

STAAR
2014 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 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 English 3–8 Assessments

Subject	N	Mean	Median	Mode	Interquartile		SD	Variance	Skewness	Kurtosis
					Range	Range				
GRADE 3 MATHEMATICS	351877	1466.47	1460	1574	1174	197	148.22	21968.35	0.3732	0.3408
GRADE 4 MATHEMATICS	353915	1552.21	1544	1656	1175	181	145.65	21214.22	0.4217	0.3567
GRADE 5 MATHEMATICS	354976	1601.10	1600	1710	1186	190	143.06	20465.11	0.4120	0.5462
GRADE 6 MATHEMATICS	348035	1623.30	1602	1787	1189	200	145.00	21025.36	0.6597	0.5696
GRADE 7 MATHEMATICS	337105	1622.83	1602	1527	1207	173	128.79	16587.26	0.7824	1.0773
GRADE 8 MATHEMATICS	305158	1675.61	1659	1641	1197	152	121.22	14695.08	0.6788	1.4435
GRADE 3 READING	336487	1426.26	1429	1518	1167	187	132.21	17480.48	0.2184	0.2314
GRADE 4 READING	338867	1503.46	1502	1610	1176	183	127.53	16263.57	0.3106	0.1813
GRADE 5 READING	349344	1553.00	1555	1631	1183	173	128.76	16580.04	0.2364	0.2132
GRADE 6 READING	355712	1587.73	1586	1653	1190	164	123.57	15270.25	0.2259	0.4443
GRADE 7 READING	364996	1632.39	1626	1713	1210	169	120.79	14589.71	0.1565	0.1504
GRADE 8 READING	357165	1683.60	1683	1762	1217	162	124.74	15559.73	0.3708	0.6341
GRADE 4 WRITING	337250	3771.32	3750	3892	5530	703	506.00	256034.55	0.2713	0.5409
GRADE 7 WRITING	364739	3744.61	3750	3695	5806	651	513.66	263850.20	0.4089	1.0512
GRADE 5 SCIENCE	356236	3793.24	3750	4000	4545	585	469.73	220645.36	0.4133	0.6446
GRADE 8 SCIENCE	355031	3861.45	3846	4123	5700	826	620.84	385439.17	0.4912	0.6844
GRADE 8 SOCIAL STUDIES	357126	3679.35	3651	3343	4939	696	495.24	245265.97	0.4953	0.3330

Scale Score Descriptive Statistics for 2014 STAAR Spanish 3–5 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Range					
GRADE 3 MATHEMATICS	18774	1426.55	1423	1502	1174	194		140.18	19650.62	0.4171	0.5722
GRADE 4 MATHEMATICS	9913	1485.92	1471	1556	1175	188		134.36	18053.46	0.4464	0.3058
GRADE 5 MATHEMATICS	3906	1478.75	1472	1356	1186	186		131.55	17304.40	0.3977	0.3952
GRADE 3 READING	37365	1368.05	1363	1462	1355	200		146.64	21504.54	0.4316	0.3678
GRADE 4 READING	25121	1444.33	1442	1469	1405	207		147.11	21641.35	0.4323	0.4206
GRADE 5 READING	11873	1504.47	1492	1582	1417	191		147.21	21670.49	0.4299	0.5322
GRADE 4 WRITING	26207	3668.88	3676	3831	3912	764		542.90	294736.19	-0.0390	-0.1199
GRADE 5 SCIENCE	6571	3480.03	3466	3378	4545	548		400.83	160665.21	0.3866	0.5656

Scale Score Descriptive Statistics for 2014 STAAR EOC Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Q1	Q3				
ALGEBRA I	388683	3901.95	3855	3750	4737	636	487.74	237887.86	0.7446	1.4353	
ENGLISH I	469906	3906.02	3844	3900	5891	587	473.27	223986.66	0.5741	2.0016	
ENGLISH II	386487	3965.73	3916	4000	6083	671	525.35	275994.34	0.6075	1.7450	
BIOLOGY	359686	4009.96	4000	3917	4927	597	430.49	185318.77	0.3967	0.8836	
U.S. HISTORY	315065	4034.11	4000	4088	5546	529	420.49	176811.55	0.4487	1.0385	

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

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Range	Range				
GRADE 3 MATHEMATICS	4980	1363.16	1354	1354	1169	155		116.65	13607.35	0.4616	1.2519
GRADE 4 MATHEMATICS	1748	1428.25	1409	1320	1178	182		131.06	17177.50	0.4792	0.9323
GRADE 5 MATHEMATICS	1904	1461.29	1440	1331	1173	171		131.07	17180.12	0.4811	1.3469
GRADE 6 MATHEMATICS	4409	1488.15	1463	1417	1191	146		116.63	13601.40	1.1363	2.8455
GRADE 7 MATHEMATICS	5126	1509.66	1487	1465	1063	98		94.22	8878.14	1.0842	2.8292
GRADE 8 MATHEMATICS	4820	1553.30	1532	1500	847	117		102.70	10547.84	1.1620	1.7513
GRADE 5 SCIENCE	2025	3251.39	3184	2893	4543	591		446.13	199034.19	0.6901	1.6784
GRADE 8 SCIENCE	5062	3127.94	3075	3027	4275	468		396.79	157445.62	0.6479	0.9746
GRADE 8 SOCIAL STUDIES	5048	3152.97	3123	3030	3468	270		278.35	77477.50	0.9555	4.1046

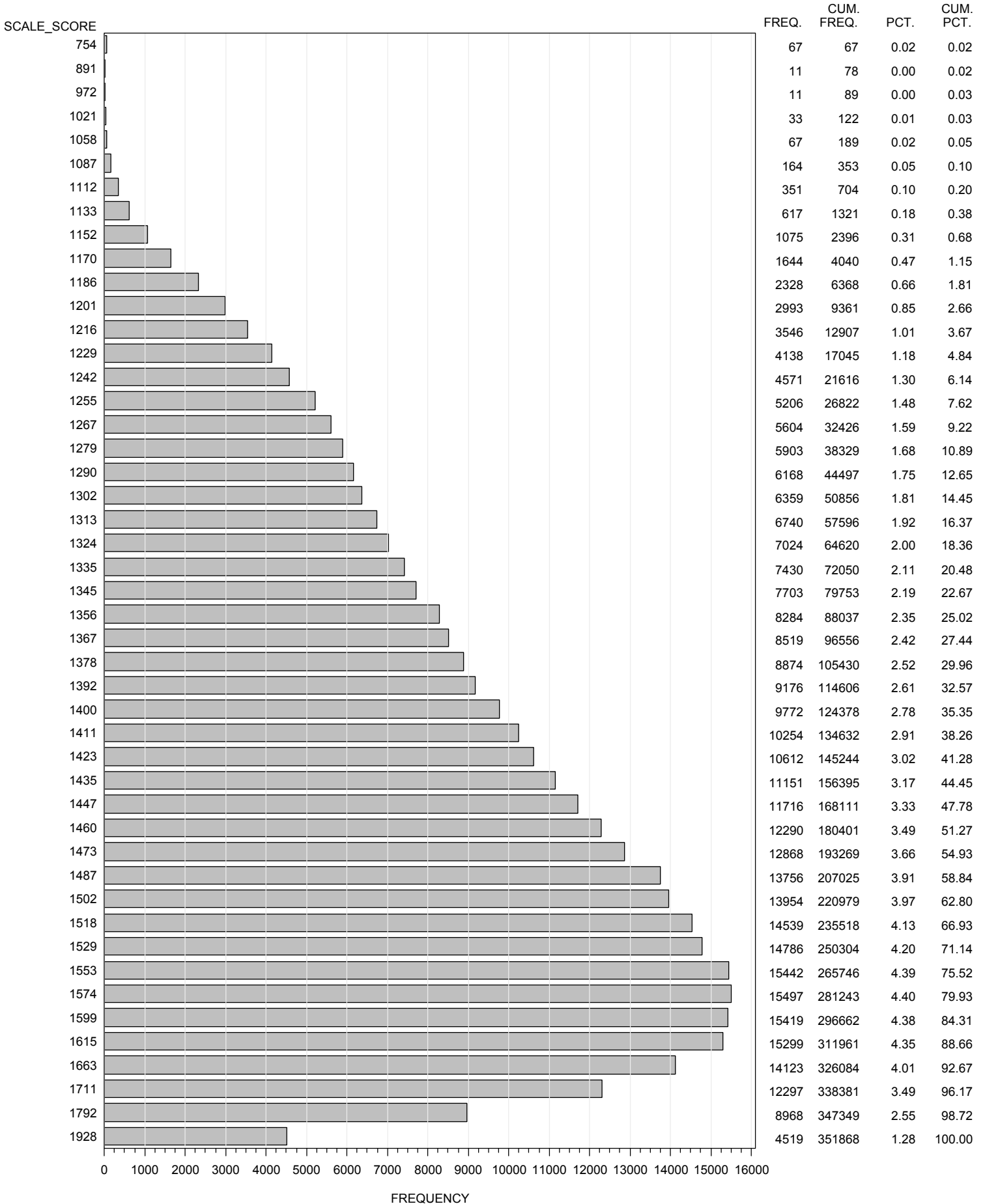
The reported data are results for STAAR L online and paper tests.

Scale Score Descriptive Statistics for 2014 STAAR L EOC Assessments

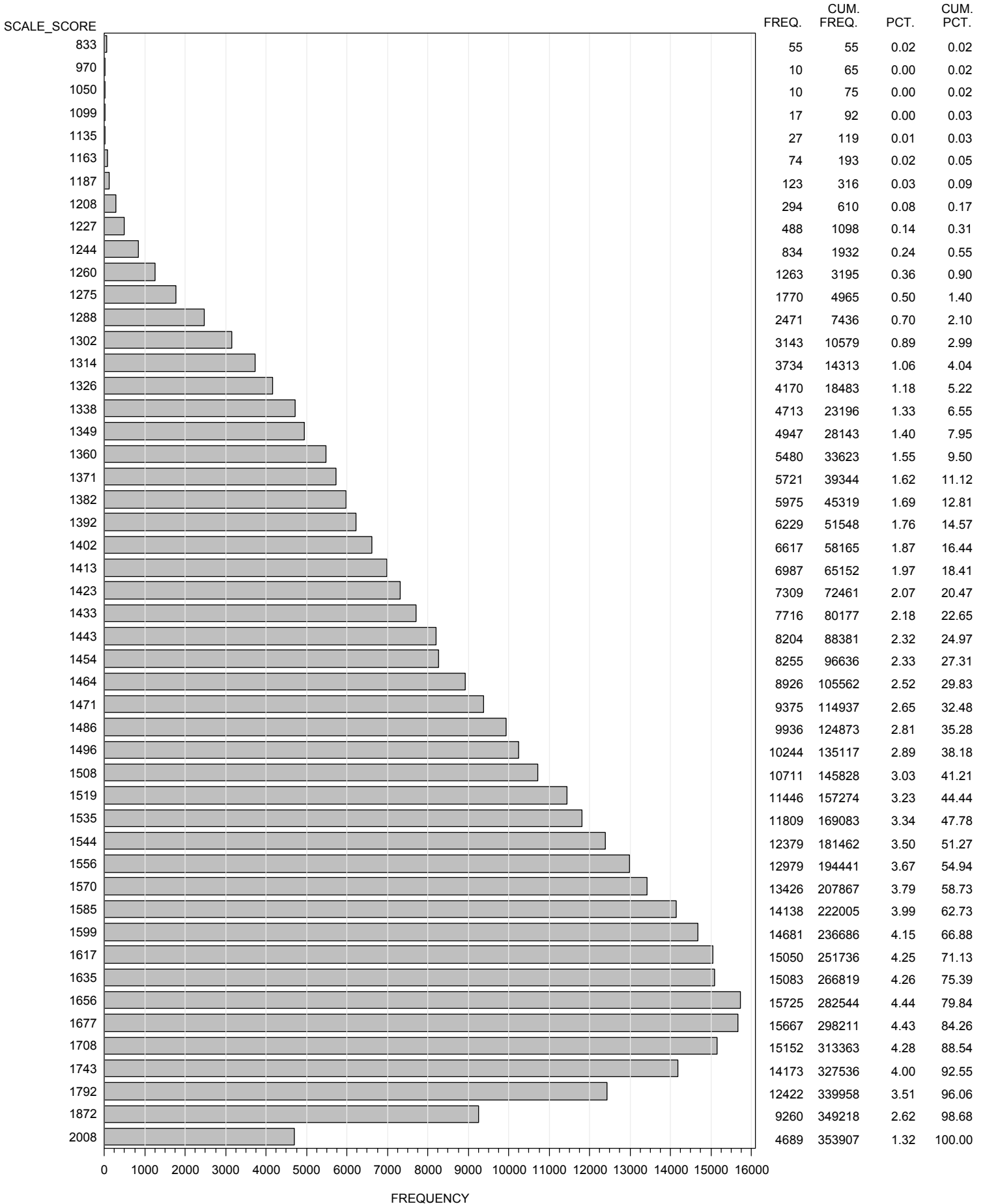
Subject	N	Mean	Median	Mode	Range	Interquartile Range	SD	Variance	Skewness	Kurtosis
ALGEBRA I	8452	3467.20	3379	3251	4721	439	372.55	138796.98	1.1462	2.6927
BIOLOGY	8064	3453.51	3417	3332	4319	286	289.28	83681.59	1.0403	3.7579
U.S. HISTORY	1862	3436.96	3381	3275	2901	446	337.09	113631.09	0.9059	1.8583

The reported data are results for STAAR L online and paper tests.

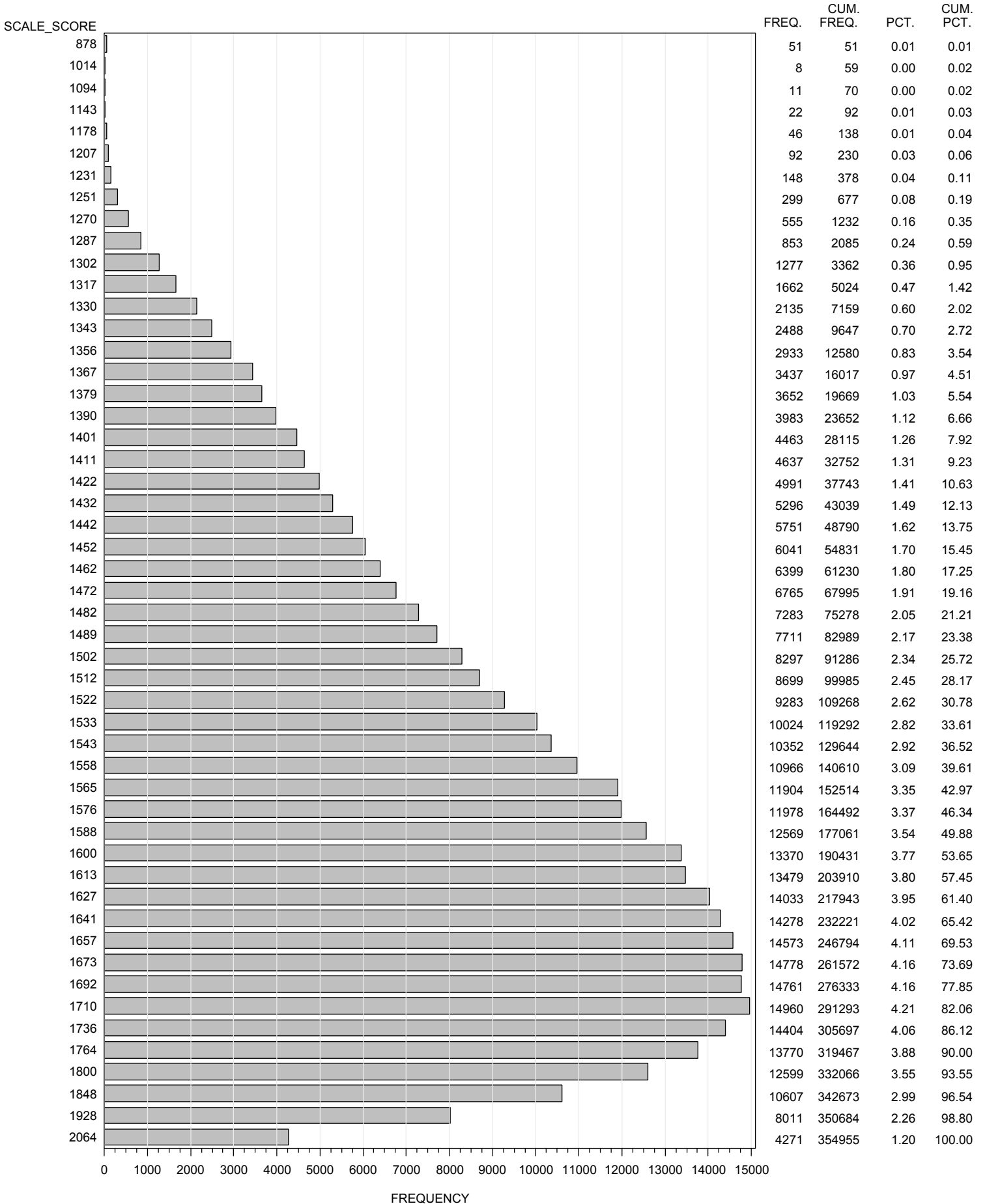
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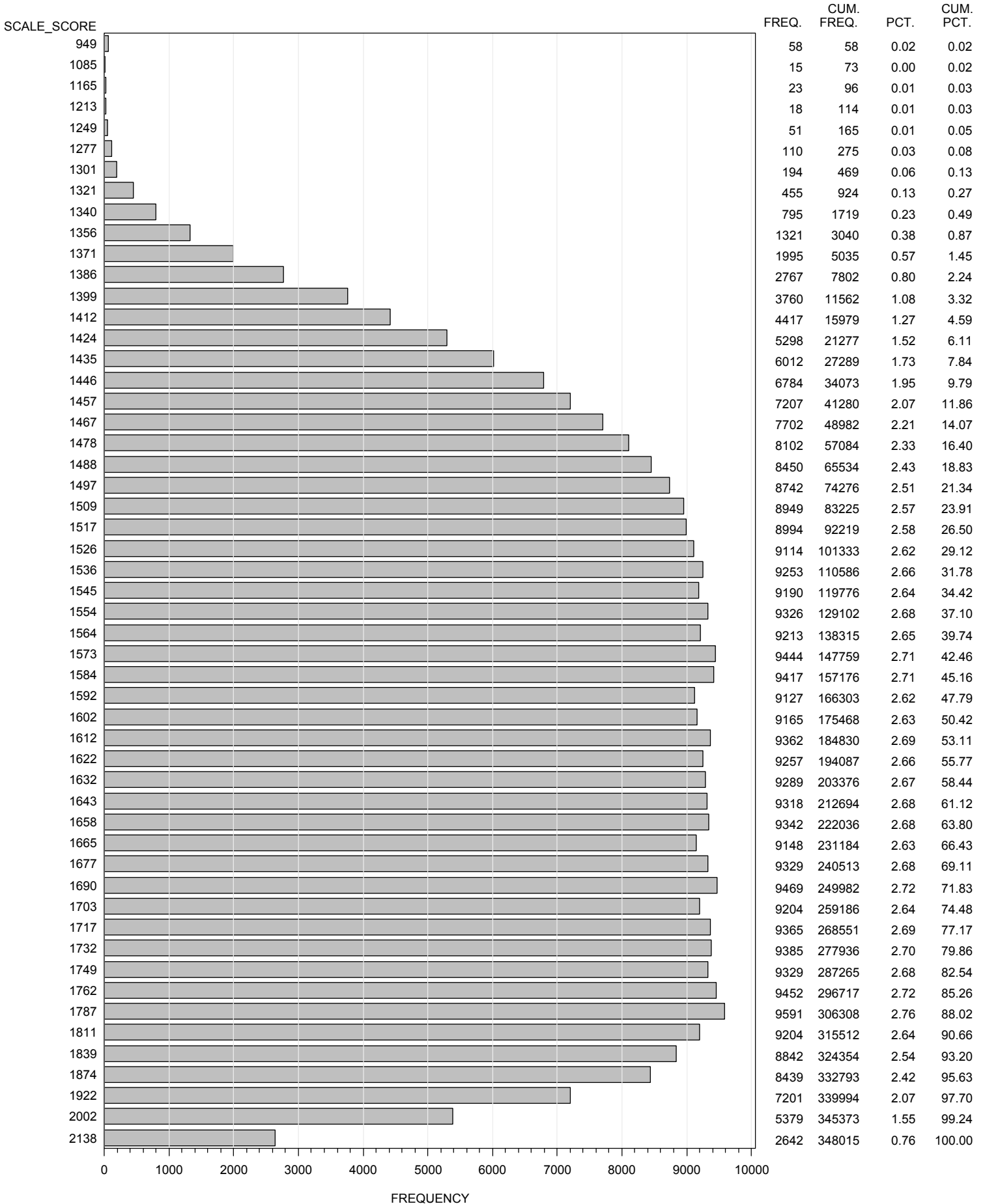
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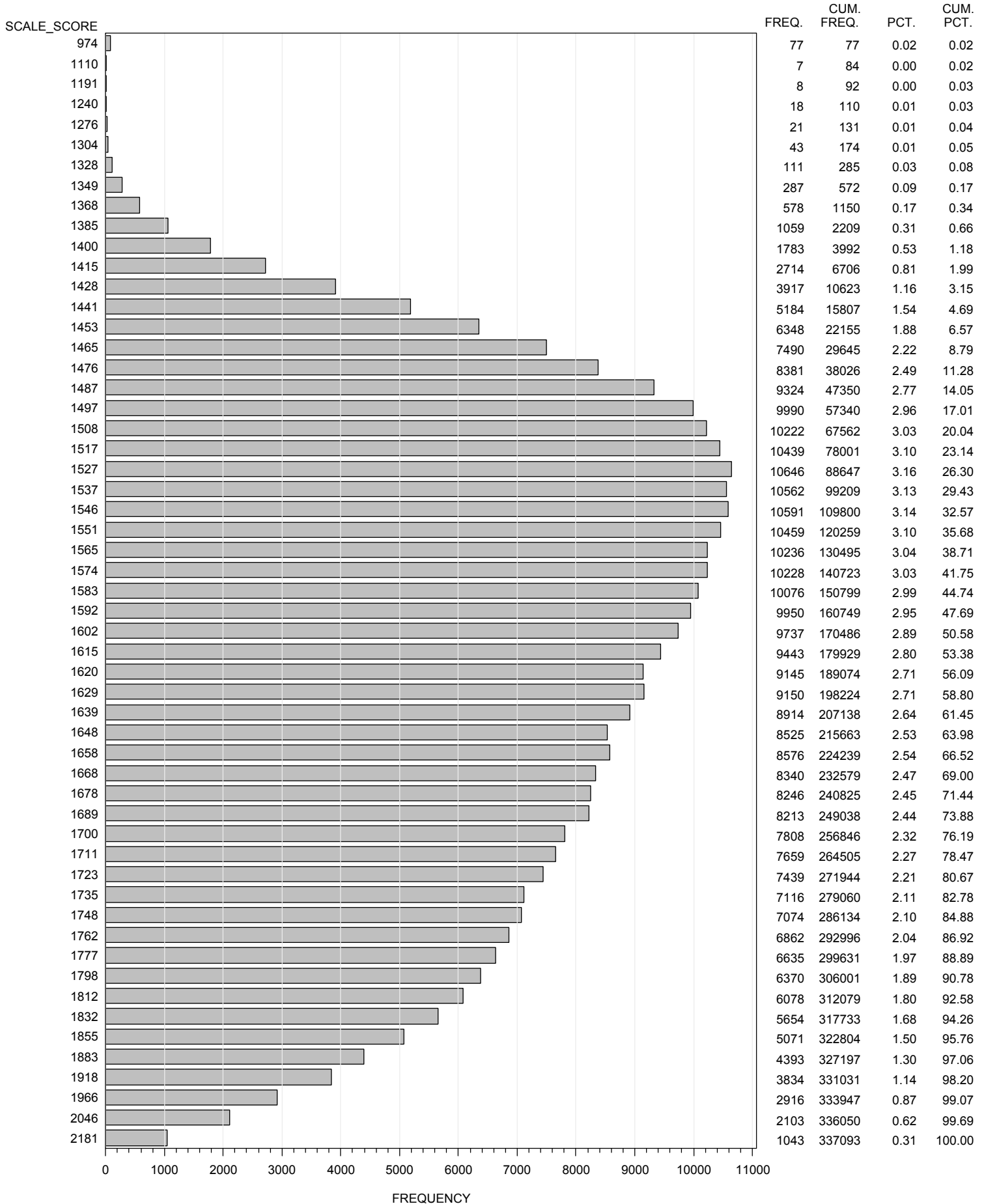
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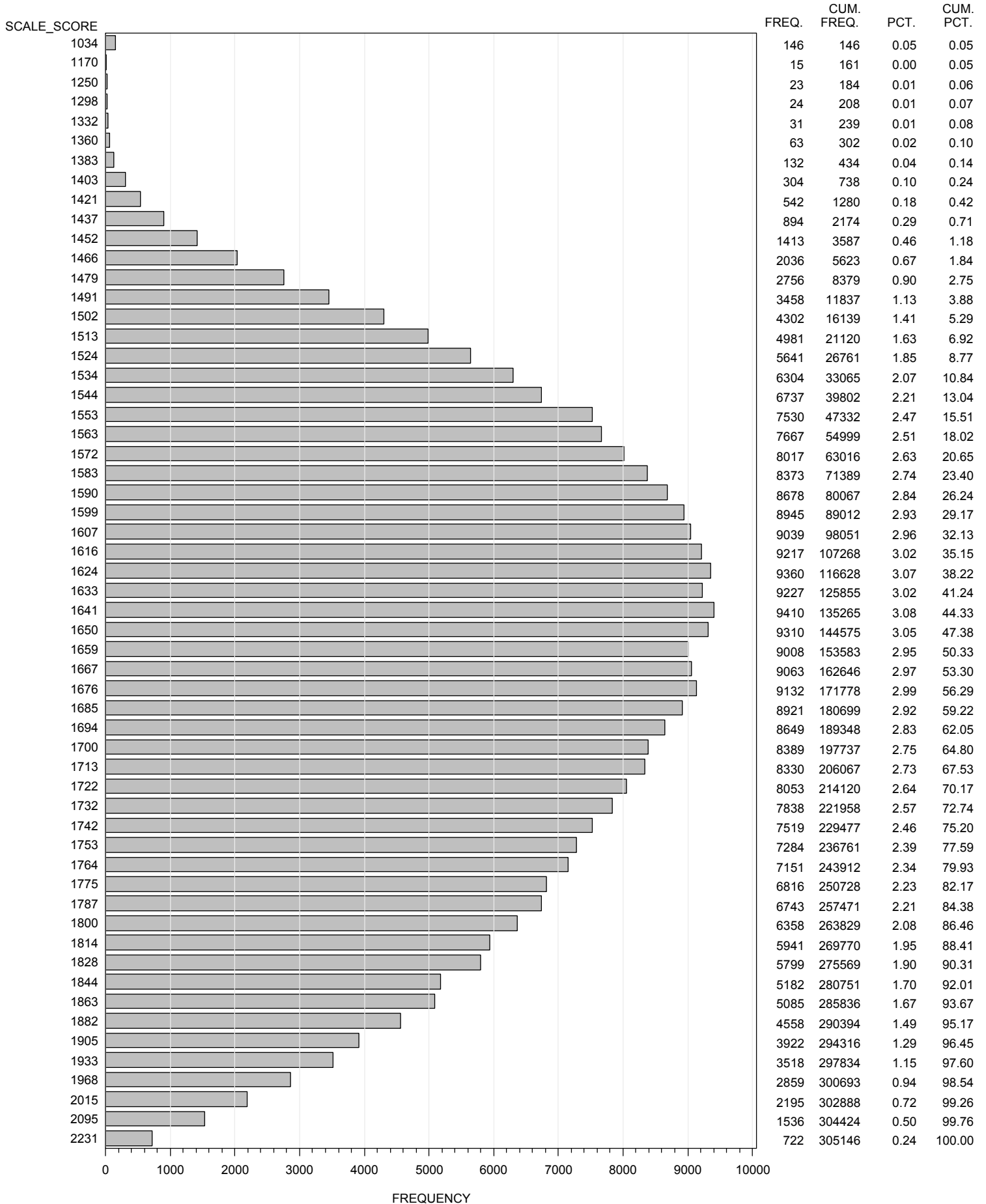
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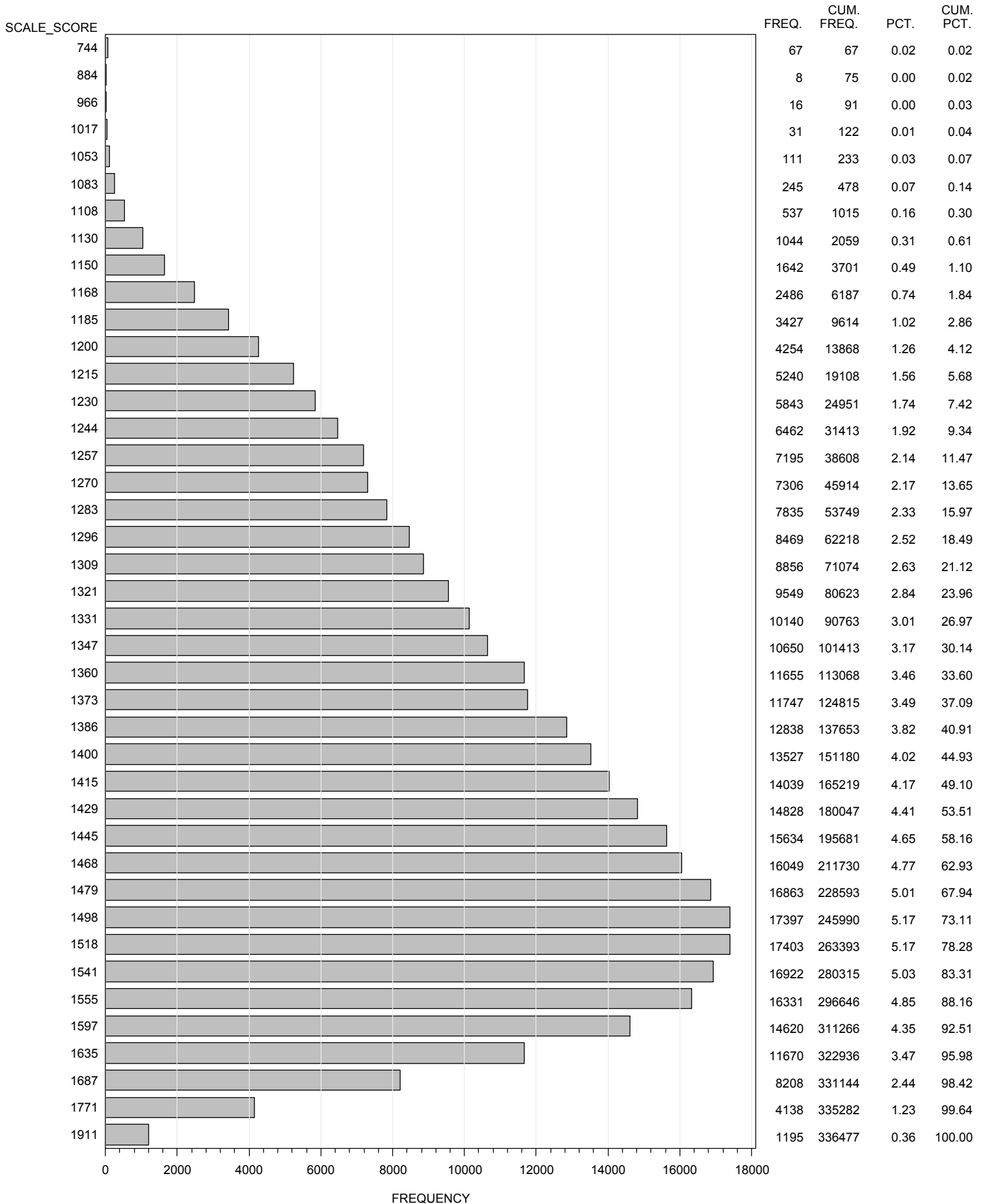
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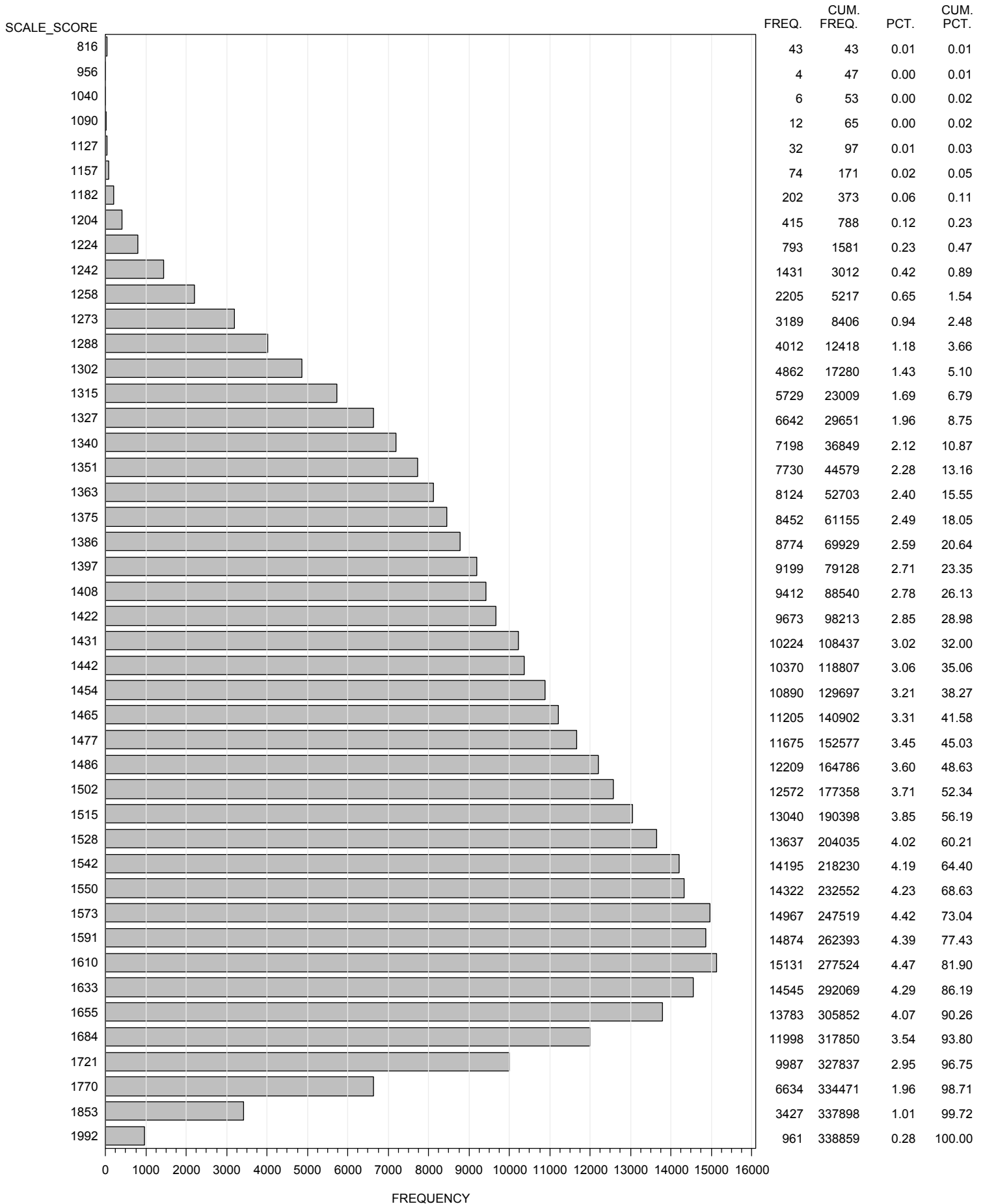
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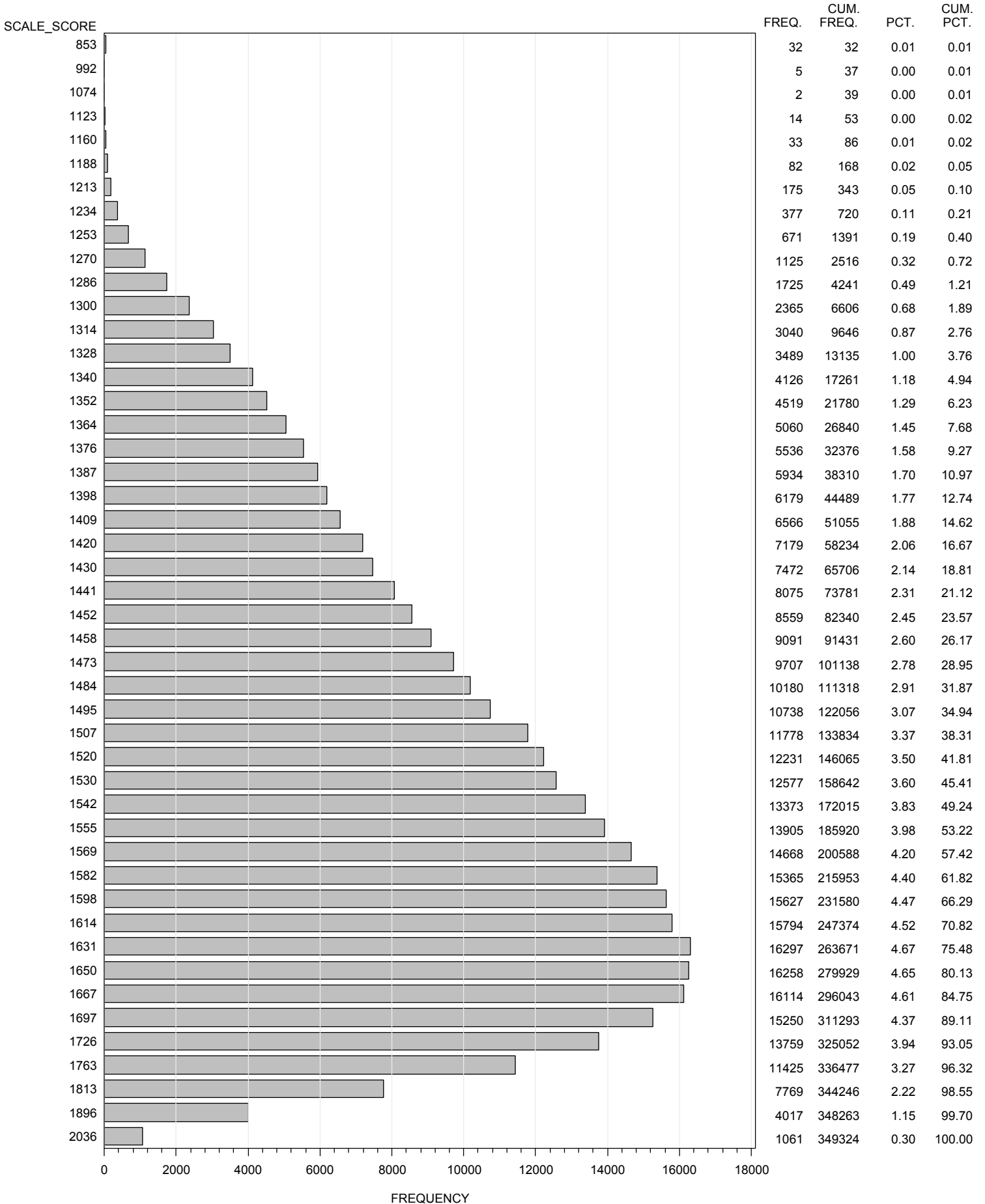
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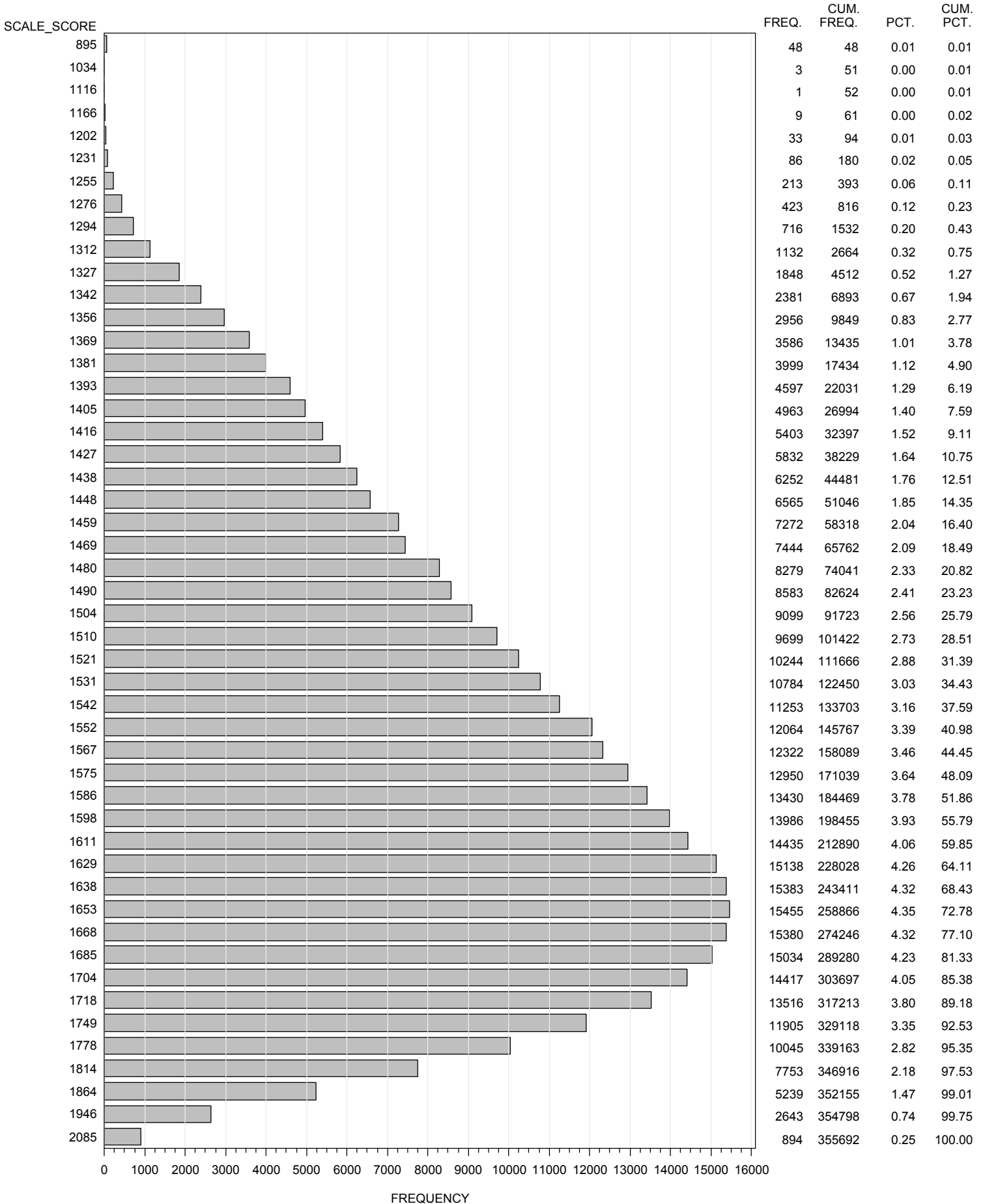
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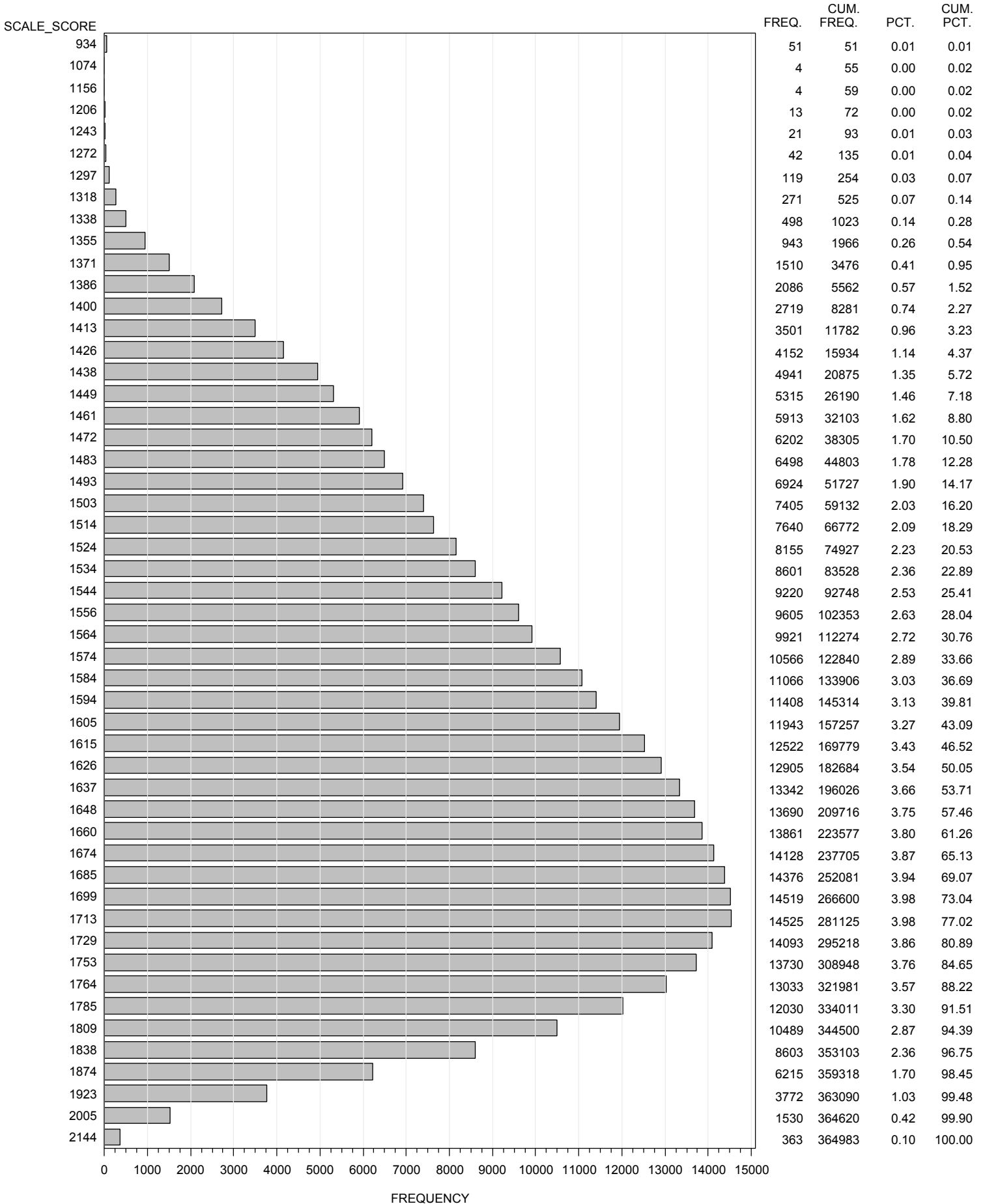
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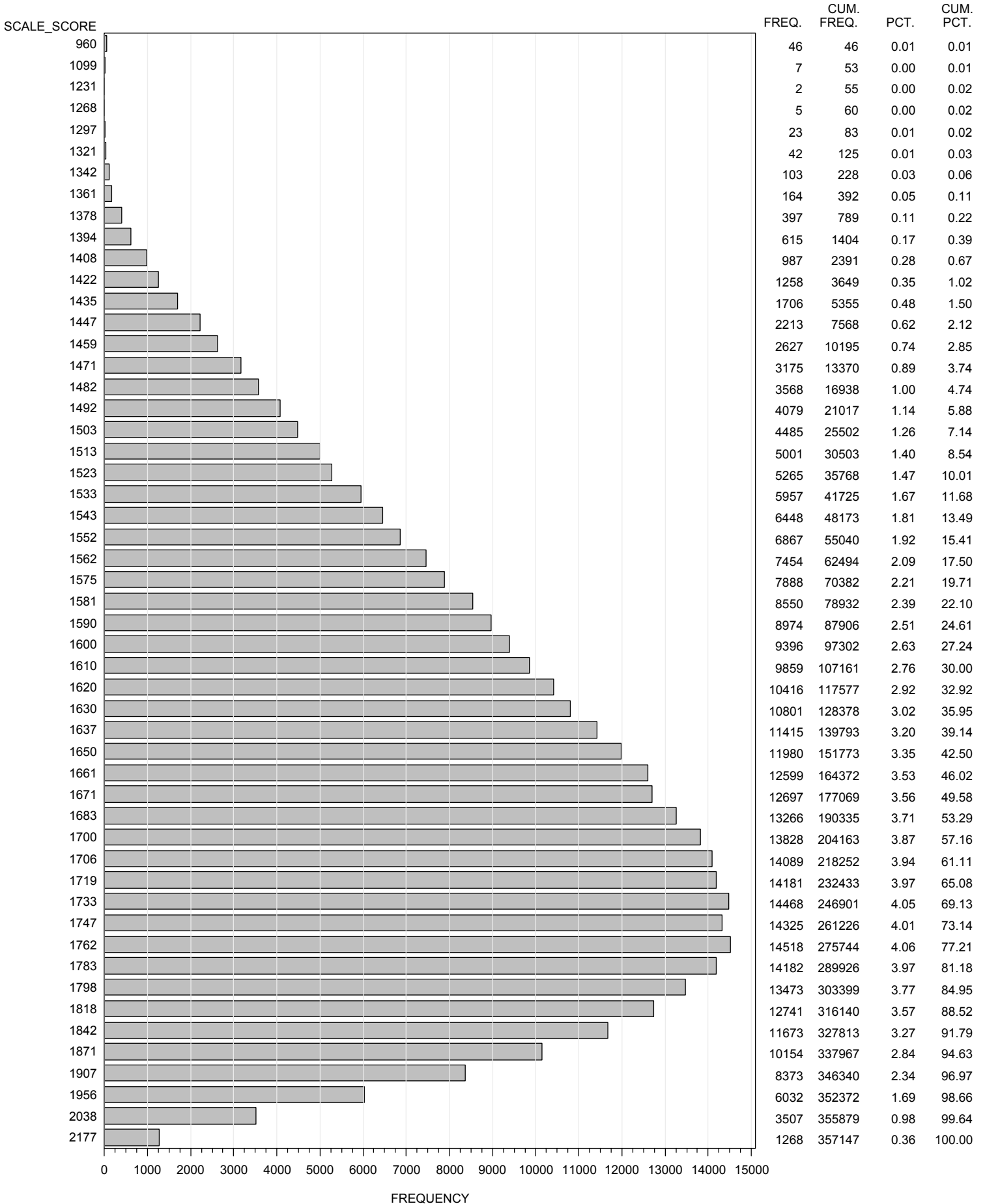
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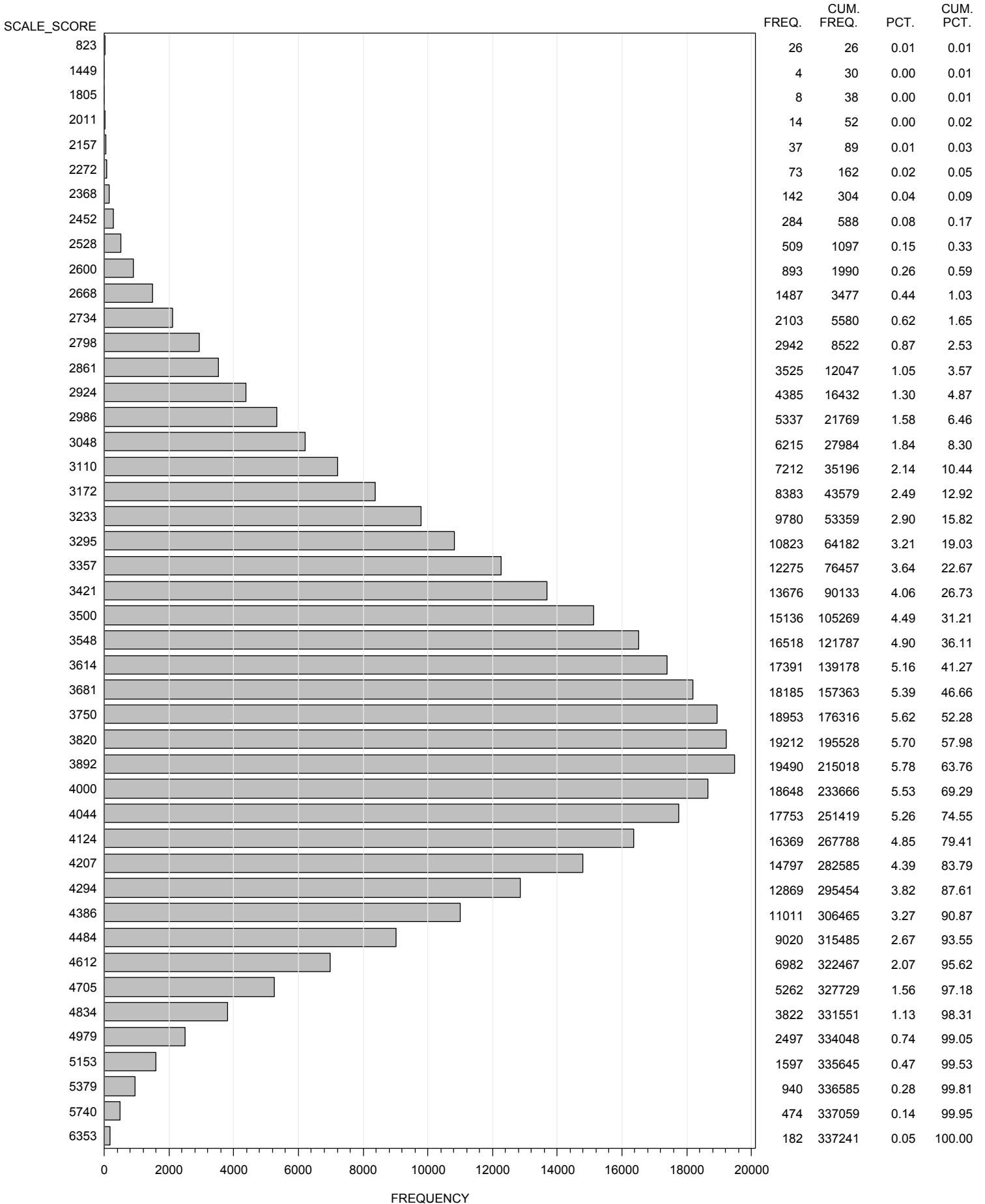
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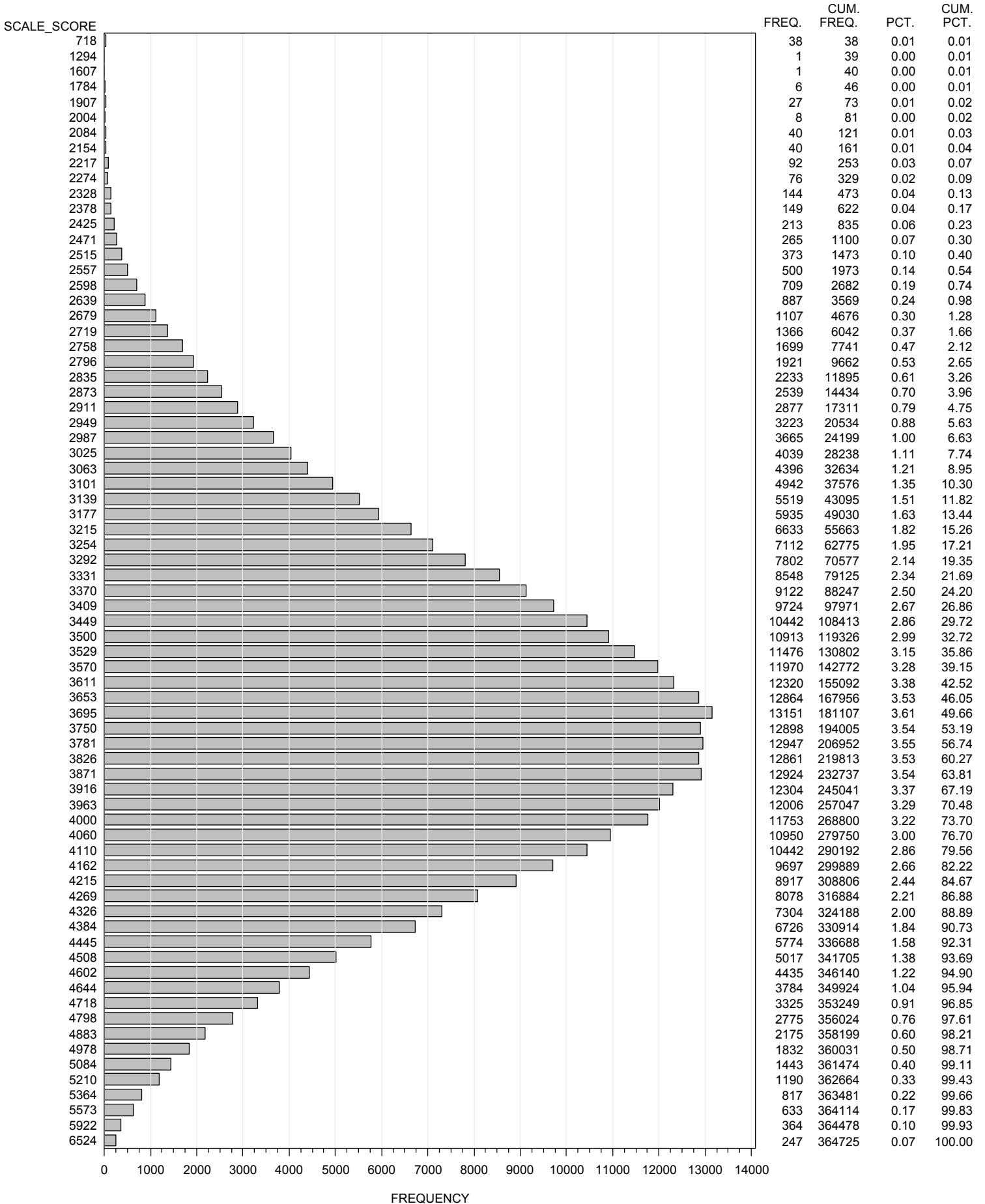
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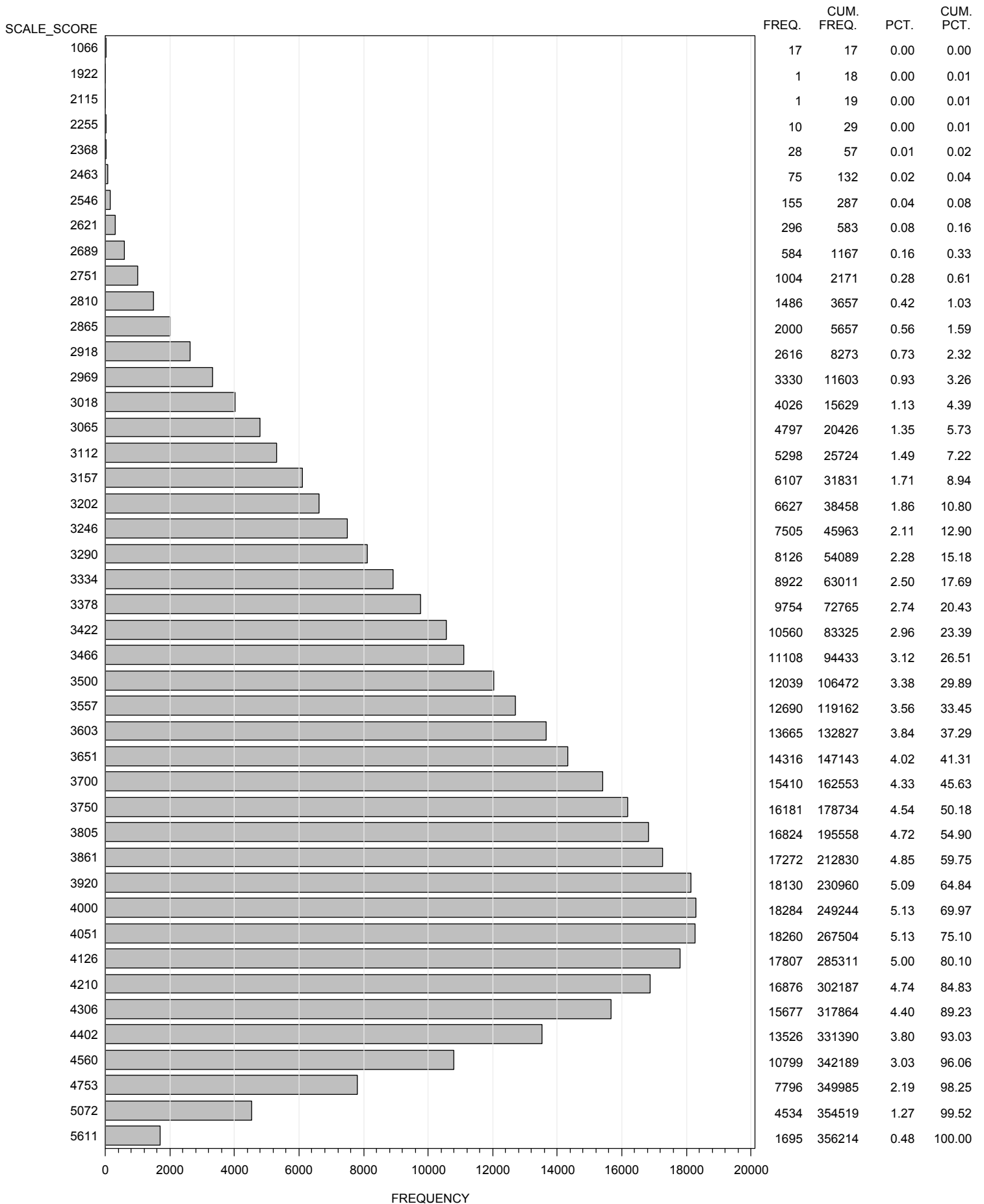
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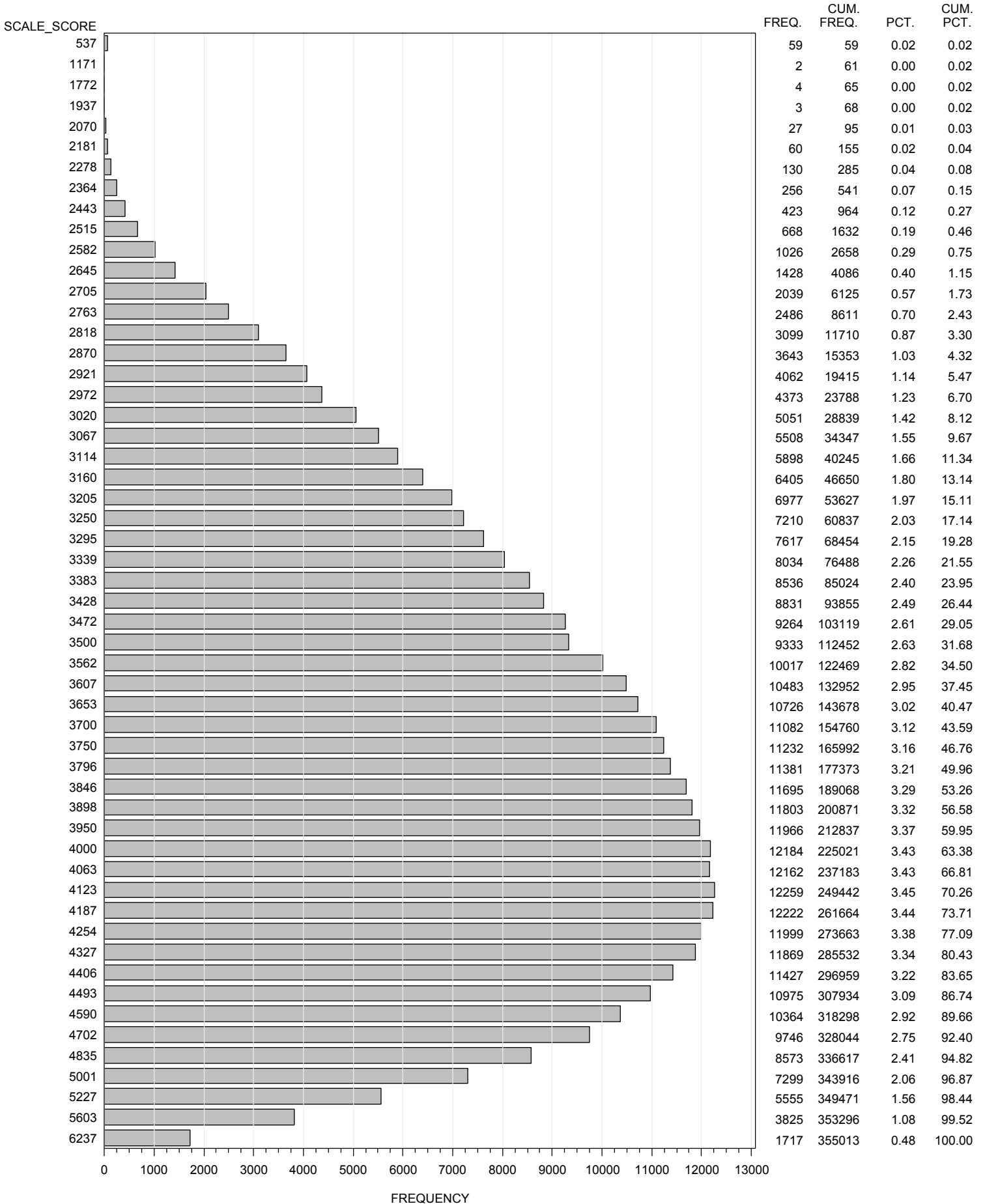
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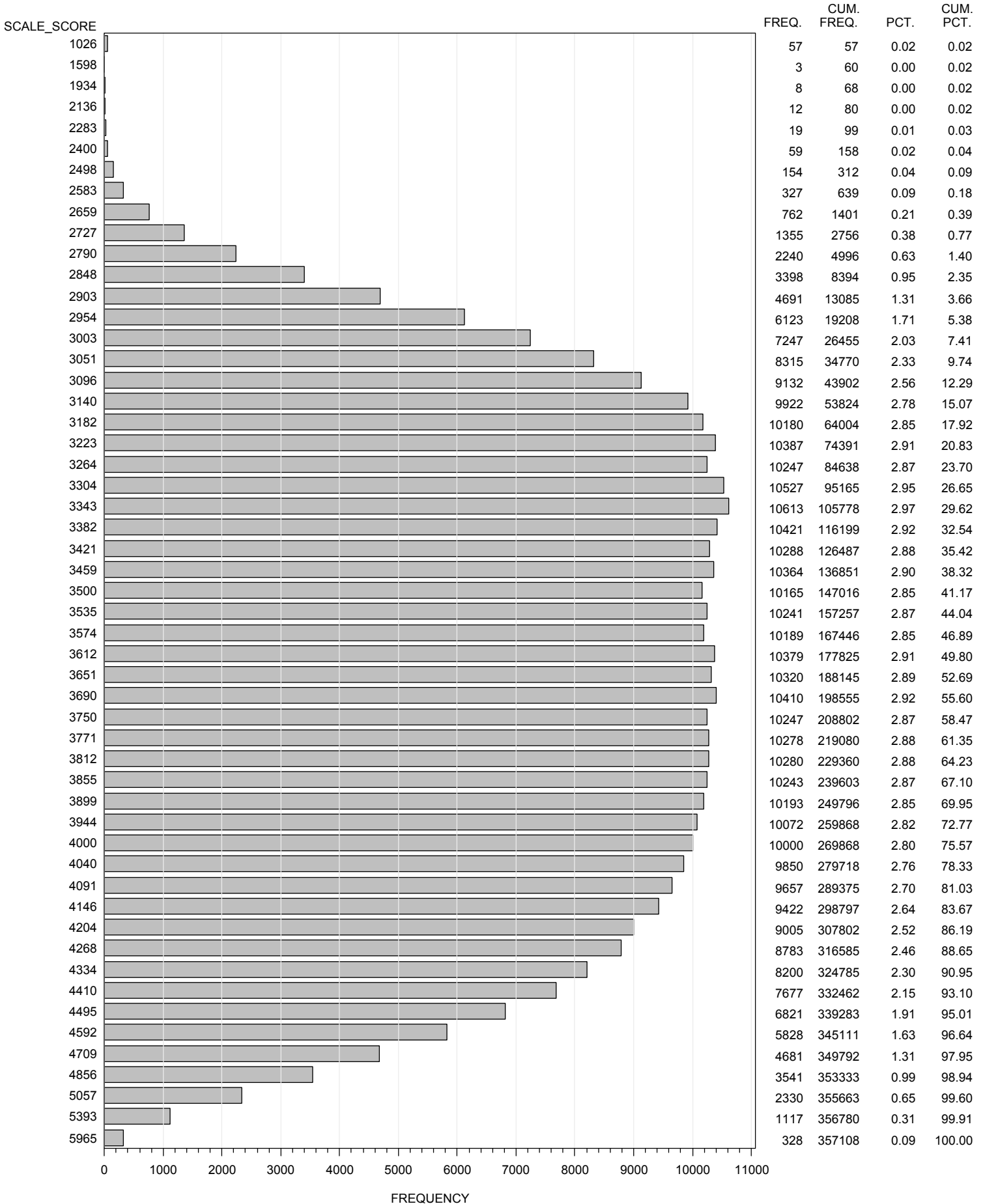
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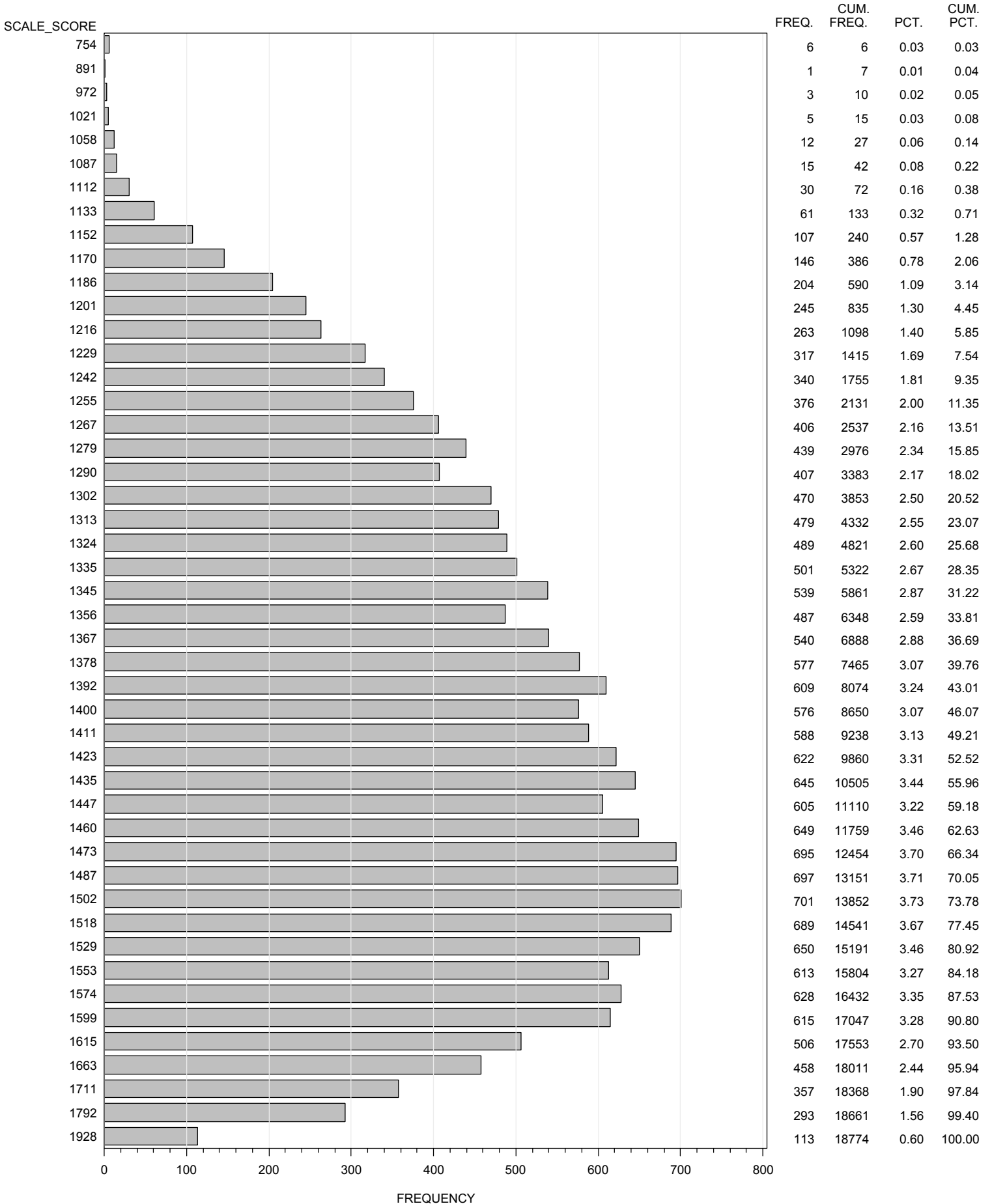
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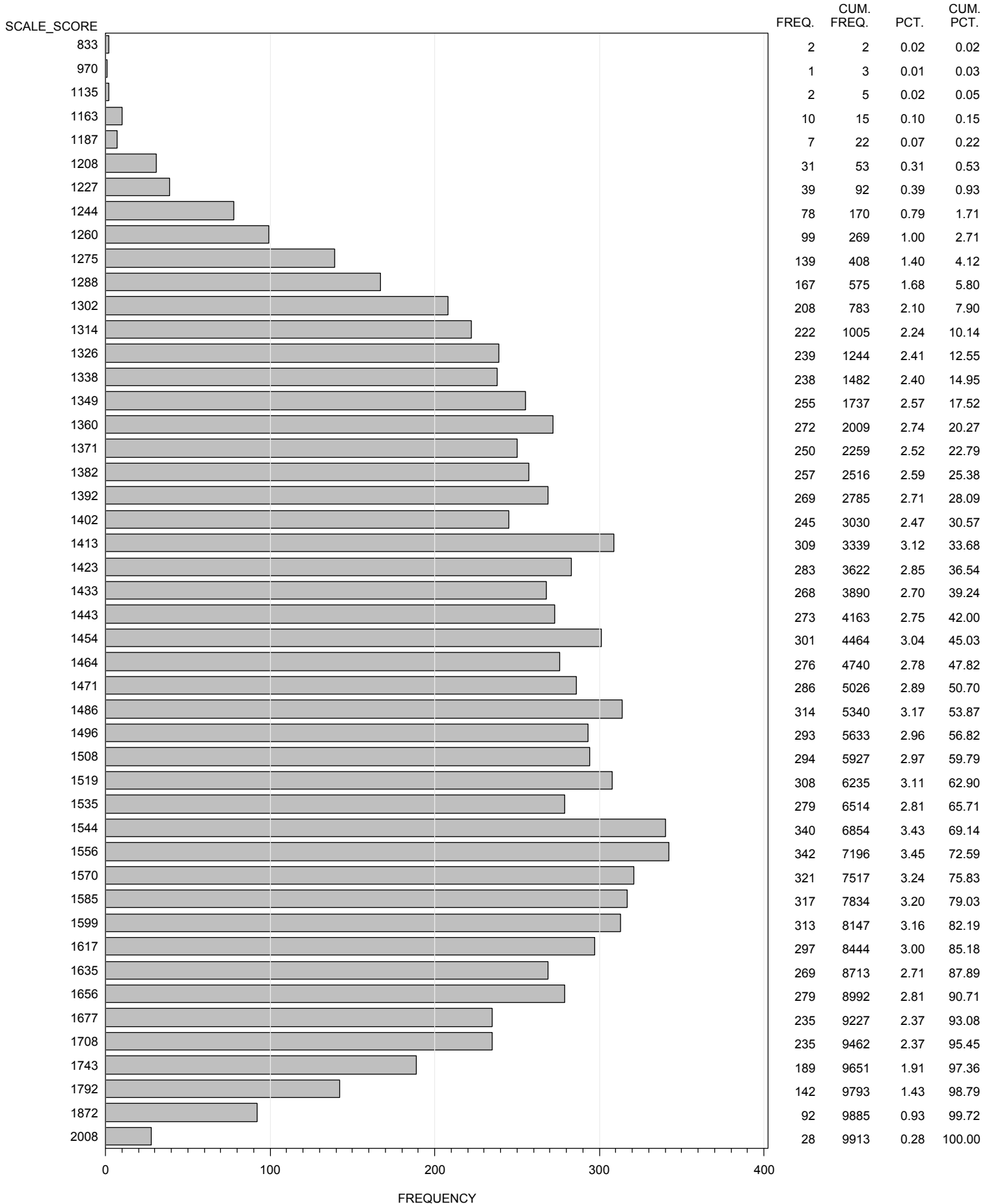
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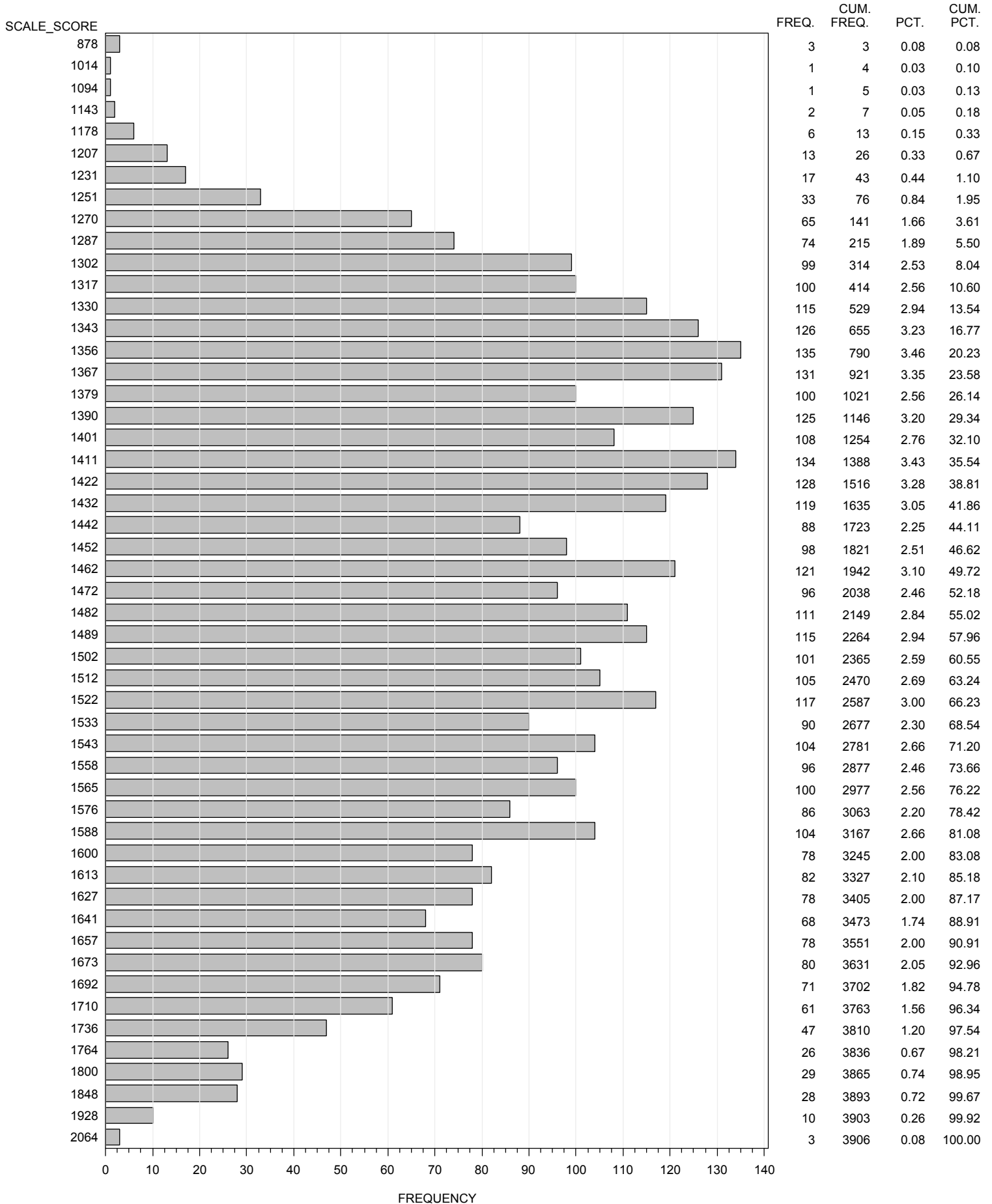
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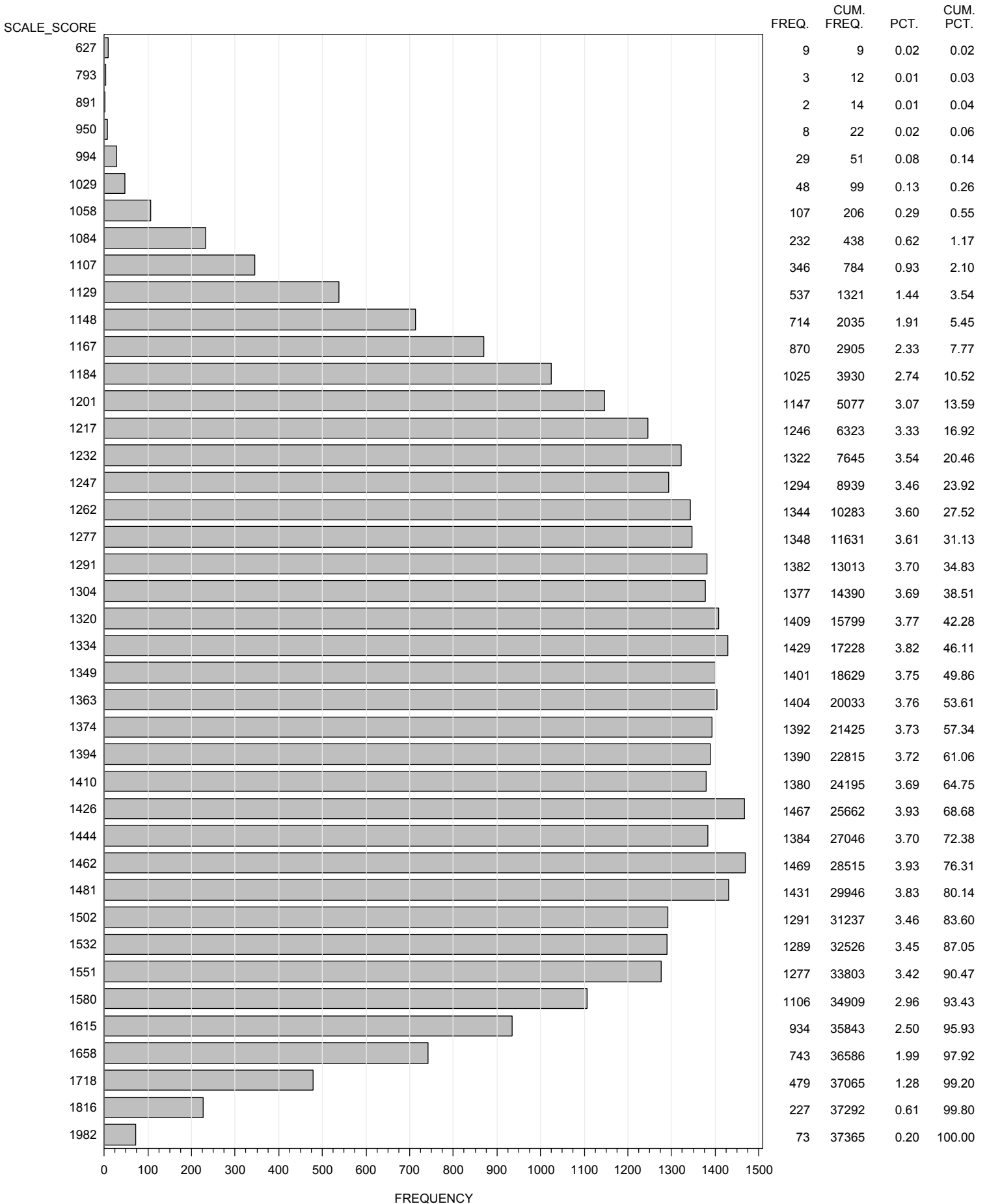
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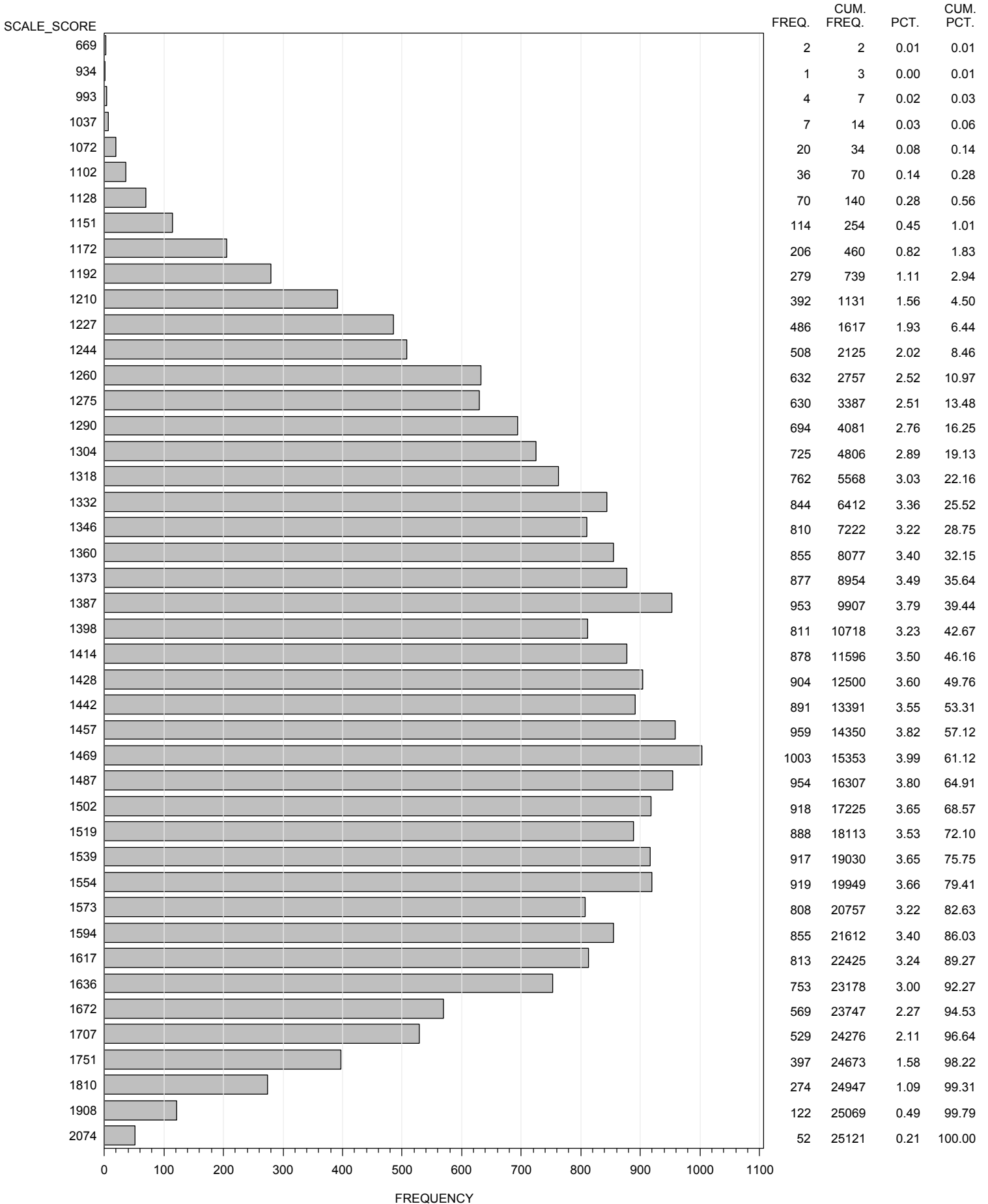
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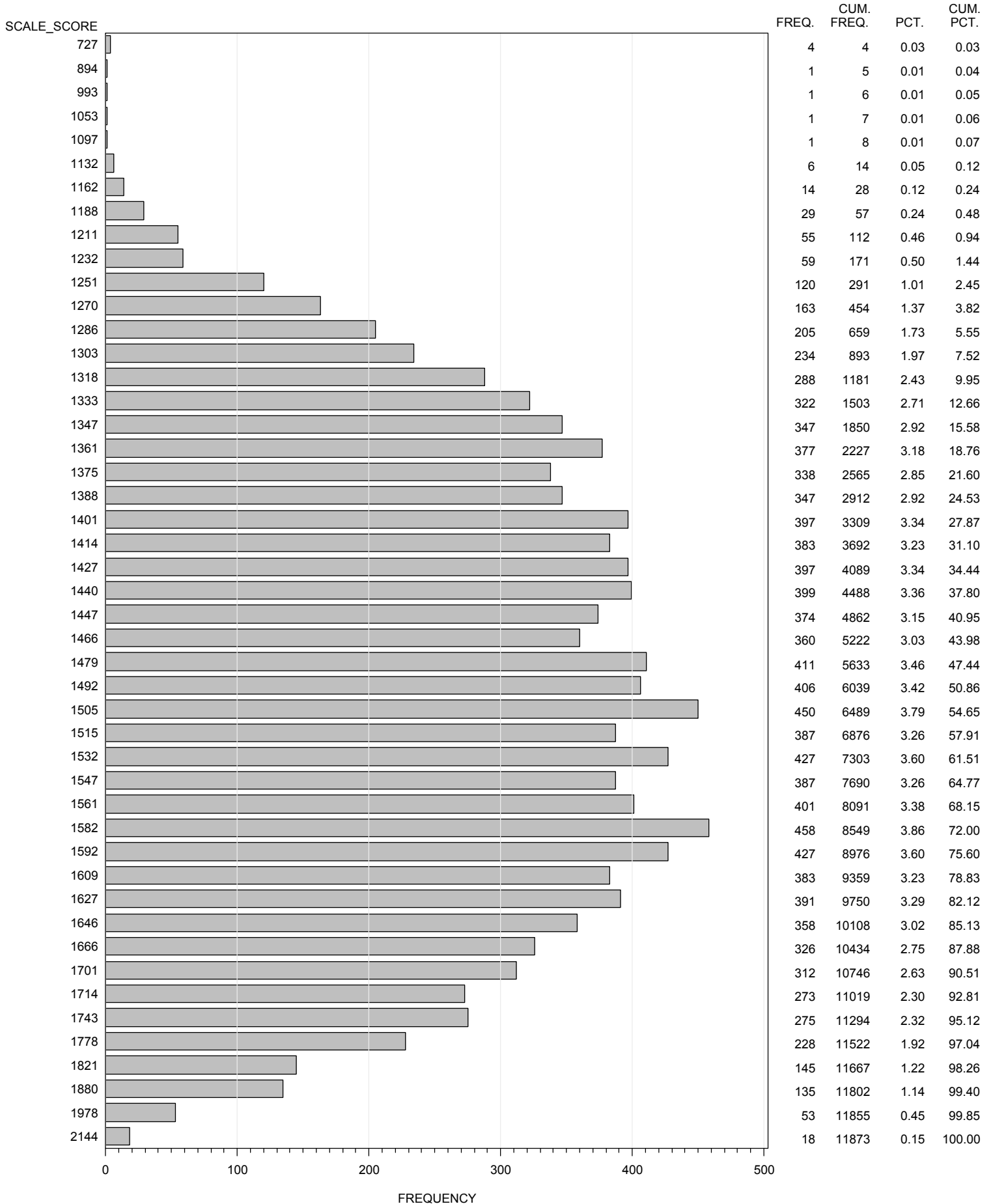
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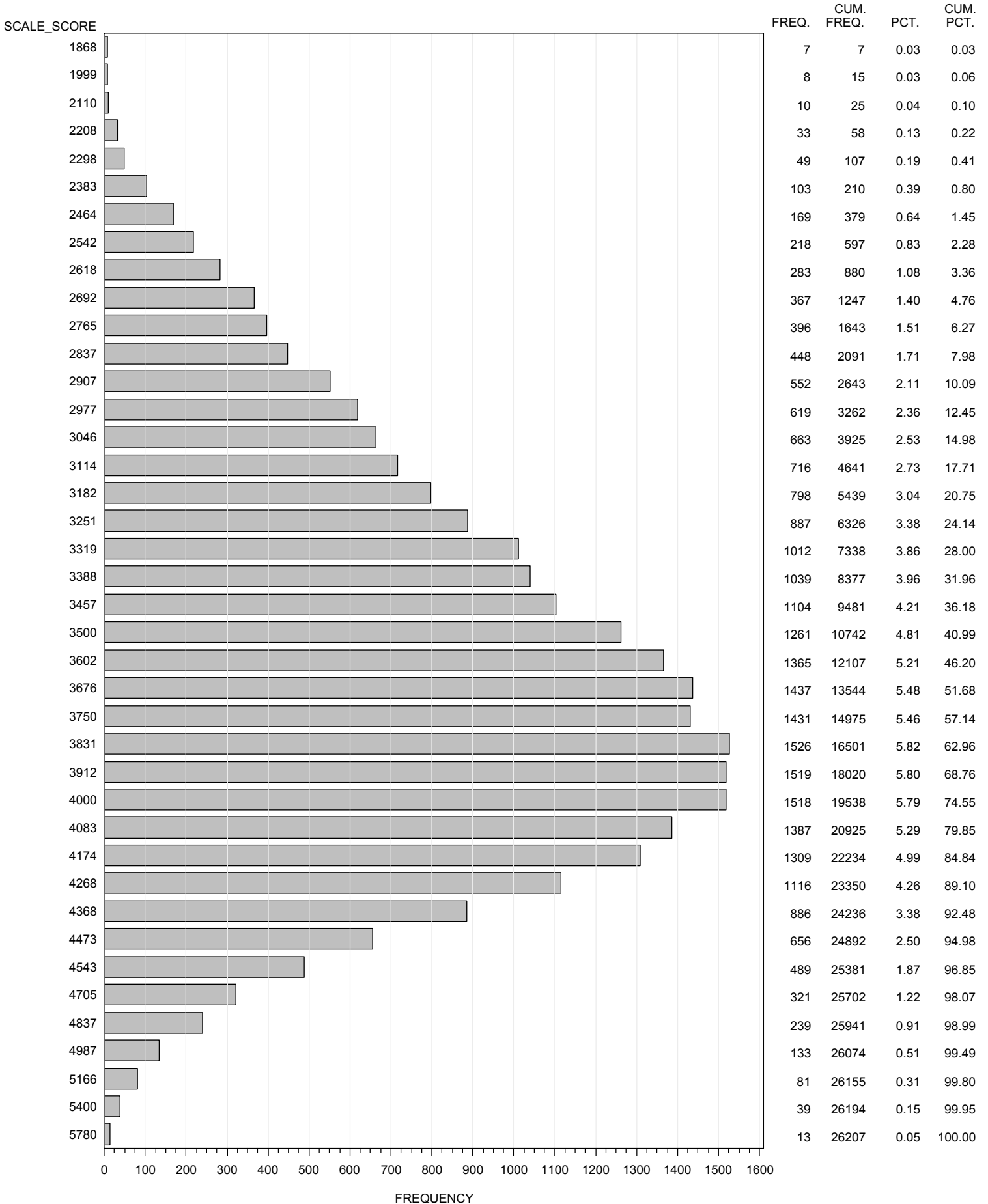
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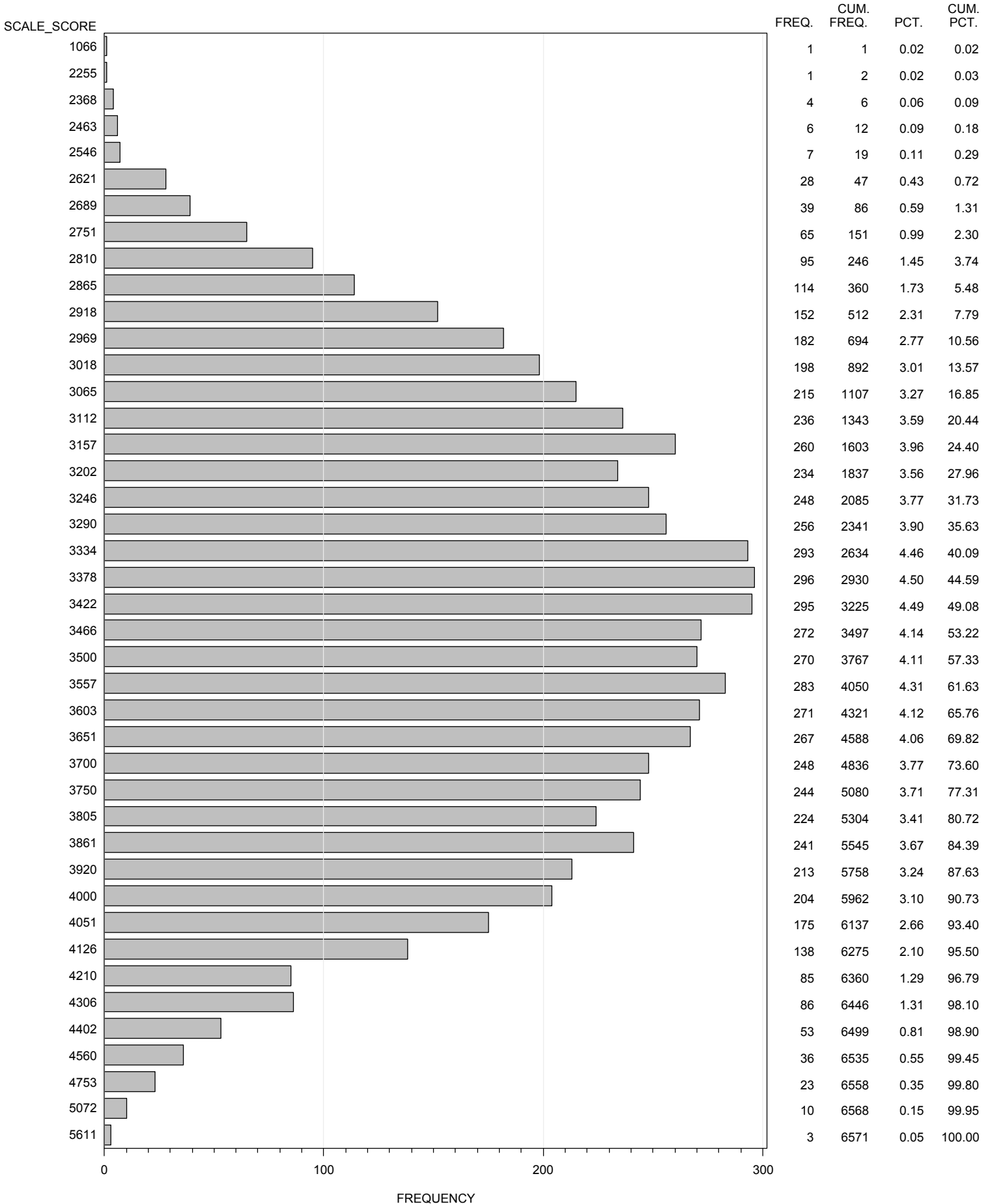
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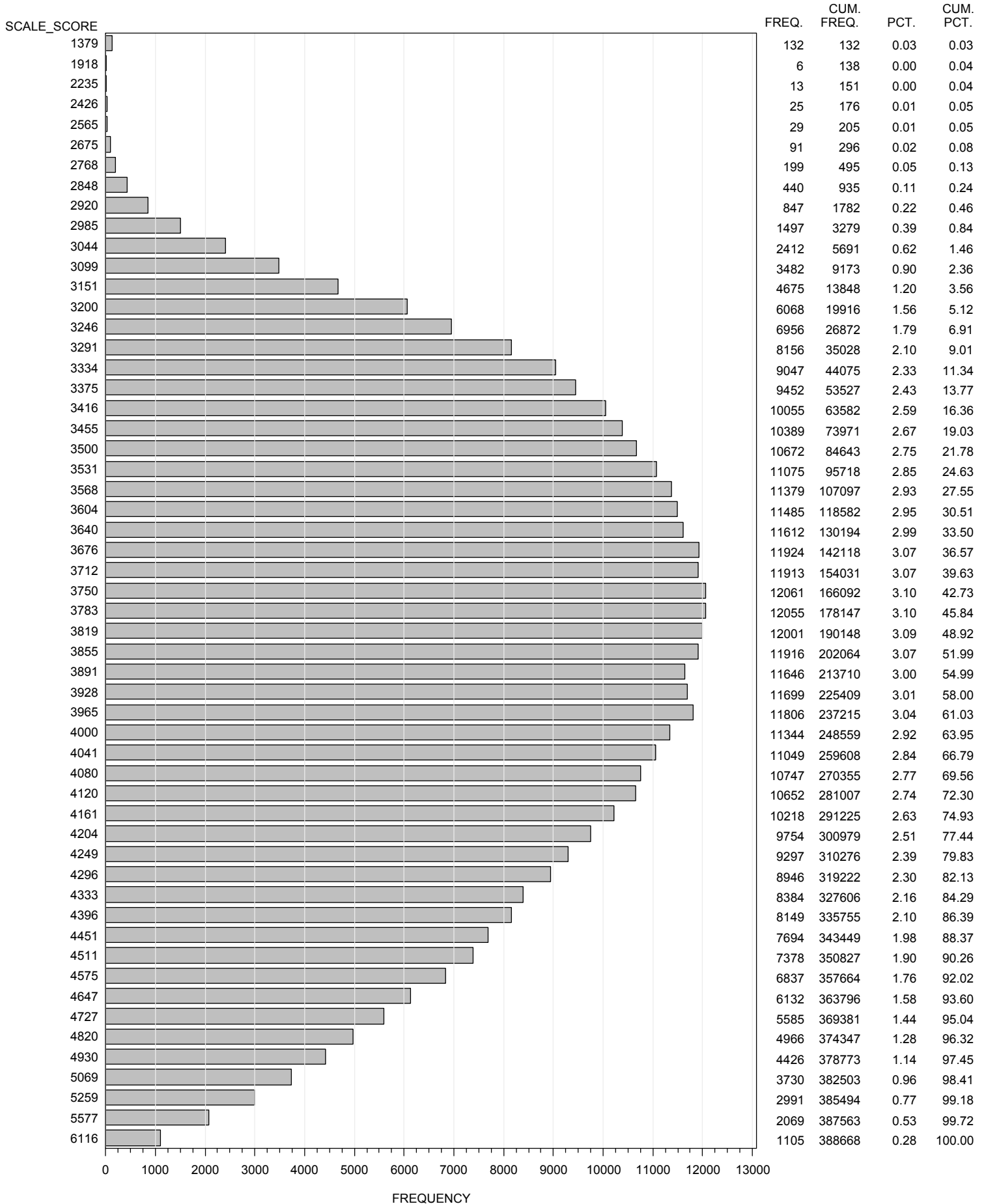
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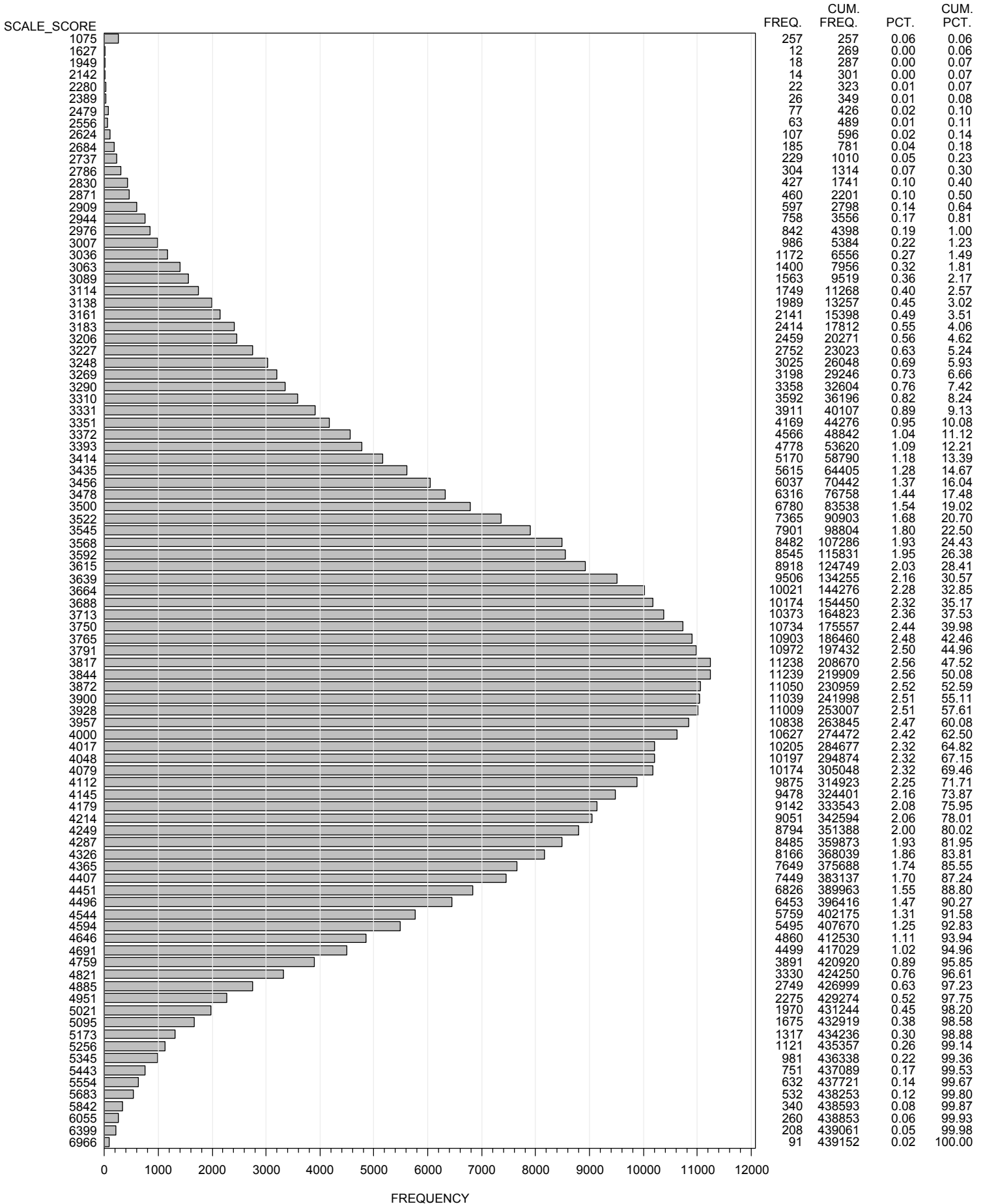
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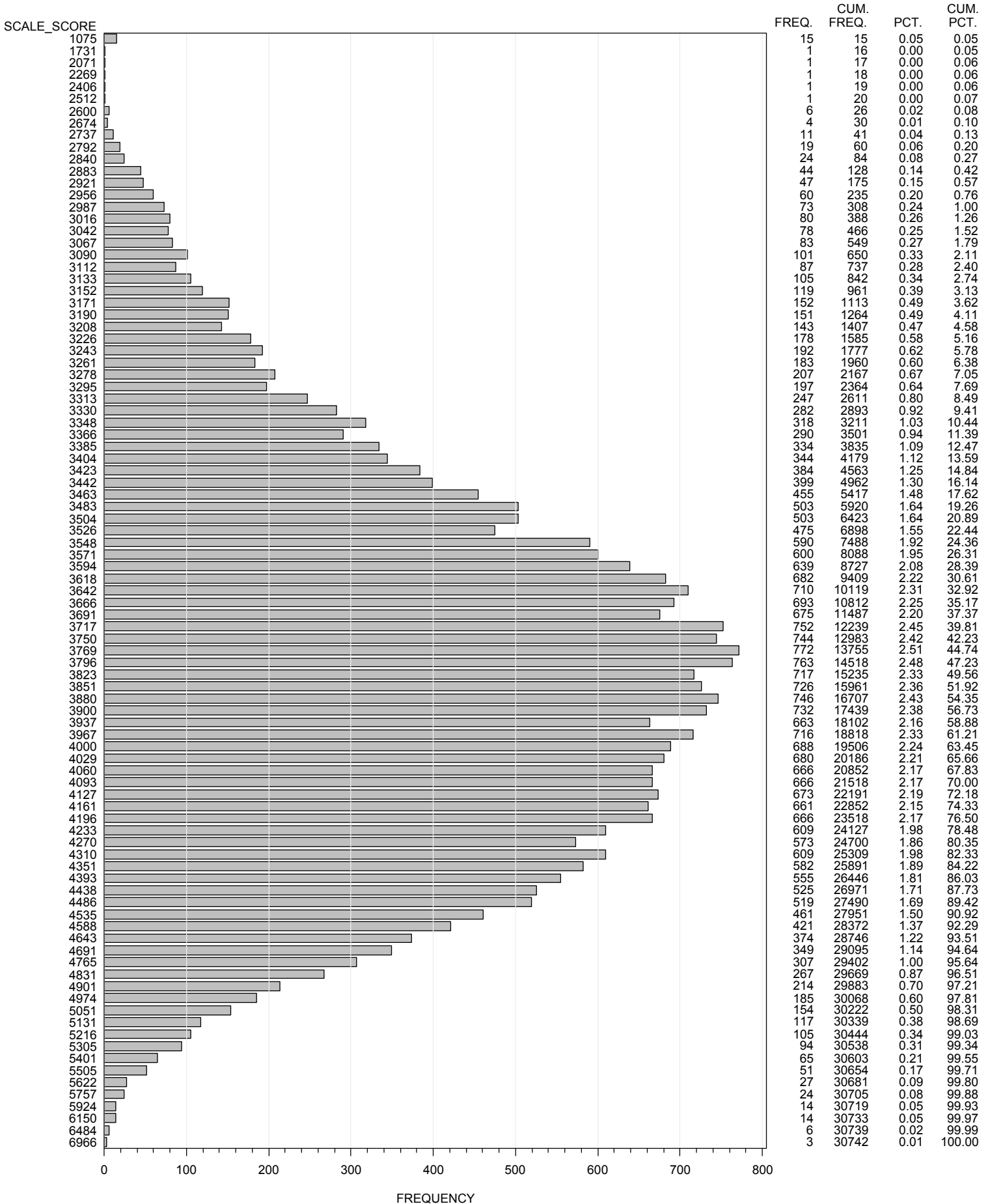
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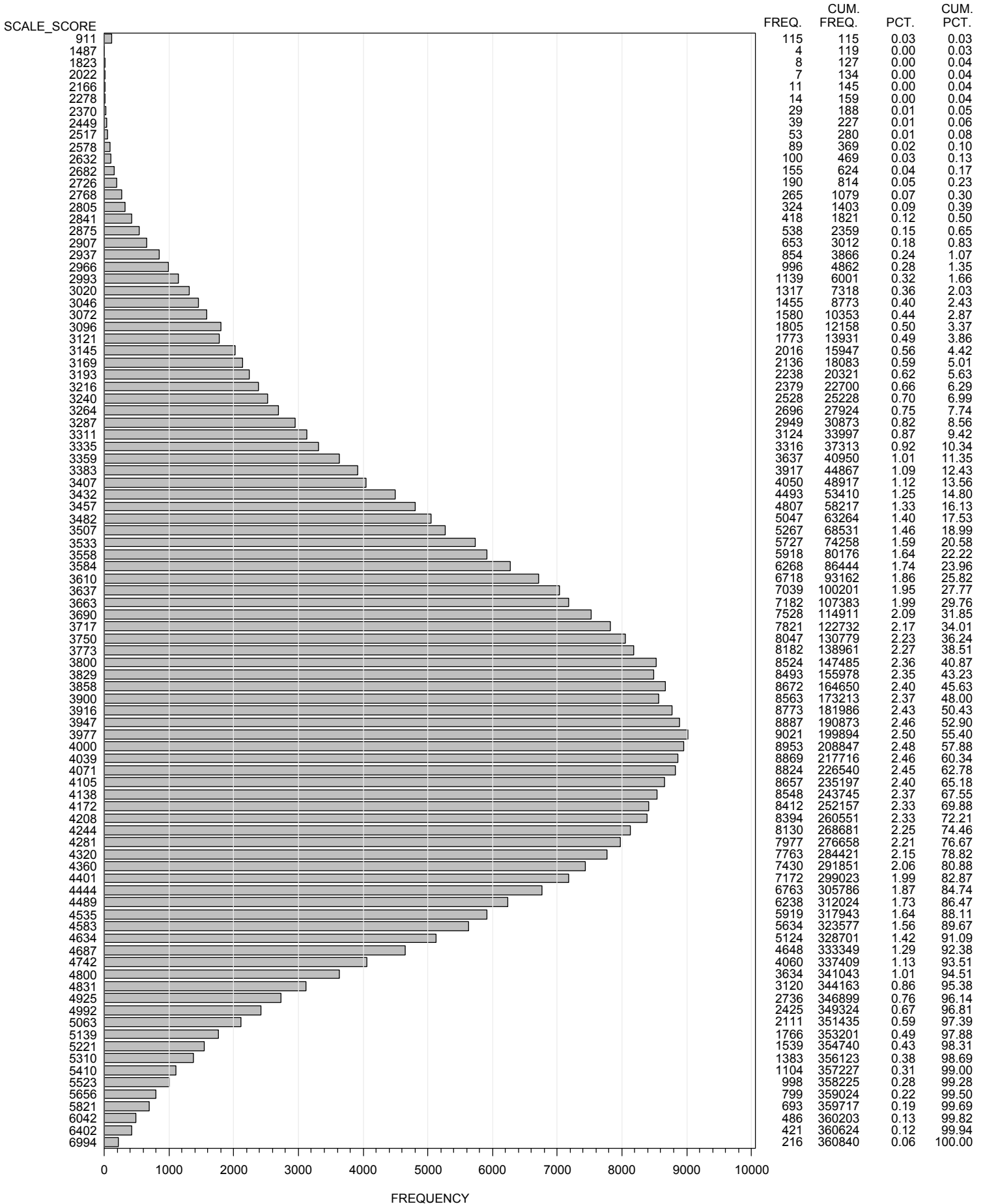
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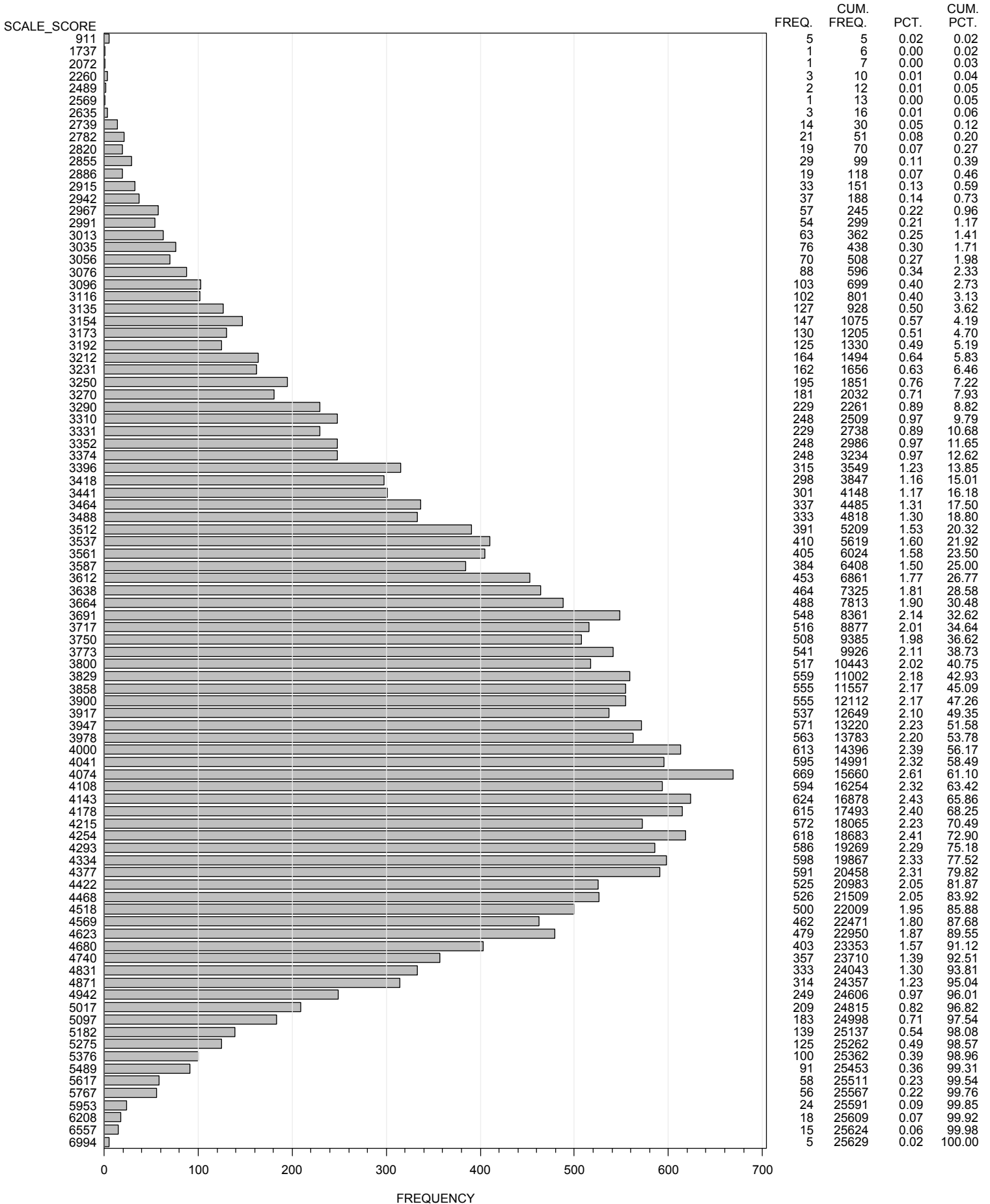
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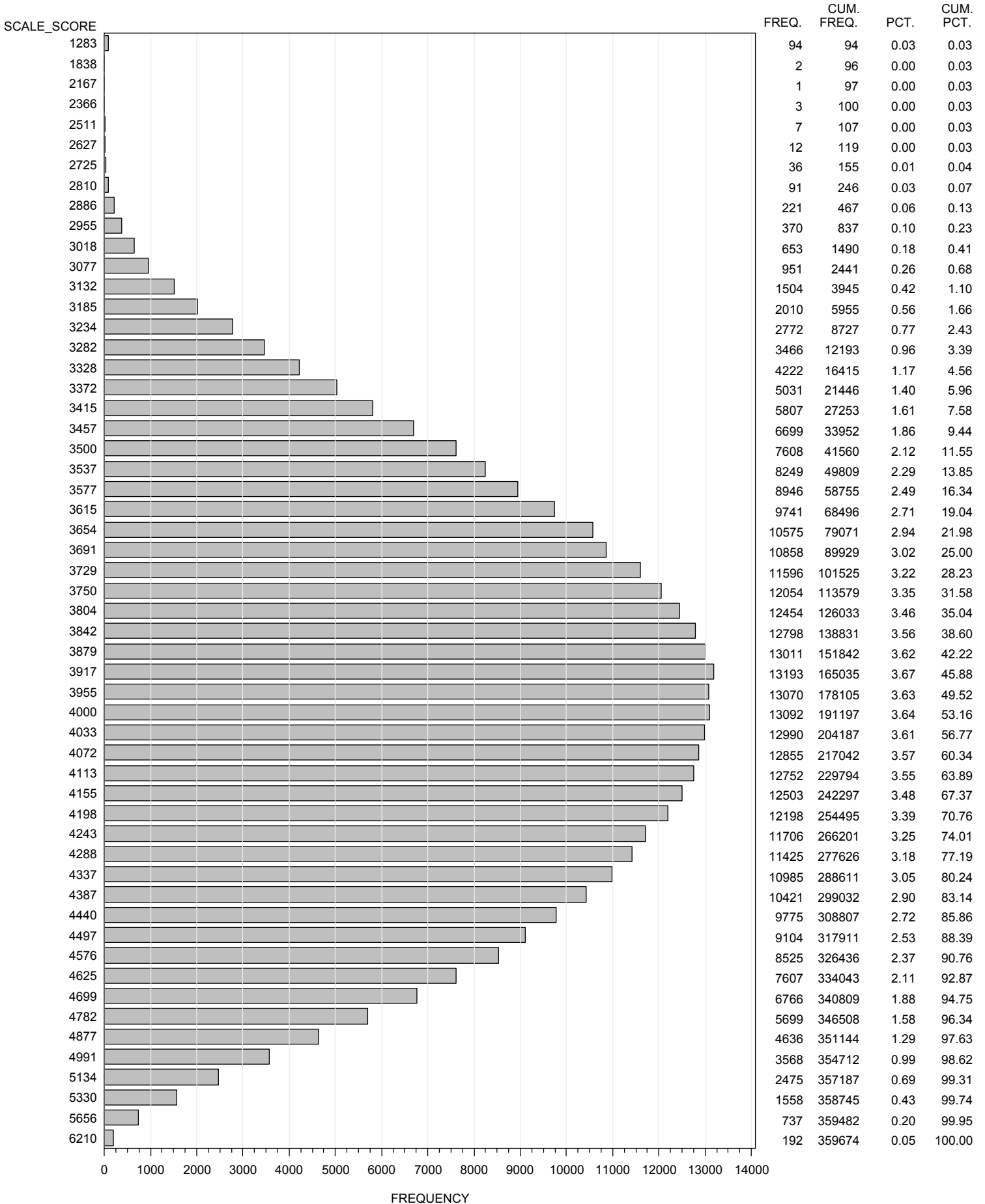
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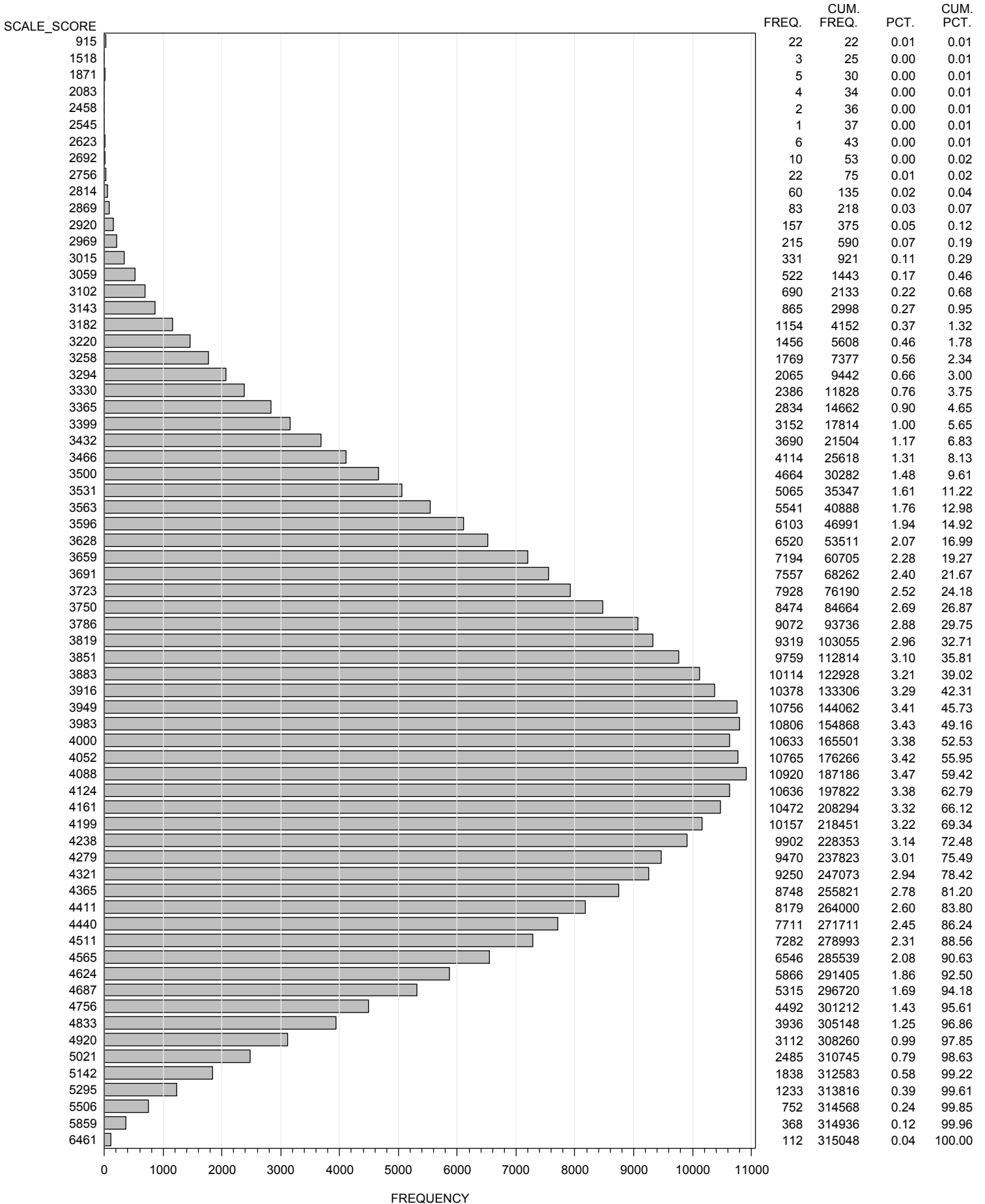
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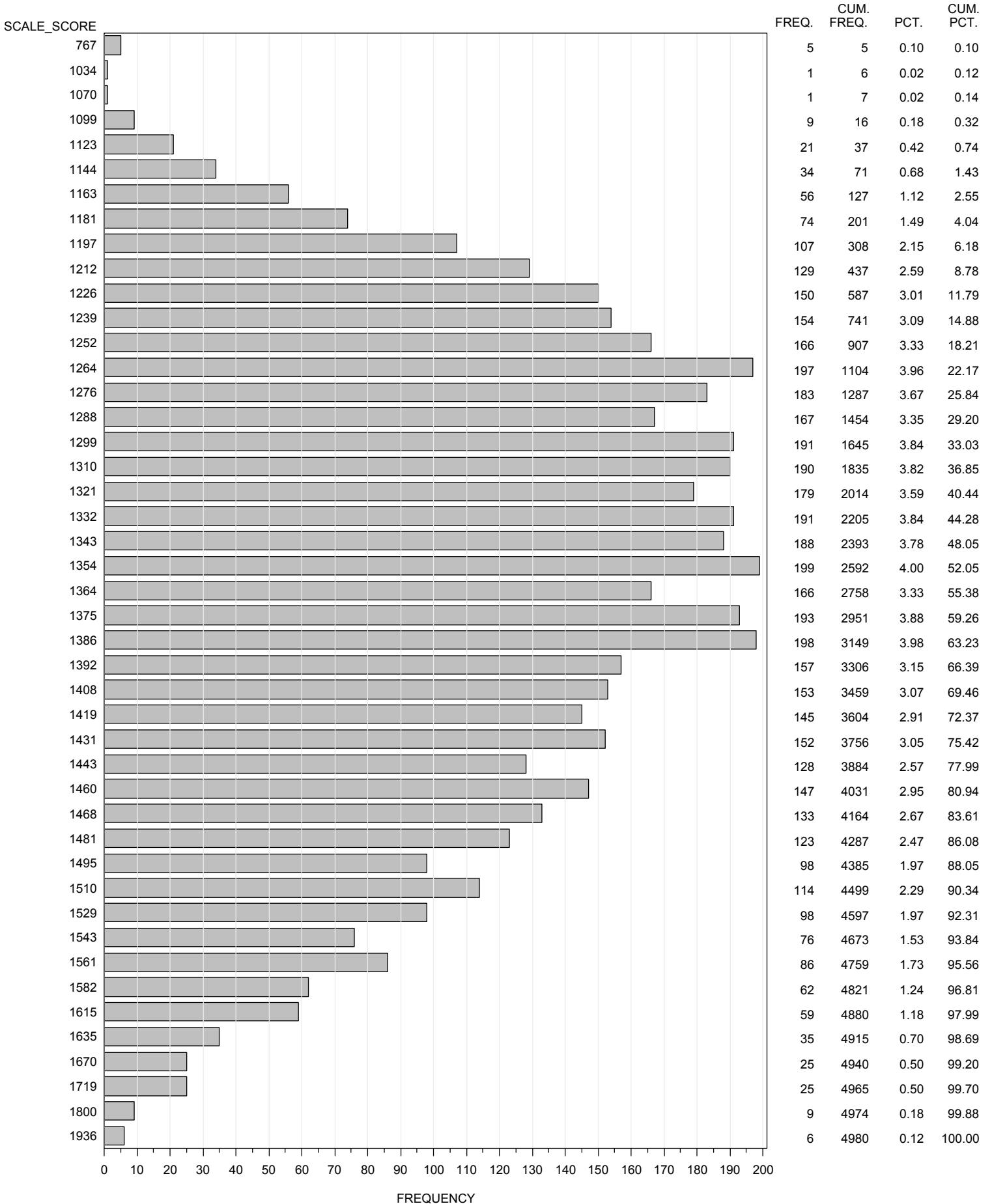
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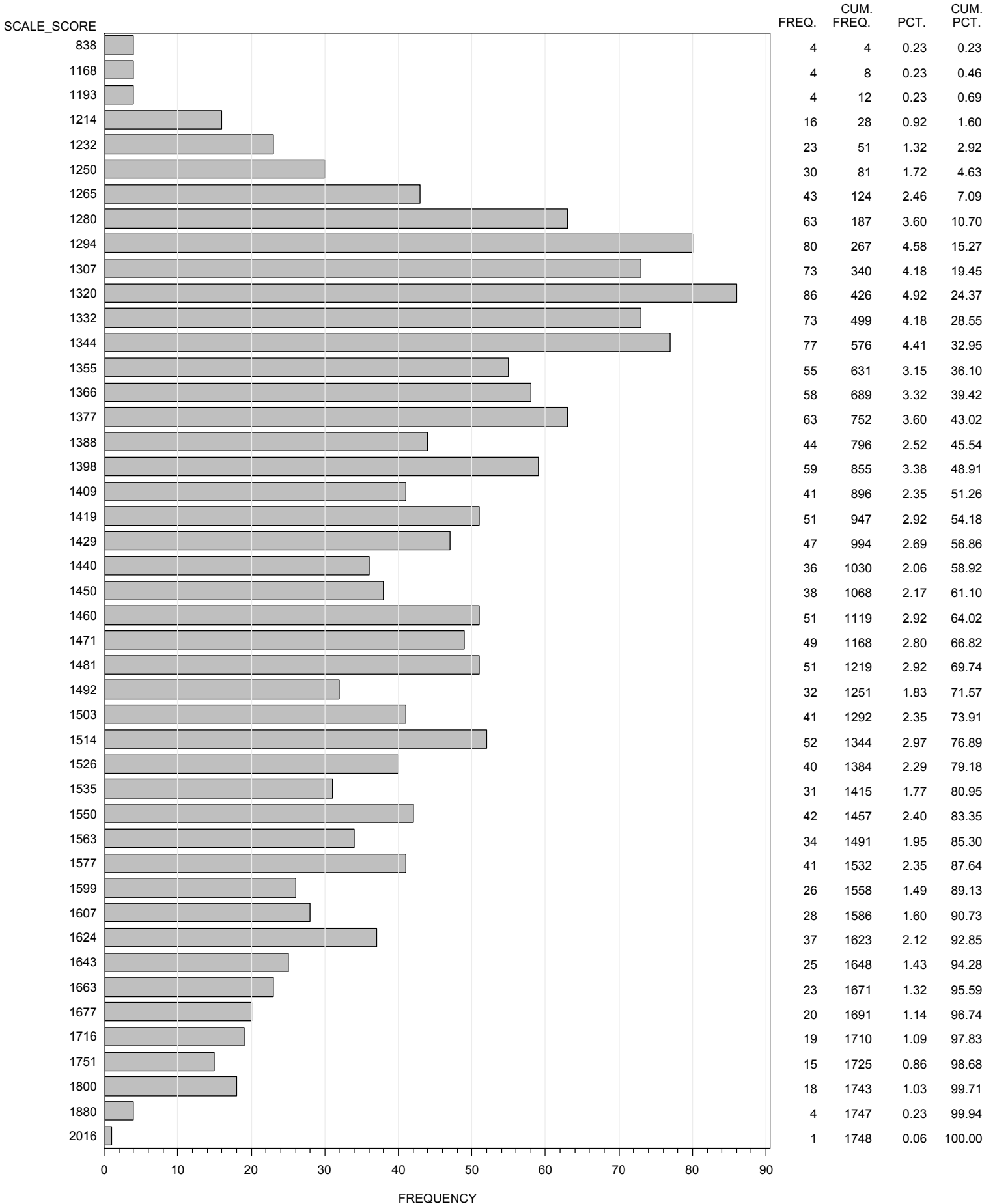
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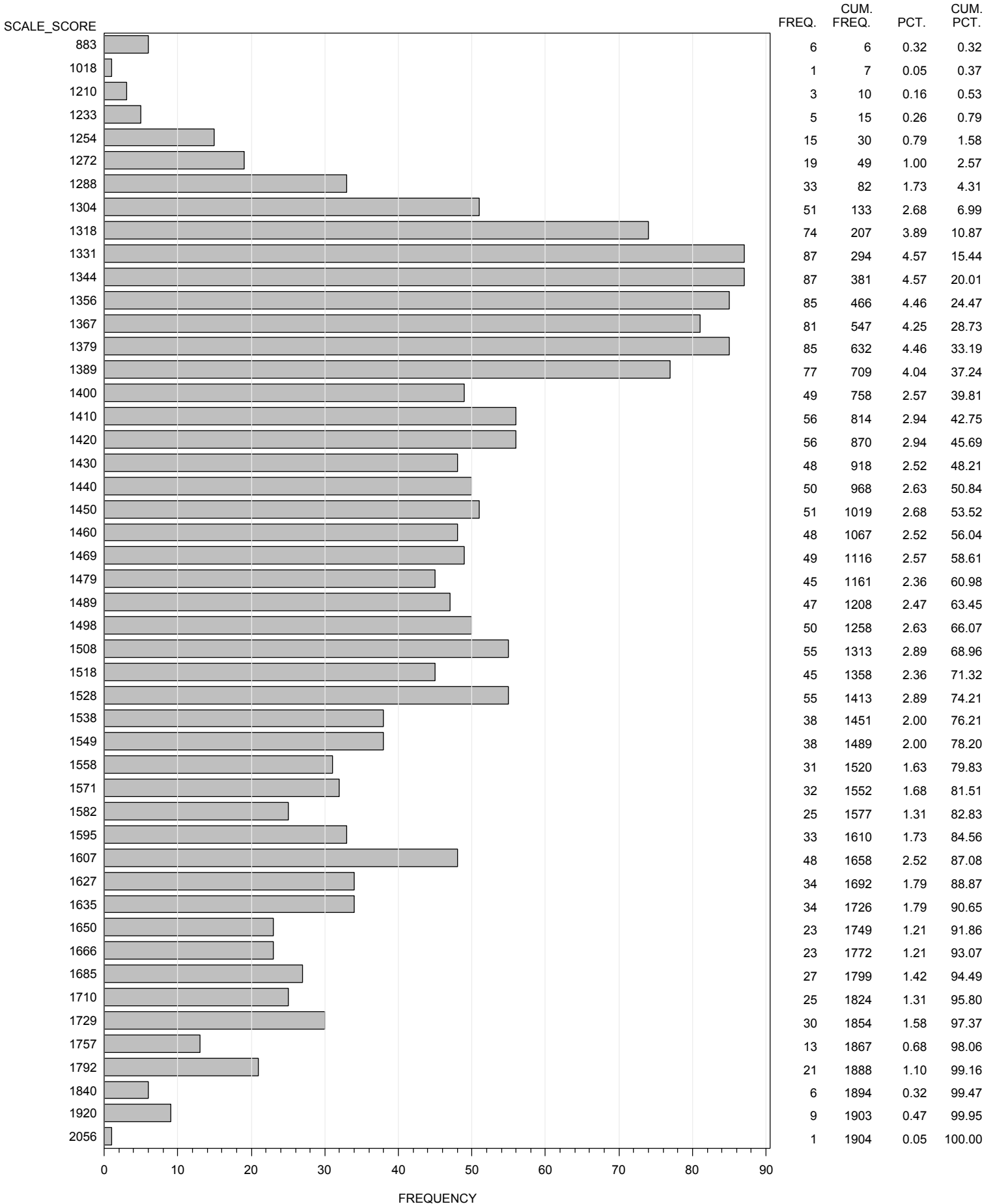
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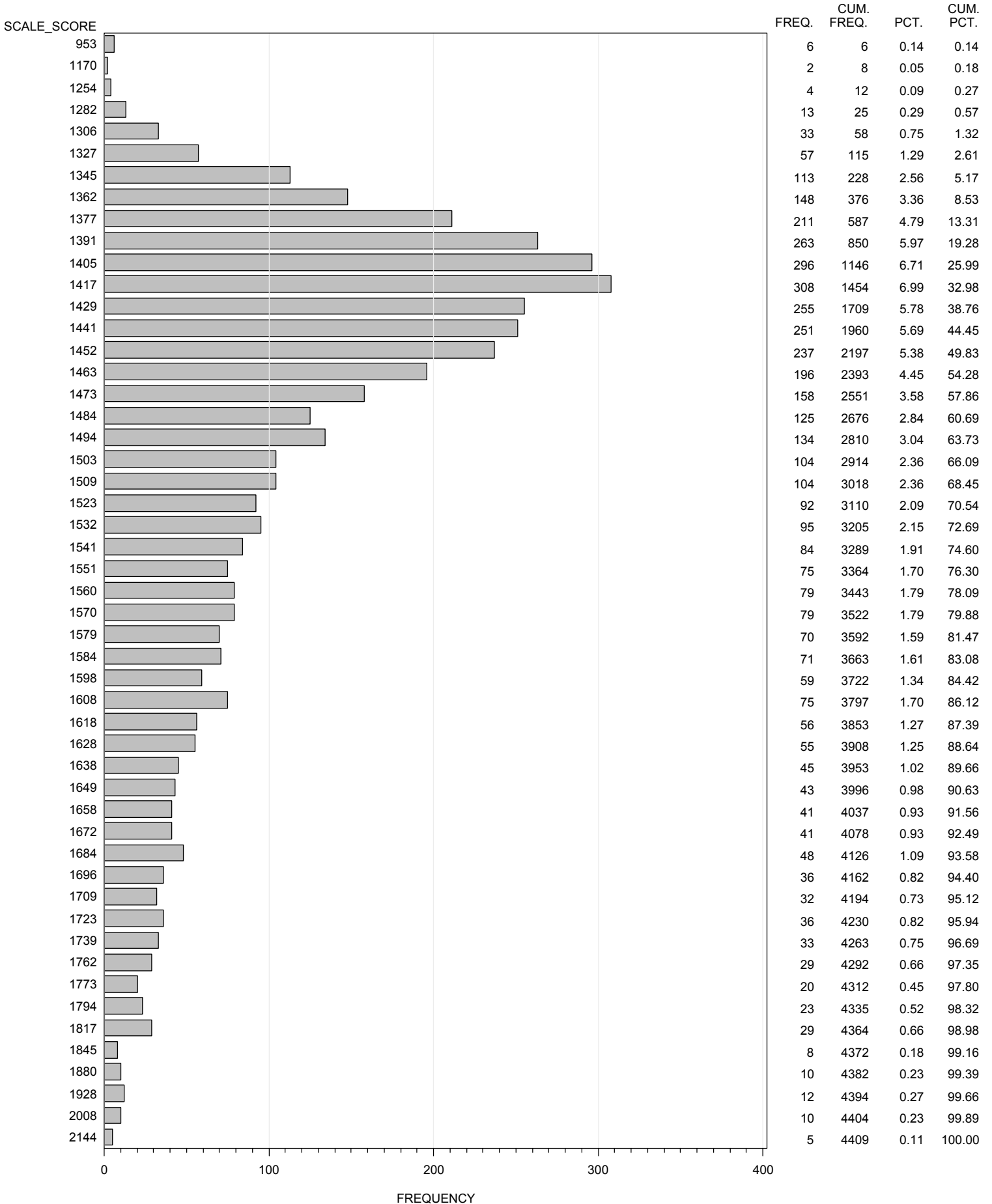
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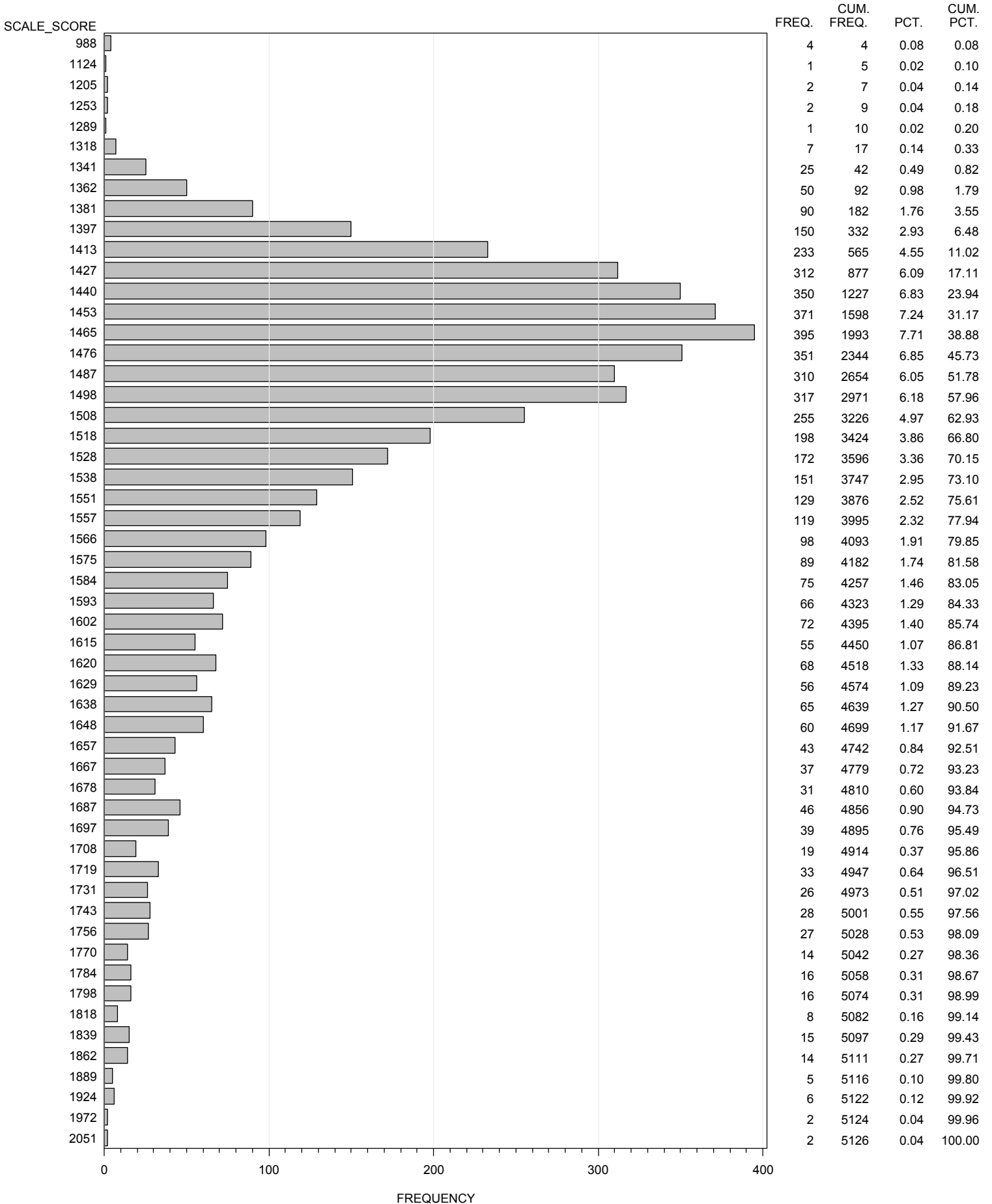


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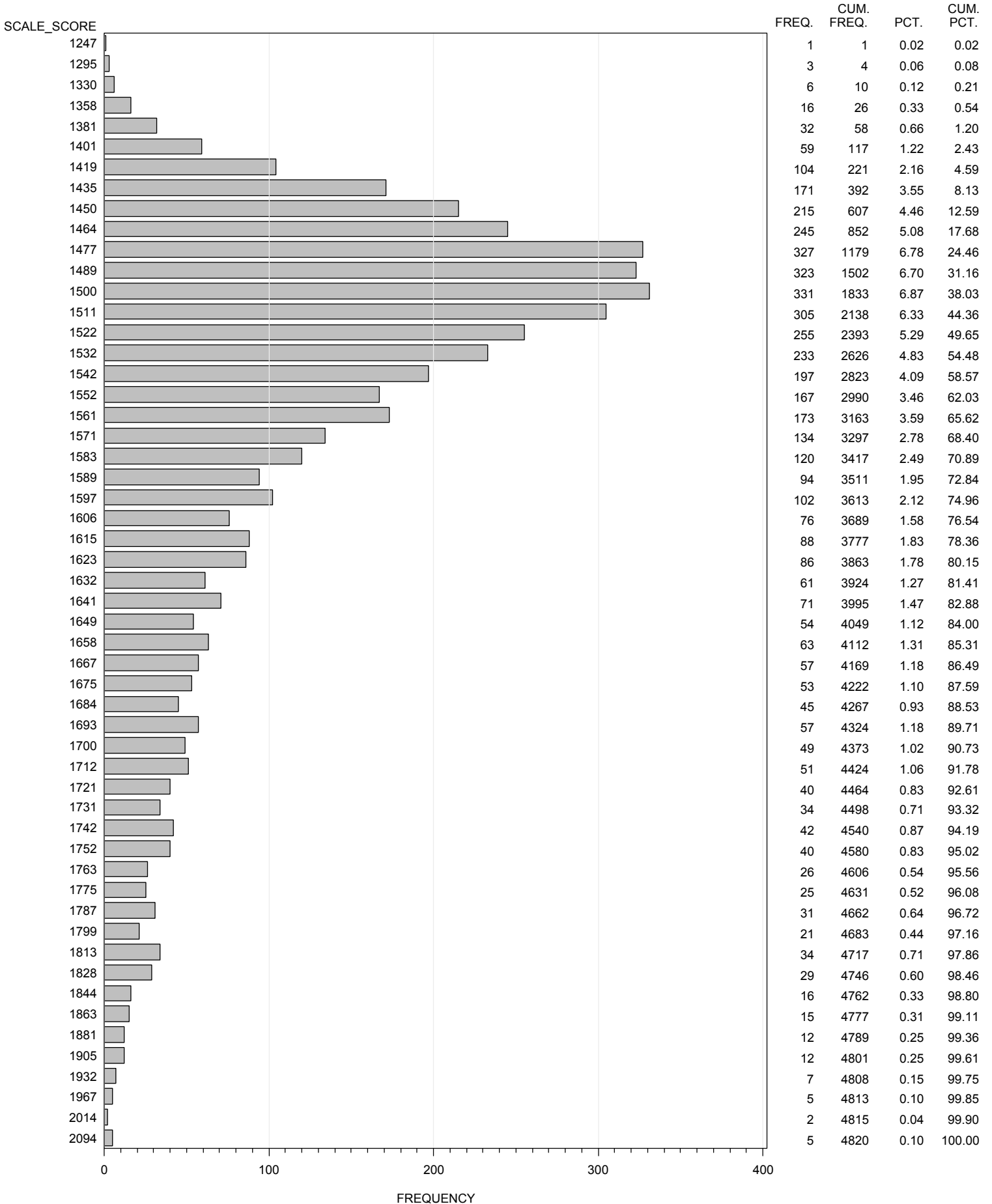
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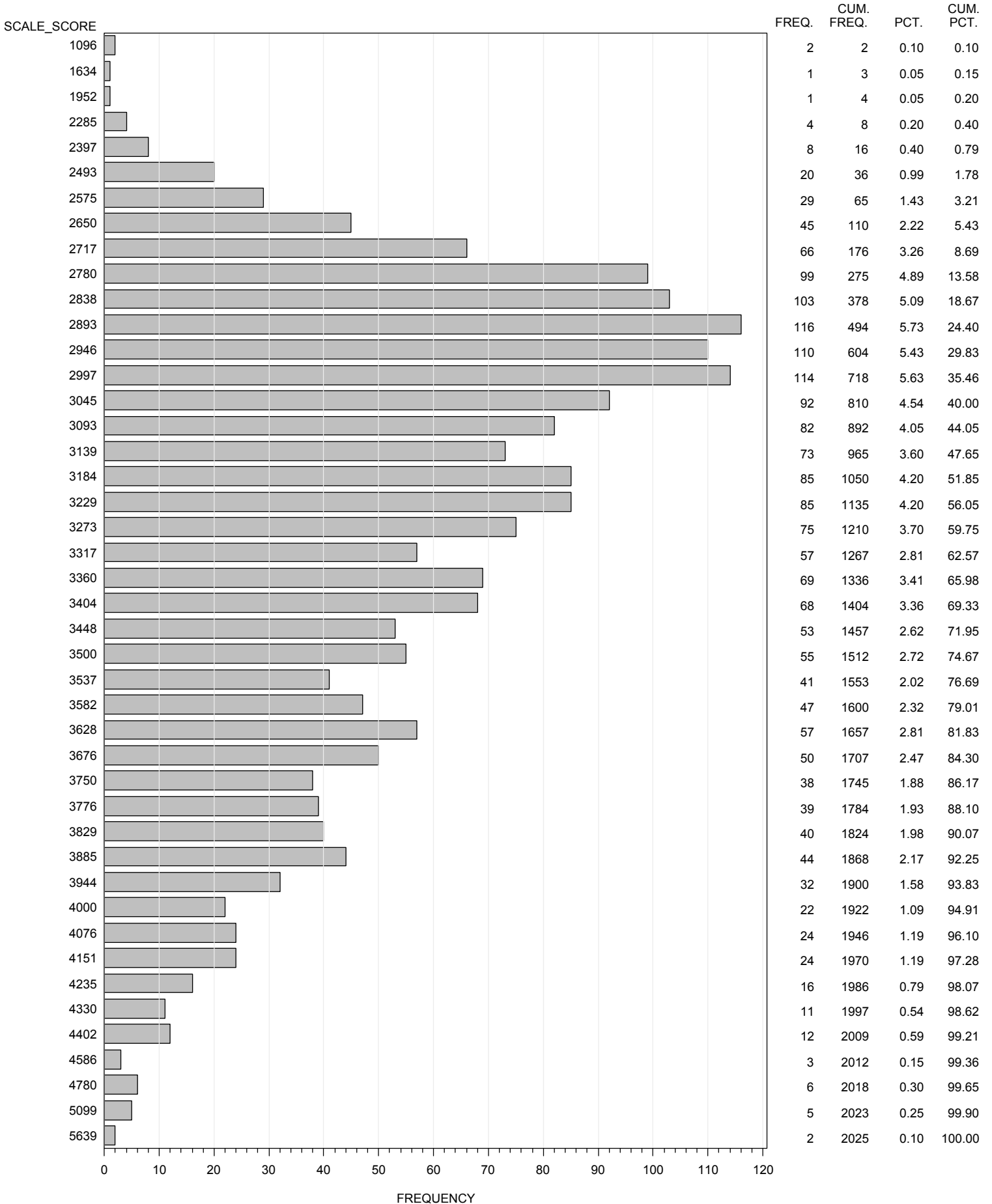
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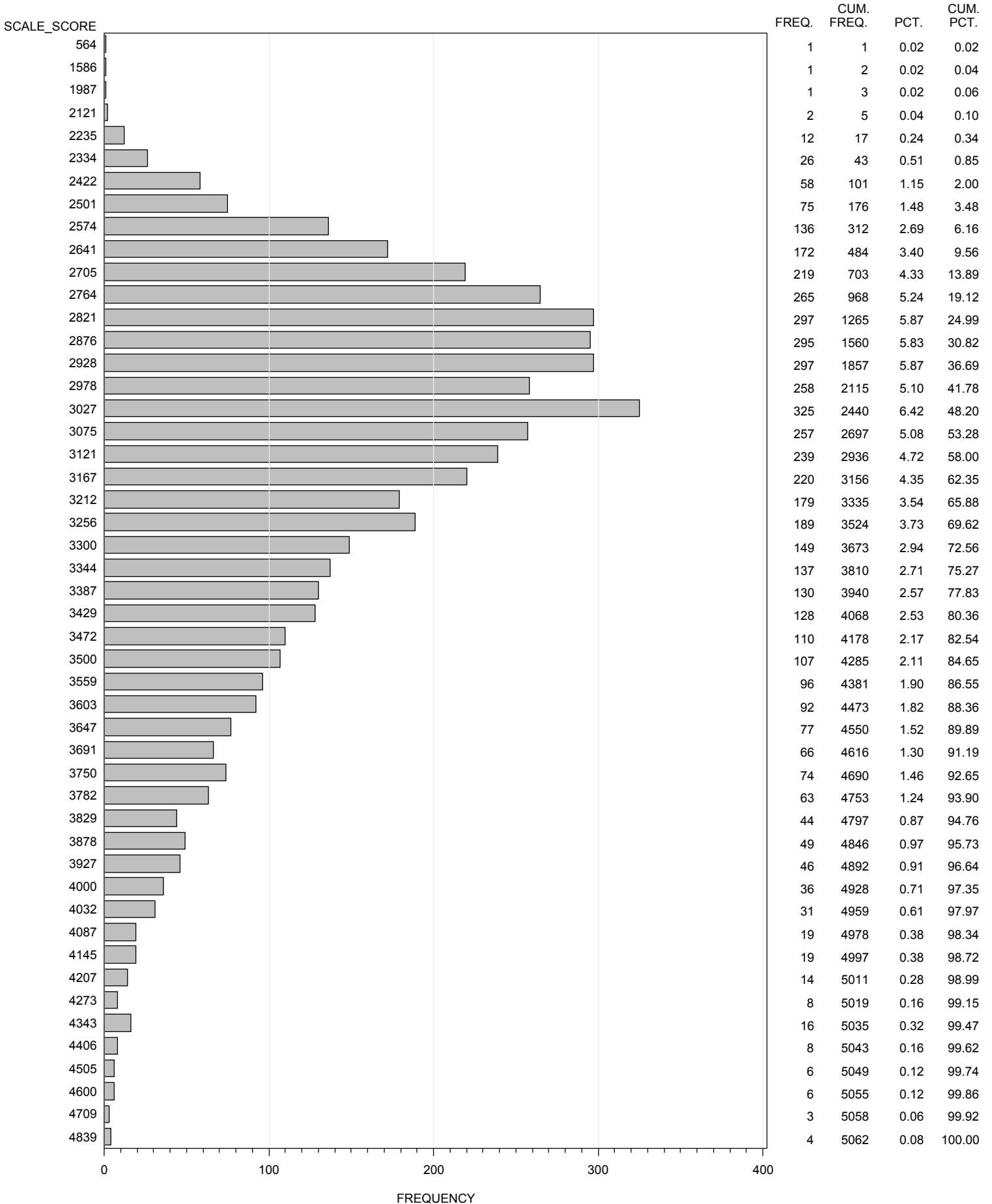
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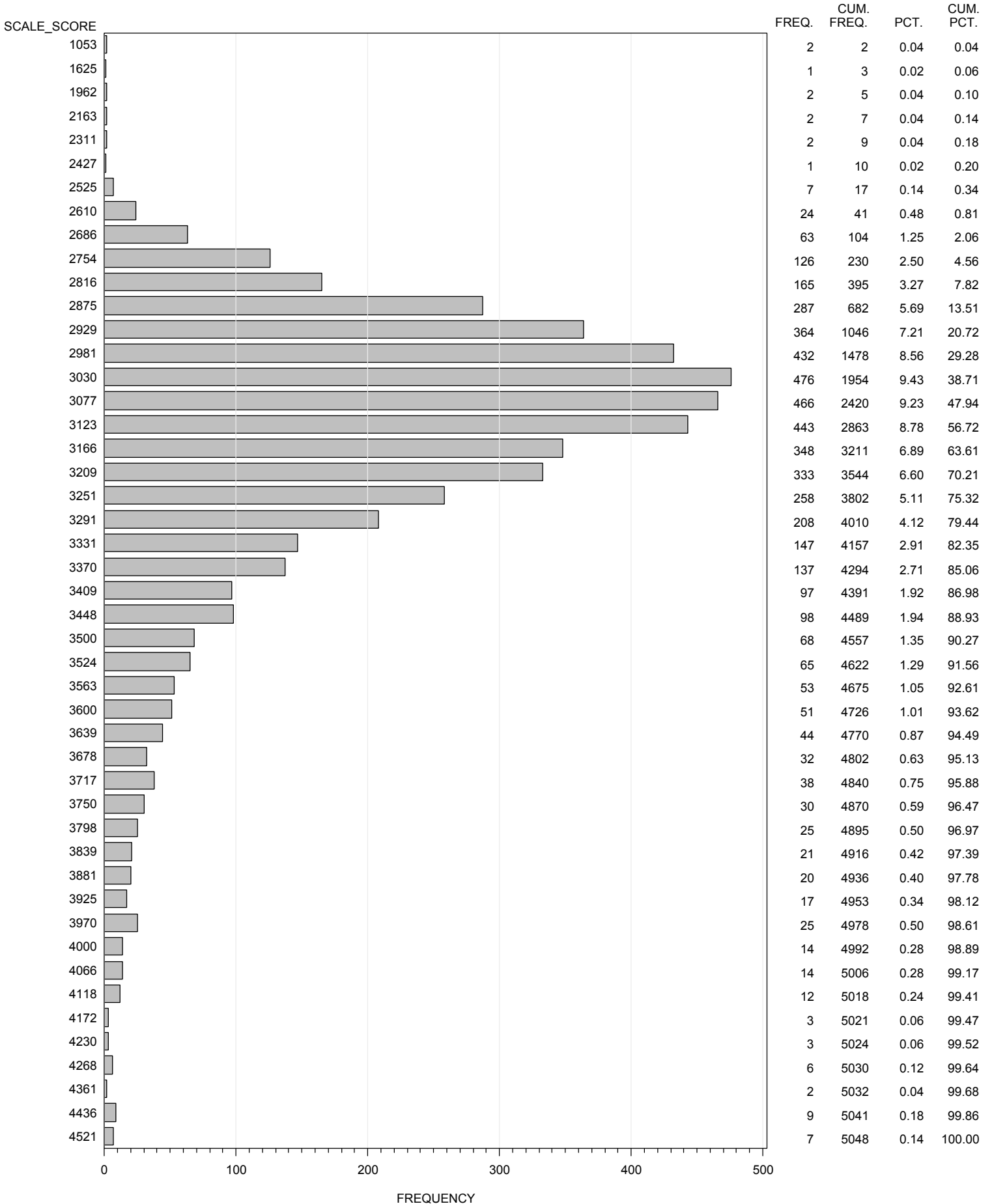


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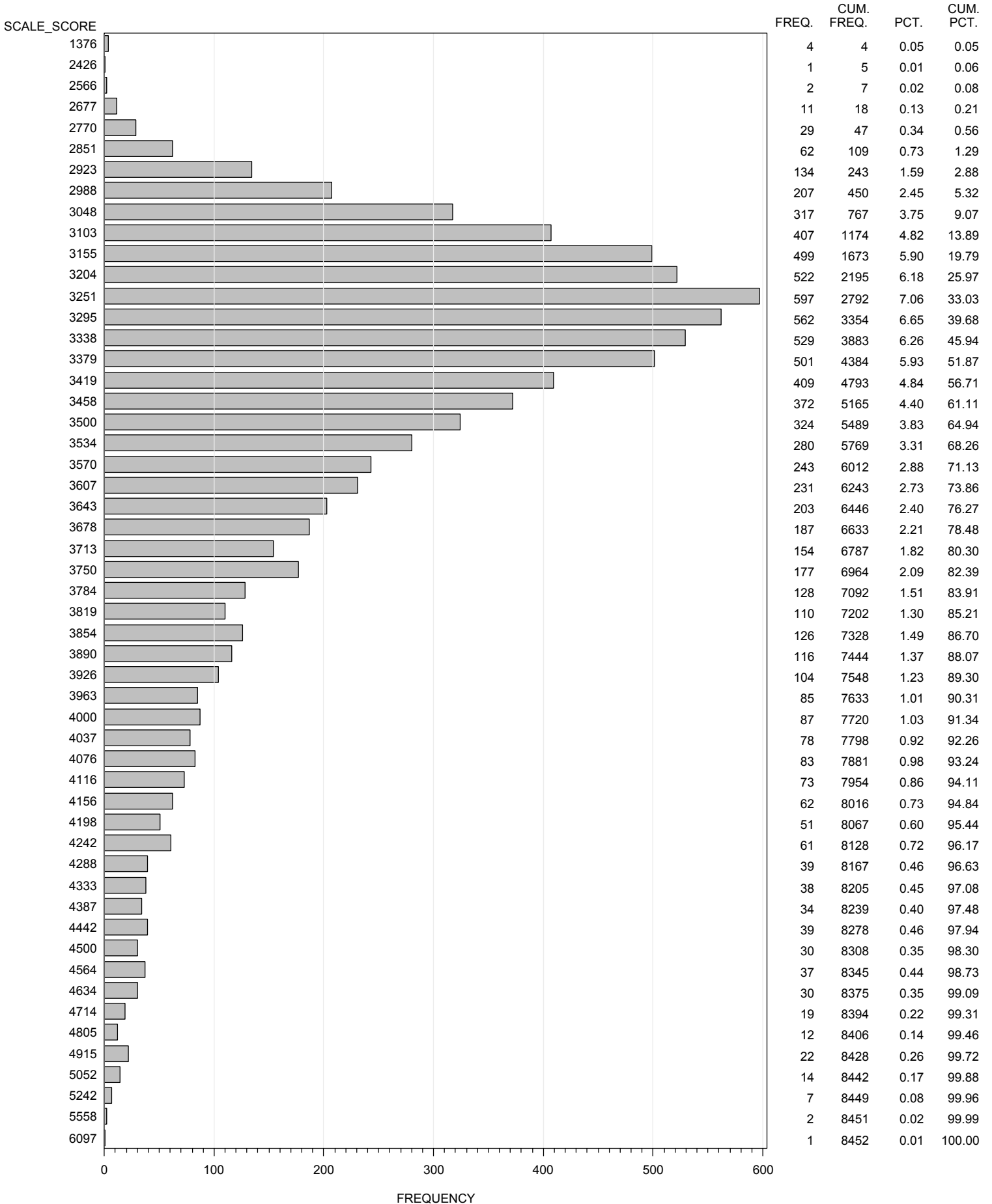


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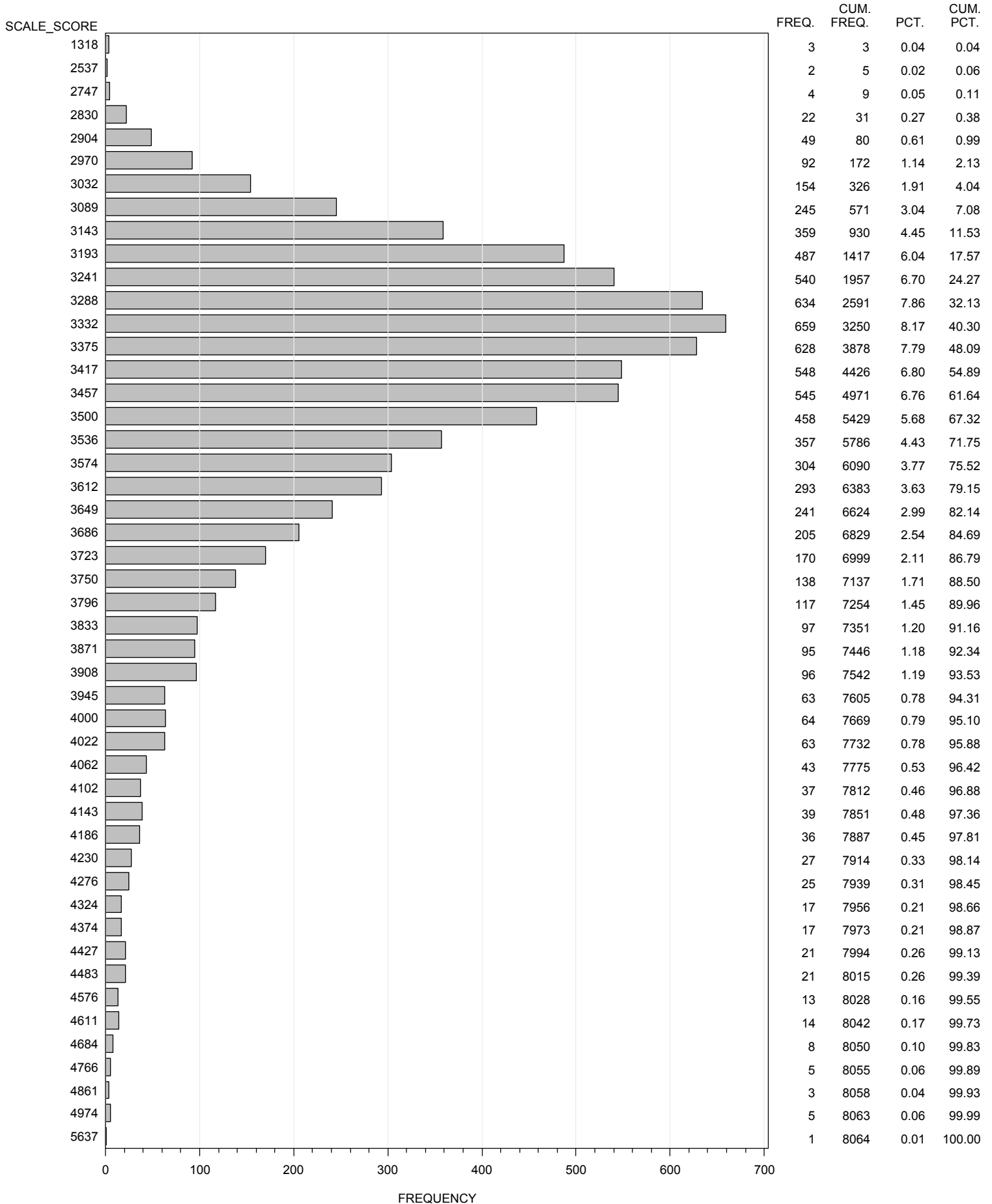
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