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RACE

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STUDENT'S NAME AND REGISTRATION:

Camacho Manabe Juan Daniel 17210534

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Origin and grammar of graphs

UNIT TO BE EVALUATED

Unit 2

TEACHER'S NAME:

Mc José Christian Romero Hernández

What is a graph?

A graph or a graphical representation or a graph, is a type of representation of data, generally quantitative, using visual resources (lines, vectors, surfaces or symbols), so that the mathematical relationship or statistical correlation between them is visually manifested. It is also the name of a set of points that are reflected in Cartesian coordinates and are used to analyze the behavior of a process or a set of elements or signs that allow the interpretation of a phenomenon. The graphical representation allows to establish values that have not been obtained experimentally but through interpolation (reading between points) and extrapolation (values outside the experimental interval).

Origin

Statistical graphics have been fundamental to the development of science and the date of the first attempts to analyze data. Many familiar shapes were used in the 18th century, including bivariate diagrams, statistical maps, bar graphs, and coordinate paper. Statistical graphics developed through attention to four problems: Since the 1970s, statistical graphics have reappeared as an important analytical tool with the revitalization of computer graphics and related technologies.

William Playfair who produced what might be called the first line, bar, pie, and area charts. For example, in 1786 Florence Nightingale published the well-known diagram representing the evolution of England's imports and exports, who used statistical graphs to persuade the British government to improve the hygiene of the army, John Snow, who planned cholera deaths in London in 1854 to detect the source of the disease 5 and Charles Joseph Minard, who designed a large portfolio of maps, the best known of which is the one depicting Napoleon's campaign in Russia.

The grammar of graphs

Seville established an analogy (which should not be interpreted literally) between grammatical construction and the structure of a graph. In this way, he arrived at equivalences such as those seen in table 1.

Tabla 1
Analogía entre elementos de las construcciones gráficas y conceptos lingüísticos

Texto gráfico	Texto
Gráfica	Oración
Infografía (grupo de gráficas)	Párrafo
Magnitud representada	Sujeto de la oración
Impresión visual que produce la gráfica	Predicado de la oración
Gráfica con una sola serie de datos	Oración simple
Gráfica con más de una serie de datos	Oración compuesta
Gráfica relacionada con otras en una infografía	Oración subordinada

But it went further. From the analysis of many graphs, he drew some conclusions to recommend some tips with which to build a graph that would not give rise to confusion and would be faithful to its original message. They are the ones that we can see in the following table.

Tabla 2
Resumen de las recomendaciones analizadas a lo largo del libro

Ortografía	El sujeto debe estar definido Debe haber concordancia entre el tipo de gráfica y el tipo de datos Deben incluir ejes explícitos, íntegros y bien referenciados
Sintaxis	La magnitud representada ha de ser la misma para todos los datos Ejes y escalas deben guardar una cierta proporción Adecuación de la densidad de información (respecto a espacio o tinta) Debe incorporarse una mínima composición y evitarse los efectos visuales
Semántica	Con los mismos datos hay distintas representaciones según el mensaje Se puede hacer demagogia con gráficas impecables Pequeños errores formales ayudan a los efectos «demagógicos» La elección de la magnitud a presentar debe ser acorde con el mensaje
Estilos literarios	Y en todo lo anterior queda mucho espacio para el gusto personal

As we can see, Joaquín Sevilla talks to us about the spelling, syntax, semantics and even the literary style of a graph, a perspective that we will see that is very useful in the analysis that I will do below of some specific data.

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