

**STAAR Modified
2014 Score Distribution 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 2014 Score Distributions and Statistics by Content Area and Grade") of Appendix D. 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.

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

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.

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

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: $\text{PCT} = \text{FREQ} \div N \times 100$.

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: $\text{CUM PCT} = \text{CUM FREQ} \div N \times 100$.

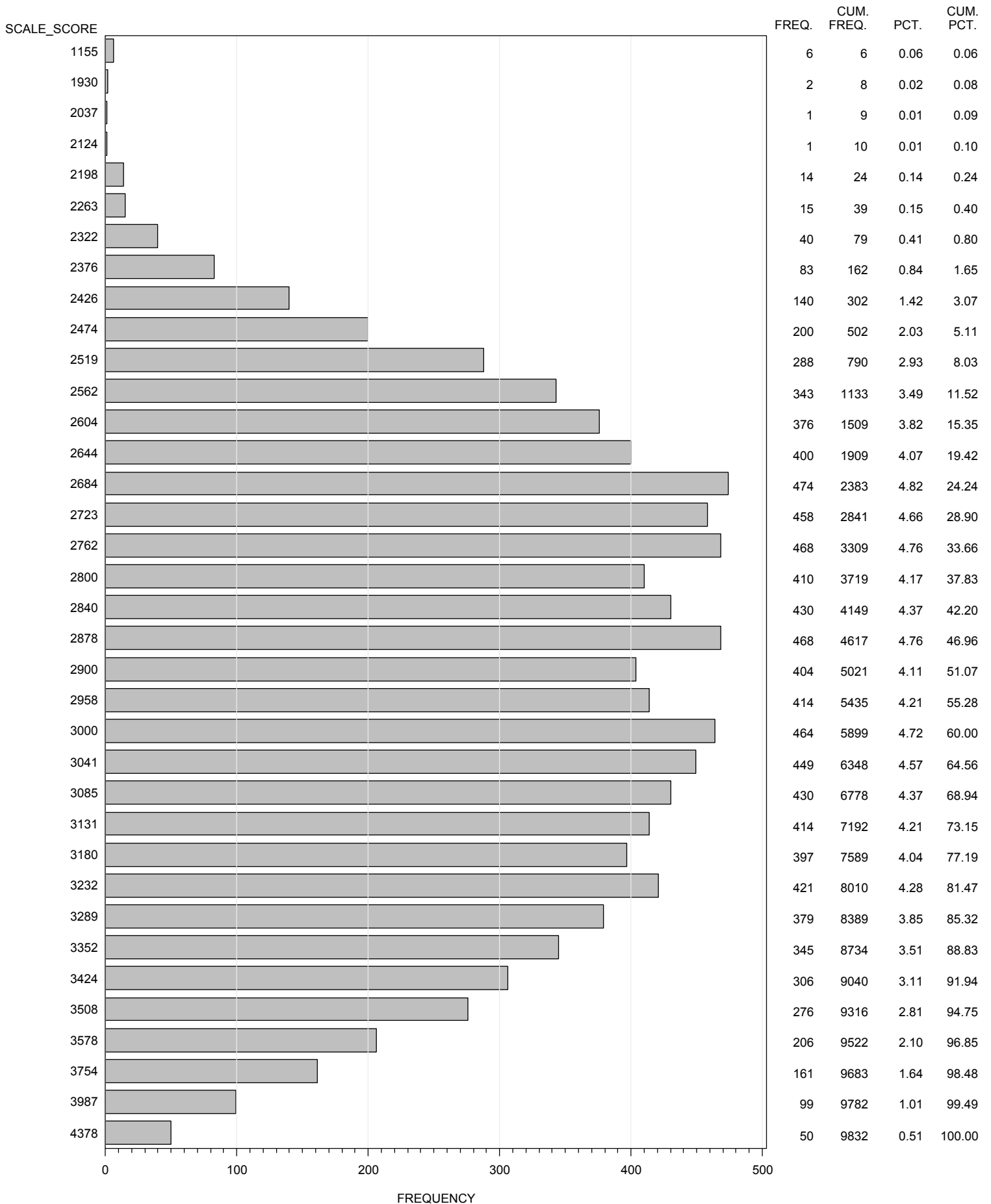
Scale Score Descriptive Statistics for 2014 STAAR Modified 3–8 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Range					
GRADE 3 MATHEMATICS	9844	2964.25	2900	2684	3223	457		344.98	119009.10	0.6687	1.3501
GRADE 4 MATHEMATICS	13237	2952.62	2921	2750	3039	426		307.07	94290.99	0.6460	1.1306
GRADE 5 MATHEMATICS	15724	2989.87	2936	2765	3938	476		357.34	127691.33	0.6625	0.8343
GRADE 6 MATHEMATICS	15164	2891.84	2872	2735	4529	413		329.32	108448.93	0.4112	2.5255
GRADE 7 MATHEMATICS	14686	2881.52	2852	2760	4660	412		305.41	93274.50	0.3599	2.2432
GRADE 8 MATHEMATICS	13802	2903.16	2867	2739	4650	386		325.86	106184.14	0.2831	2.3938
GRADE 3 READING	11275	2918.47	2900	2900	2354	273		219.28	48085.31	0.5784	1.2714
GRADE 4 READING	14520	2904.55	2900	2864	2287	274		204.65	41881.91	0.3447	0.6048
GRADE 5 READING	16590	2959.21	2925	2830	2720	291		225.88	51022.48	0.4707	0.7648
GRADE 6 READING	15406	2906.86	2900	2871	2804	296		232.73	54165.41	0.2280	1.6038
GRADE 7 READING	14637	2901.84	2900	2837	2796	307		222.11	49332.45	0.4552	0.9293
GRADE 8 READING	13231	2929.94	2914	3000	2558	327		220.03	48411.00	0.2977	0.9472
GRADE 4 WRITING	14449	2871.60	2850	2656	3507	449		334.37	111801.71	0.5631	0.9405
GRADE 7 WRITING	14619	2948.26	2944	2900	3696	423		309.08	95532.62	-0.0274	1.2820
GRADE 5 SCIENCE	13285	2870.11	2844	2963	2217	323		264.44	69927.14	0.6115	1.0683
GRADE 8 SCIENCE	11774	2946.67	2943	3097	3346	401		289.19	83629.29	0.3064	1.0495
GRADE 8 SOCIAL STUDIES	11548	2876.48	2836	2800	3026	284		228.71	52309.35	0.6044	2.6869

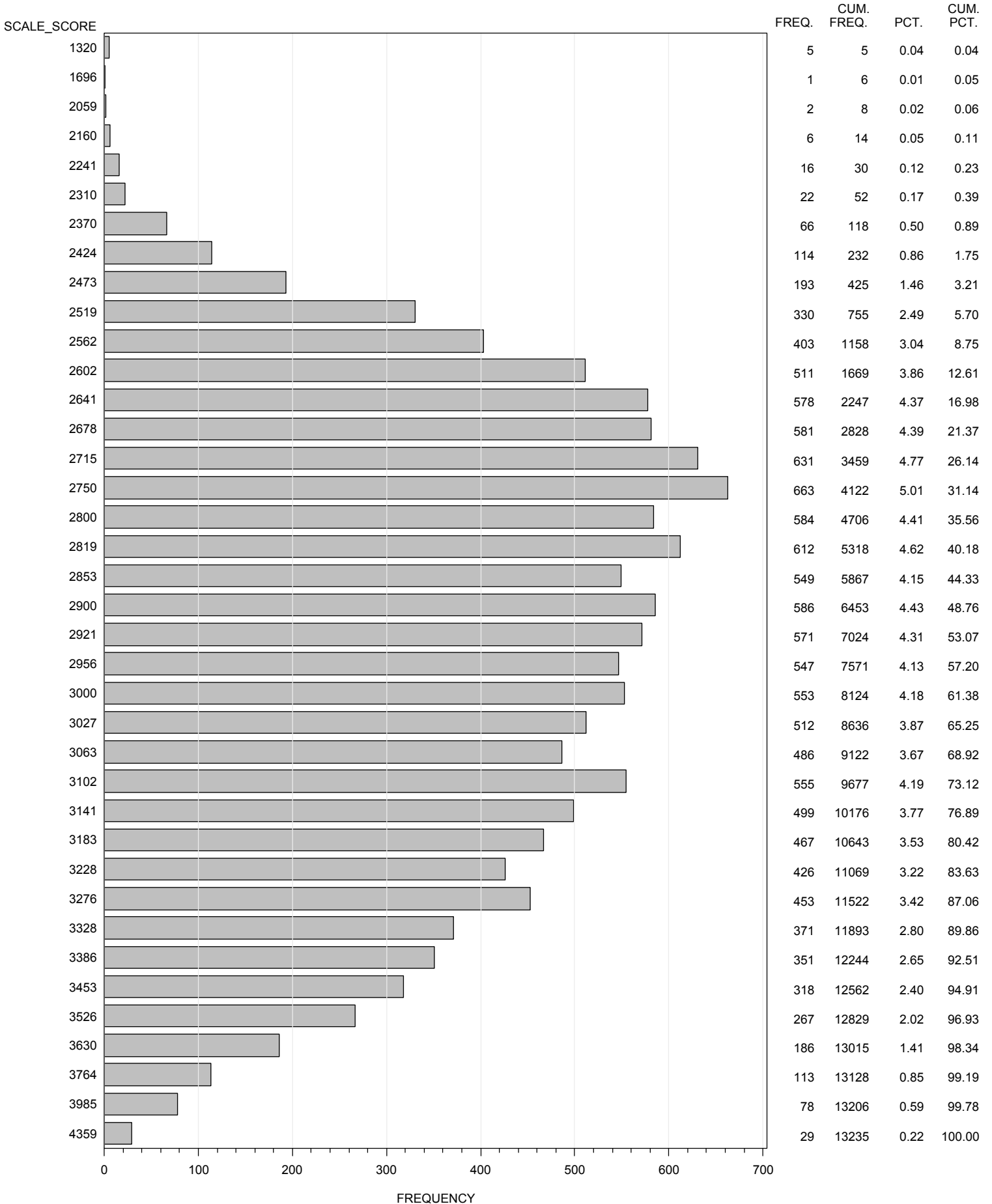
Scale Score Descriptive Statistics for 2014 STAAR Modified EOC Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile Range	SD	Variance	Skewness	Kurtosis
ALGEBRA I	13716	2786.32	2765	2765	3606	285	231.69	53680.71	-0.1989	5.6782
ENGLISH I	12893	2909.88	2909	3000	3334	391	290.70	84503.88	-0.4967	3.8675
ENGLISH II	12198	2996.40	2977	3074	3782	418	298.77	89262.54	-0.1542	1.9013
BIOLOGY	11159	2817.17	2800	2689	3466	307	233.90	54711.33	0.2981	3.0310

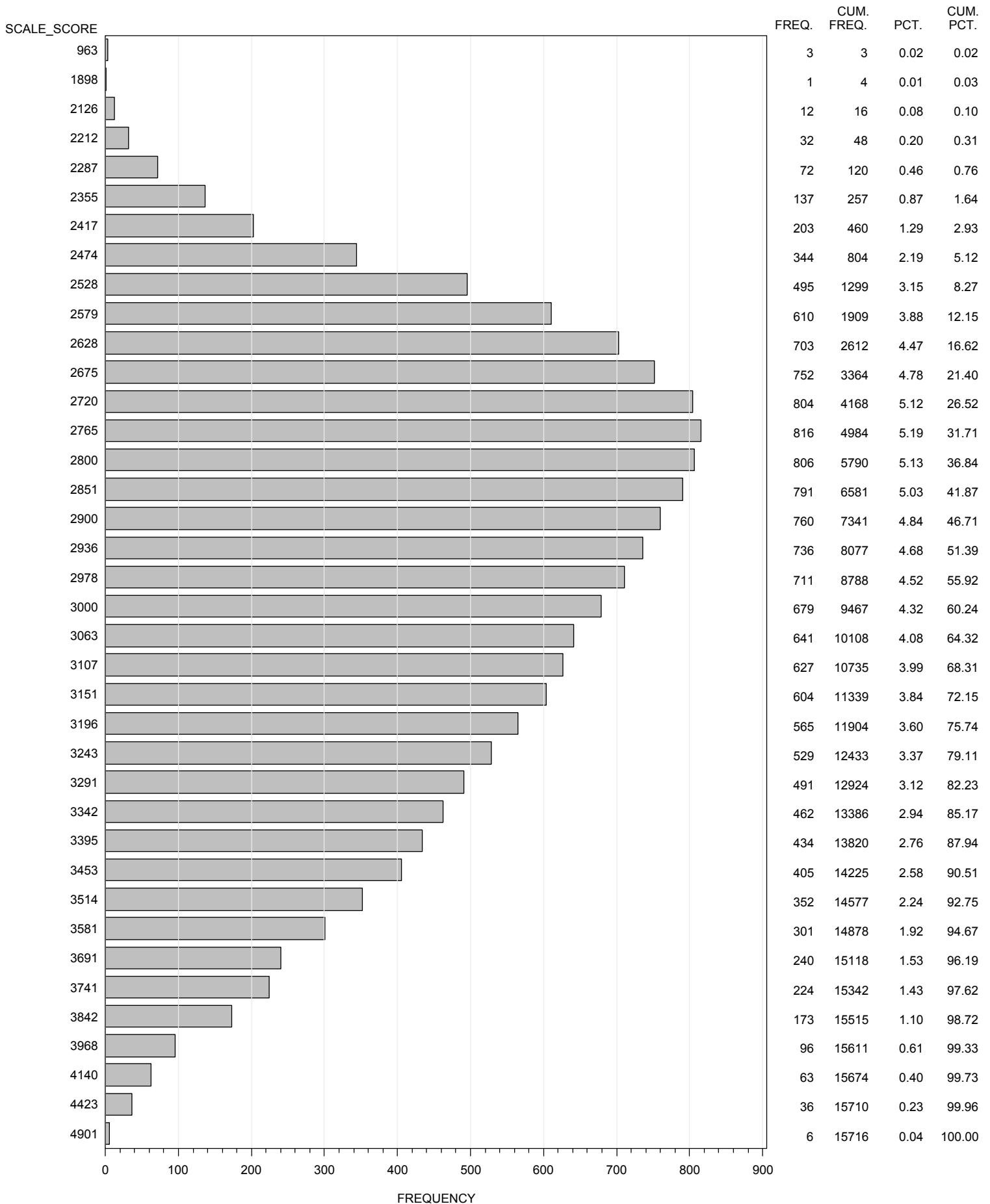
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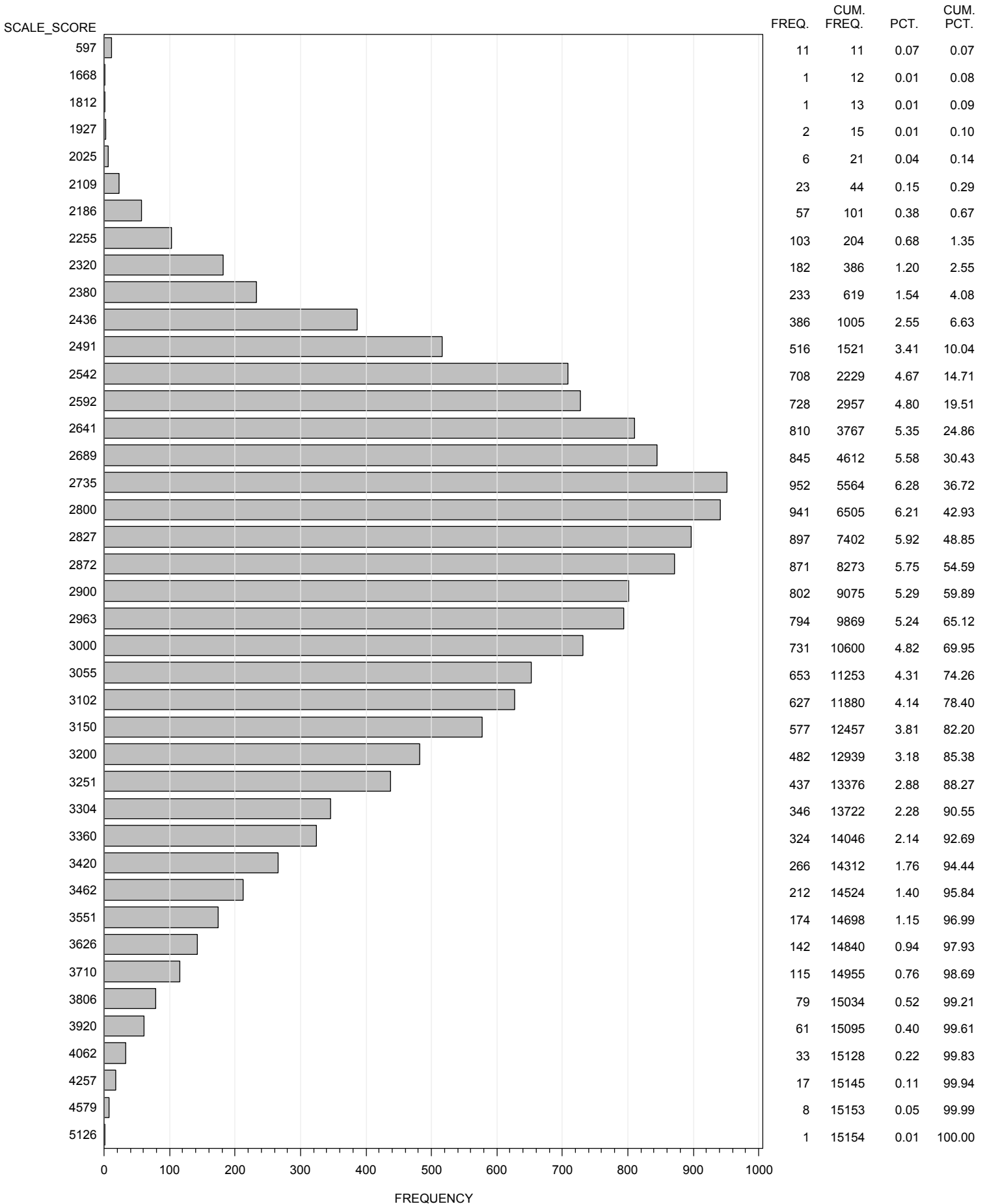
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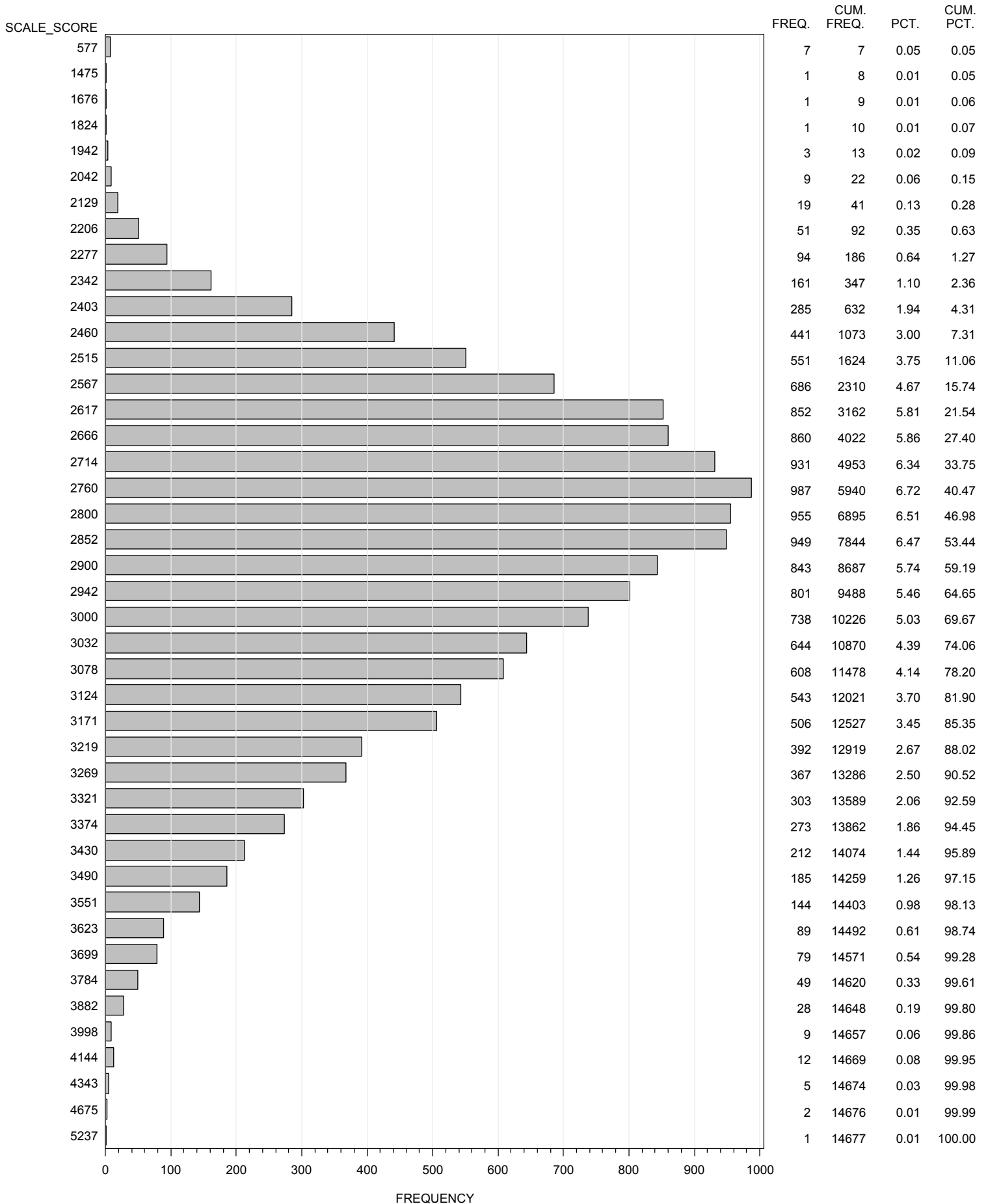
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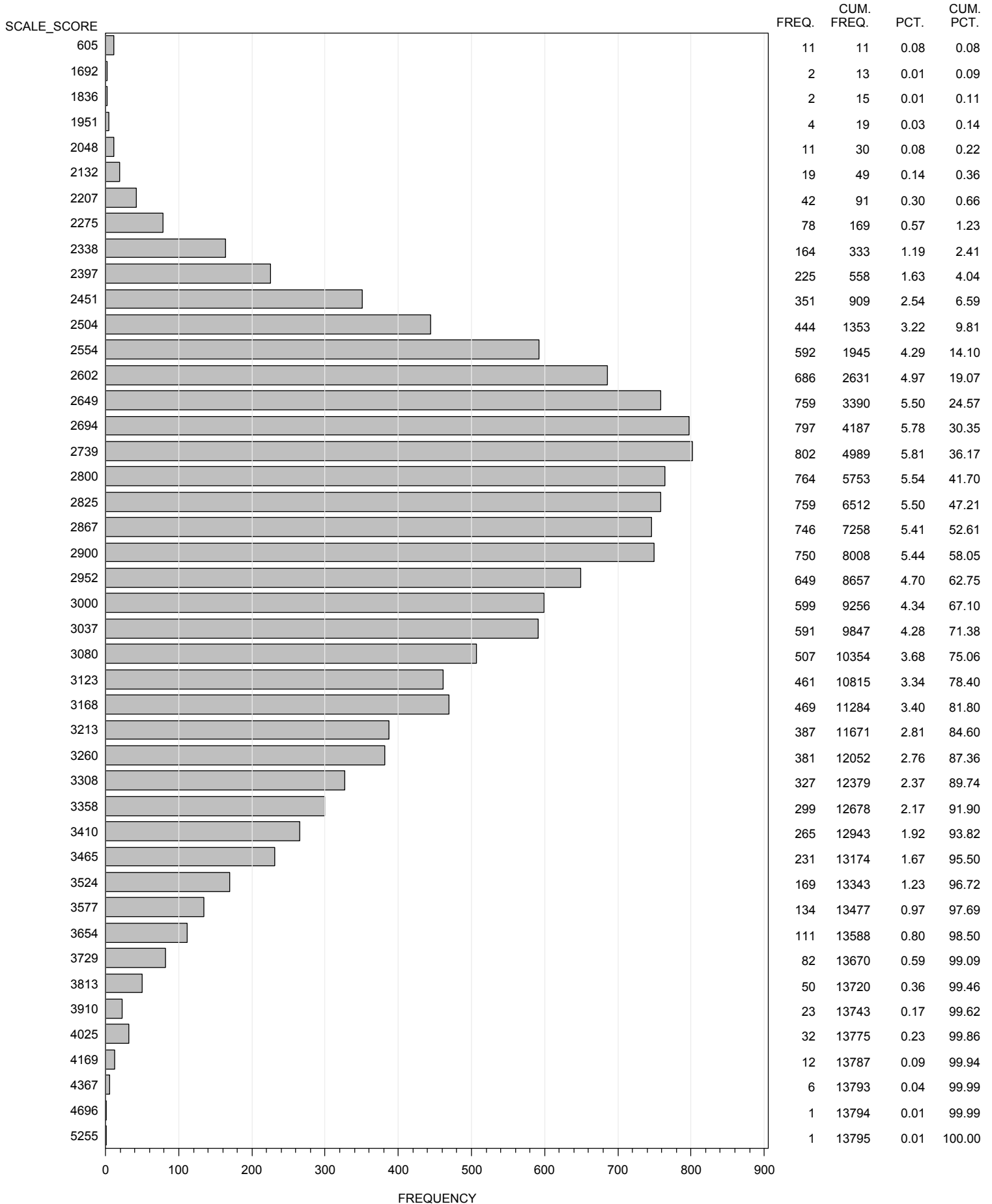
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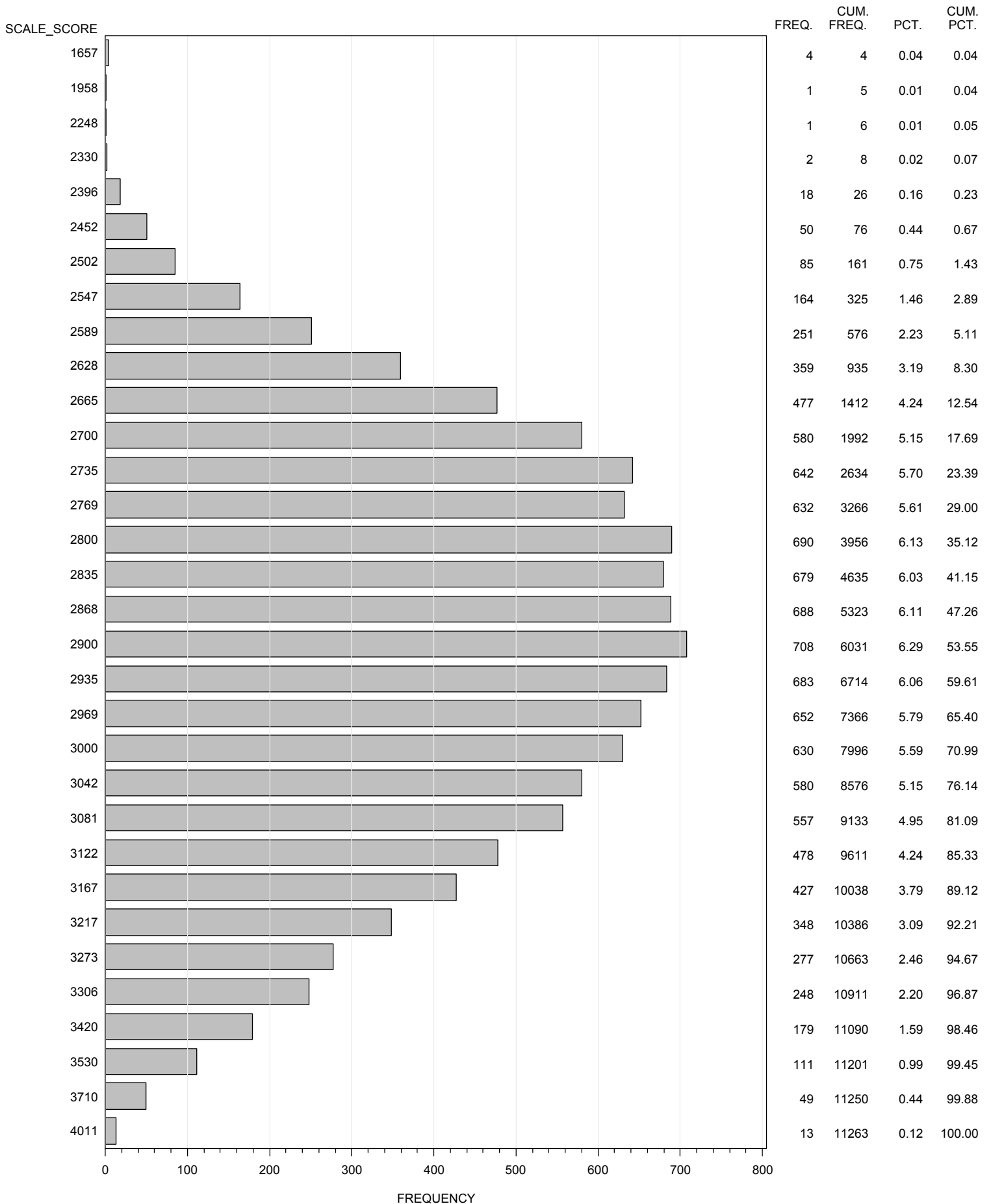
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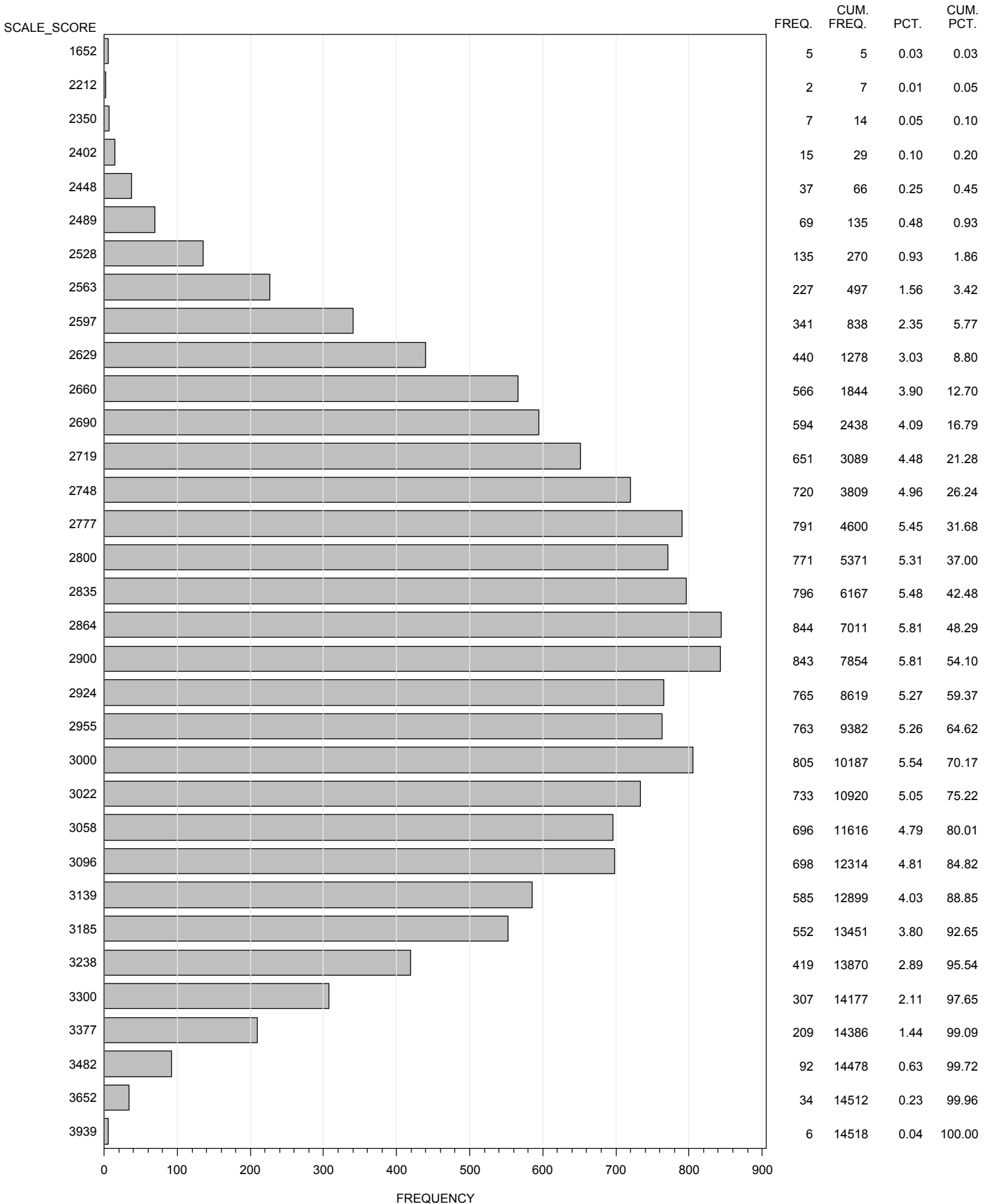
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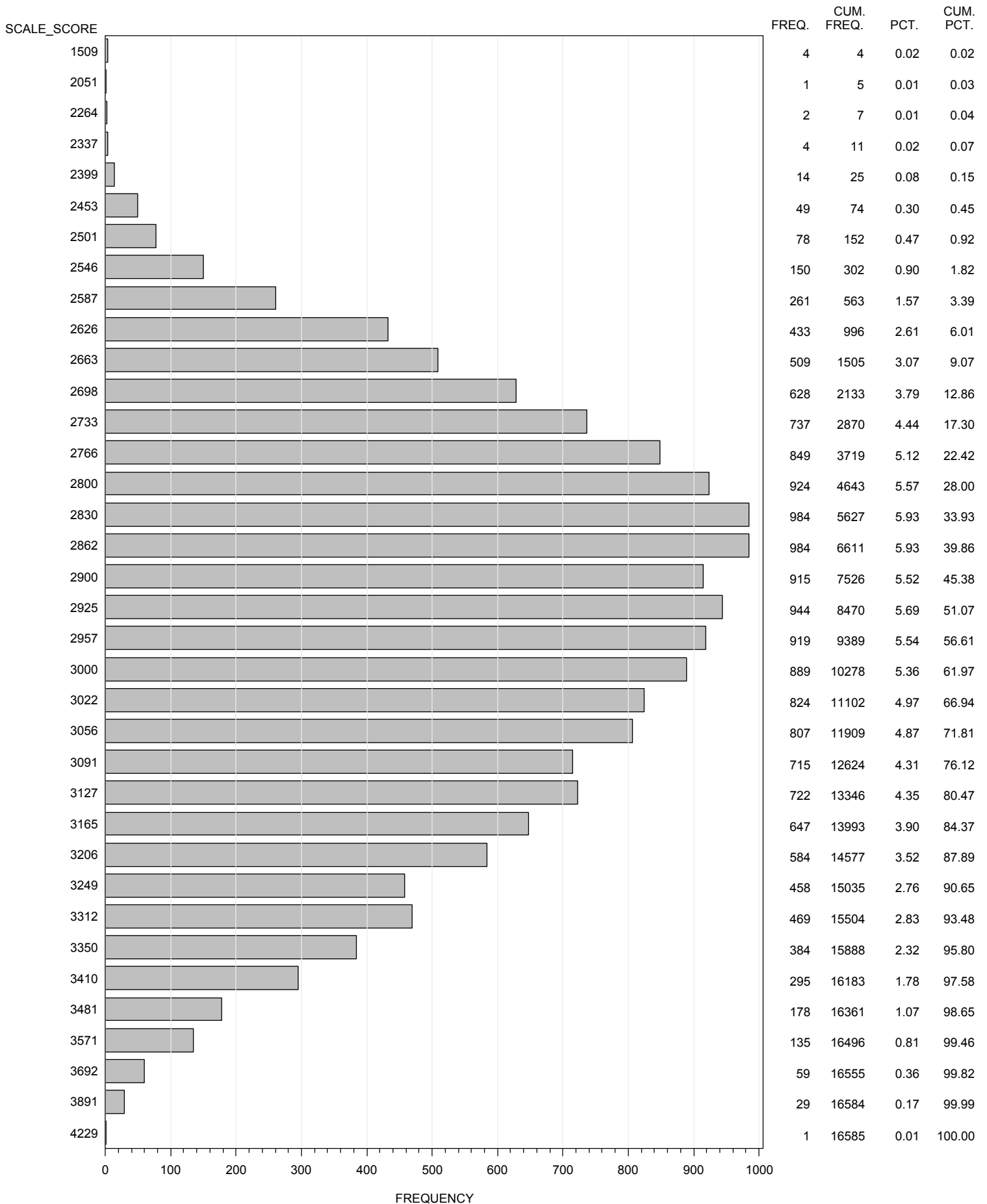
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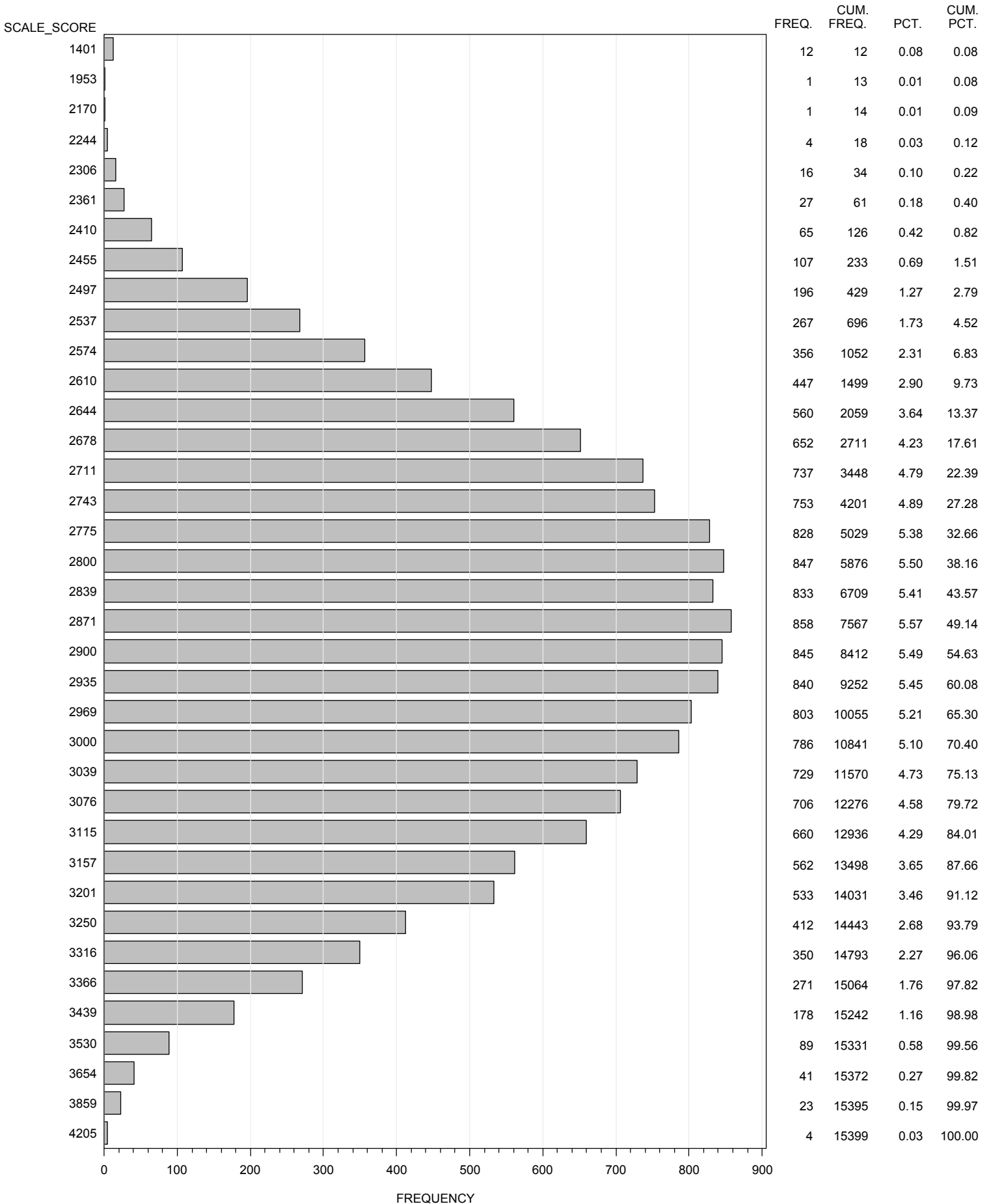
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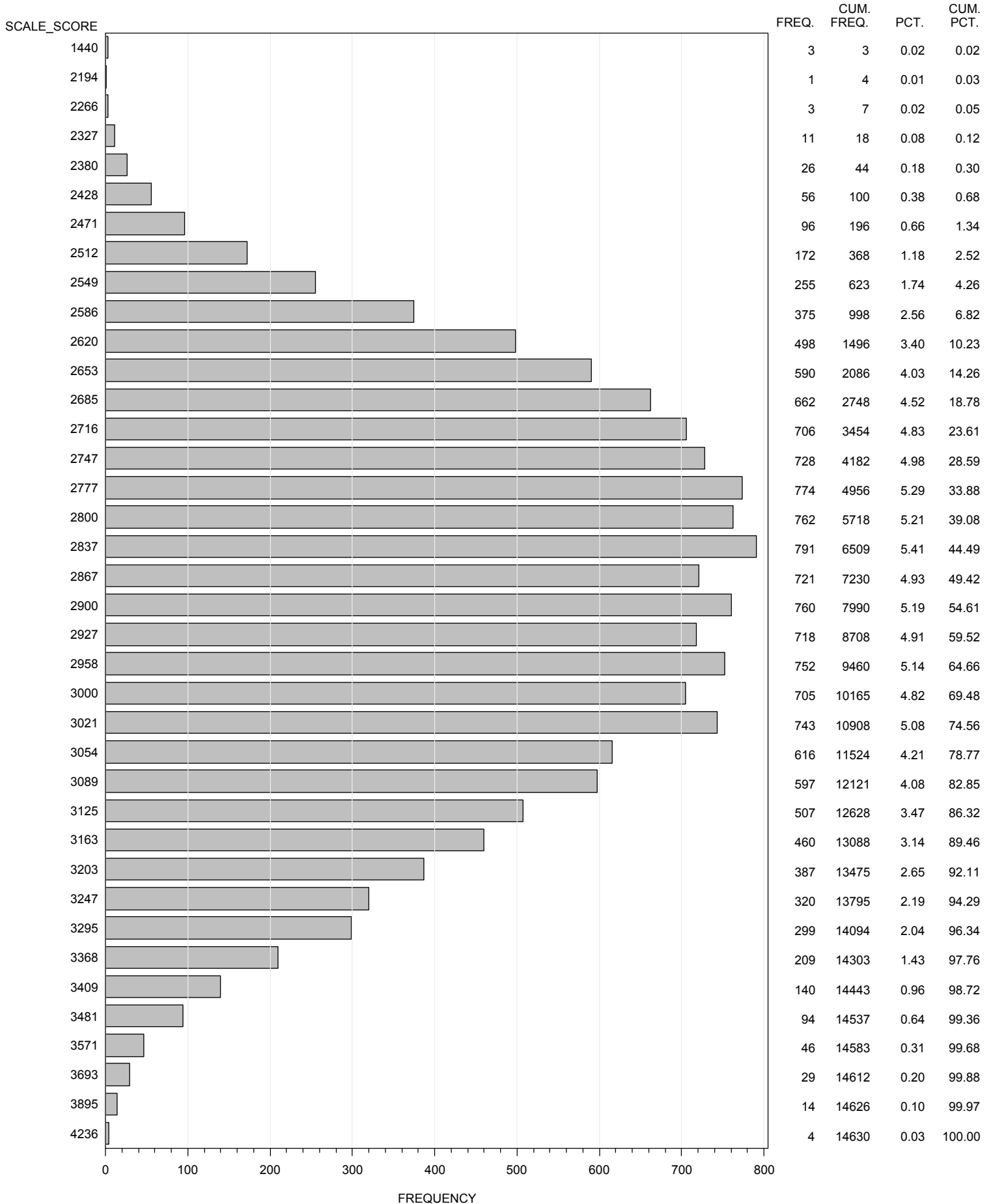
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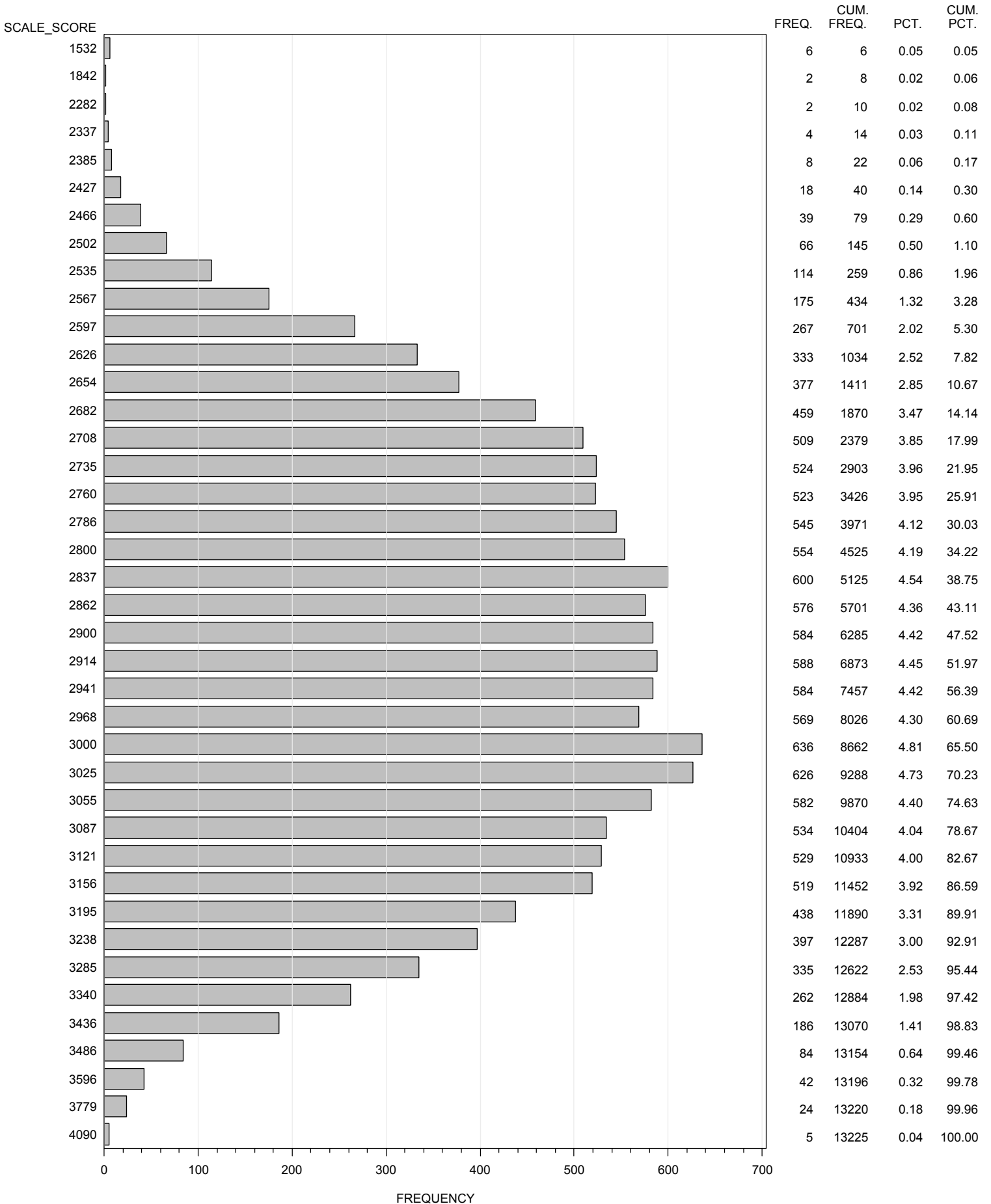
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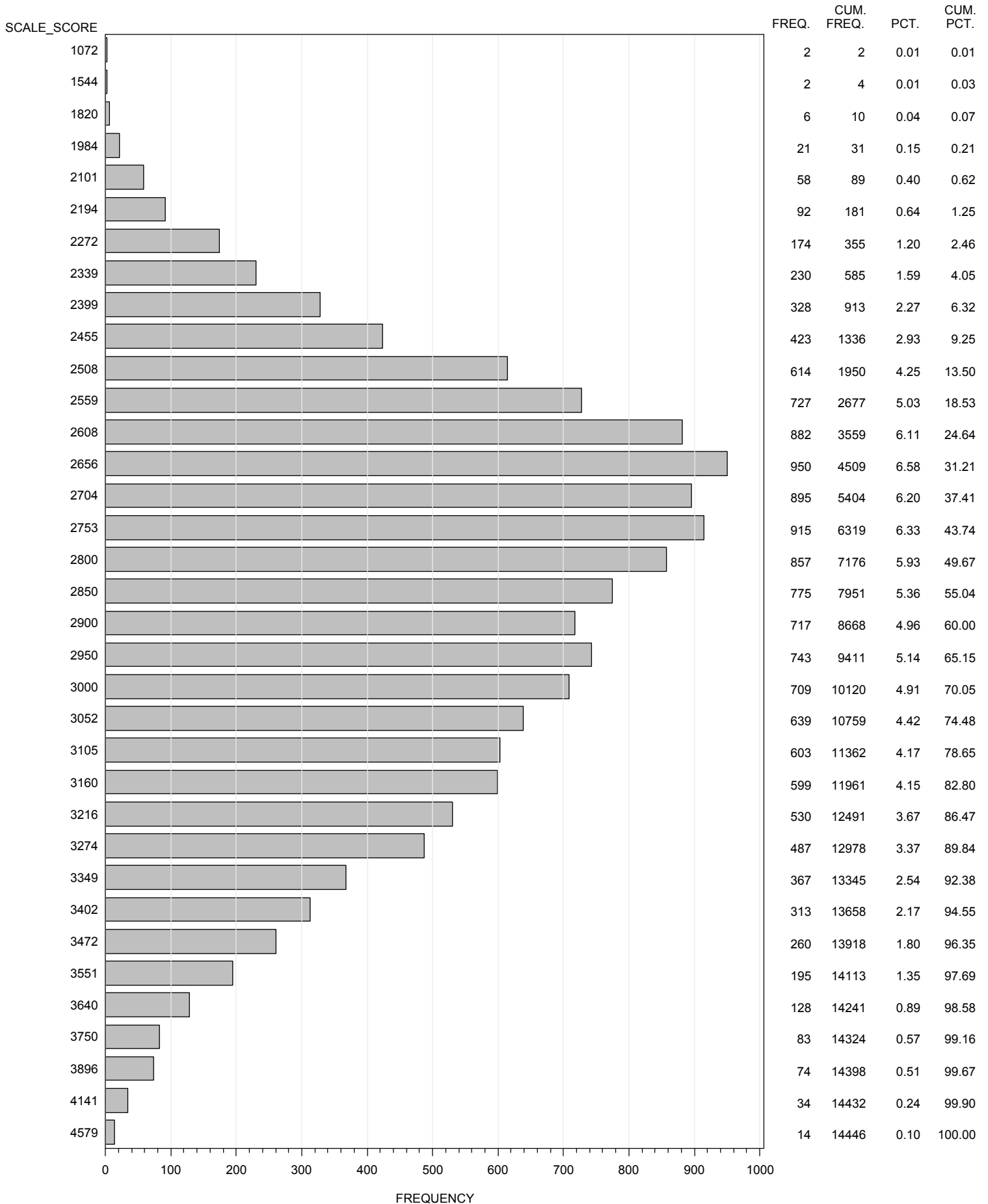
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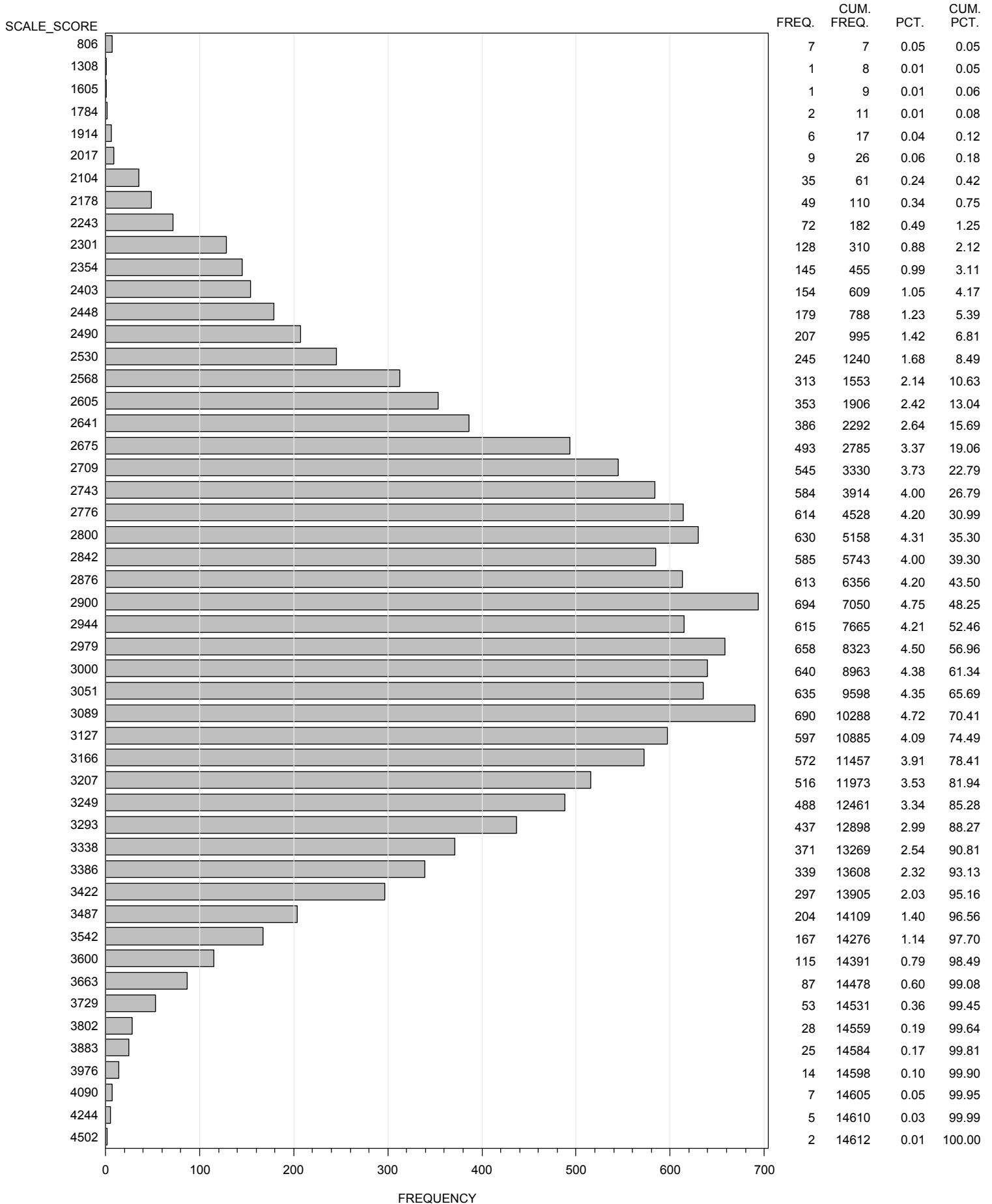
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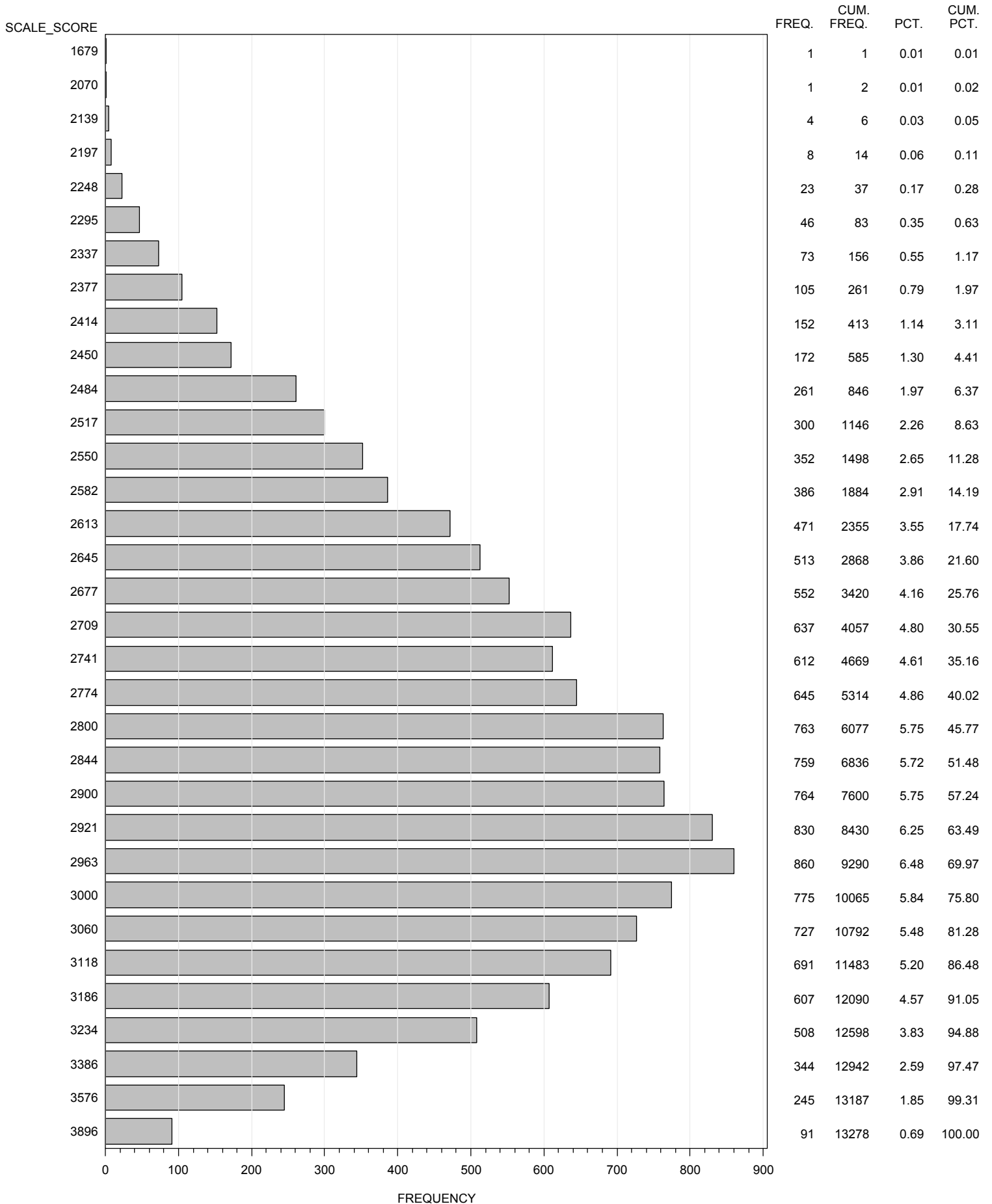
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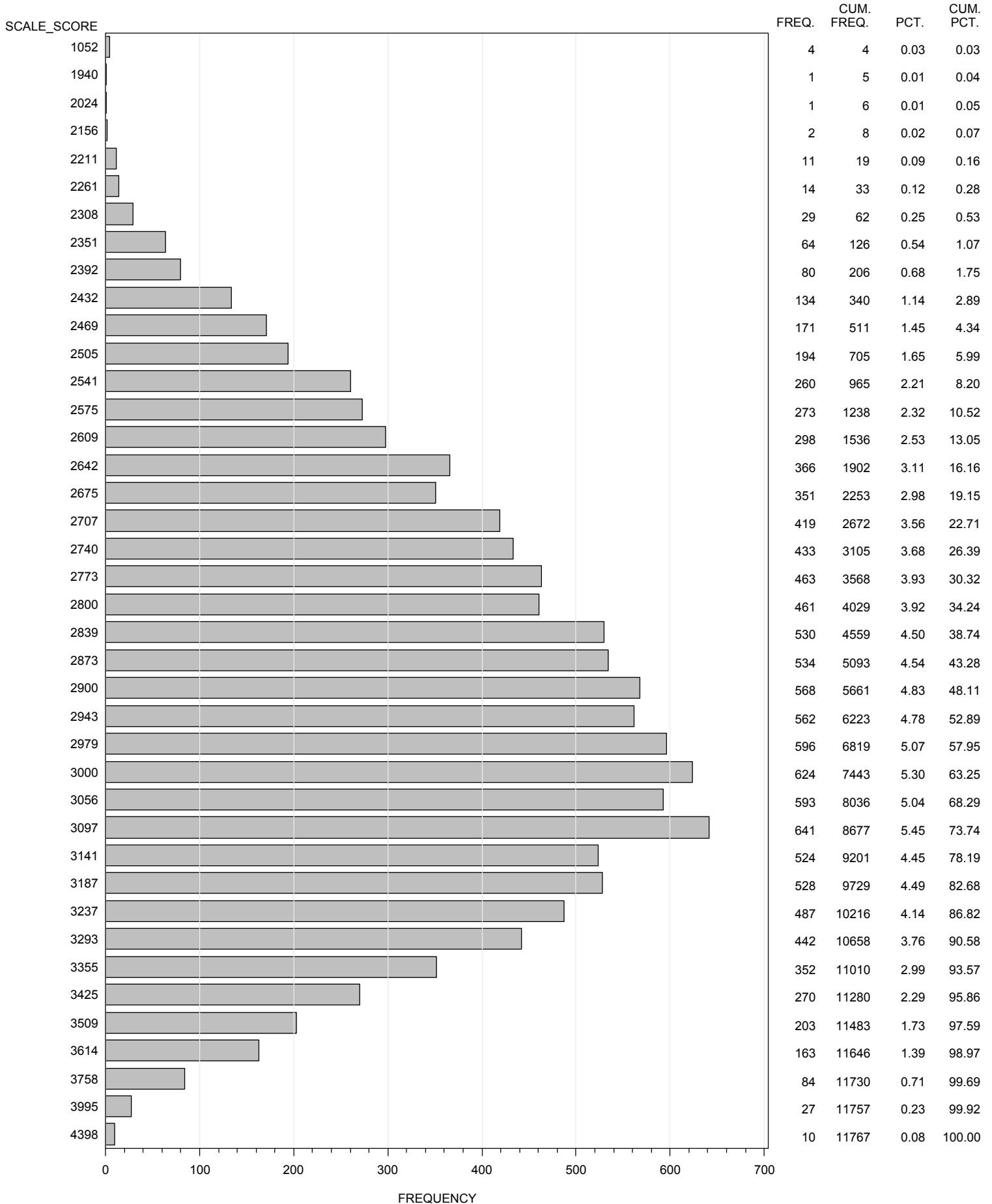
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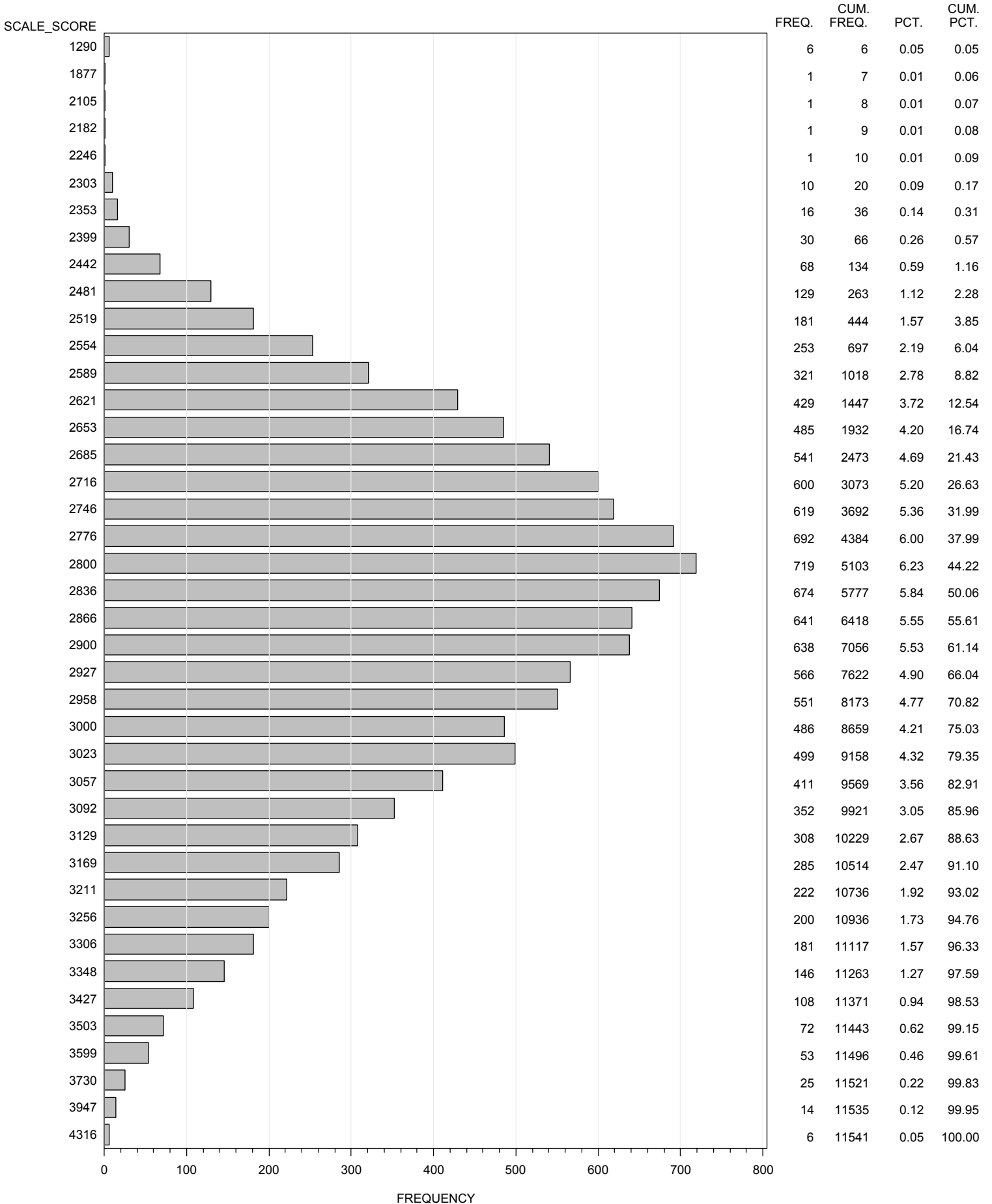
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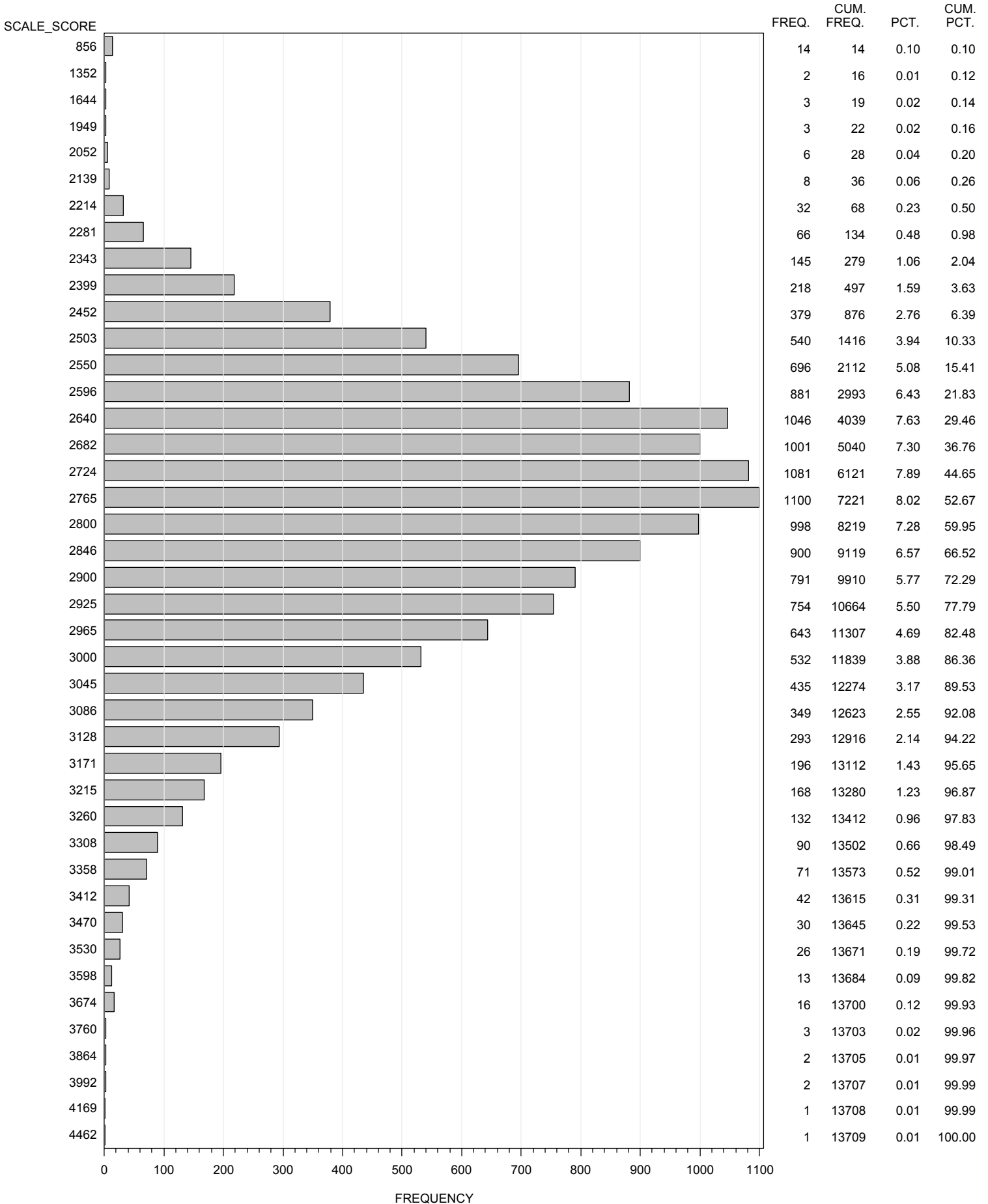
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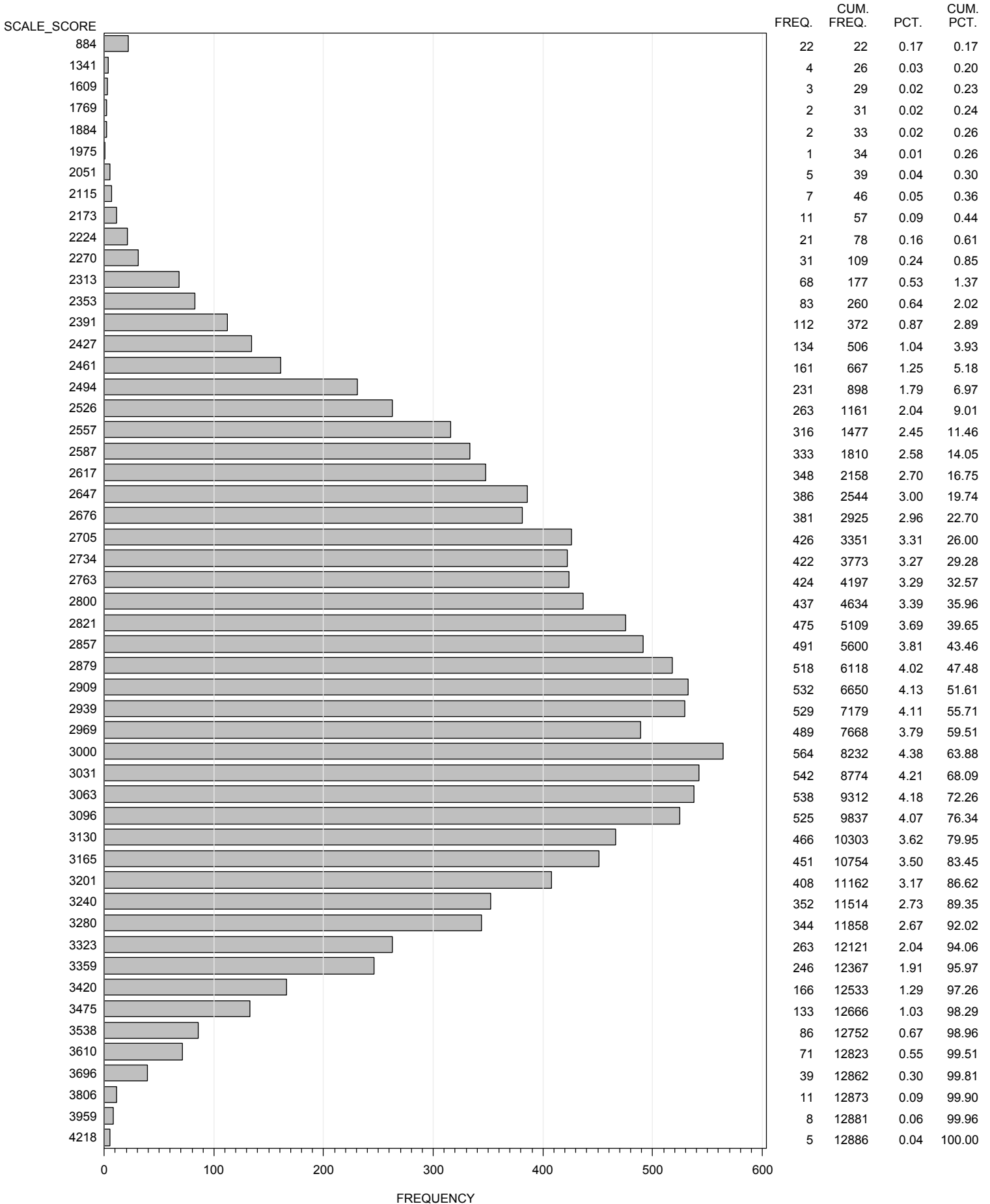
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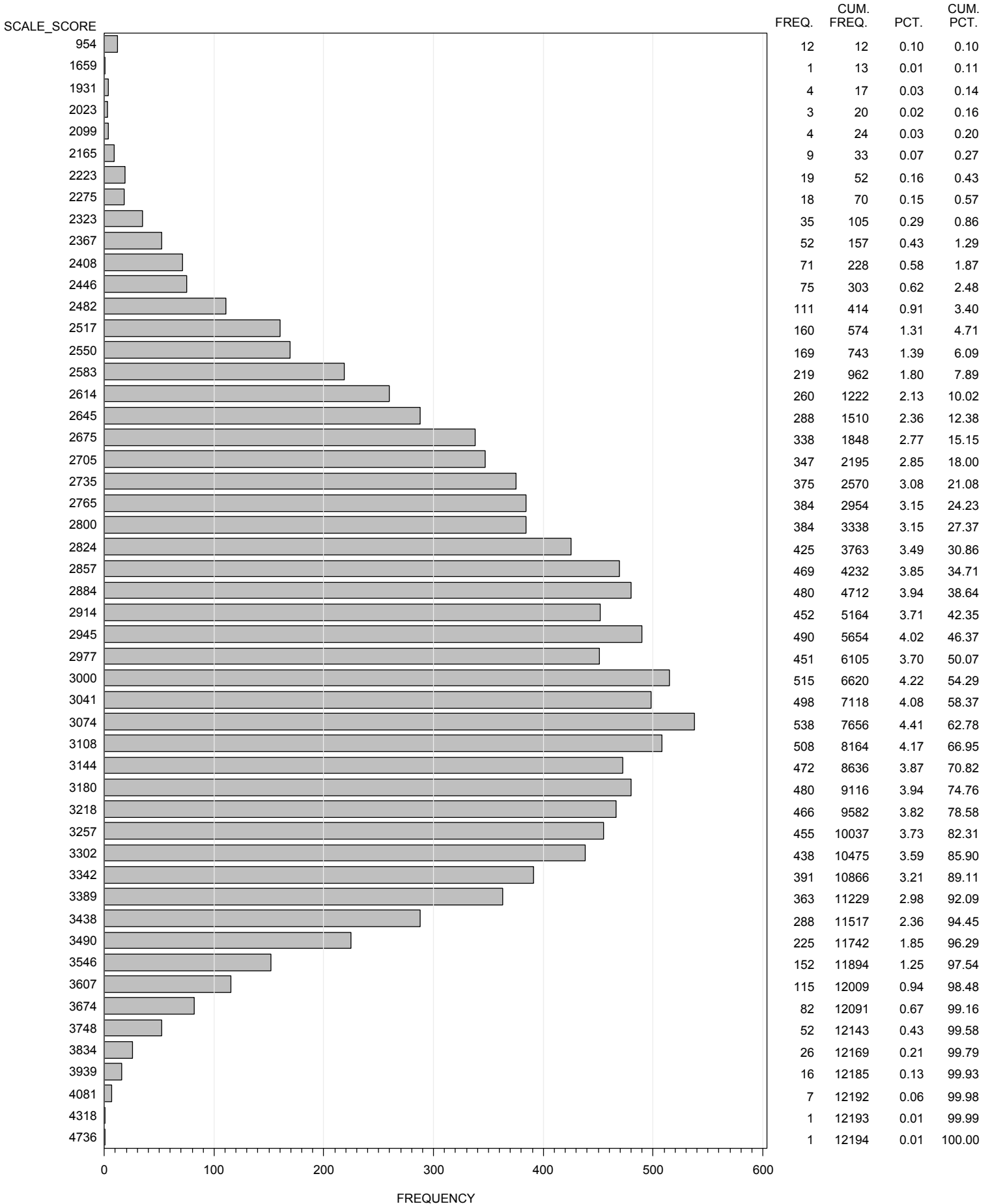
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FREQUENCY DISTRIBUTION - SCALE SCORES
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 ENGLISH I
 ALL STUDENTS



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 BIOLOGY
 ALL STUDENTS

