

How Do We Read Line Charts?

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Visualization charts need to be able to adapt easily to a wide range of display sizes, partly due to the prevalence and diversity of mobile devices. As such, charts need to be recognizable across a variety of displays. While one approach is to provide different designs for different device sizes, an automatic solution is preferred, and it is important for the resulting solution to consider how humans perceive charts. The human visual system can quickly and accurately discriminate the exact amount of up to 3 or 4 objects, a phenomenon called subitizing. We report results to better understand the effects of subitizing in a stylized line, as a preliminary step towards creating more scalable line charts. Our results indicate that the effects of subitizing hold for up to 4 high-frequency bumps, even though the bumps were embedded in a slope-up line, or distributed on both sides of a low-frequency peak.