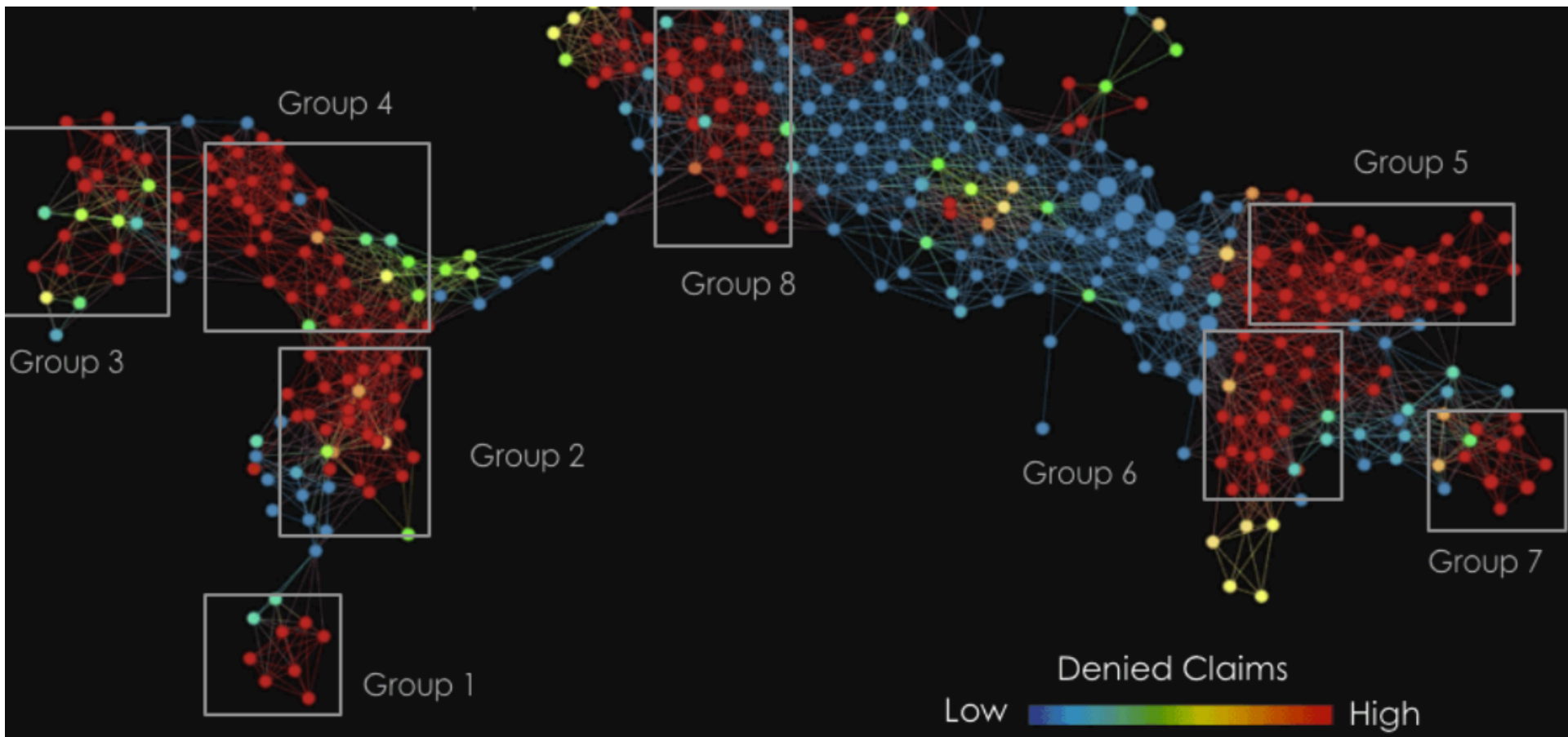


Data: KMI - Concept & design: Maarten Lambrechts

<http://multimedia.tijd.be/warm/>



Source: <http://bryanchristiedesign.com/heart-in-figure>



<https://www.ayasdi.com/platform/>

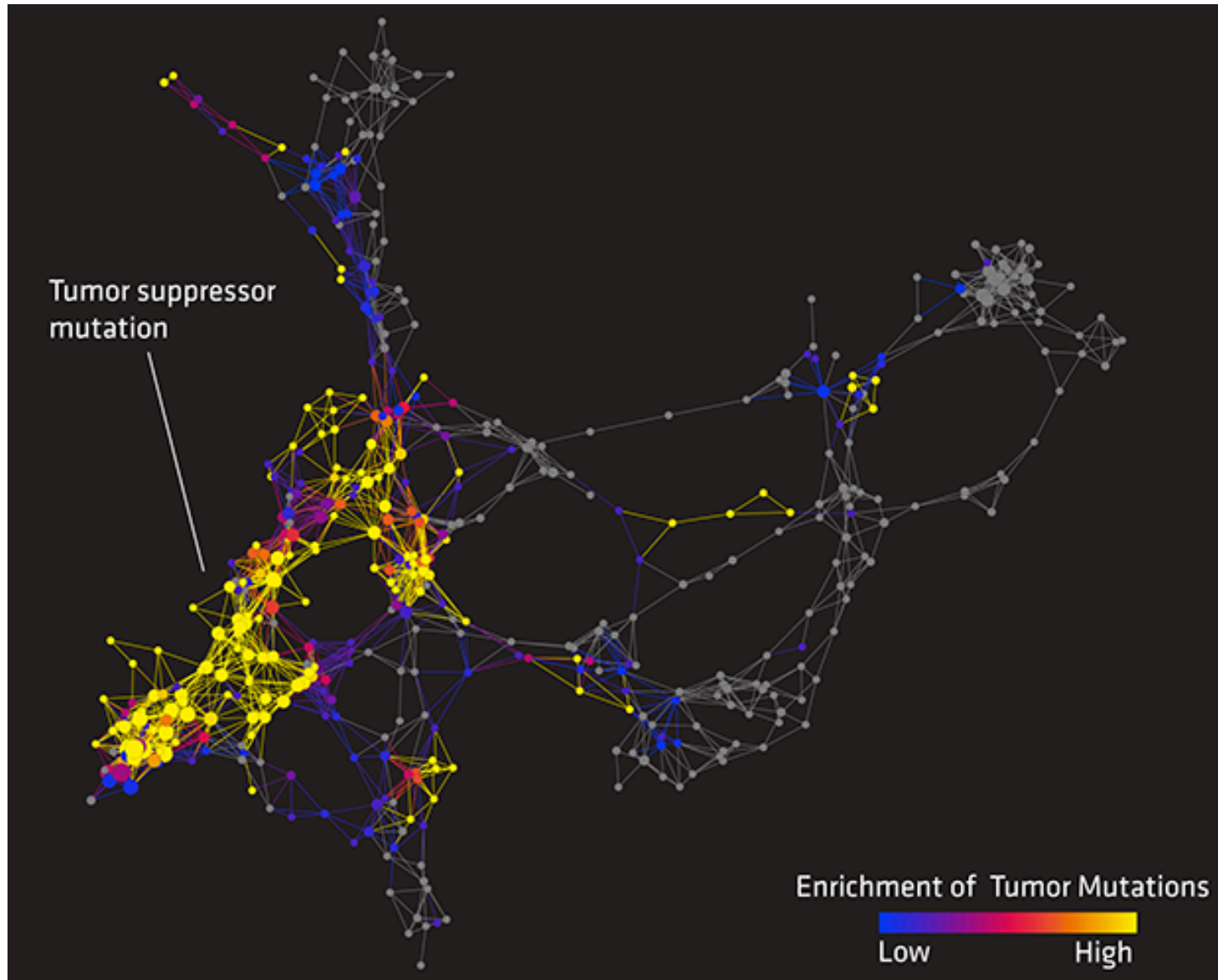
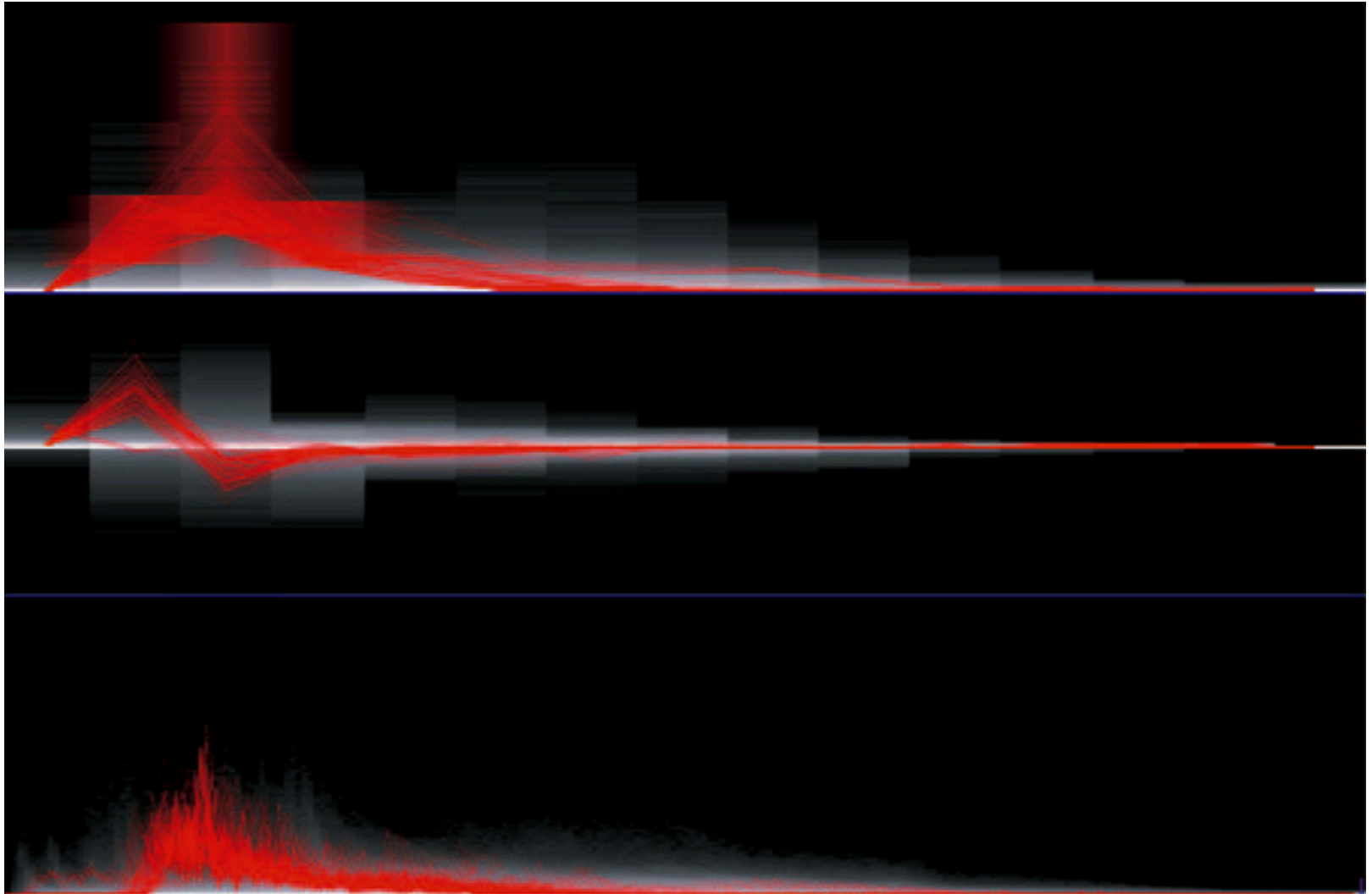
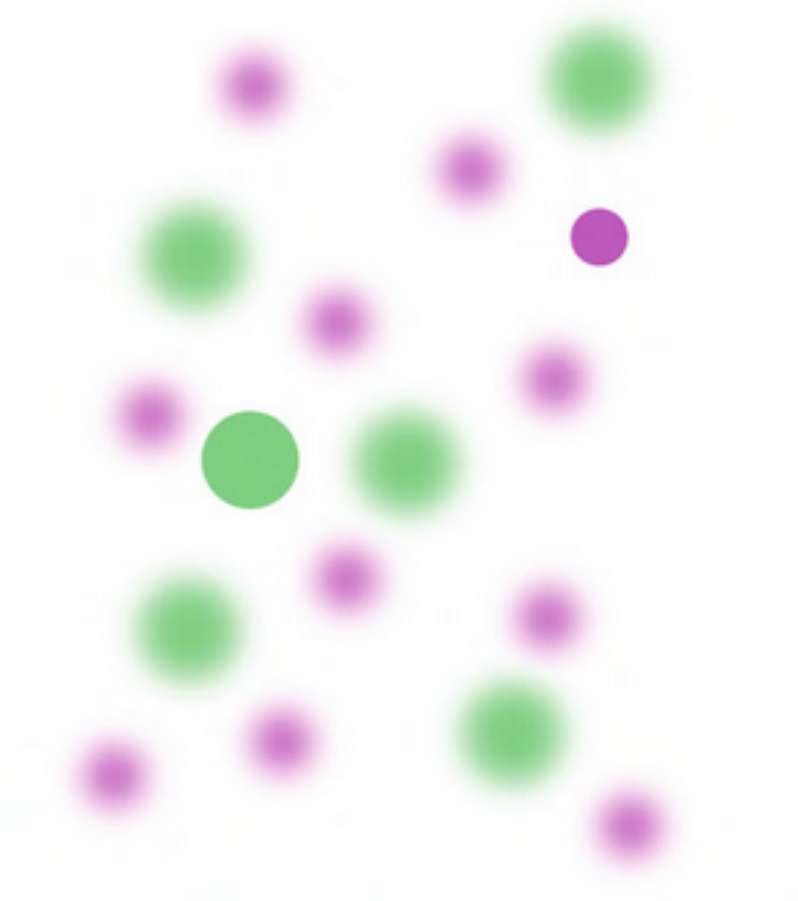


Image Source: <https://gigaom.com/2013/05/13/visualization-is-the-future-6-startups-re-imagining-how-we-consume-data/>



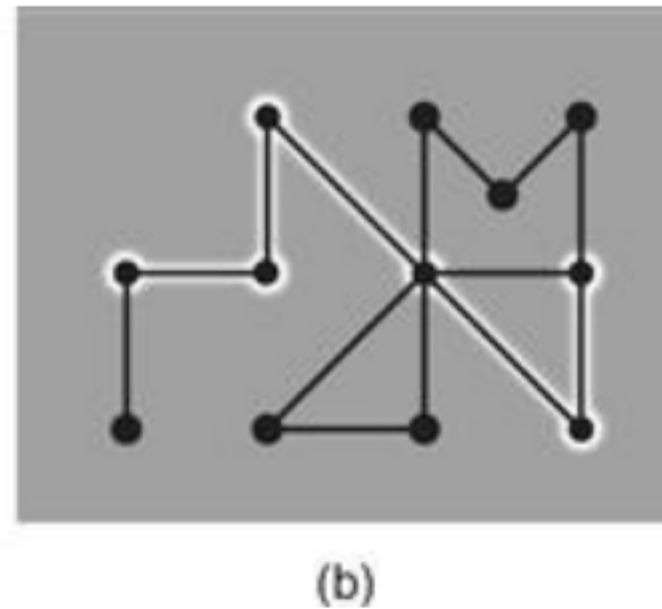
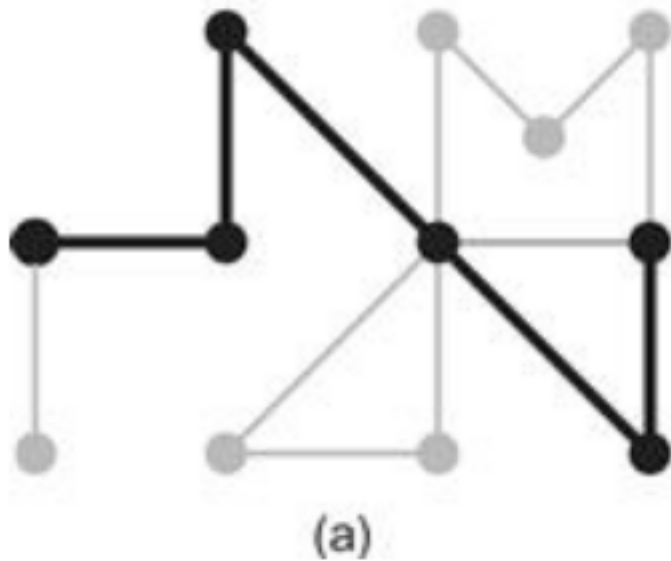
Woodring, J., & Shen, H. W. (2009). Multiscale time activity data exploration via temporal clustering visualization spreadsheet. *IEEE Transactions on Visualization and Computer Graphics*, 15(1), 123-137

Blur



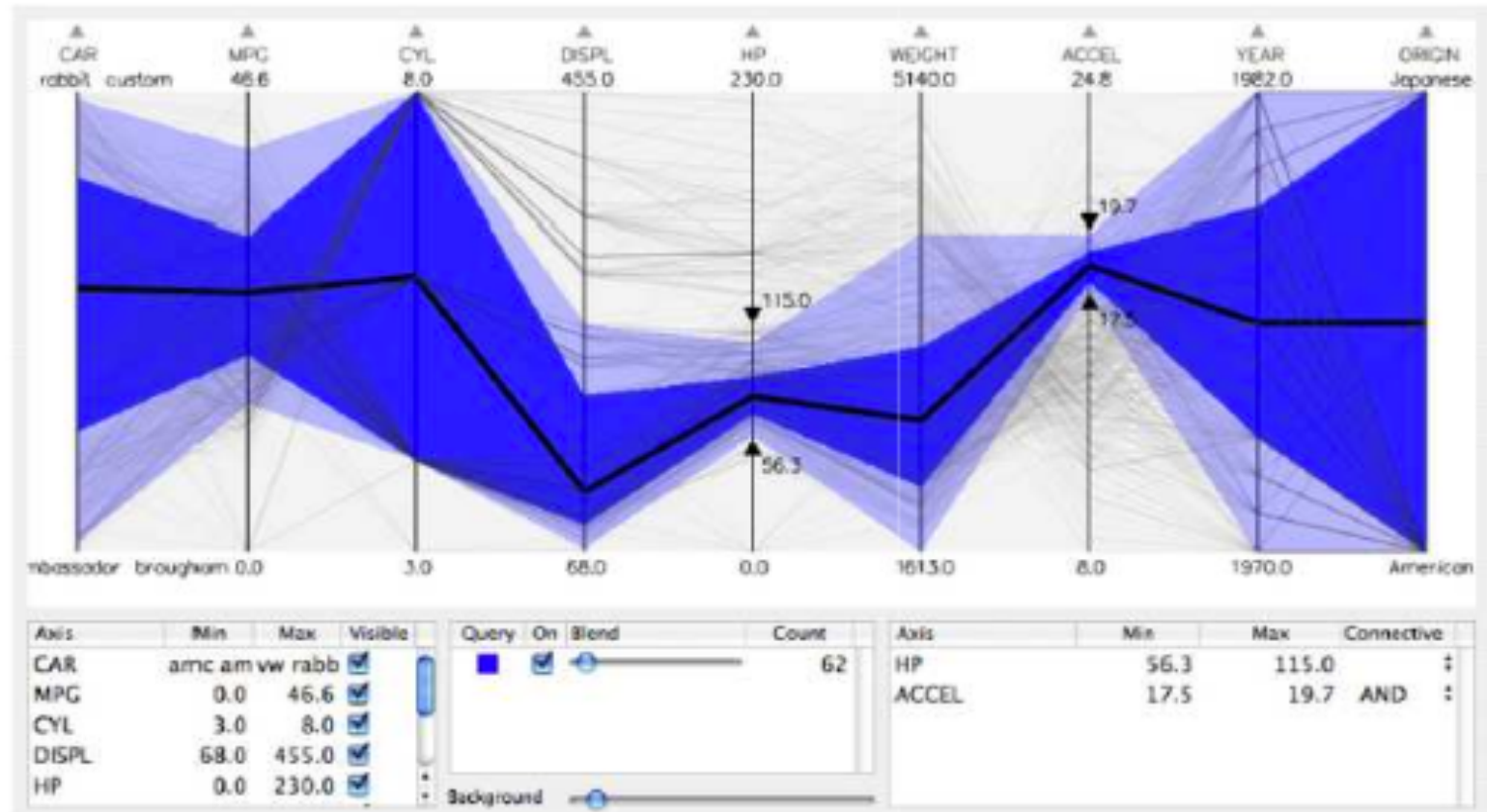
Source: Ware, C. (2013). *Information visualization, perception for design*.

“Haloing”



Source: Ware, C. (2013). *Information visualization, perception for design*.

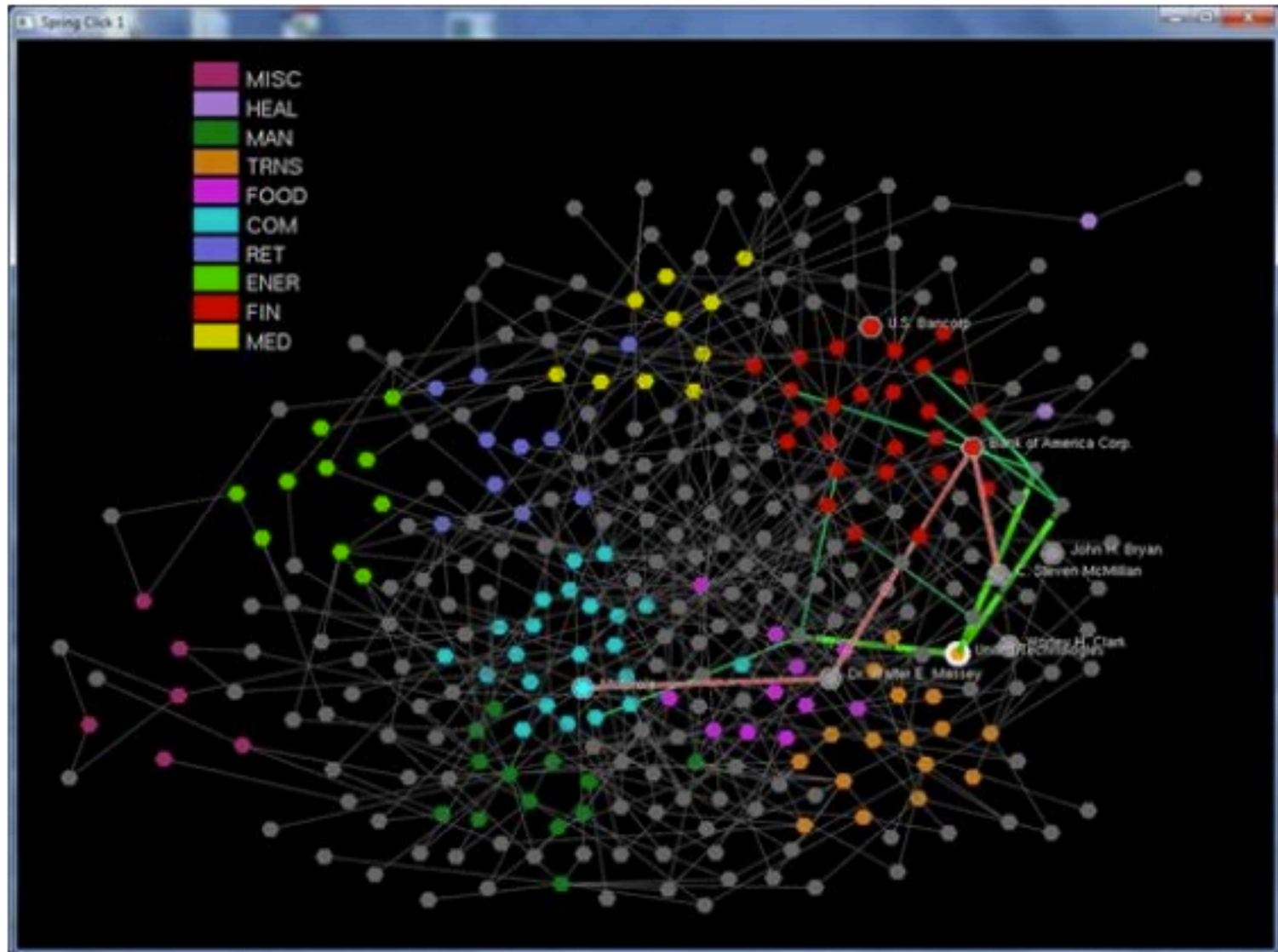
Don't Forget Contrast Effects



Source: Siirtola, H. & KJ, R. (2006). Interacting with parallel coordinates. *Interacting With Computers*, 18(6), 1278-1309.

Information Search Highlighting

Degree of Relevance Highlighting



Source: Ware, C. (2013). *Information visualization, perception for design*.

Degree of Relevance Highlighting

1. Visual query
2. Select a symbol/data attribute
3. Algorithm highlights all similar symbols/attributes with high relevance
4. Analyst queries all highlighted (information scent)
5. If relevance found: drill down
6. Repeat as needed

(Ware, 2013)

Design Guidelines

- Use hue/luminance, size, shape, presentation, motion ...
- Remember contrast effects
- Use to connect across views
- Support tasks and analysis
(e.g., automated additional views)

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