

Lecture 3. How to analyze a vis?

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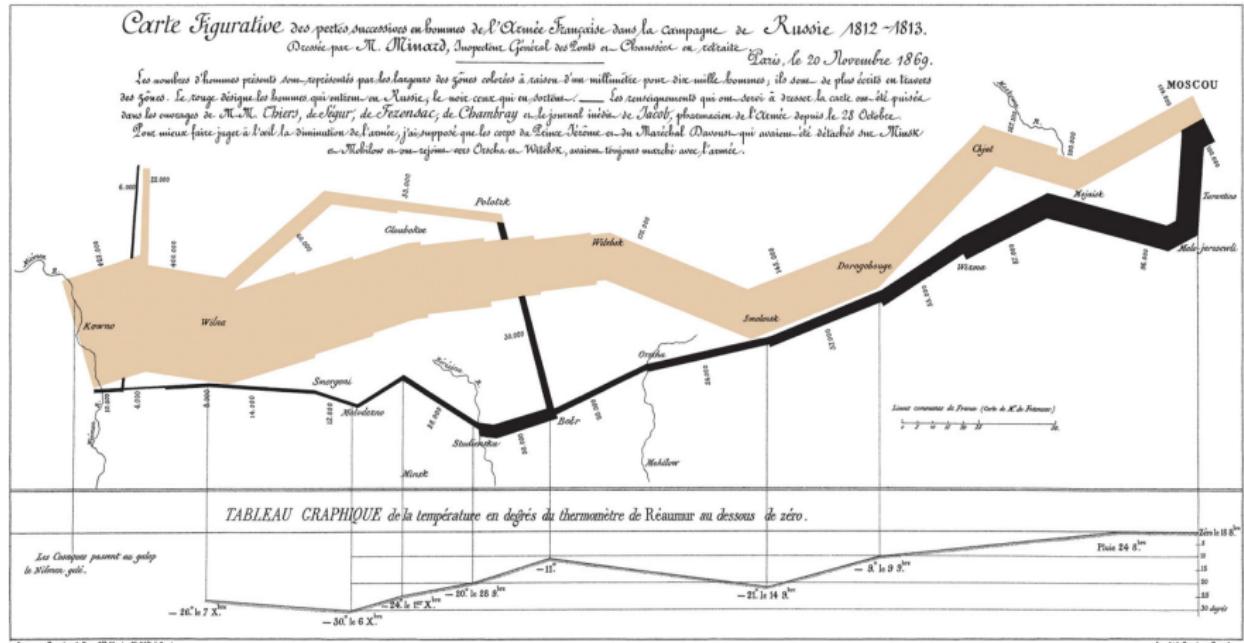
Why analyze?

- Analyzing existing systems is a good stepping stone to designing new ones.



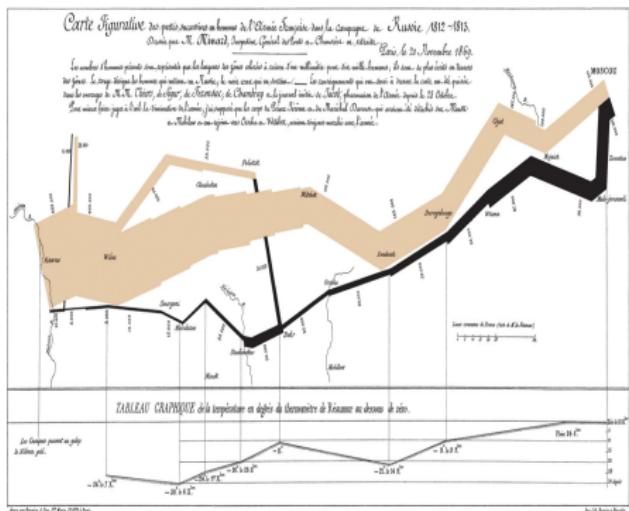
- 3단계의 vis 사례분석 framework
- What-why-how는 data-task-idiom과 대응된다.
 - (Data) **What** data the user sees.
 - (Task) **Why** the user intends to use a vis tool.
 - (Vis Idiom) **How** the visual encodings are constructed.
 - Vis Idiom: 관용적으로 사용되는 vis의 표현들

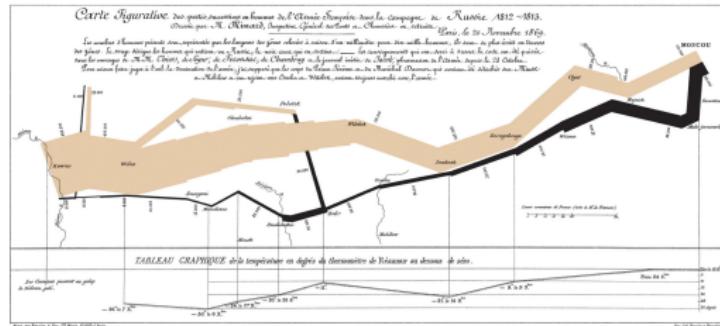
1. Napoleon March Map



(from Tableaux Graphiques et Cartes Figuratives de M. Minard, 1845-1869)

- This visualization depicts Napoleon's disastrous march to Moscow, in the winter of 1812.
 - Beginning at the Polish-Russian border, the maroon flow-line shows the size of the Grand Army (initially 422,000) as it progressed through Russia.
 - Napoleon's retreat from Moscow is depicted by the black flow-line, which is linked to the temperature scale and dates at the bottom of the chart.





1. (Data) What data the user sees.

- Number of troops
- Temperature

2. (Task) Why the user intends to use a vis tool.

- To illustrate the Napoleon's journey to/from Moscow

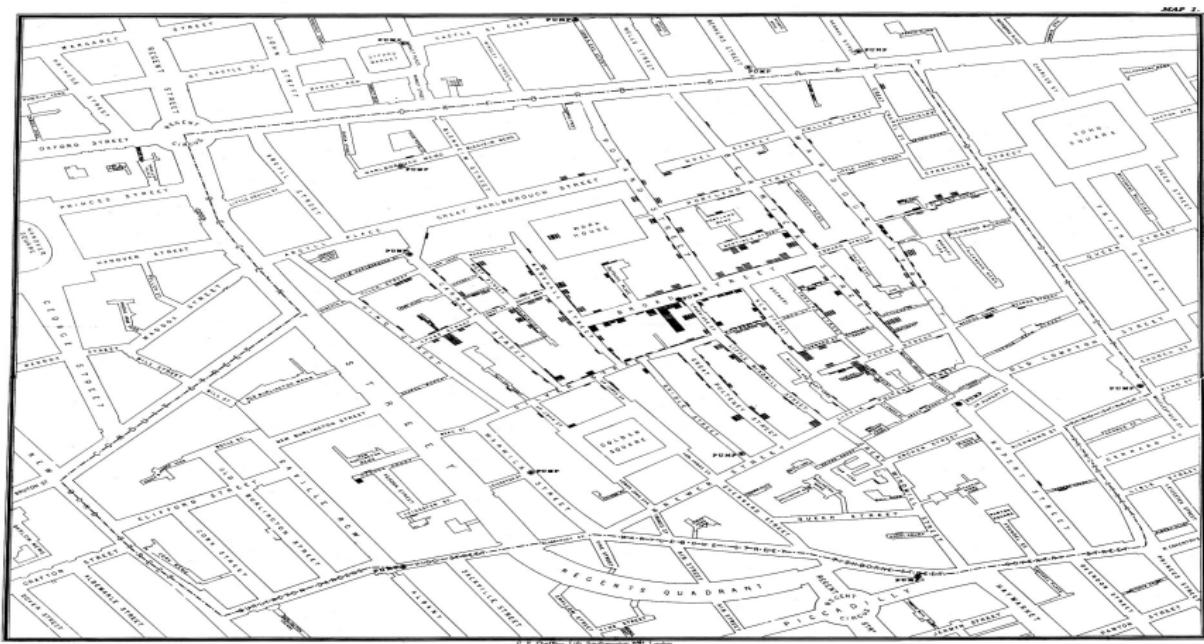
3. (Vis Idiom) How the visual encodings are constructed.

- Thickness for number of troops
- Line graph for temperature
- Coordinate for geographical information
- Fill color for distinguishing from and to
- Annotation for marking major location
- Annotation for marking number of troops

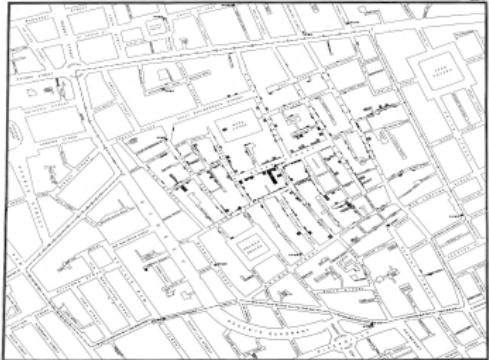


그림 1: Modernized version of Minard

2. 1854 Broad Street Cholera Outbreak Map



- Original map by John Snow showing the clusters of cholera cases (indicated by stacked rectangles) in the London epidemic of 1854.
- The contaminated pump is located at the crossroads of Broad Street and Cambridge Street (now Lexington Street), running into Little Windmill Street.





1. (Data) What

- Number of cholera deaths
- City street and building locations

2. (Task) Why

- To locate the root cause of the epidemic

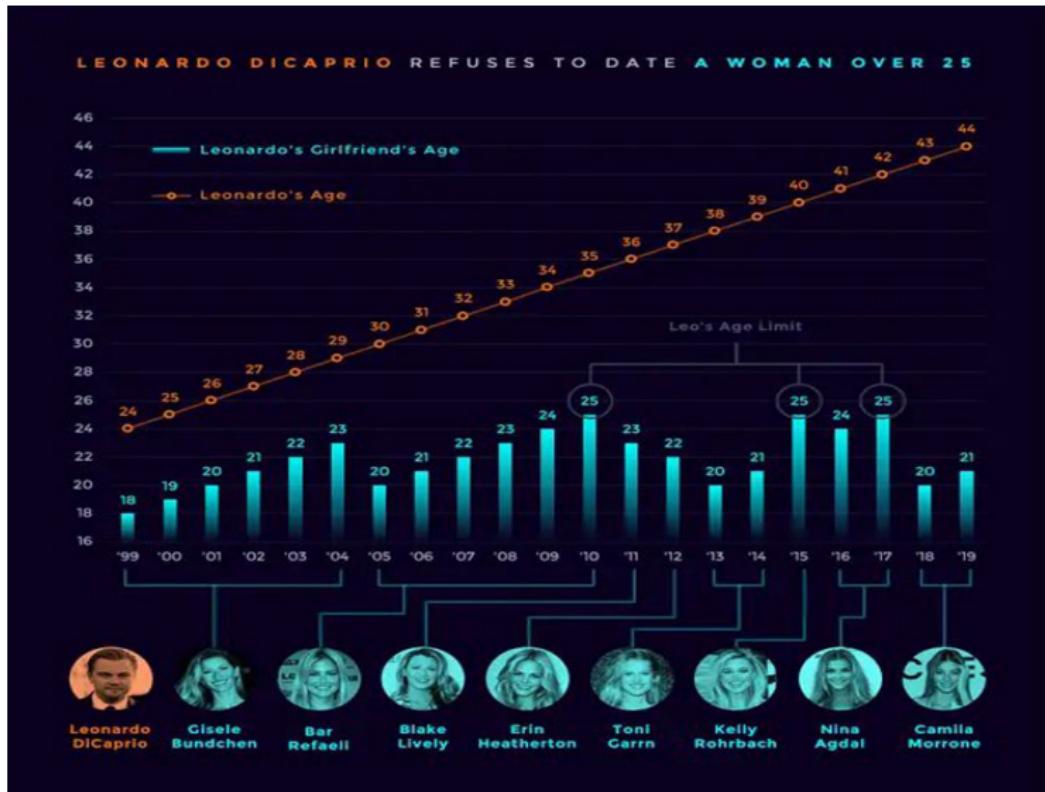
3. (Vis Idiom) How

- Bar chart of cholera deaths by streets
- Geographical map



- What are the changes made from the original version?
 1. (Data) What
 2. (Task) Why
 3. (Vis Idiom) How

The vis you will find in the textbook 20 years later.



1. (Data) What

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2. (Task) Why

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3. (Vis Idiom) How

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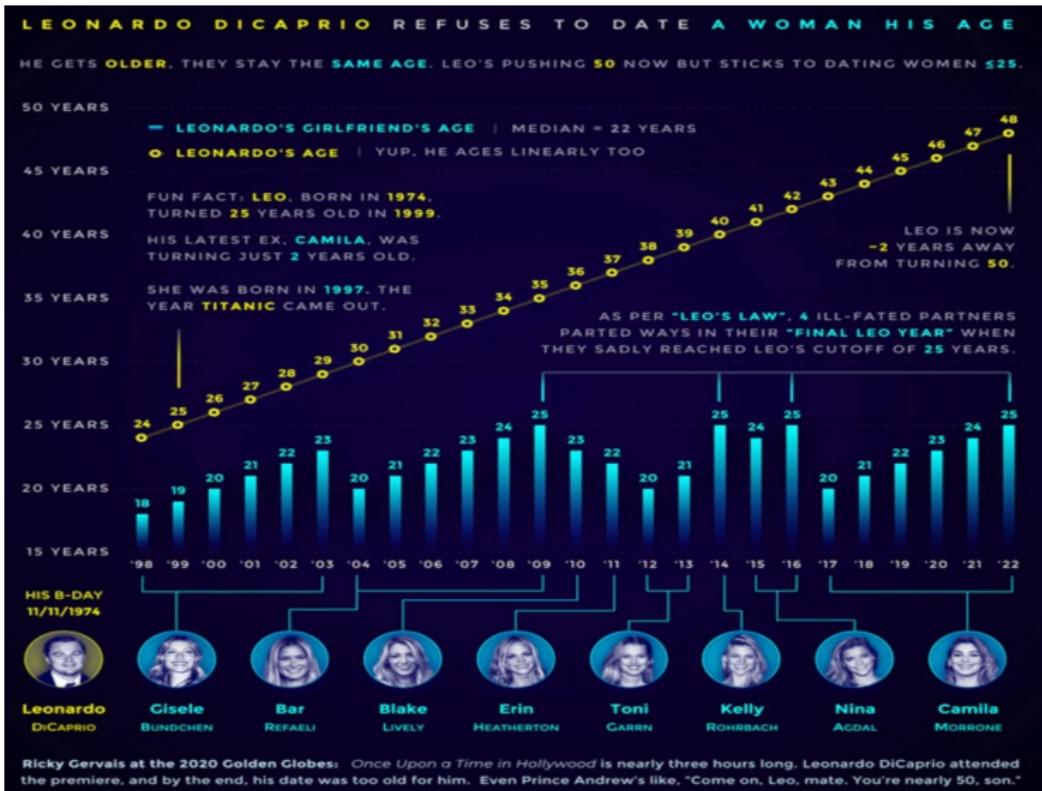


그림 2: The latest version with more annotations

References

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"Data Visualization"

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## [1] "Data Visualization"
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