terminology	*data case*- refers to an instance of the data set; synonymous with data item or data point *attribute*- refers to properties of the data cases in the data set; synonymous with feature, dimension, or variable *relationship in the data*- refers to attributes among the data, such as correlations, clusters, or distributions	Vis A		Vis B		Vis C	
		μ	σ	μ	σ	μ	σ
Insight	The visualization exposes individual data cases and their attributes	6.07	1.03	6.33	1.11	5.27	1.22
	The visualization facilitates answering questions about the data	5.33	1.18	6.27	0.96	5.27	1.28
	The visualization promotes exploring relationships (between individual data cases as well as different groupings of data cases) ~~(among different aggregation levels of the data)~~	3.60	1.76	4.60	1.76	3.33	1.63
	The visualization helps generate data-driven questions	4.73	1.03	5.73	1.03	4.33	1.45
	The visualization provides a new or better understanding of the data	5.27	0.96	5.27	1.16	4.13	1.41
	The visualization provides useful interactive capabilities to help investigate the data in multiple ways	4.40	1.55	6.07	0.80	4.67	1.29
	The visualization shows multiple perspectives about the data	5.40	1.12	5.20	1.61	5.20	1.32
	The visualization uses an effective representation of the data that shows related and partially related data cases	4.87	1.25	5.40	1.35	3.73	1.39
Time	The visualization affords rapid parallel comprehension for efficient browsing	5.40	1.40	5.47	1.19	3.33	1.35
	The visualization (shows) ~~(provides)~~ key characteristics of the data at a glance	4.60	1.40	5.00	1.81	3.27	1.62
	The interface supports (using different attributes of the data to reorganize the visualization's appearance) ~~(reorganizing the visualization by the data's attribute values)~~	2.73	1.71	6.07	1.28	4.93	1.83
	The visualization provides mechanisms for quickly seeking specific information	2.92	1.93	5.00	1.73	3.27	1.53
	The visualization avoids complex (commands and textual queries) ~~(syntactic querying)~~ by providing direct interaction (with the data representation)	5.53	1.25	5.93	1.10	4.00	1.65
Essence	The visualization provides a big picture perspective of the data	4.80	1.01	5.07	1.28	3.40	1.18
	The visualization presents the data by providing a meaningful visual schema	5.21	0.80	5.29	1.14	3.57	1.34
	The visualization provides an understanding of the data beyond individual data cases	4.27	1.53	5.60	0.91	4.40	1.40
	The visualization facilitates generalizations and extrapolations of patterns and conclusions	4.47	1.55	5.53	1.06	4.40	1.45
	The visualization helps understand how variables relate in order to accomplish different analytic tasks						
Confidence	The visualization helps avoid making incorrect inferences	5.07	1.16	5.53	1.06	3.67	0.90
	The visualization uses meaningful and accurate visual encodings to represent the data	5.07	1.00	5.33	1.18	4.00	1.84
	The visualization avoids using misleading representations						
	The visualization facilitates learning more broadly about the domain of the data	4.87	1.06	5.60	0.83	4.13	1.41
	The visualization promotes understanding data domain characteristics beyond the individual data cases and attributes						
	The visualization helps understand data quality	4.07	1.73	3.33	1.54	3.29	1.54
	If there were data issues like unexpected, duplicate, missing, or invalid data, the visualization would highlight those issues						
	Cumulative Vis Score	4.67		5.30		3.96	

Fig. 7: This figure depicts the entire value evaluation hierarchy and framework, including the four components, the guidelines under each component, and the constituent heuristics for each guideline, both as used in our study (crossed-out text) and as updated afterwards. The figure also shows summary (average) ratings for the three visualizations on each of the heuristics, as well as the standard deviation of each rating. We employ a red-green color map to help communicate at a glance lower/poorer ratings (red) to higher/better ratings (green). Both versions of the hierarchy, in addition to other study materials, can be found at `visvalue.org`.