

**STAAR Alternate 2
2017 Score Distributions and
Statistics by Content Area
and Grade**

Glossary

This glossary provides definitions for the statistical terms that appear in the tables and graphs in this section ("STAAR Alternate 2 2017 Score Distributions and Statistics by Content Area and Grade") of Appendix C. Definition of statistical terms and concepts in the other sections are given in chapter 3 or chapter 4.

Descriptive Statistics

Mean. The mean is a measure of central tendency. It is the average score for the assessment. It is computed by summing the scores of all students and dividing it by the total number of students (N).

Median. The median is another measure of central tendency. It is the score at the middle of the frequency distribution for the assessment. It is computed by finding the score at which there is the same number of scores above as there is below.

Mode. The mode is another measure of central tendency. It is the most frequently obtained score for the assessment. It is determined by computing the frequency distribution and finding the score point with the highest frequency (n -count).

Range. The range is a measure of statistical dispersion (variability or spread). It is the difference between the lowest and highest scores obtained by students on the assessment. It is computed by subtracting the lowest score from the highest score.

Interquartile Range. The interquartile range is another measure of statistical dispersion (variability or spread). It is the difference between the 1st and 3rd quartiles (or 25th and 75th percentiles) of the score distribution for the assessment. It is computed by subtracting the score at the 1st quartile (the point that splits the lowest 25% of the scores) from the score at the 3rd quartile (the point that splits the highest 25% of the scores).

Standard Deviation (SD). The standard deviation is another measure of statistical dispersion (variability or spread). It is an indicator of the degree of score variation around the mean. It is computed using the following formula.

$$SD = \sqrt{\frac{\sum_{i=1}^N (x_i - \bar{x})^2}{N - 1}}$$

where x_i is the score for student i , \bar{x} is the mean score and N is the total number of students that took the assessment.

Variance. The variance is another measure of statistical dispersion (variability or spread) around the mean. It is computed as the square of the standard deviation (SD).

Skewness. The skewness is an indicator of the shape of the score distribution. It measures the extent to which the score distribution "leans" to one side of the mean. A positive skewness indicates that the score distribution leans below the mean. A negative skewness indicates that the score distribution leans above the mean. A skewness of zero indicates that the score distribution is symmetric around the mean. It is computed using the following formula.

$$Skewness = \frac{N}{(N-1)(N-2)} \sum_{i=1}^N \left(\frac{x_i - \bar{x}}{s_x} \right)^3$$

where x_i is the score for student i , \bar{x} is the mean score, s_x is the standard deviation (SD) and N is the total number of students that took the assessment.

Kurtosis. The kurtosis is another indicator of the shape of the score distribution. It measures the "peakedness" of the score distribution. A positive kurtosis is referred to as *leptokurtic*, meaning that the distribution has a more acute peak around the mean and fatter tails. A negative kurtosis is called *platykurtic*, meaning the distribution has a lower, wider peak around the mean and thinner tails. It is computed using the following formula.

$$Kurtosis = \frac{N(N+1)}{(N-1)(N-2)(N-3)} \sum_{i=1}^N \left(\frac{x_i - \bar{x}}{s_x} \right)^4 - \frac{3(N-1)^2}{(N-2)(N-3)}$$

where x_i is the score for student i , \bar{x} is the mean score, s_x is the standard deviation (SD) and N is the total number of students that took the assessment.

Frequency Distributions

Frequency (FREQ). This is the number of students that obtained the particular score point on the assessment.

Cumulative Frequency (CUM FREQ). This is the number of students that obtained a score that is less than or equal to the particular score point on the assessment.

Percentage (PCT). This is the percentage of students that obtained the particular score point on the assessment. It is computed as: $PCT = FREQ \div N \times 100$.

Cumulative Percentage (CUM PCT). This is the percentage of students that obtained a score that is less than or equal to the particular score point on the assessment. It is computed as: $CUM PCT = CUM FREQ \div N \times 100$.

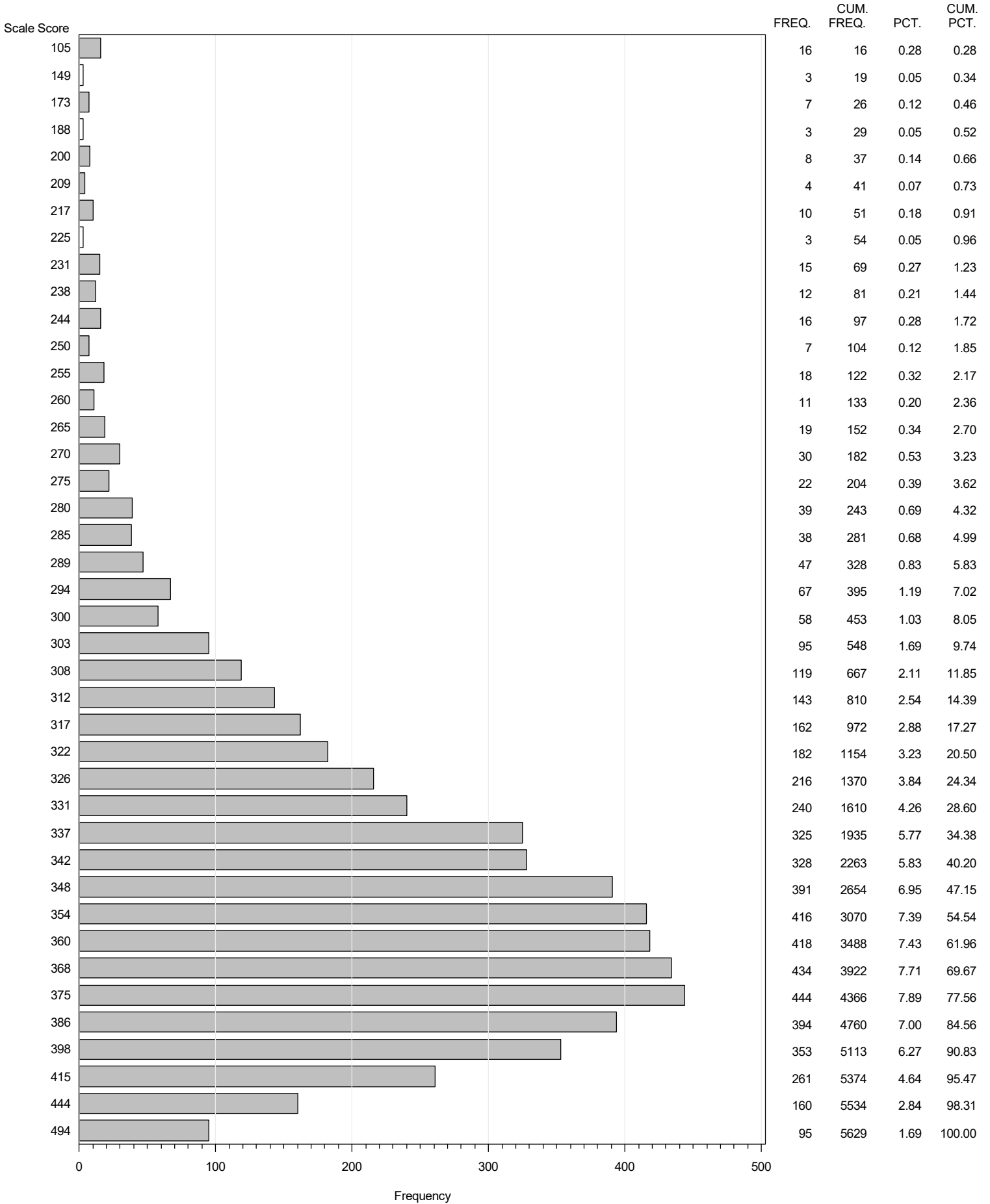
Scale Score Descriptive Statistics for 2017 STAAR Alternate 2 Grades 3–8 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Q1	Q3				
GRADE 3 MATHEMATICS	5629	353.65	354	375	389	44	45.20	2042.97	-0.3323	3.8551	
GRADE 4 MATHEMATICS	5757	359.00	354	360	367	54	45.02	2026.51	-0.1344	3.8534	
GRADE 5 MATHEMATICS	5583	358.69	357	370	383	43	45.57	2076.98	-0.1155	3.7496	
GRADE 6 MATHEMATICS	5181	360.06	354	378	420	57	50.53	2553.67	-0.0812	3.4577	
GRADE 7 MATHEMATICS	4998	358.53	357	375	402	50	49.18	2418.20	-0.0531	3.8676	
GRADE 8 MATHEMATICS	4682	349.74	345	360	394	57	51.09	2609.85	0.0088	3.2030	
GRADE 3 READING	5626	341.04	340	346	377	48	43.64	1904.75	-0.3730	4.1112	
GRADE 4 READING	5750	347.61	346	372	386	50	47.41	2248.09	-0.1543	3.3575	
GRADE 5 READING	5583	348.55	351	351	412	43	46.44	2156.31	-0.1422	3.8741	
GRADE 6 READING	5178	346.03	348	365	394	43	45.99	2115.21	0.0365	3.5755	
GRADE 7 READING	5003	343.67	344	351	396	52	45.51	2070.96	-0.3929	4.8329	
GRADE 8 READING	4685	348.19	344	351	386	57	46.17	2132.03	-0.1094	3.4711	
GRADE 4 WRITING	5740	336.73	335	347	403	50	44.31	1963.11	-0.4888	5.7169	
GRADE 7 WRITING	4999	337.97	339	353	387	46	44.87	2013.24	-0.3382	5.1515	
GRADE 5 SCIENCE	5584	372.29	370	418	386	62	53.58	2870.84	0.0551	1.5644	
GRADE 8 SCIENCE	4680	362.07	361	361	354	43	42.14	1775.49	-0.2600	4.1127	
GRADE 8 SOCIAL STUDIES	4681	351.18	350	363	383	43	42.44	1800.81	-0.4162	5.7089	

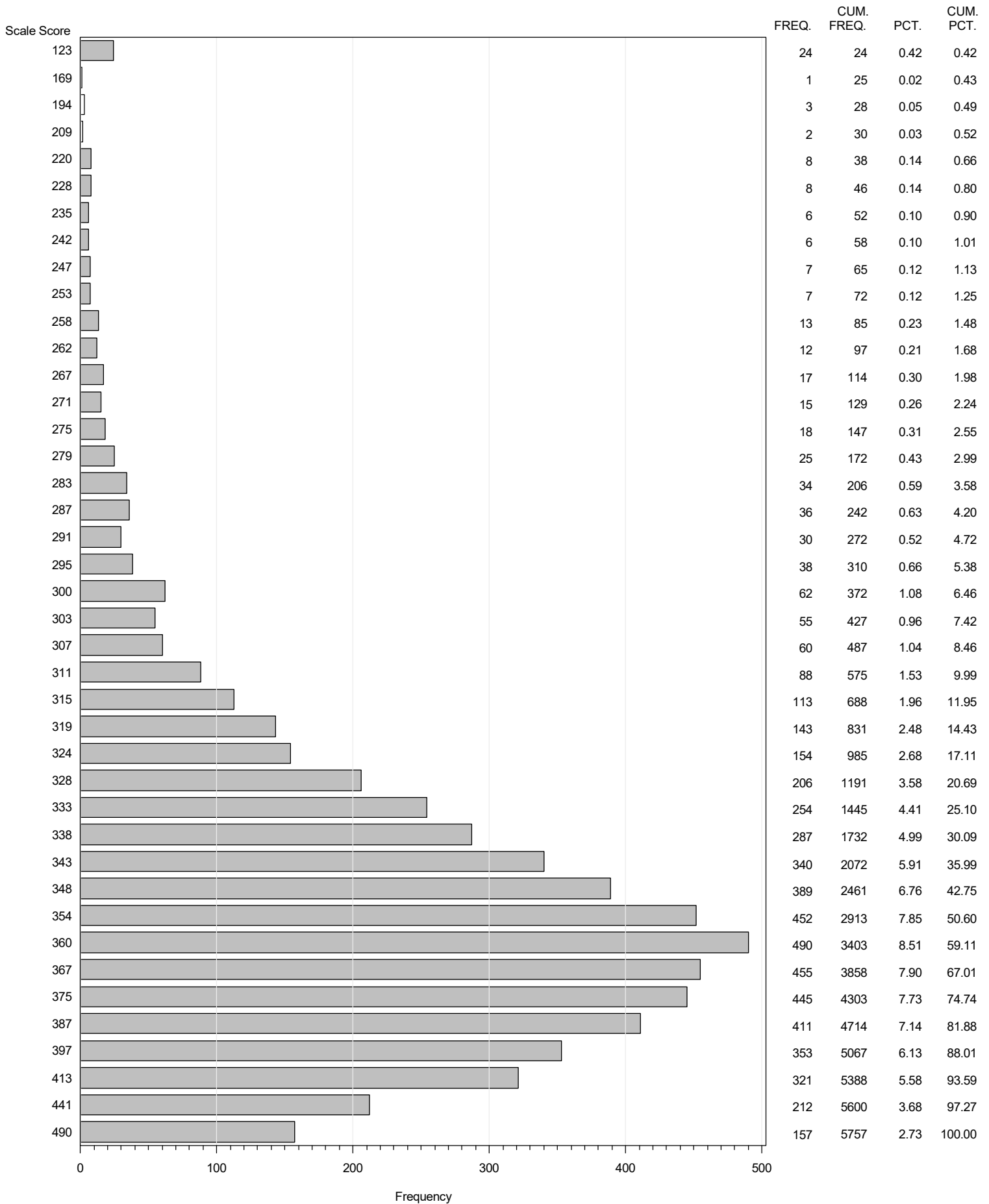
Scale Score Descriptive Statistics for 2017 STAAR Alternate 2 EOC Assessments

Subject	N	Mean	Median	Mode	Interquartile		SD	Variance	Skewness	Kurtosis
					Range	Range				
ALGEBRA I	4616	348.30	345	366	401	50	48.96	2396.91	-0.4404	4.7729
ENGLISH I	4606	350.17	353	367	406	52	47.52	2257.81	-0.4646	4.8758
ENGLISH II	4237	356.25	355	361	406	46	49.99	2498.95	-0.0776	4.2653
BIOLOGY	4415	359.47	359	401	348	51	48.48	2350.01	-0.2851	3.0448
U.S. HISTORY	3615	347.90	344	359	375	48	49.57	2456.85	-0.2293	3.5679

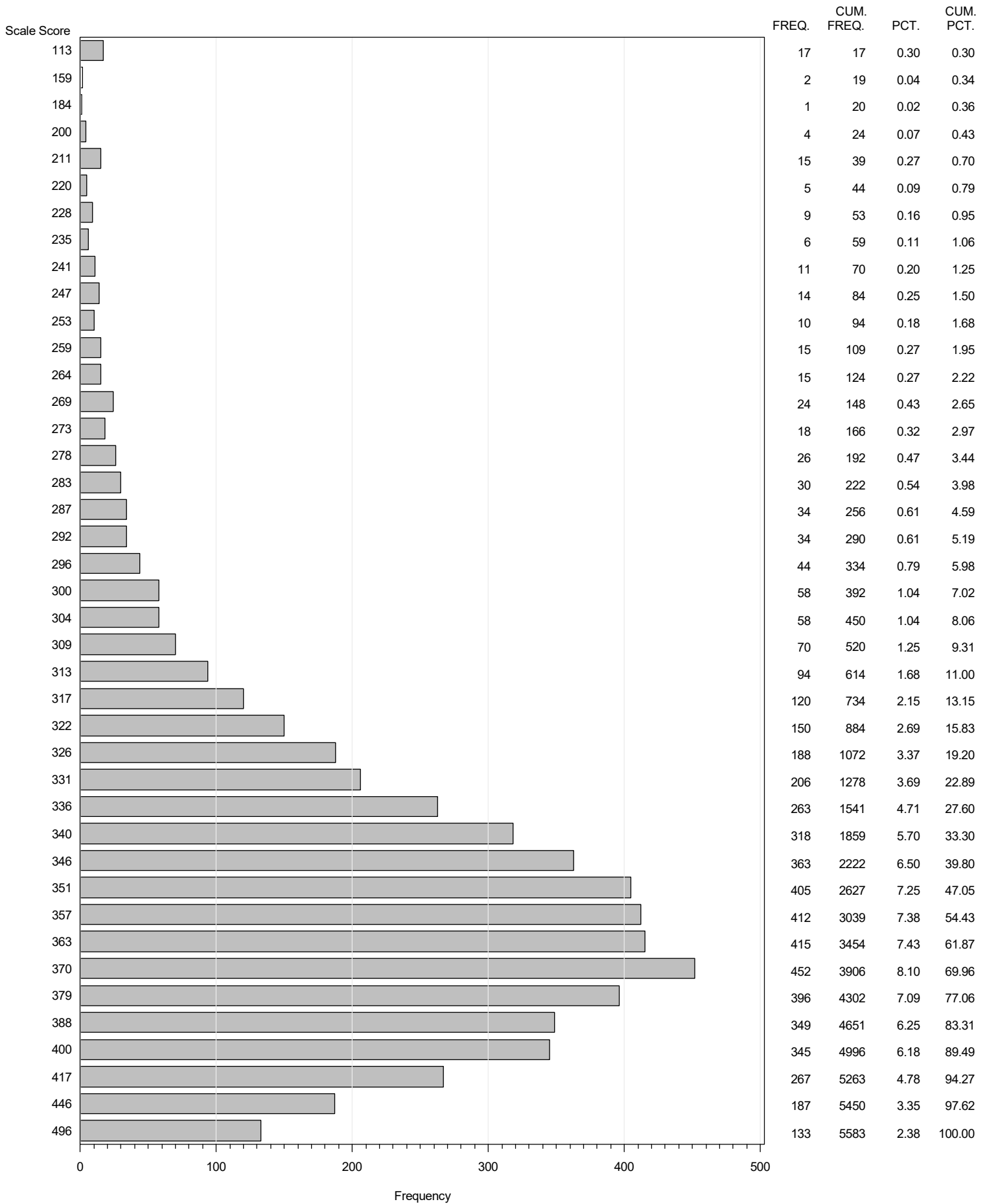
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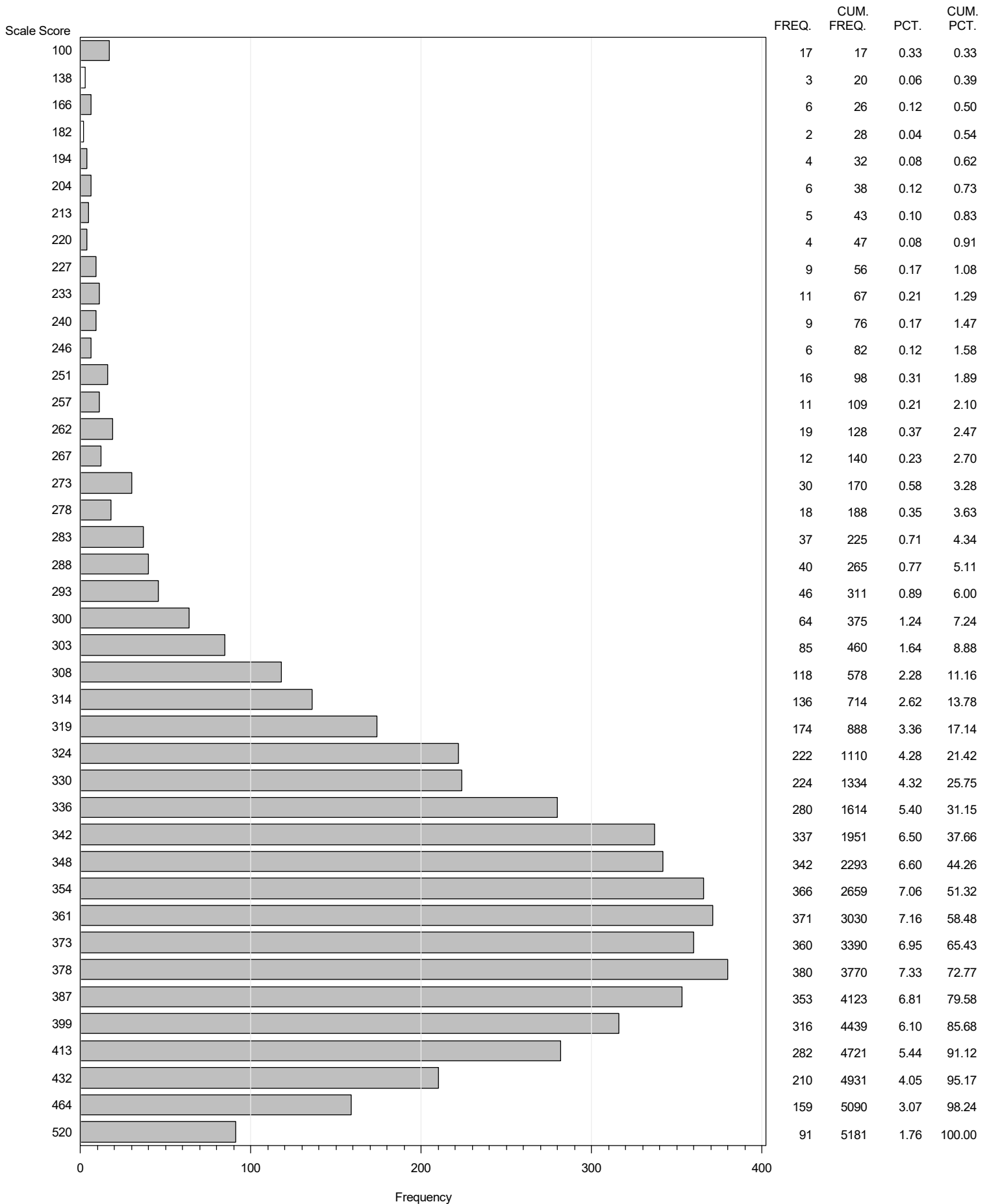
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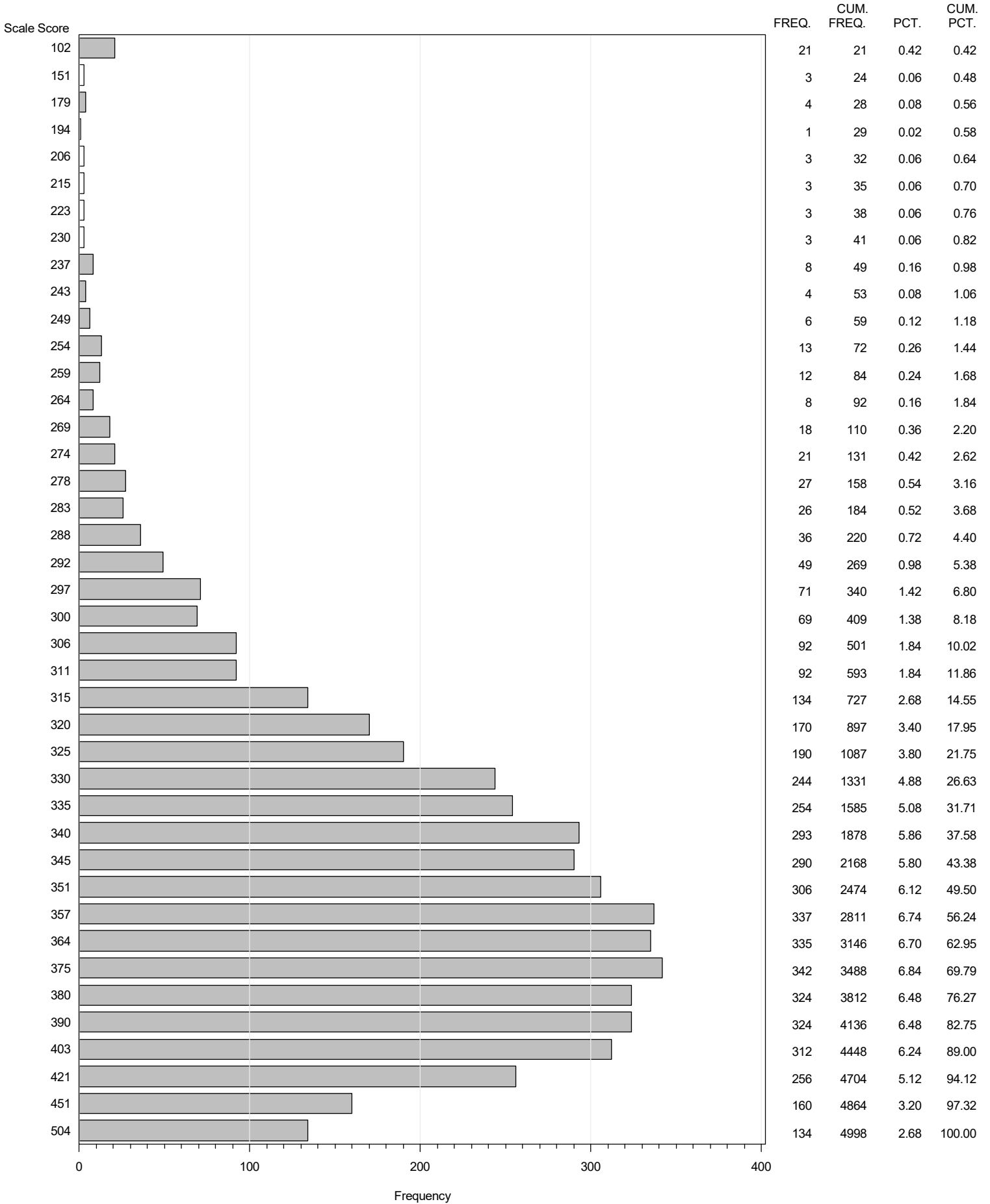
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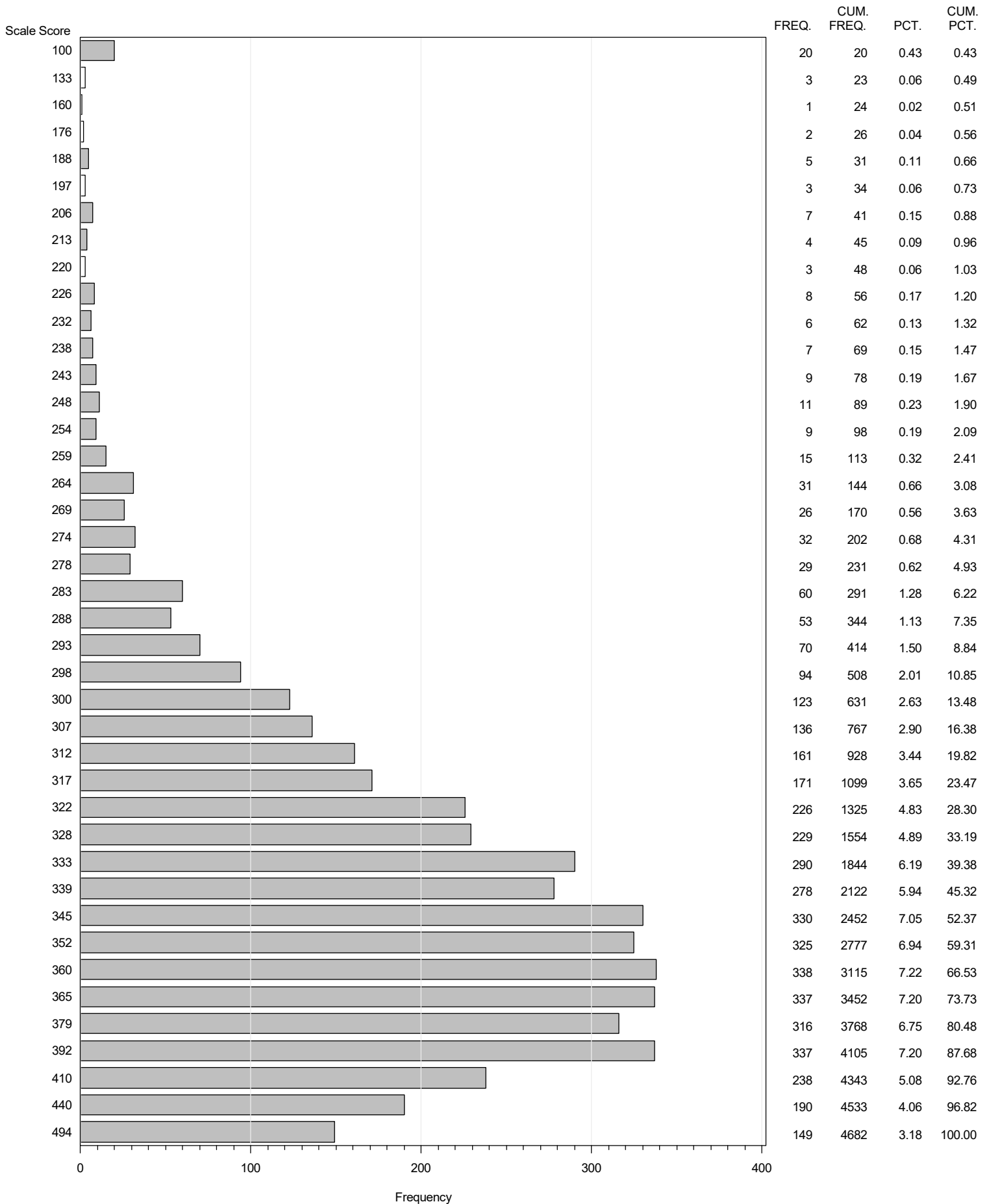
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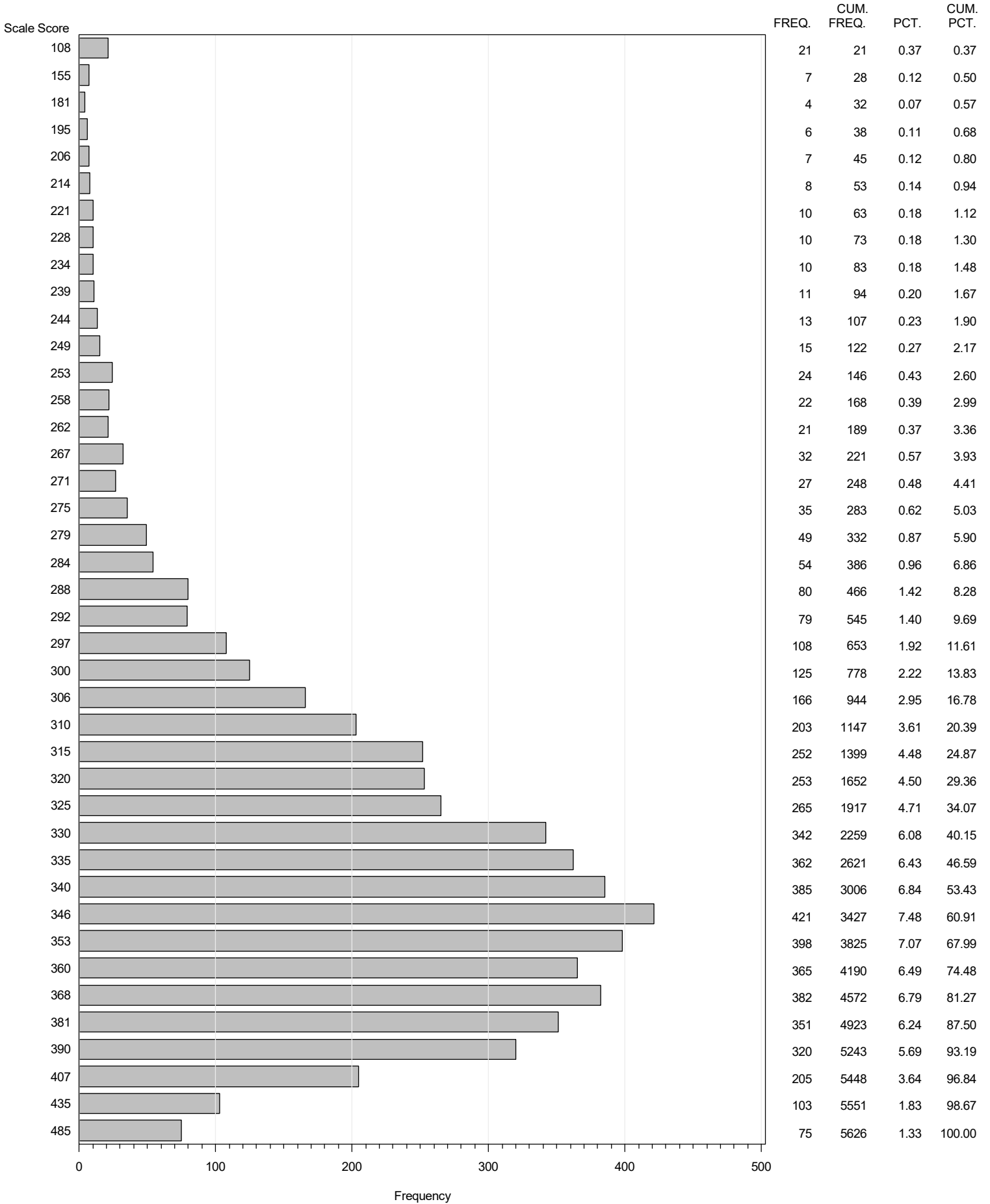
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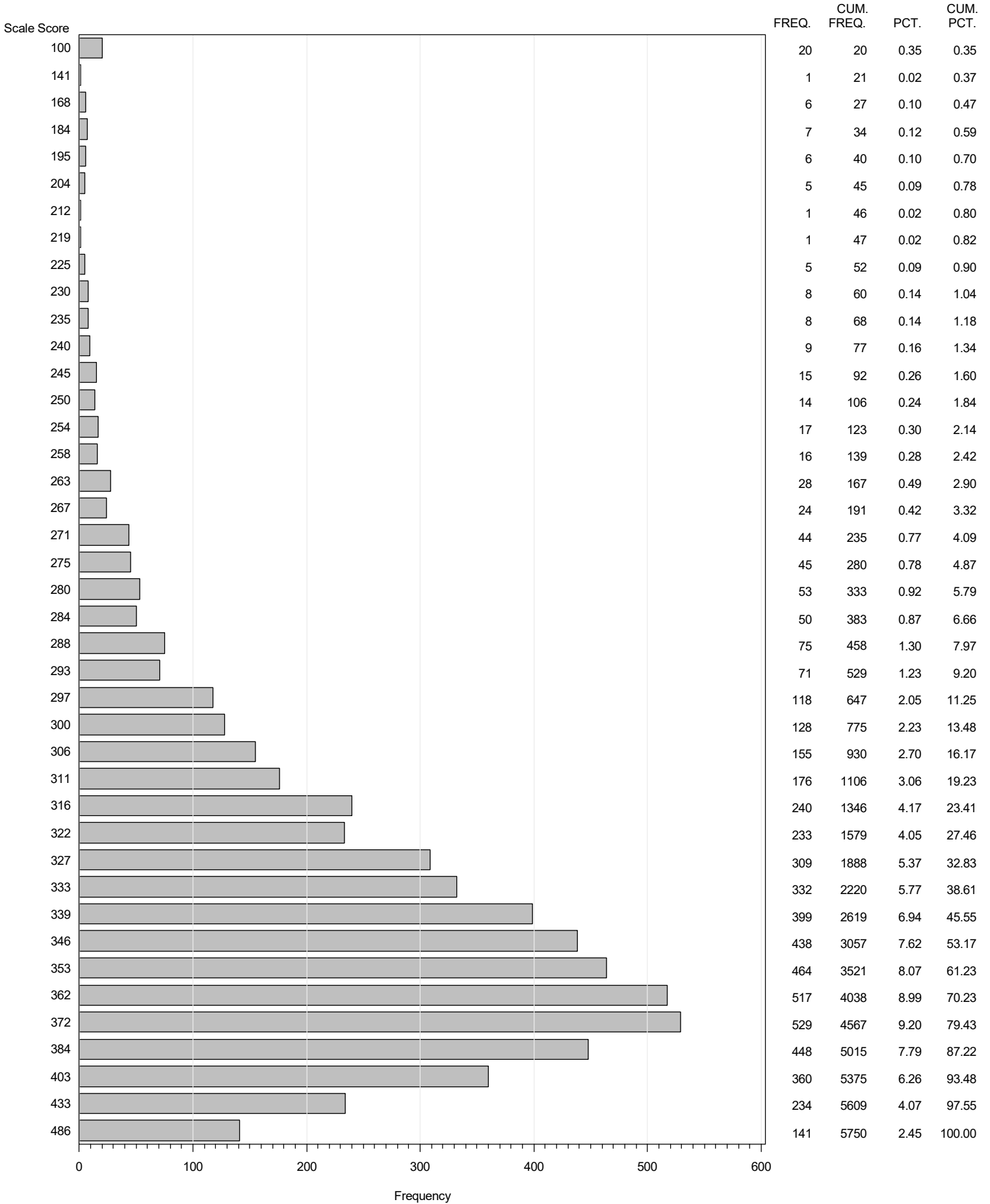
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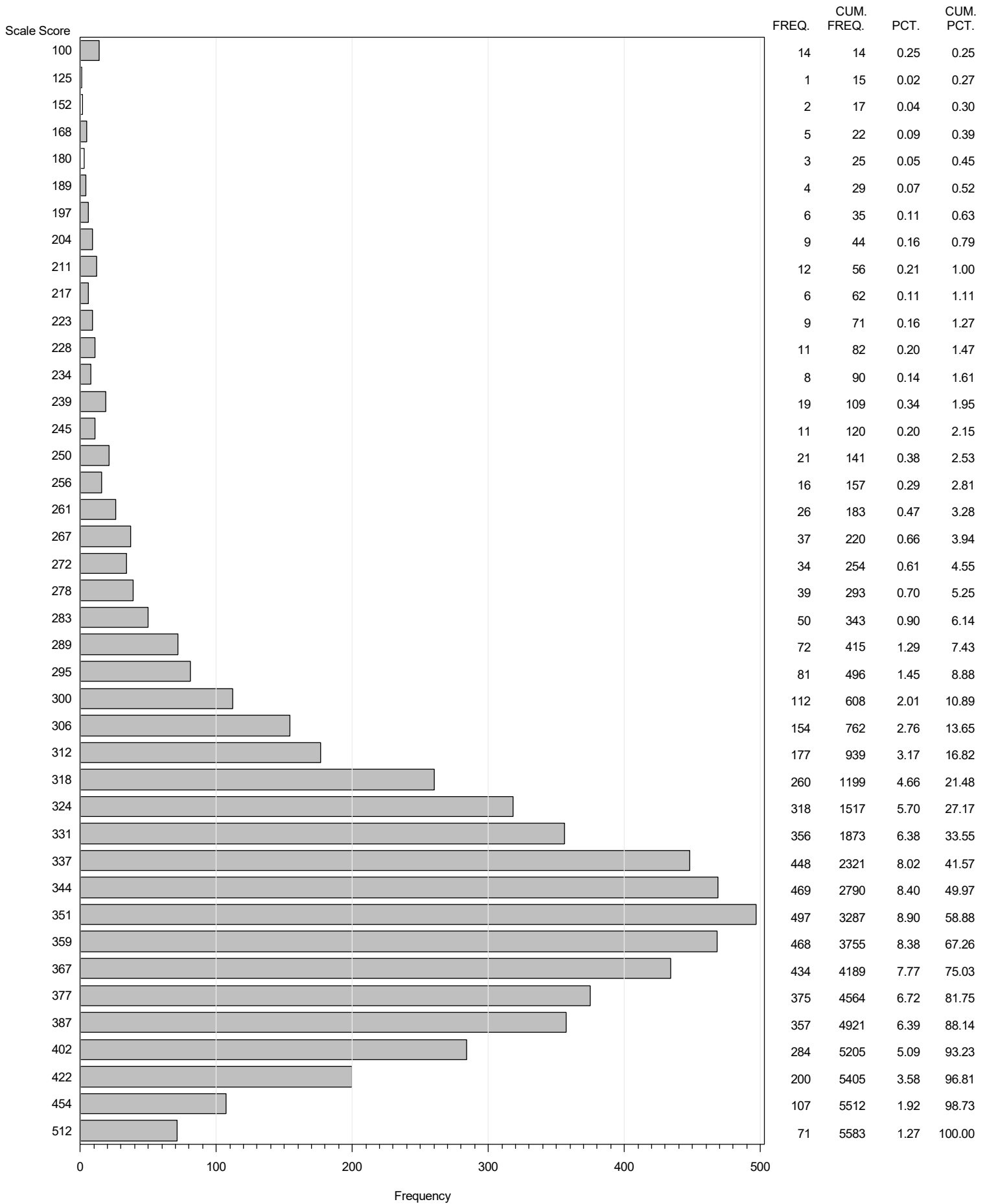
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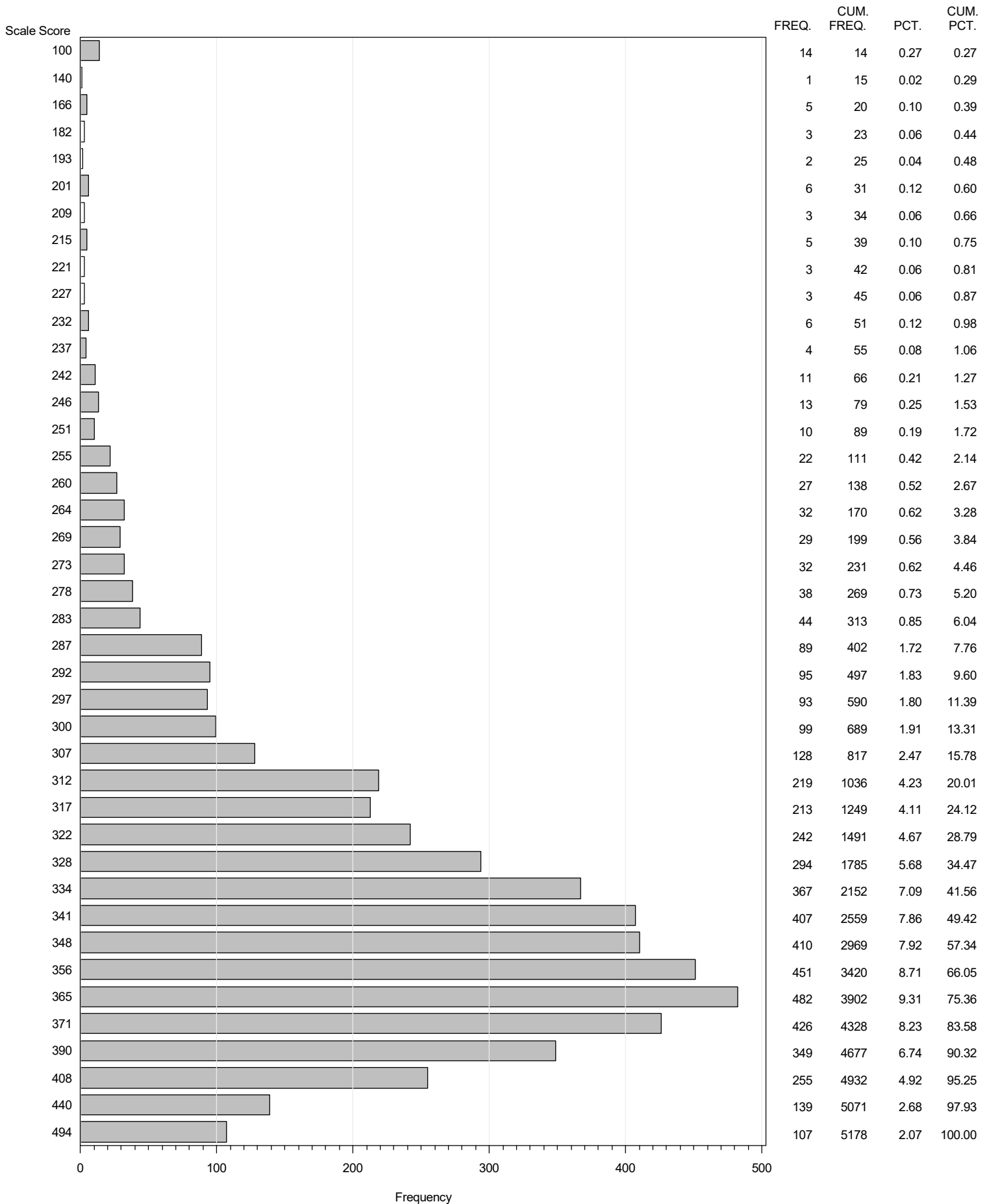
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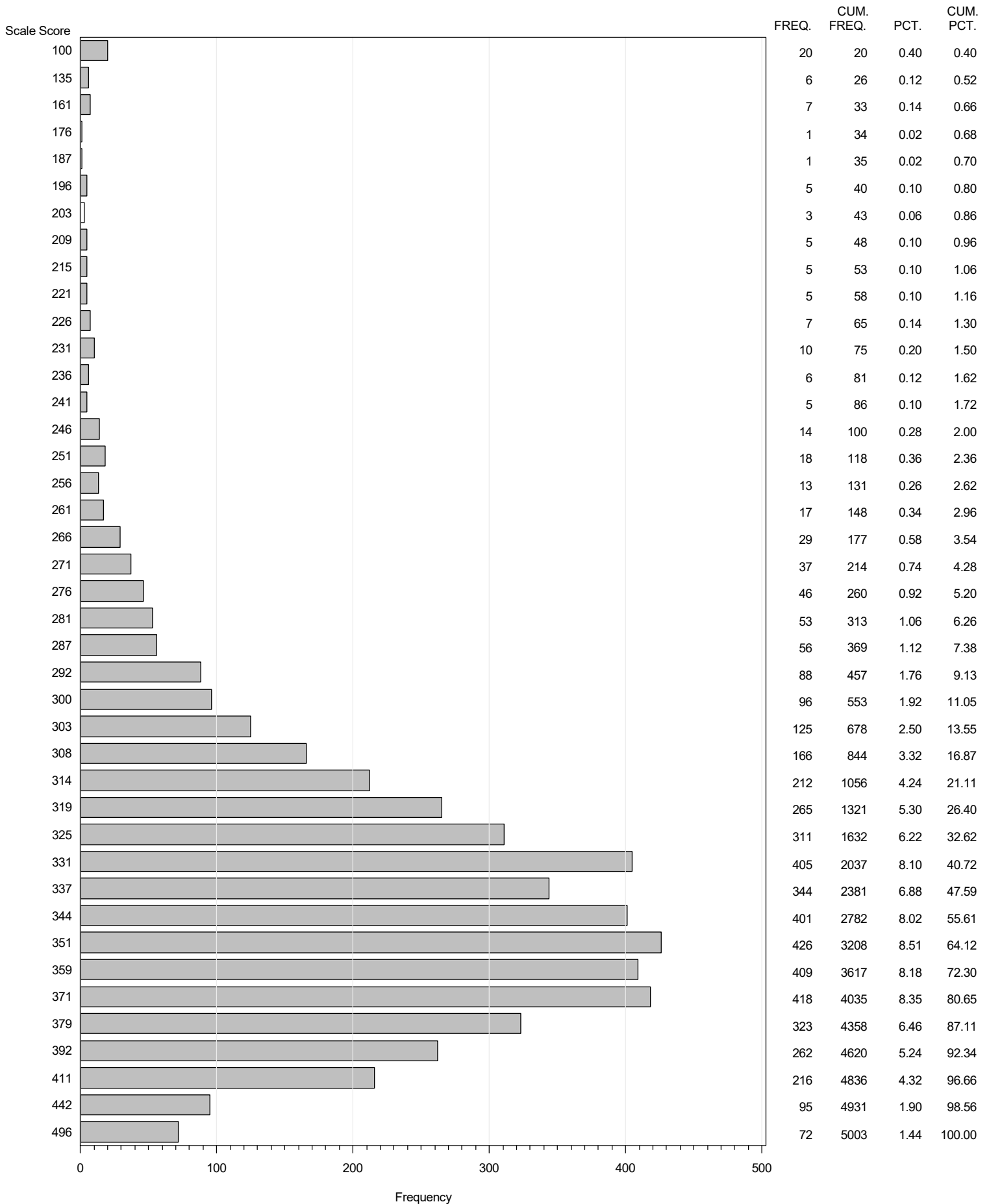
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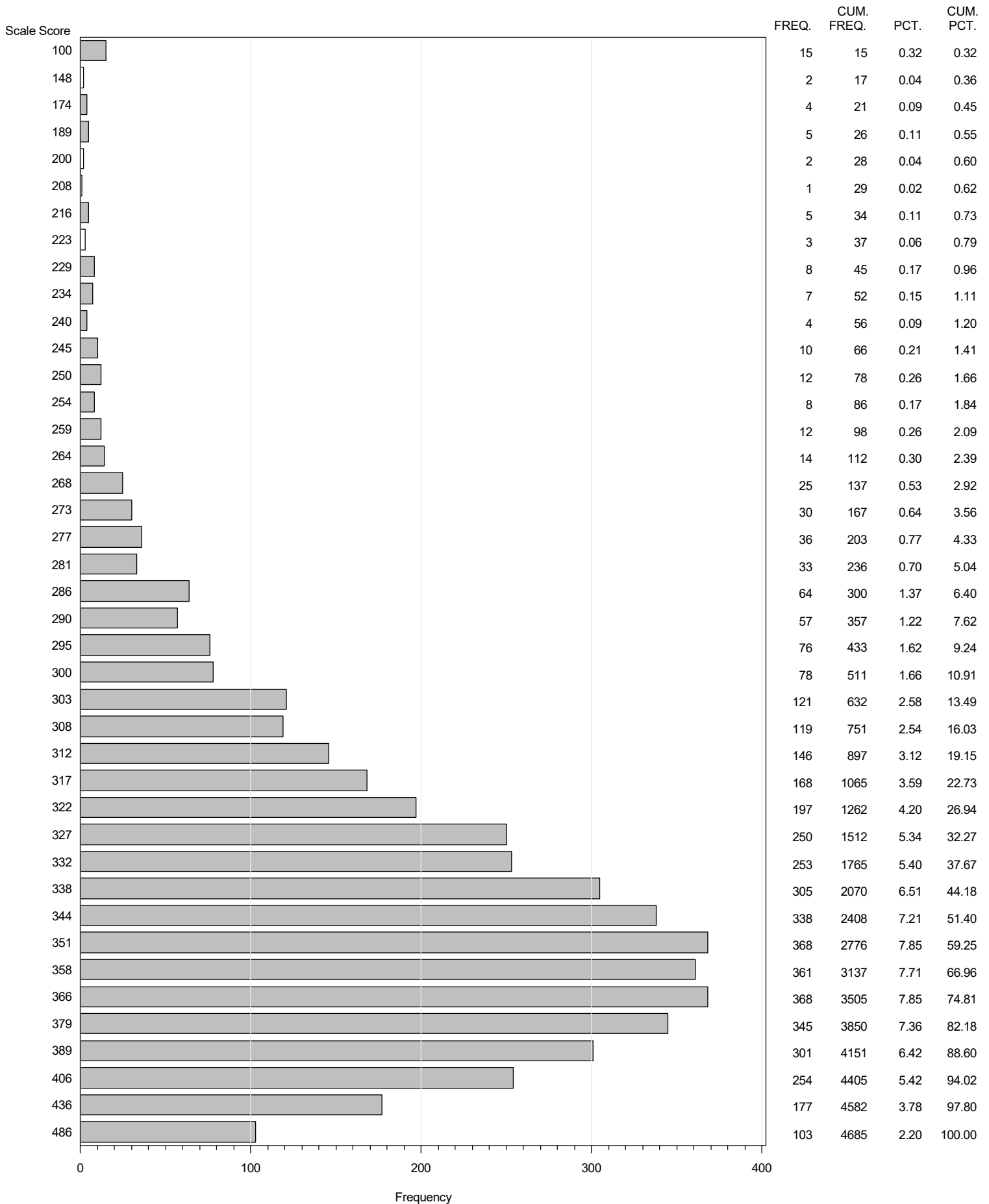
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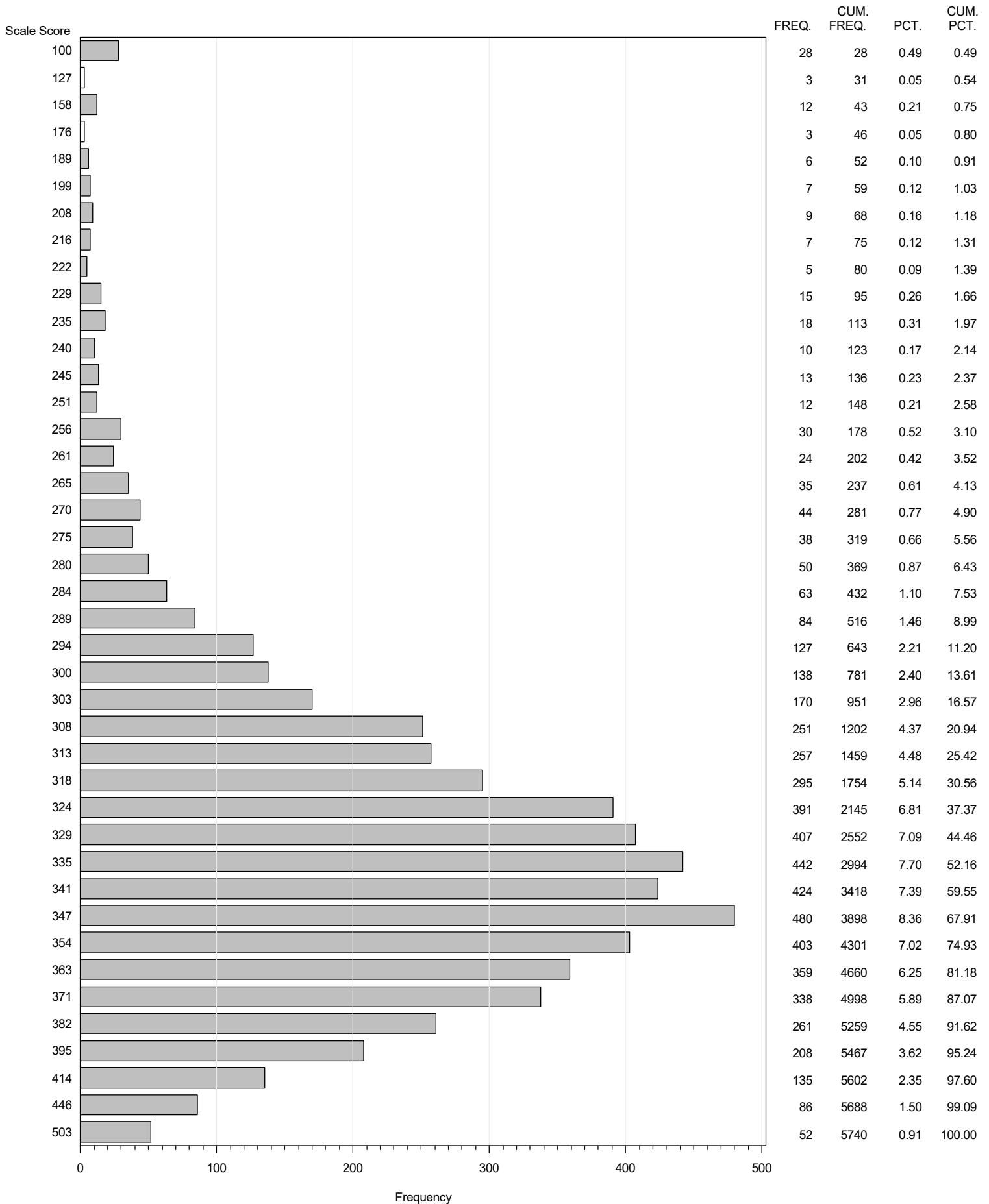
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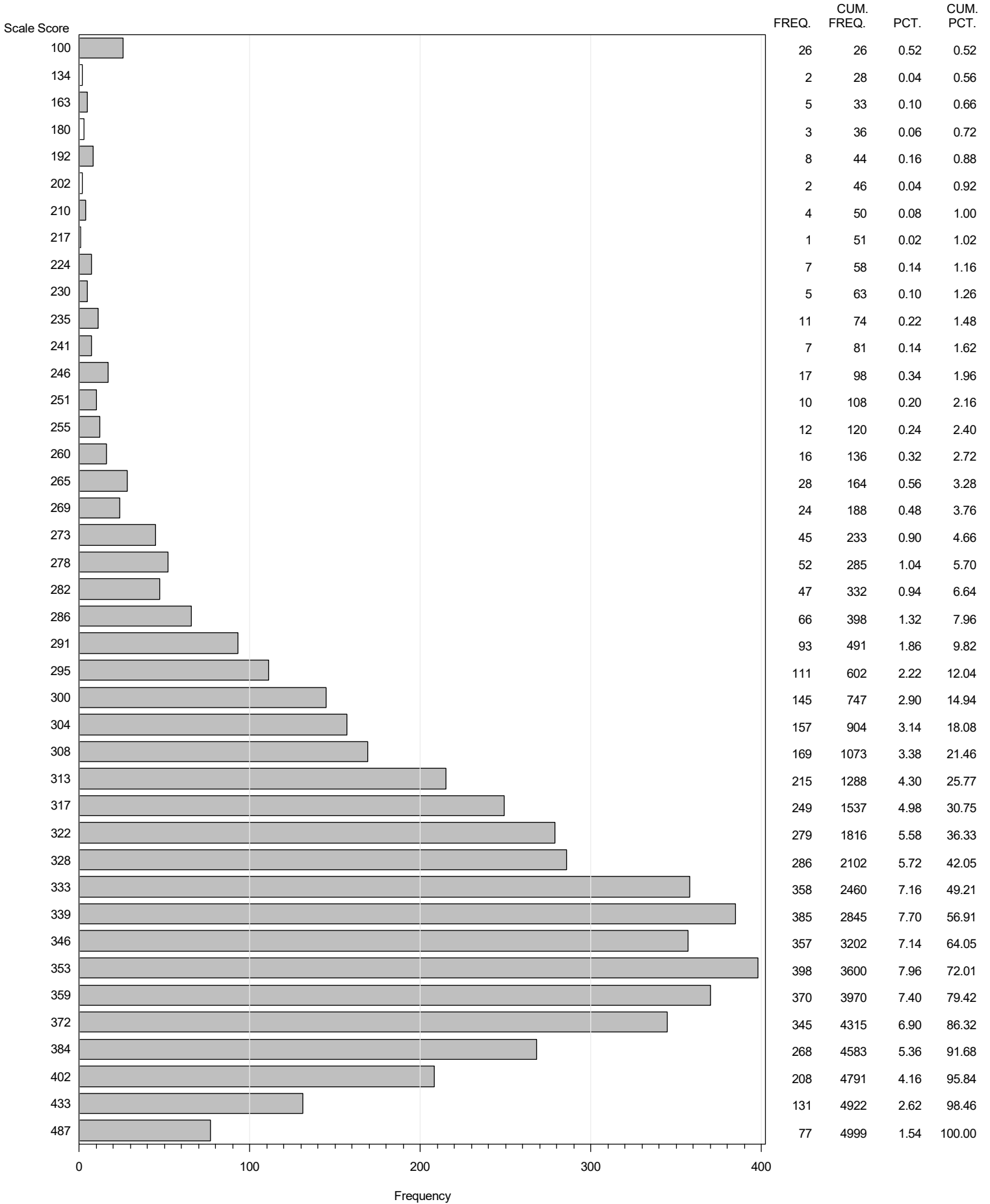
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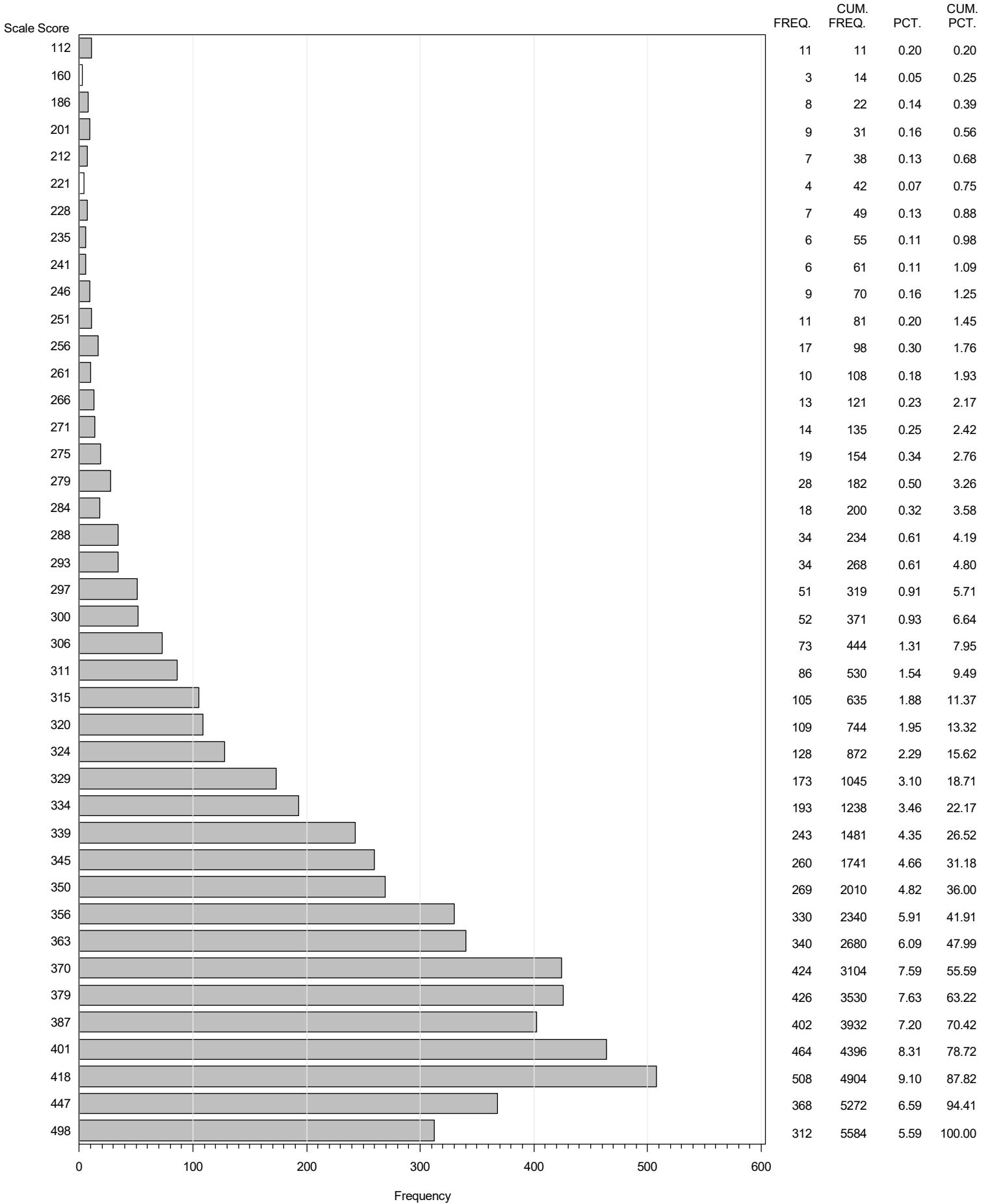
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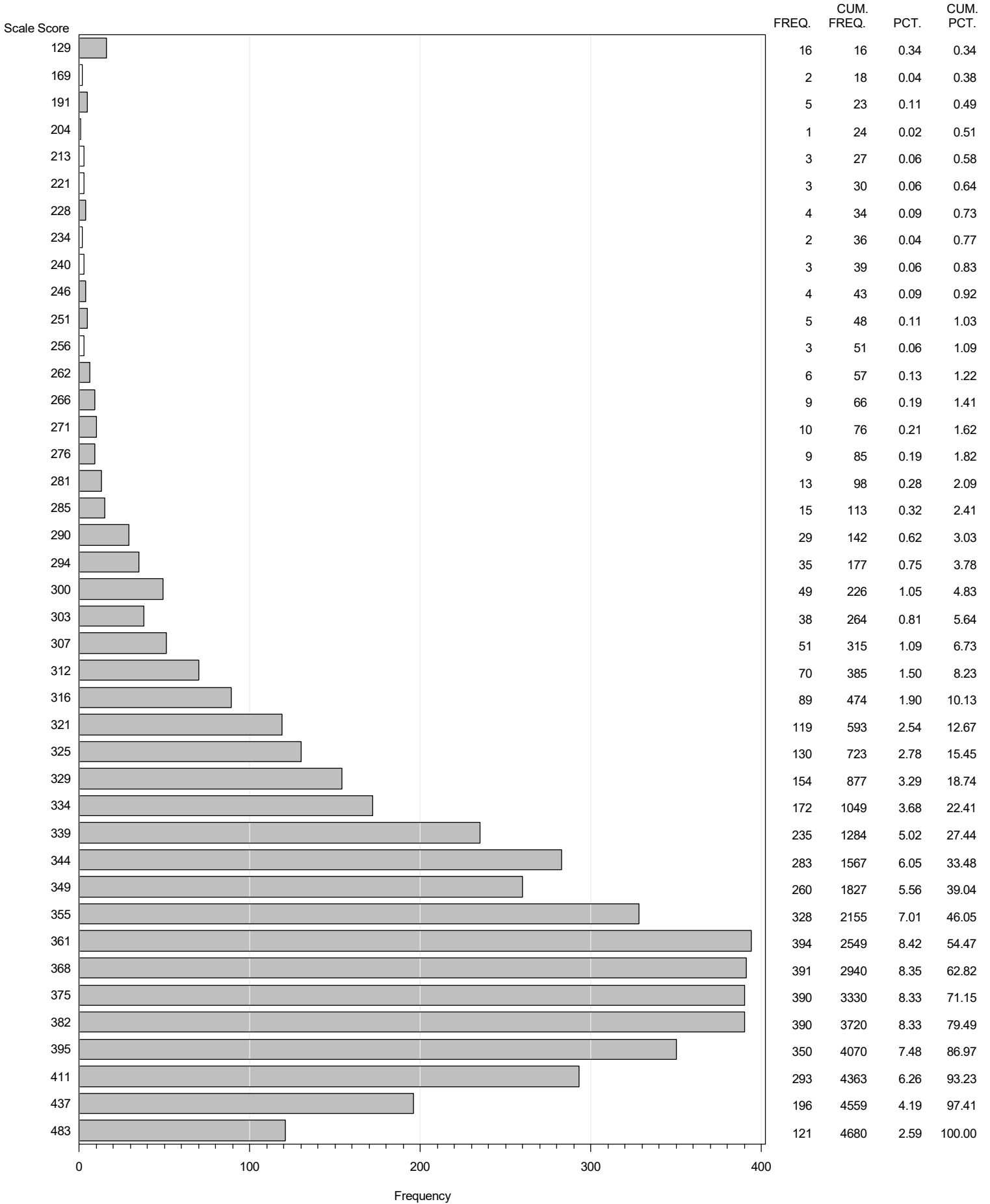
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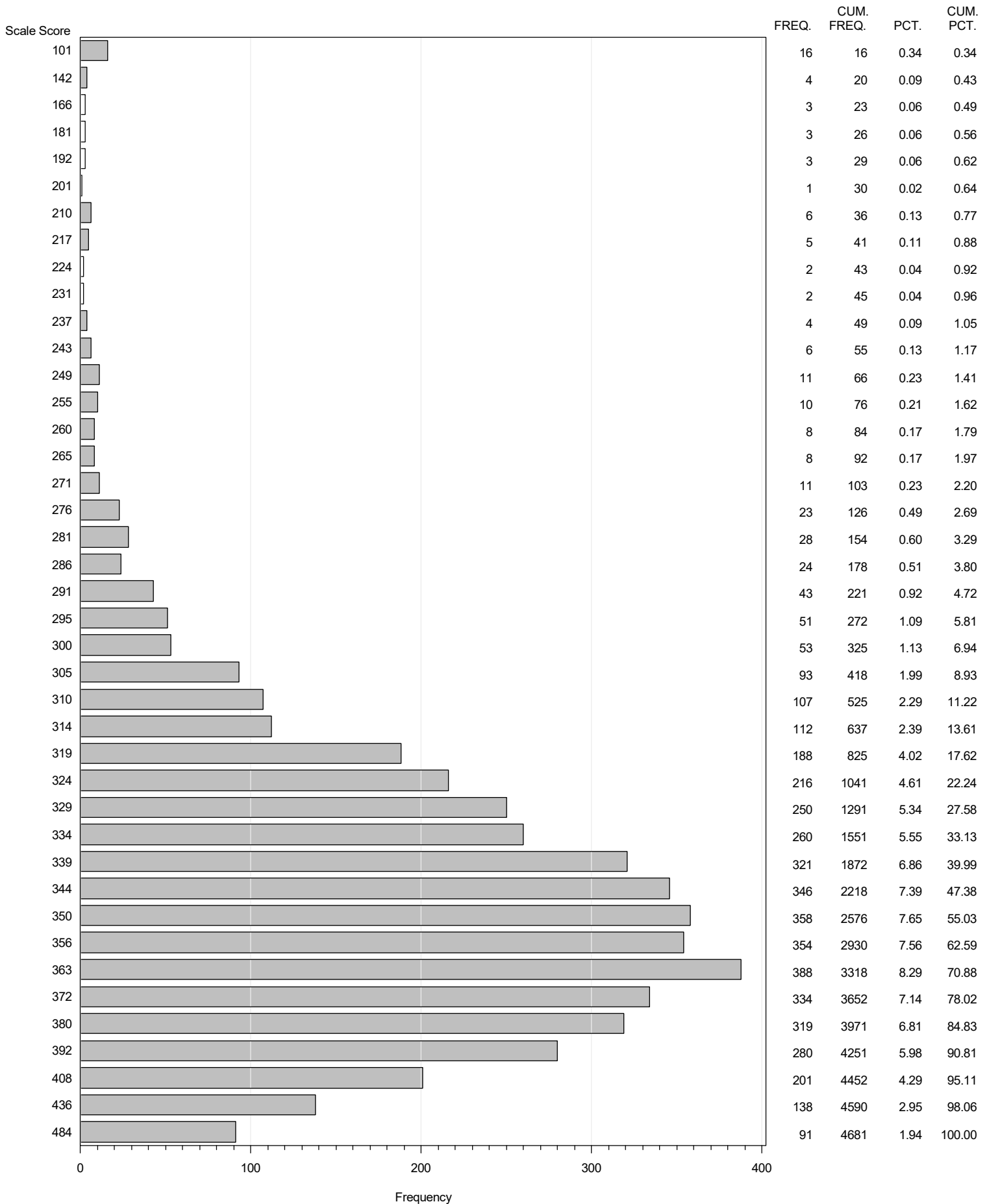
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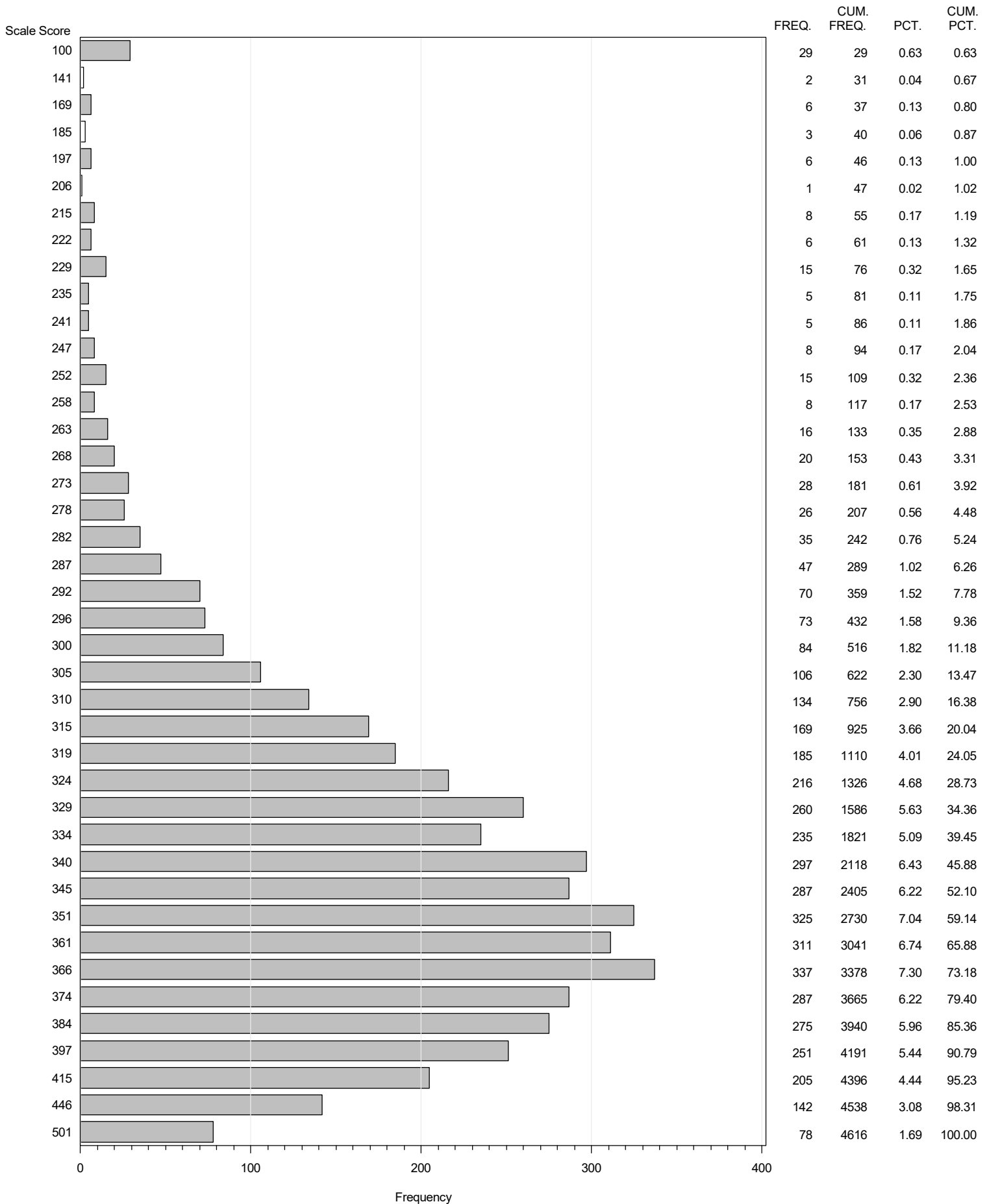
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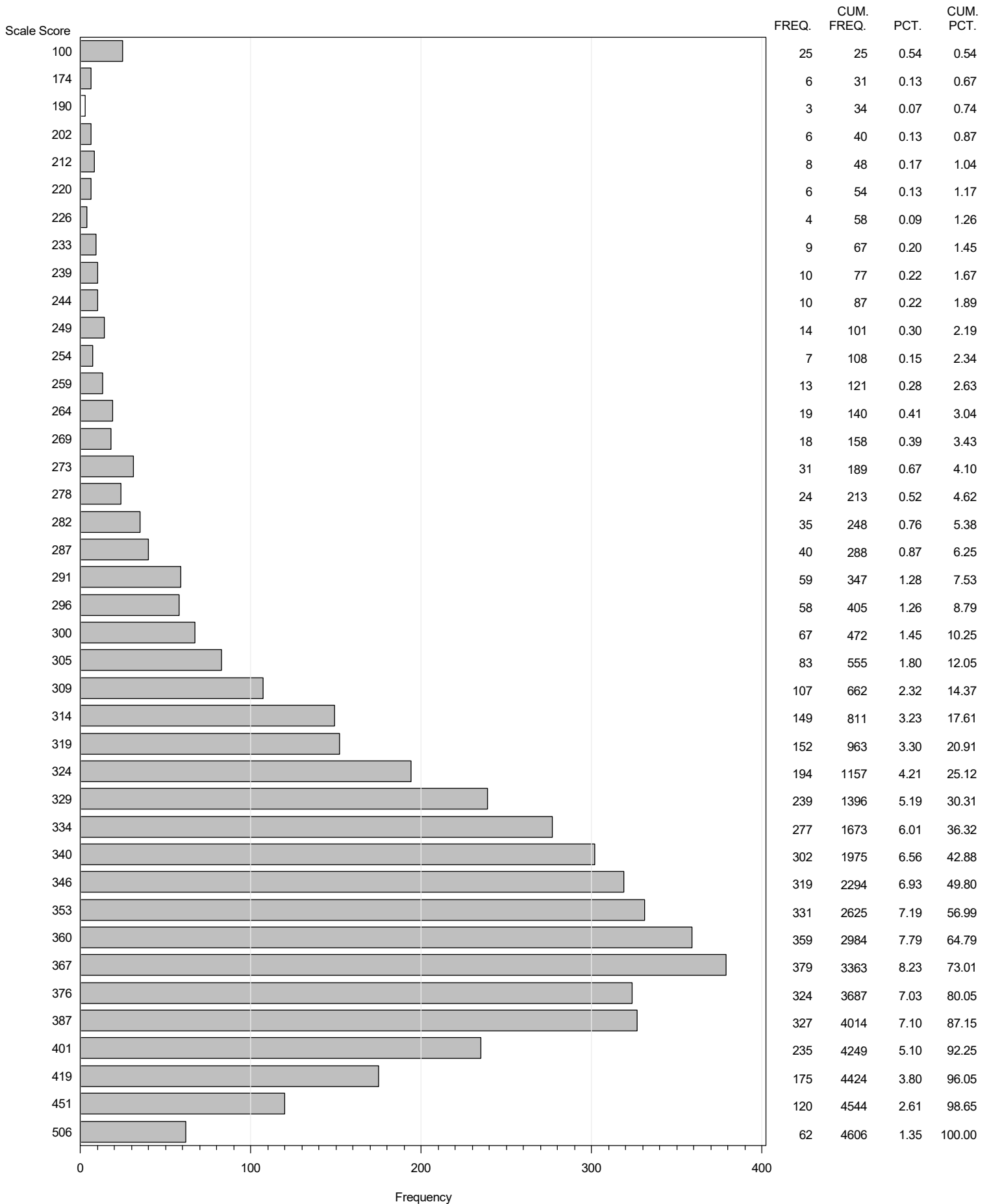
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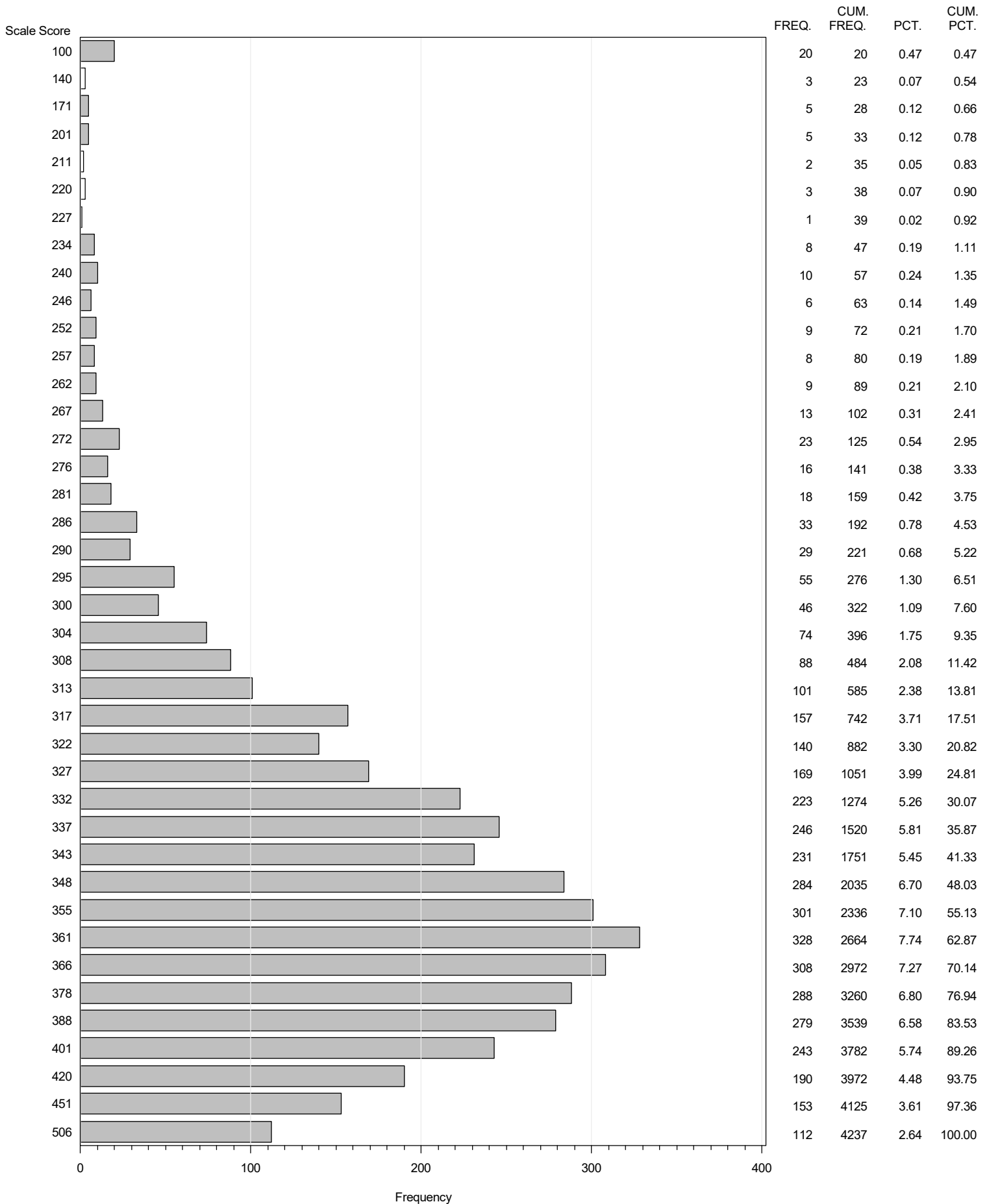
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 ALGEBRA I
 ALL STUDENTS



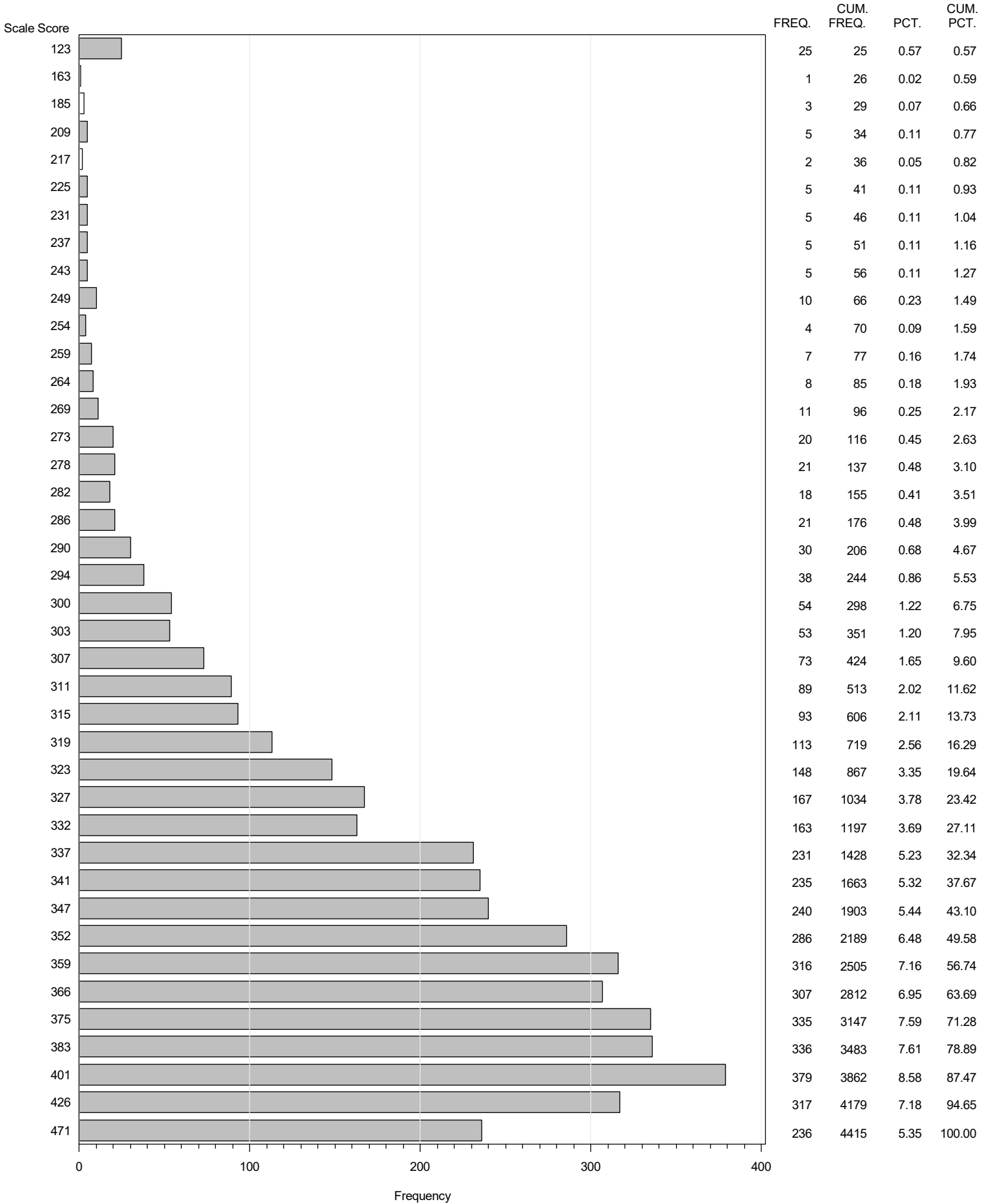
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