

**STAAR**  
**2015 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 2015 Score Distributions and Statistics by Content Area and Grade") of Appendix B. 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 1<sup>st</sup> and 3<sup>rd</sup> quartiles (or 25<sup>th</sup> and 75<sup>th</sup> percentiles) of the score distribution for the assessment. It is computed by subtracting the score at the 1<sup>st</sup> quartile (the point that splits the lowest 25% of the scores) from the score at the 3<sup>rd</sup> 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 2015 STAAR English 3–8 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Range					
GRADE 3 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 4 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 5 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 6 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 7 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 8 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 3 READING	340368	1432.97	1427	1485	1159	192	136.07	18515.05	0.3991	0.4553	
GRADE 4 READING	341765	1512.81	1511	1611	1174	202	140.31	19686.64	0.3088	0.1955	
GRADE 5 READING	351339	1558.07	1559	1667	1188	177	139.83	19552.30	0.3244	0.3760	
GRADE 6 READING	358206	1589.50	1592	1674	1190	170	133.09	17713.12	0.2601	0.4138	
GRADE 7 READING	357493	1639.58	1631	1694	1205	168	127.60	16280.64	0.3504	0.5494	
GRADE 8 READING	360581	1675.17	1677	1760	1199	175	130.61	17058.25	0.2835	0.4240	
GRADE 4 WRITING	342622	3724.68	3650	3745	5551	644	520.42	270836.20	0.3234	0.5577	
GRADE 7 WRITING	359190	3808.93	3754	3708	6126	745	576.44	332285.20	0.5987	1.2828	
GRADE 5 SCIENCE	353740	3772.11	3745	3915	4567	636	491.72	241791.19	0.4115	0.6585	
GRADE 8 SCIENCE	357524	3839.74	3795	3950	5607	759	586.72	344243.21	0.5631	0.8301	
GRADE 8 SOCIAL STUDIES	357066	3680.54	3650	3780	5004	662	465.56	216745.13	0.3805	0.3404	

\* This information will be provided in a separate report after standards are set for the STAAR mathematics assessments for grades 3-8.

### Scale Score Descriptive Statistics for 2015 STAAR Spanish 3–5 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Range	Range				
GRADE 3 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 4 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 5 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 3 READING	36710	1366.33	1346	1304	1382	206	146.87	21570.86	0.4501	0.5632	
GRADE 4 READING	25322	1441.34	1441	1425	1388	207	143.87	20698.39	0.4747	0.4336	
GRADE 5 READING	12518	1518.15	1509	1488	1412	190	139.81	19545.77	0.4256	0.6363	
GRADE 4 WRITING	26323	3644.37	3650	3751	4872	809	582.49	339296.88	0.1243	0.0048	
GRADE 5 SCIENCE	7446	3401.03	3367	3411	3376	552	405.80	164671.69	0.5027	0.4116	

\* This information will be provided in a separate report after standards are set for the STAAR mathematics assessments for grades 3-8.

### Scale Score Descriptive Statistics for 2015 STAAR EOC Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Q1	Q3				
ALGEBRA I	392959	3942.30	3902	3850	4707	667		510.49	260598.38	0.6324	1.1181
ENGLISH I	418540	3941.26	3899	4000	5995	688		528.88	279710.10	0.4348	1.4924
ENGLISH II	380251	3951.63	3946	4000	6146	642		514.13	264325.32	0.4180	1.4517
BIOLOGY	352342	4102.14	4075	4155	4816	636		497.51	247519.25	0.5913	1.2774
U.S. HISTORY	325447	4130.17	4132	4288	5574	648		490.71	240795.48	0.2774	0.7662

## Scale Score Descriptive Statistics for 2015 STAAR A 3–8 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Range	Range				
GRADE 3 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 4 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 5 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 6 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 7 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 8 MATHEMATICS	*	*	*	*	*	*	*	*	*	*	*
GRADE 3 READING	13770	1255.60	1247	1202	1035	100	89.40	7993.18	0.6355	1.7431	
GRADE 4 READING	18132	1354.65	1340	1301	1045	112	90.19	8134.81	0.8096	1.1697	
GRADE 5 READING	19275	1373.71	1356	1331	1071	120	89.91	8083.77	0.6218	0.9008	
GRADE 6 READING	19791	1423.83	1410	1375	1211	102	82.39	6788.85	0.6529	2.2828	
GRADE 7 READING	19701	1469.56	1459	1425	972	97	79.09	6255.41	0.6916	1.6709	
GRADE 8 READING	18382	1506.46	1496	1452	1005	126	89.34	7981.49	0.5591	0.9032	
GRADE 4 WRITING	15753	3064.76	2996	2930	3988	525	358.51	128531.87	0.5473	0.4936	
GRADE 7 WRITING	17951	3110.51	3052	2870	4459	452	338.16	114349.02	0.4848	1.6971	
GRADE 5 SCIENCE	19727	3209.79	3162	3253	4626	510	391.38	153179.48	0.4510	0.9474	
GRADE 8 SCIENCE	18605	3194.01	3141	2950	4608	454	351.46	123521.87	0.4581	1.3915	
GRADE 8 SOCIAL STUDIES	18531	3186.66	3168	3079	4364	301	281.34	79151.70	0.9521	4.1702	

\* This information will be provided in a separate report after standards are set for the STAAR mathematics assessments for grades 3-8.

### Scale Score Descriptive Statistics for 2015 STAAR A EOC Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile		SD	Variance	Skewness	Kurtosis
						Q1	Q3				
ALGEBRA I	19058	3355.95	3334	3247	4180	299	266.91	71240.88	0.5427	4.5002	
ENGLISH I	20477	3379.96	3356	3213	3982	413	334.71	112032.37	-0.1946	3.9746	
ENGLISH II	16094	3368.98	3358	3082	3957	511	367.59	135121.78	-0.0579	2.0101	
BIOLOGY	15532	3457.24	3433	3391	4299	284	253.34	64179.47	0.2872	6.3093	
U.S. HISTORY	12214	3449.63	3400	3295	4381	407	311.36	96947.18	0.4134	3.3707	



### Scale Score Descriptive Statistics for 2015 STAAR L 3–8 Assessments

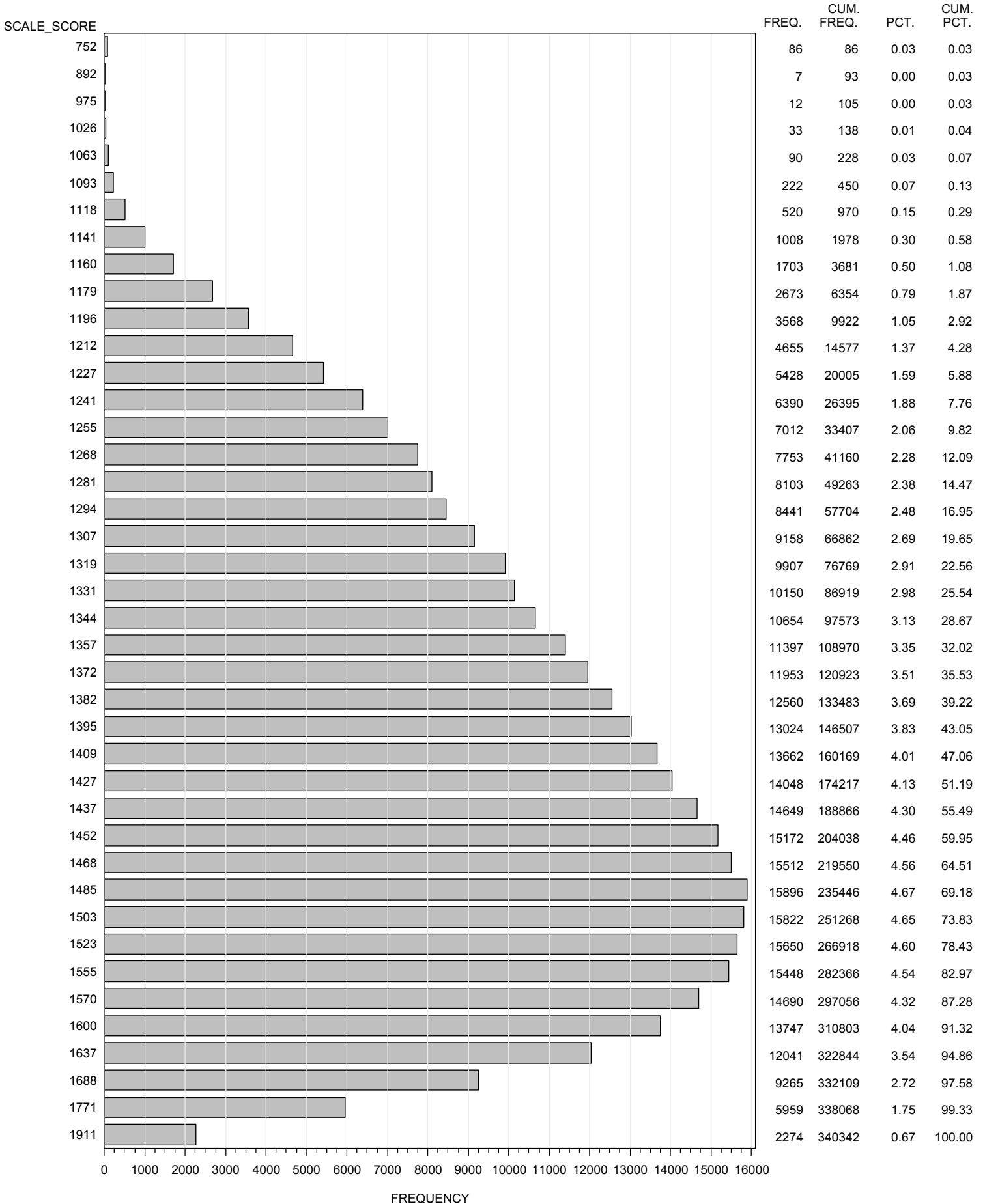
Subject	N	Mean	Median	Mode	Interquartile		SD	Variance	Skewness	Kurtosis
					Range	Range				
GRADE 3 MATHEMATICS	*	*	*	*	*	*	*	*	*	*
GRADE 4 MATHEMATICS	*	*	*	*	*	*	*	*	*	*
GRADE 5 MATHEMATICS	*	*	*	*	*	*	*	*	*	*
GRADE 6 MATHEMATICS	*	*	*	*	*	*	*	*	*	*
GRADE 7 MATHEMATICS	*	*	*	*	*	*	*	*	*	*
GRADE 8 MATHEMATICS	*	*	*	*	*	*	*	*	*	*
GRADE 5 SCIENCE	2306	3237.09	3139	2946	4543	607	448.87	201488.76	0.8653	2.0681
GRADE 8 SCIENCE	6456	3157.72	3090	2945	3377	506	395.69	156573.37	0.7388	0.6638
GRADE 8 SOCIAL STUDIES	6495	3166.26	3123	3030	4366	310	296.62	87985.32	1.1864	3.8113

\* This information will be provided in a separate report after standards are set for the STAAR mathematics assessments for grades 3-8.

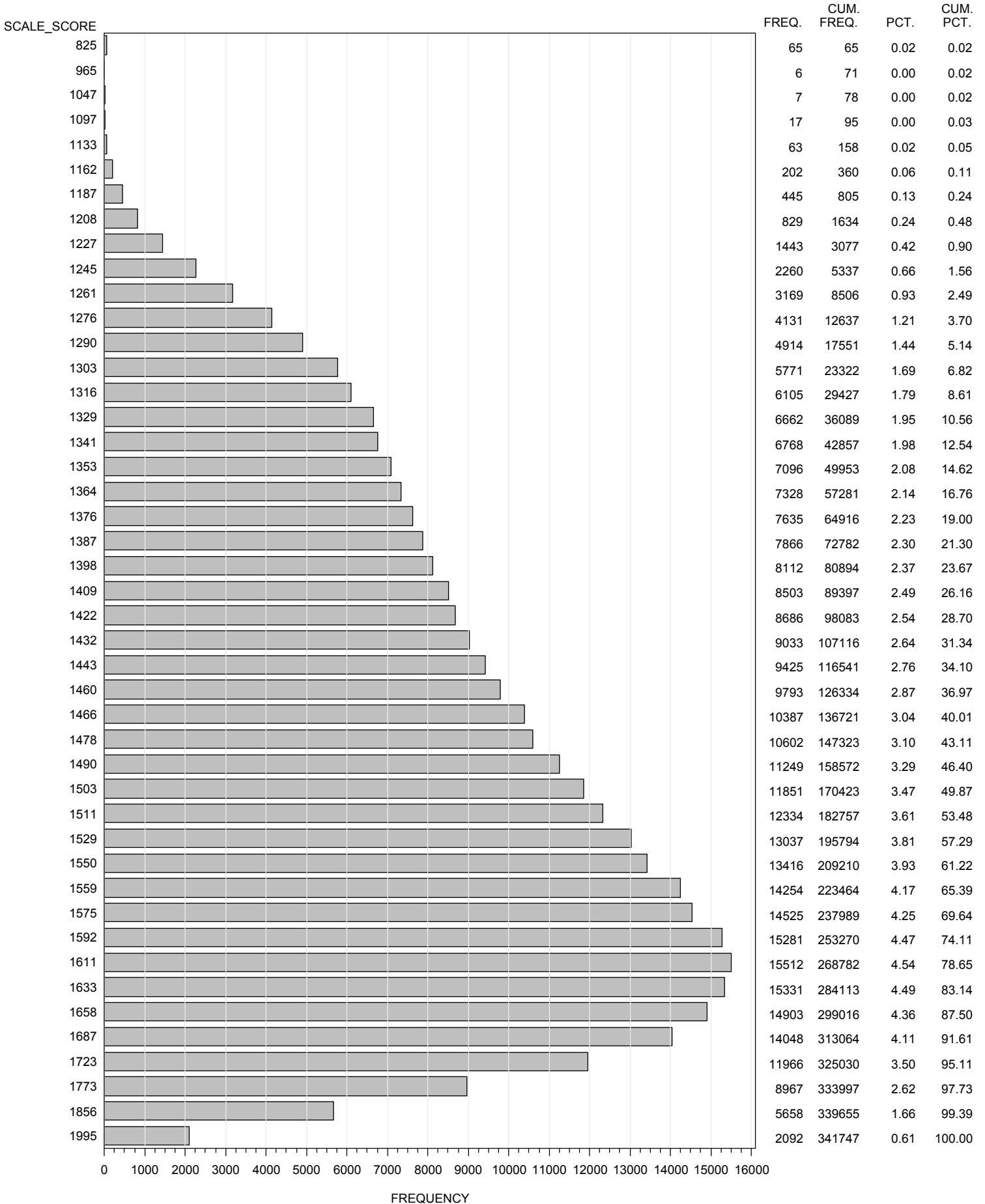
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Subject	N	Mean	Median	Mode	Range	Interquartile Range	SD	Variance	Skewness	Kurtosis
ALGEBRA I	10541	3493.11	3419	3251	4721	427	390.00	152101.54	1.1108	2.9291
BIOLOGY	10108	3478.21	3419	3335	4310	322	304.41	92666.87	0.9360	3.8929
U.S. HISTORY	3673	3514.21	3471	3336	2325	465	333.92	111502.14	0.6954	0.5571

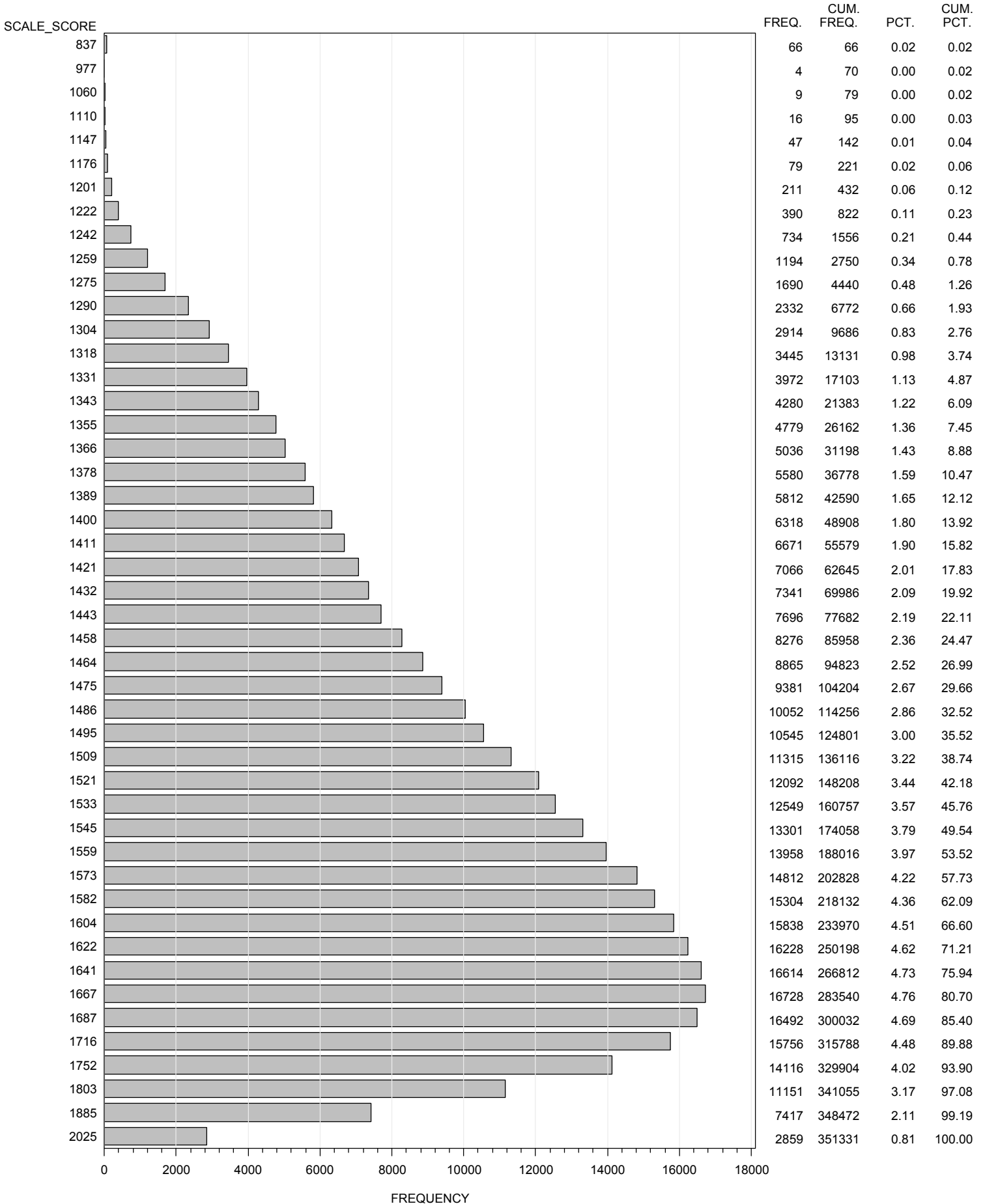
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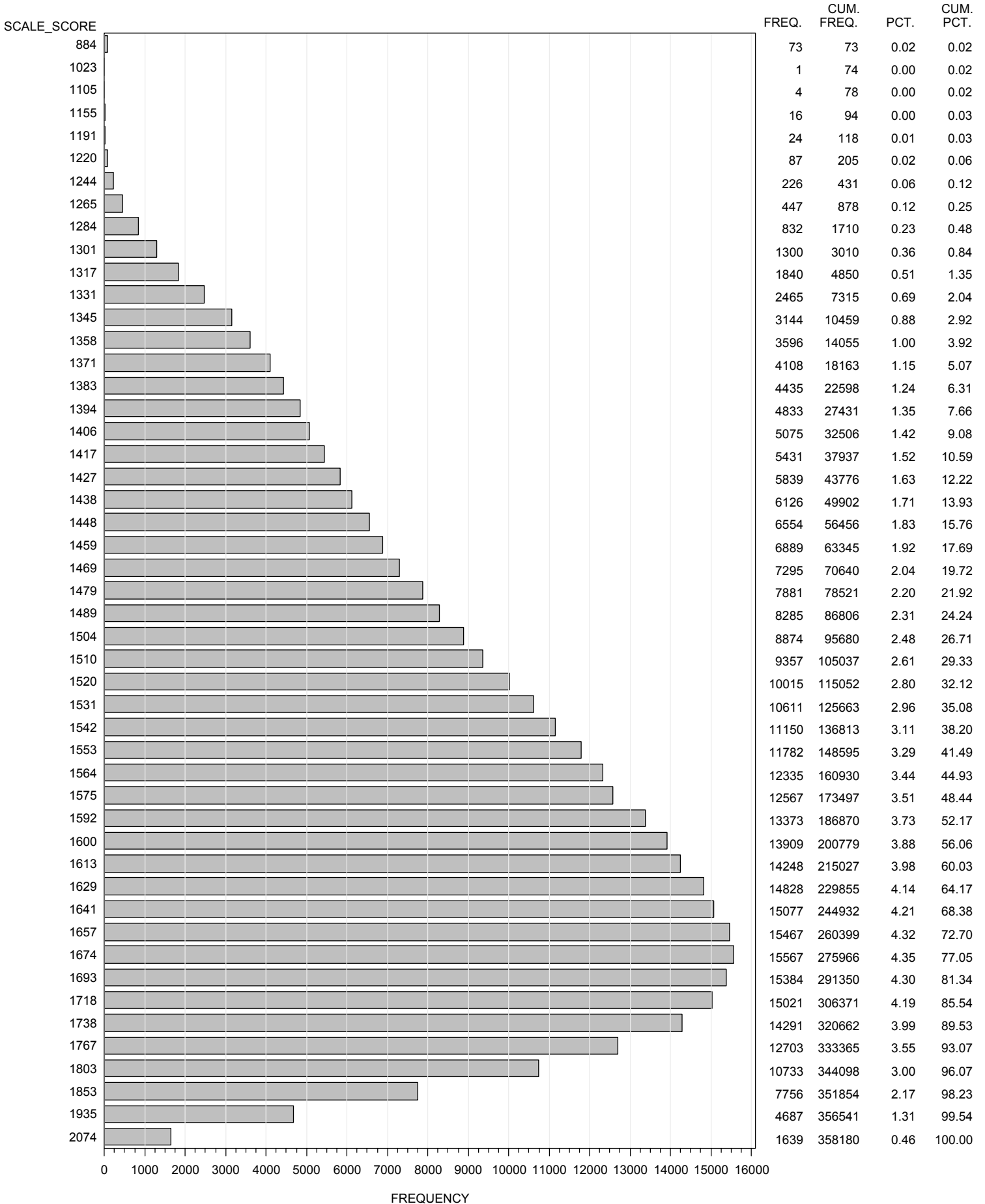
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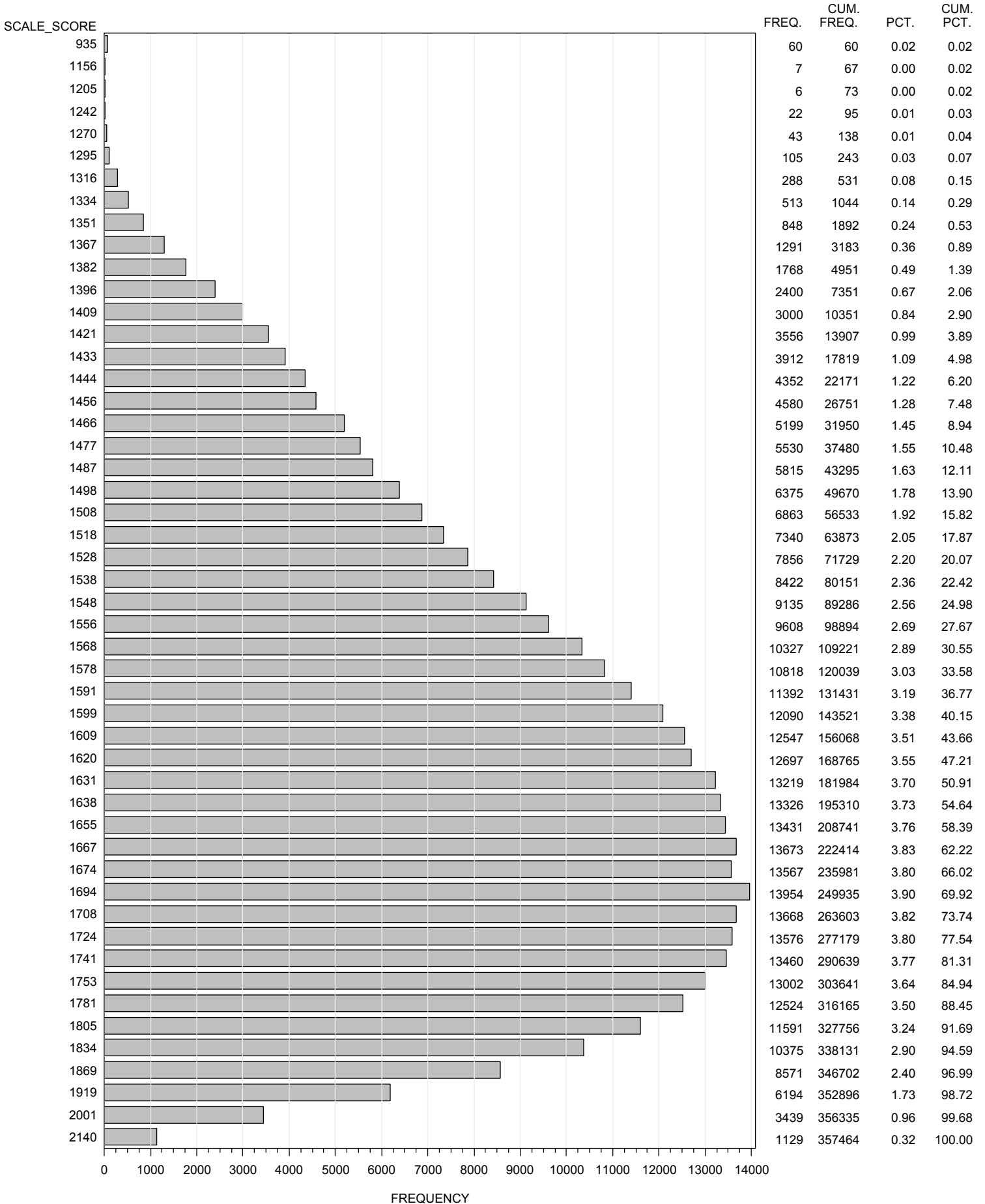
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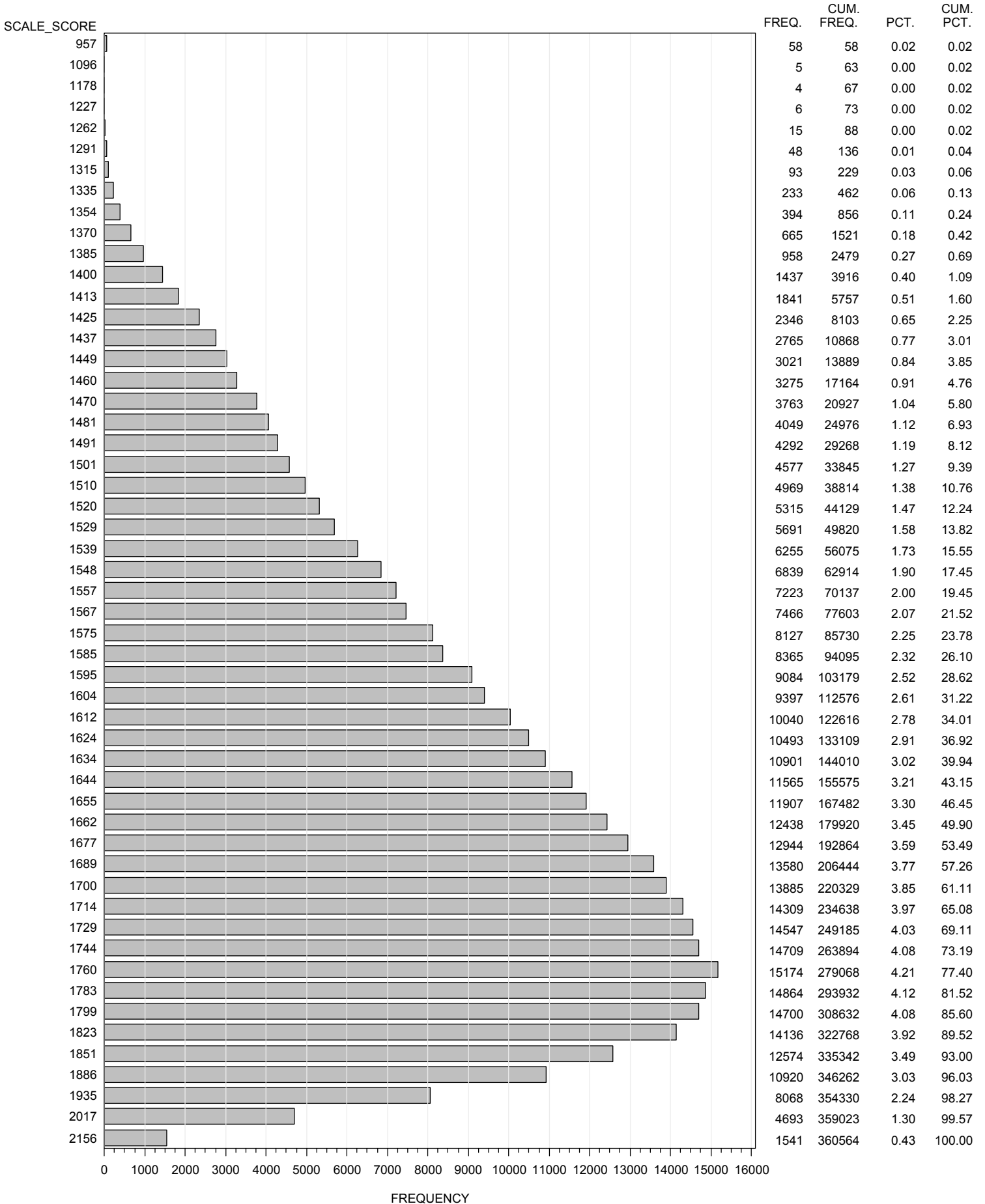
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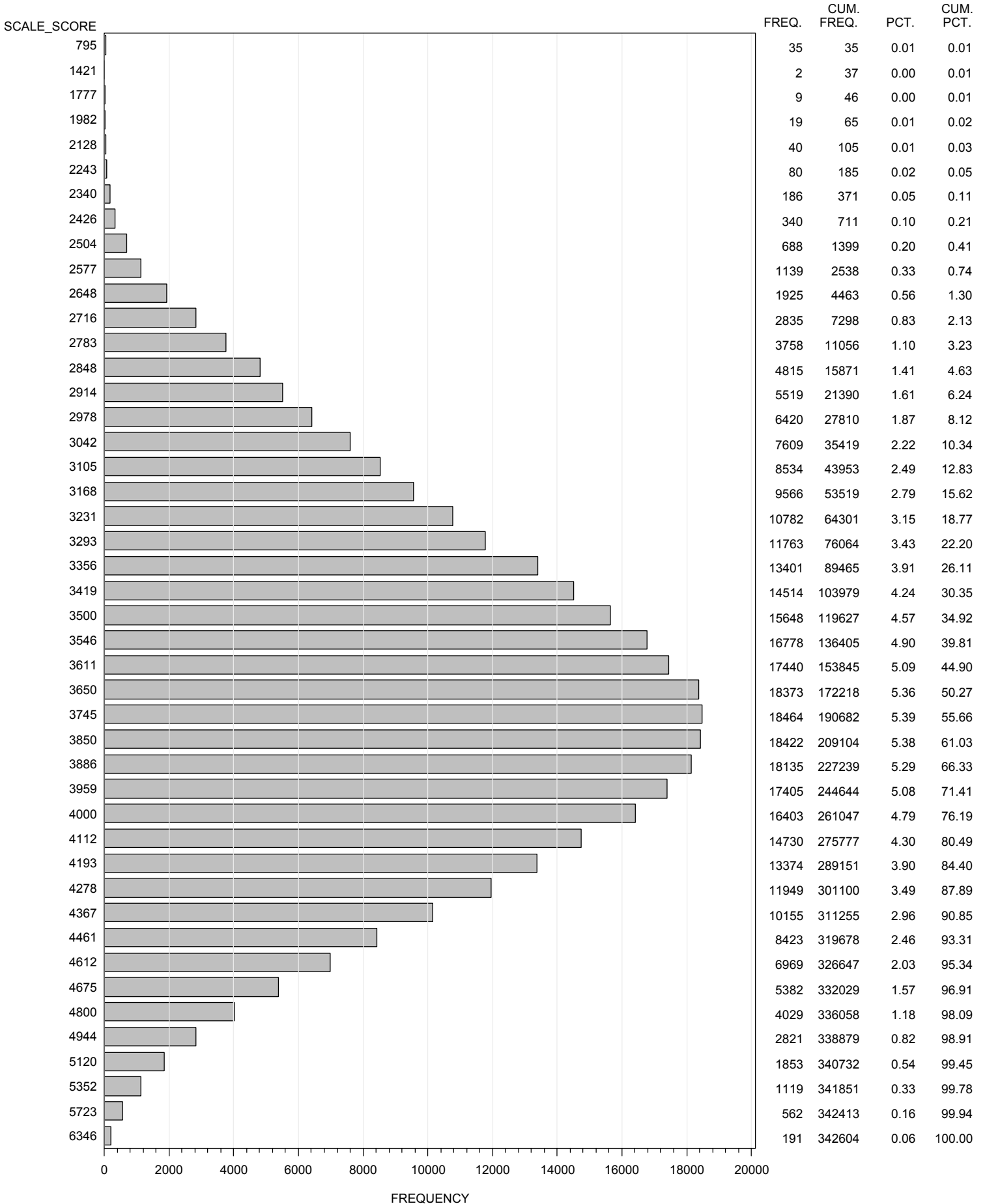


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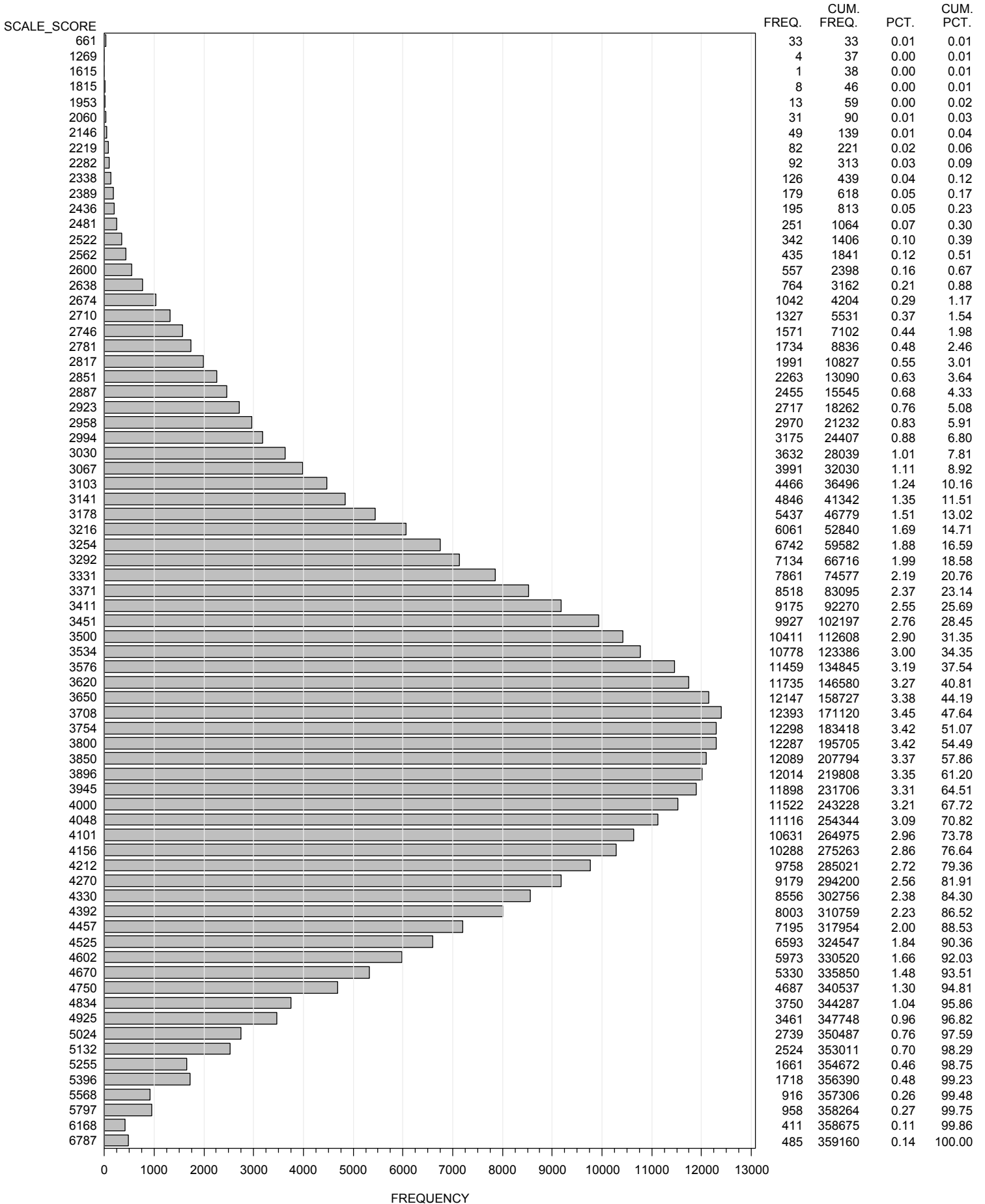




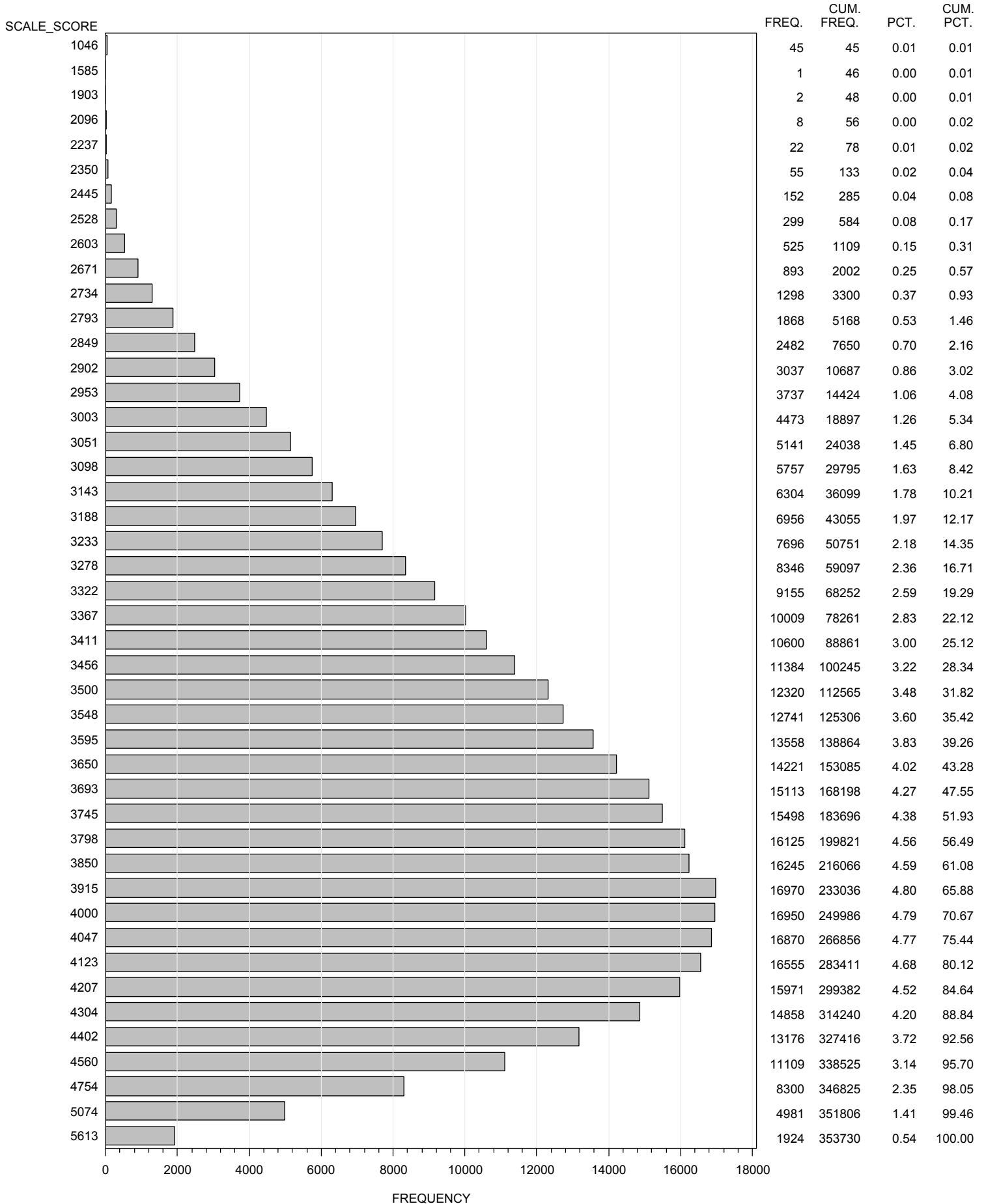
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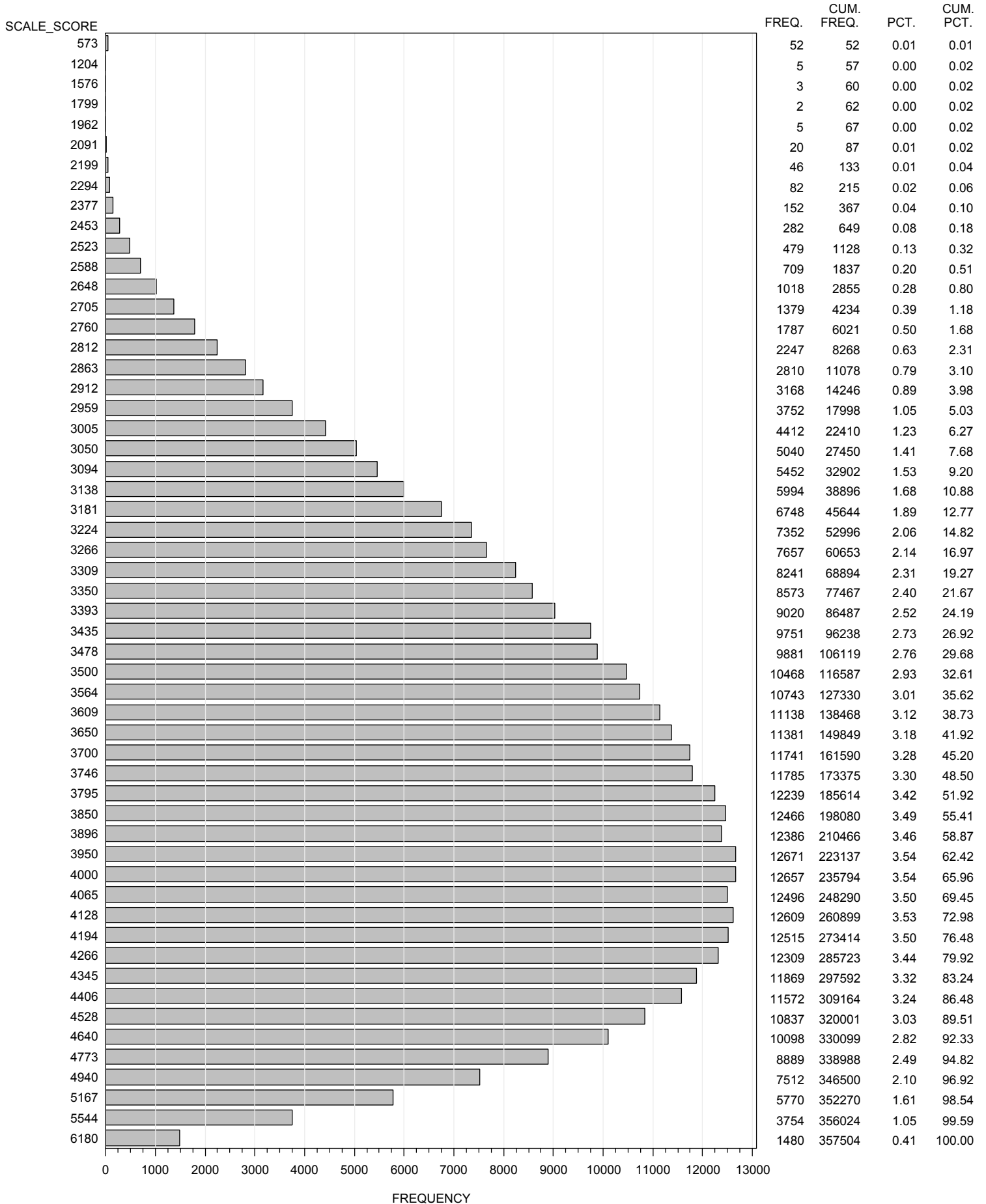
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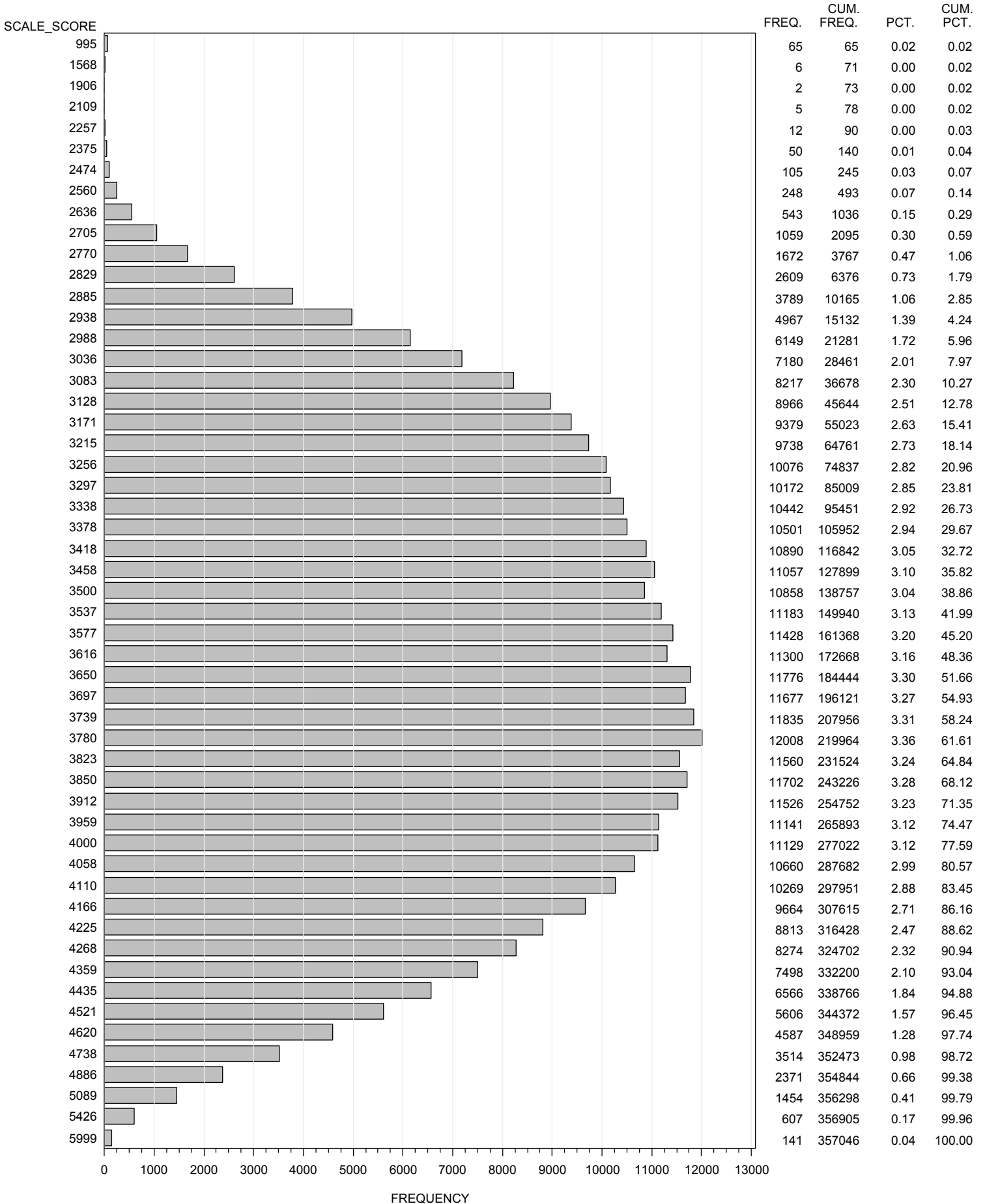
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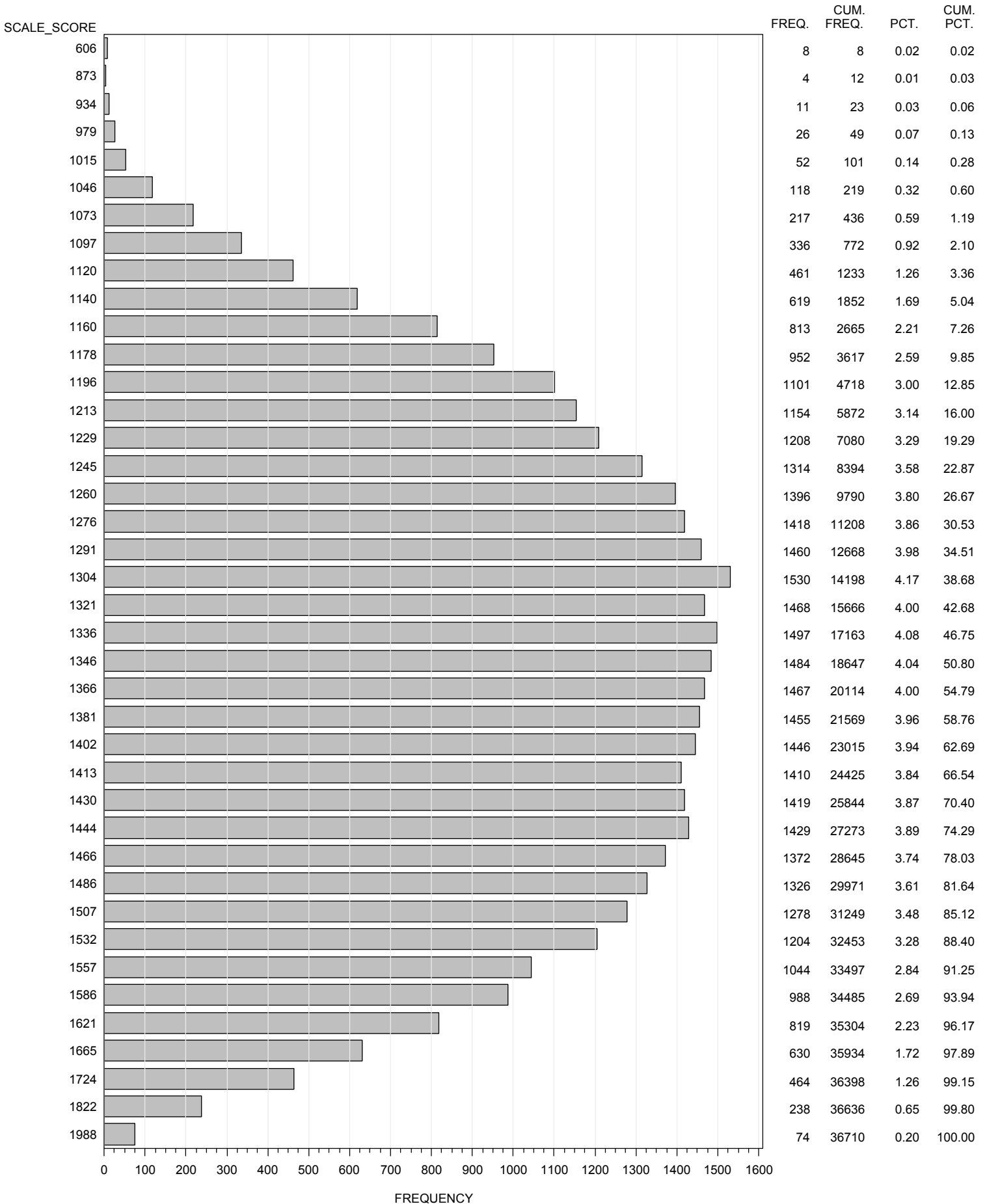
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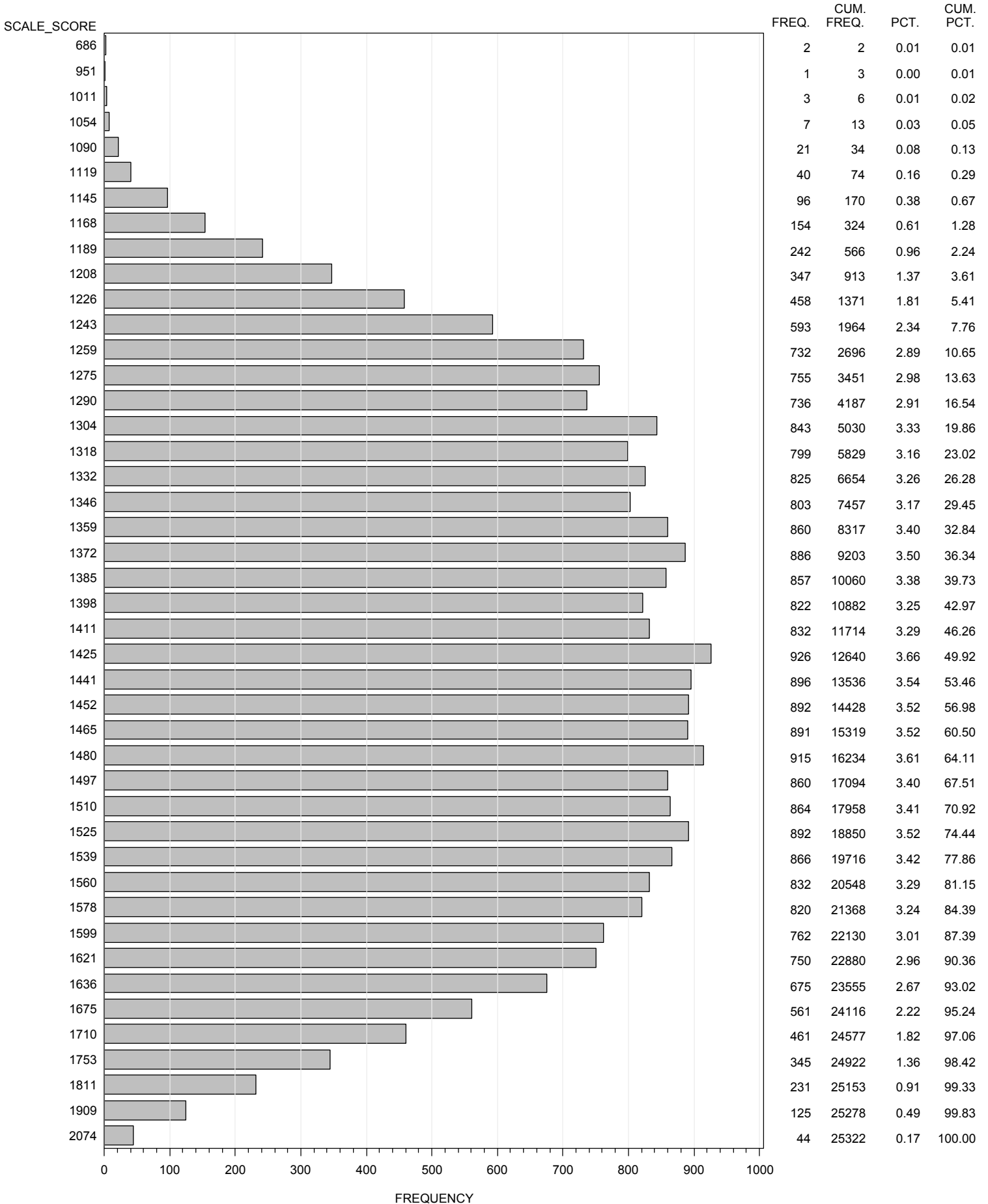
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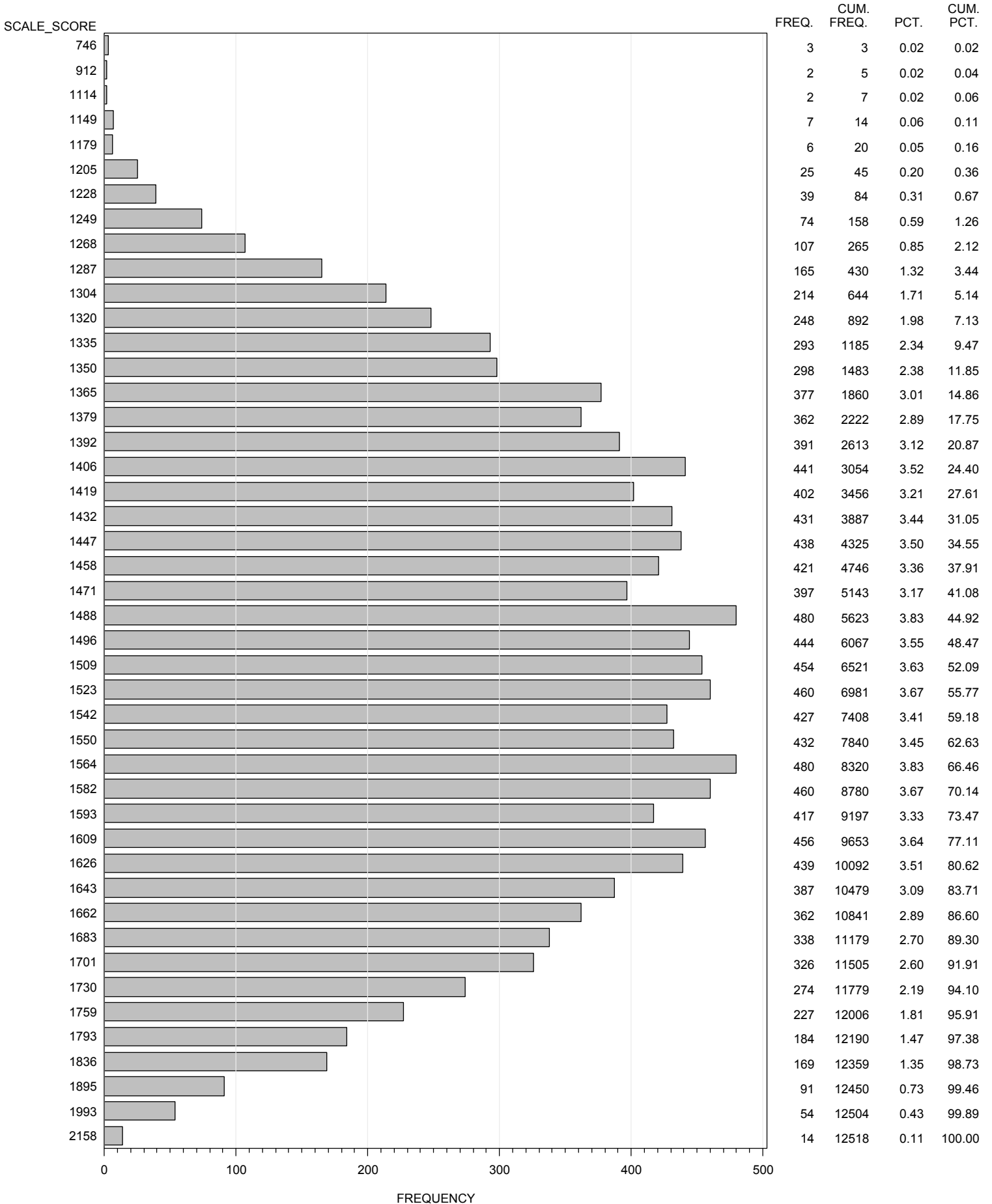
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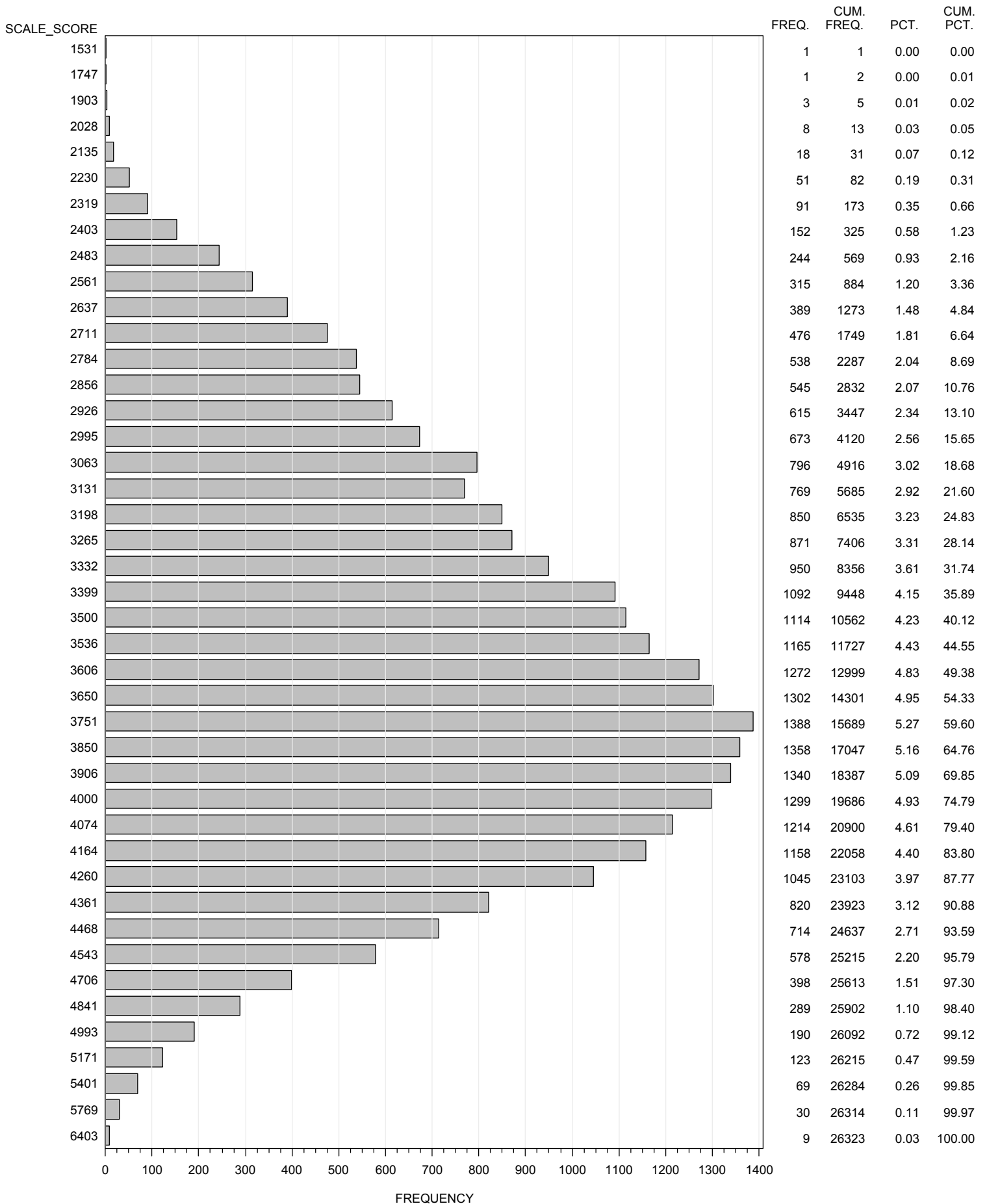


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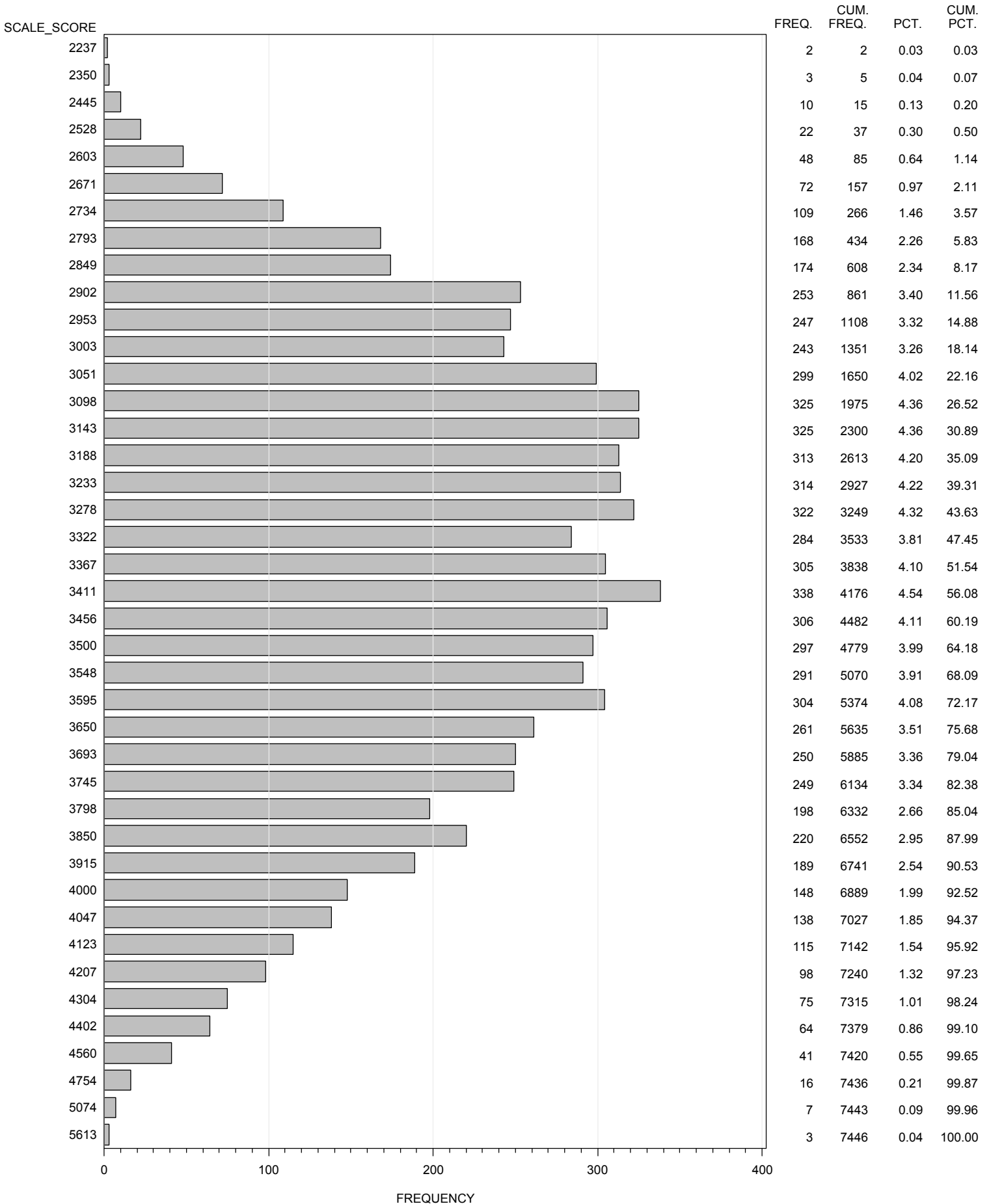




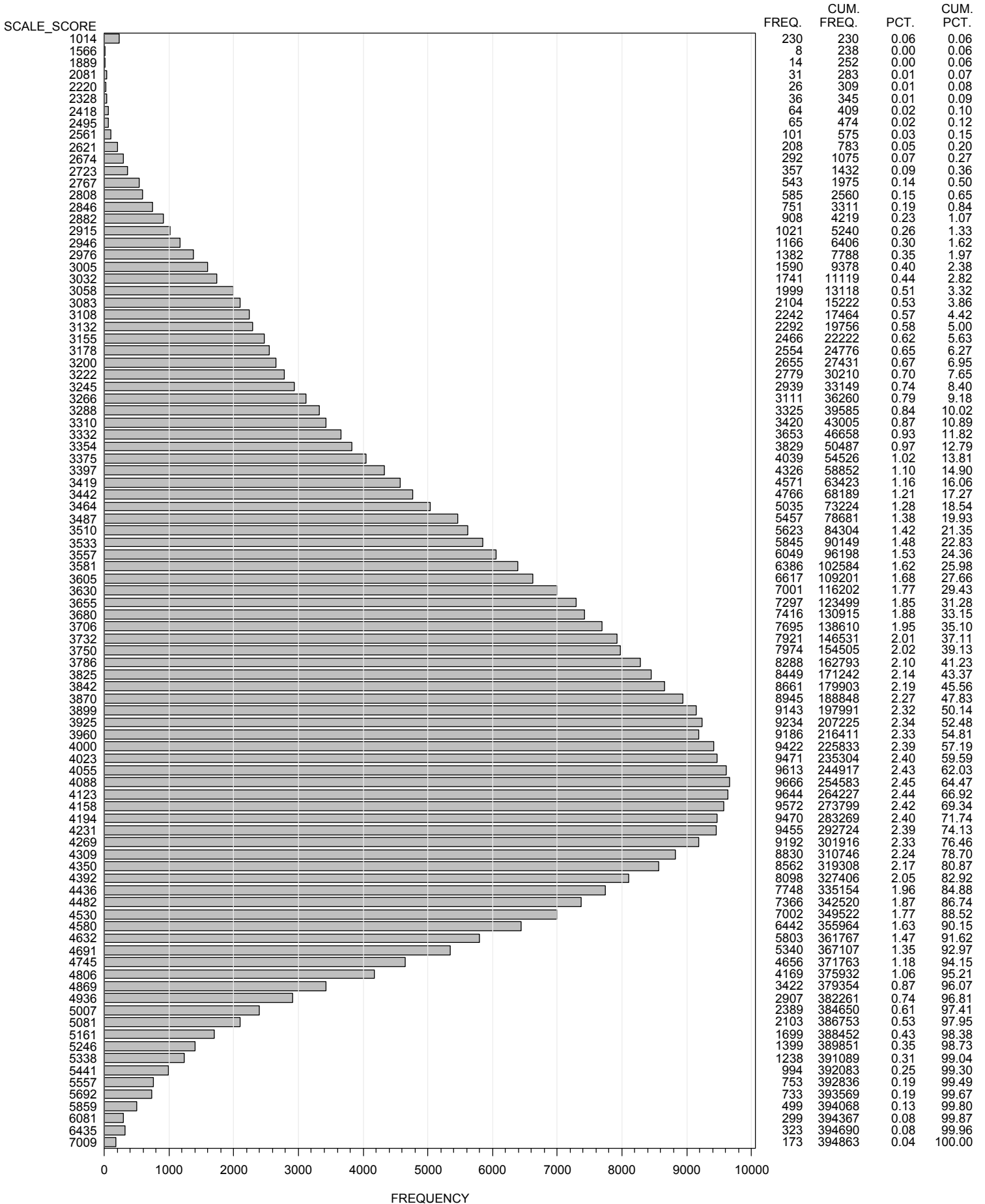
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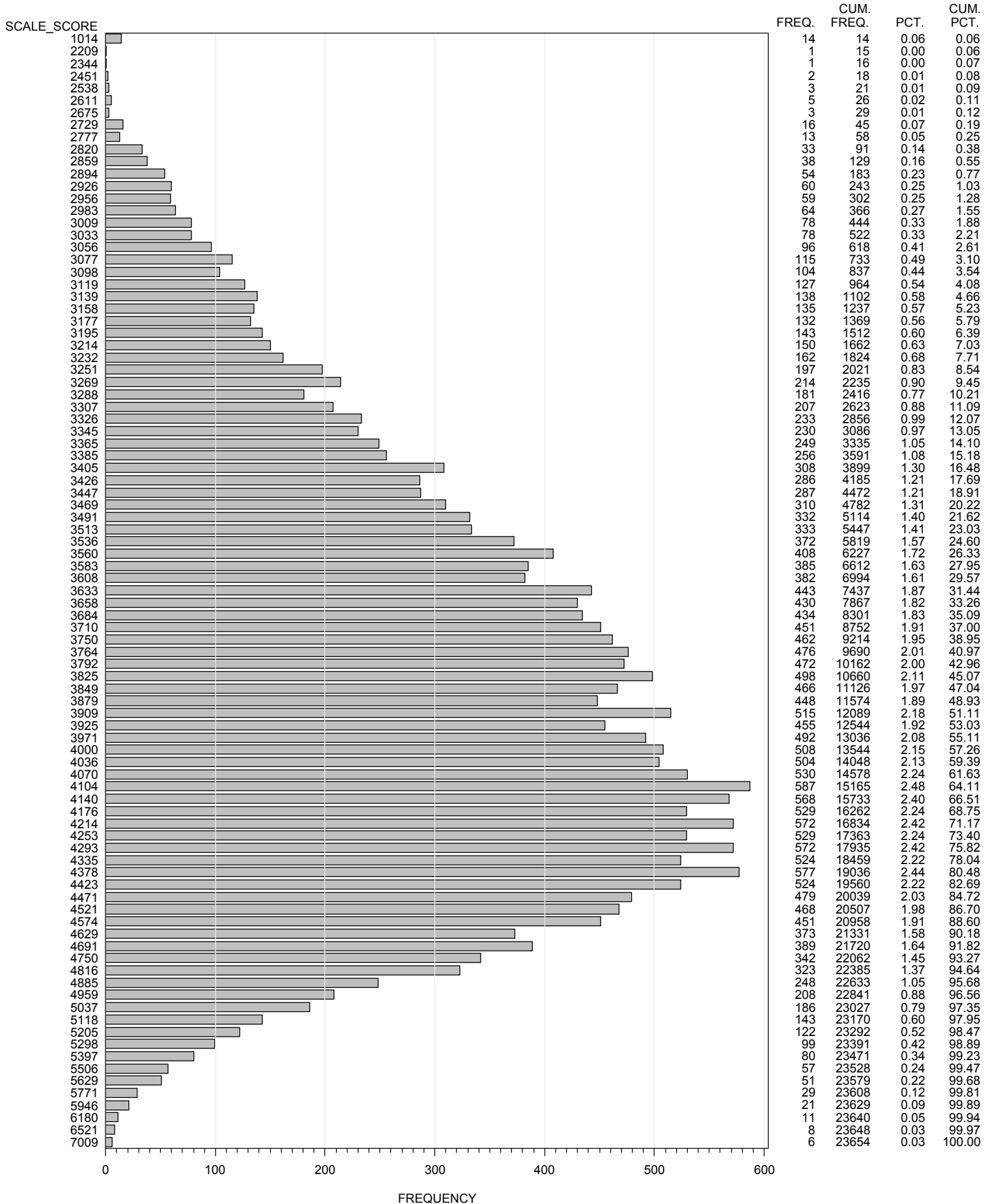
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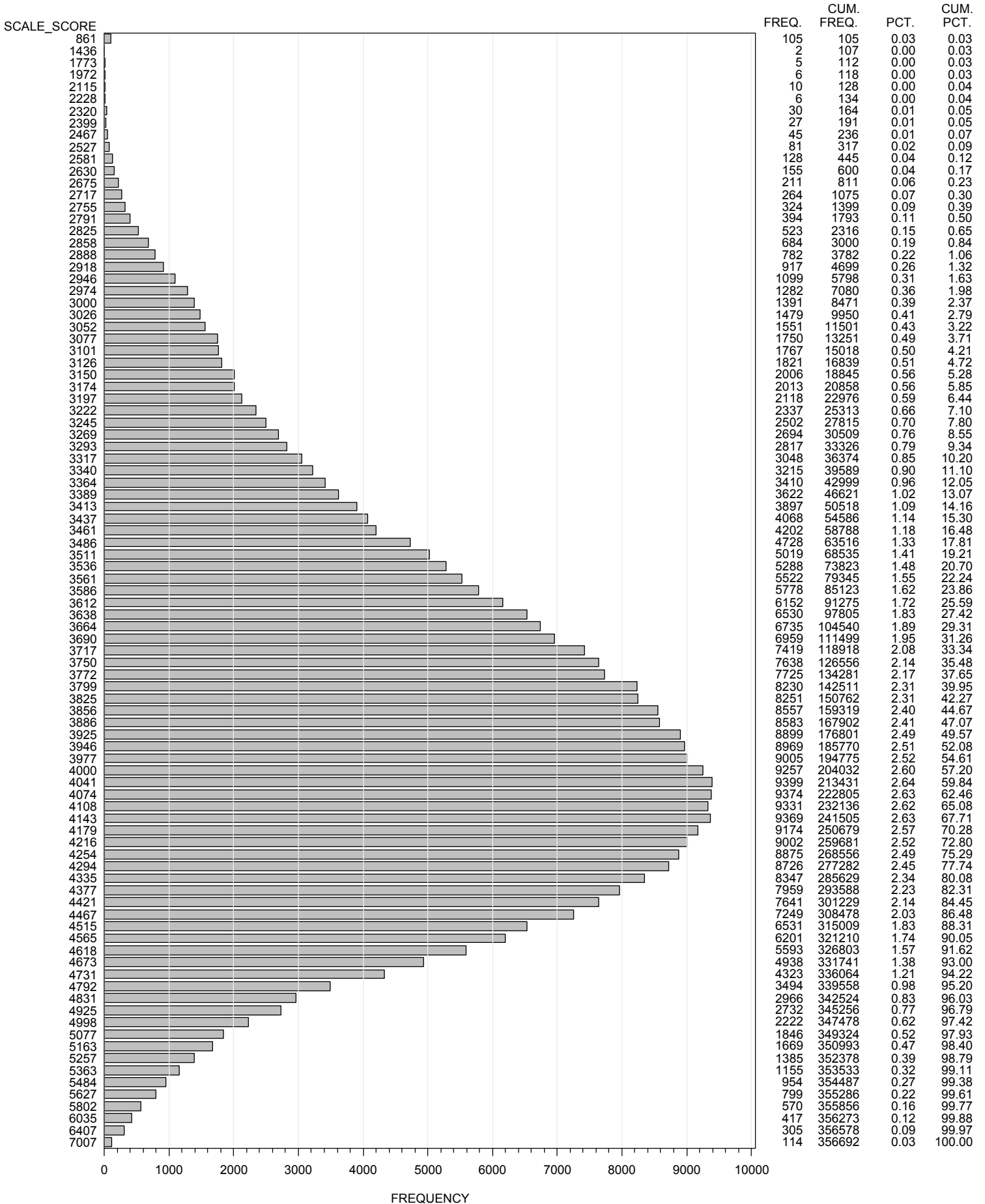
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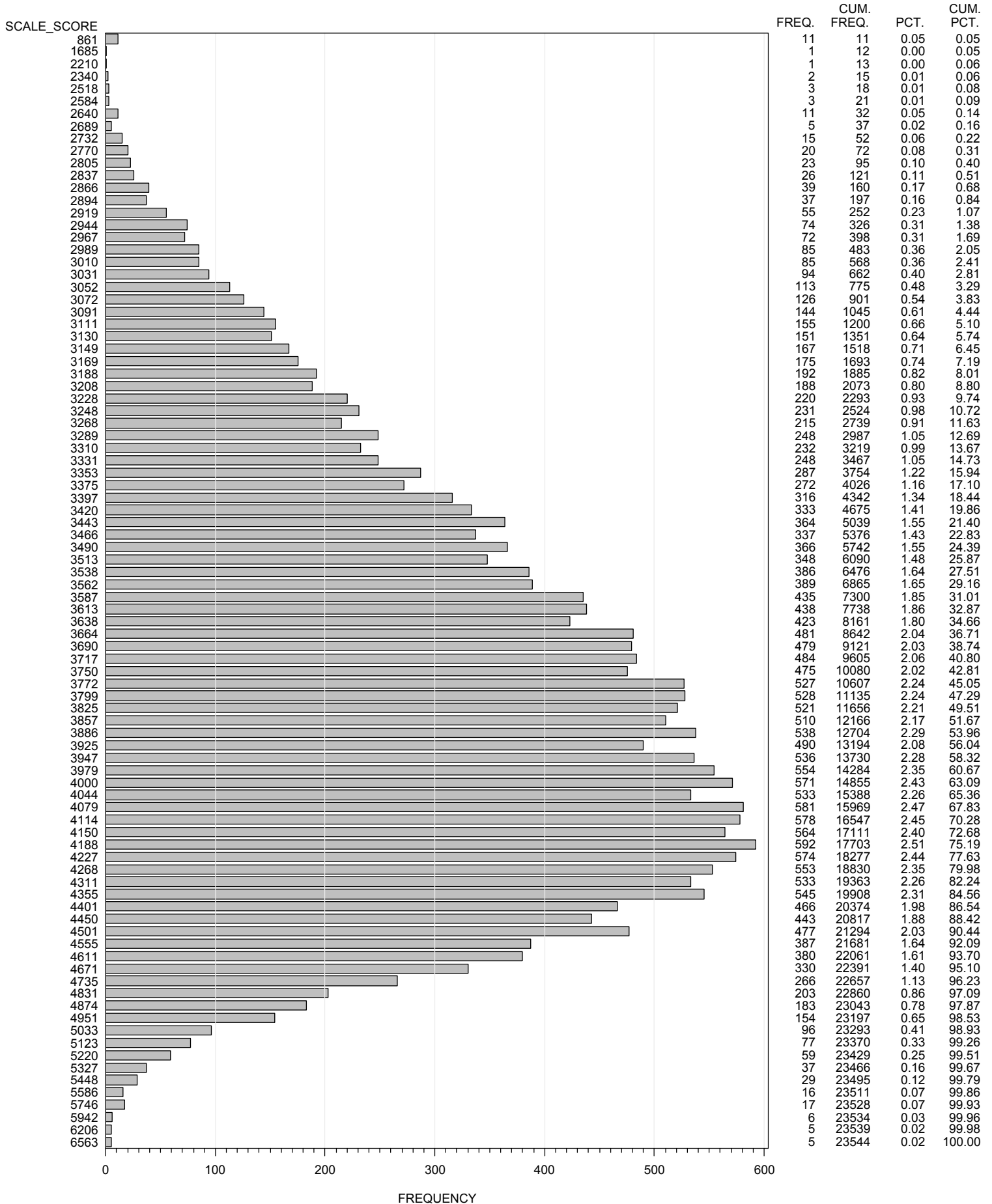
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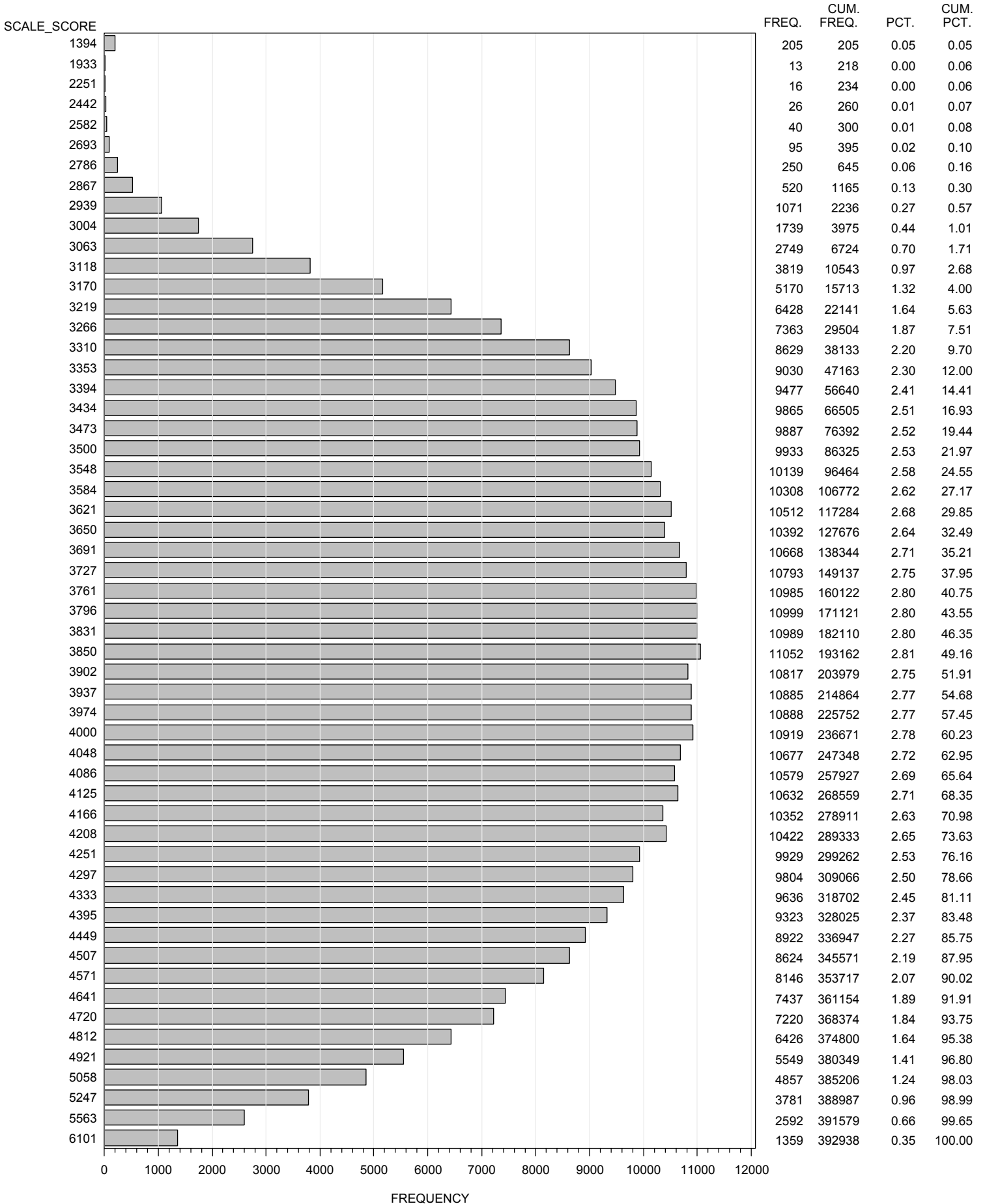
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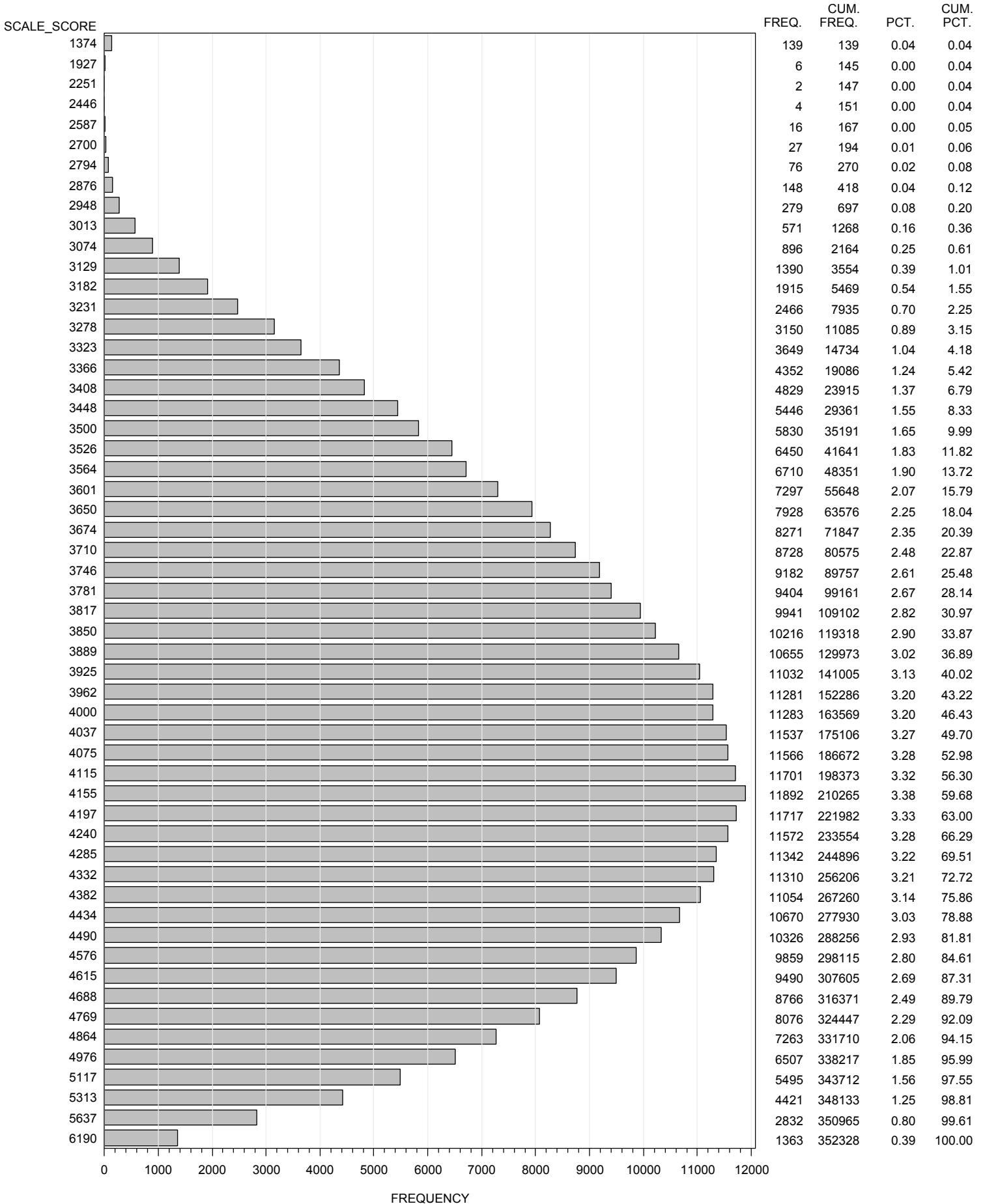
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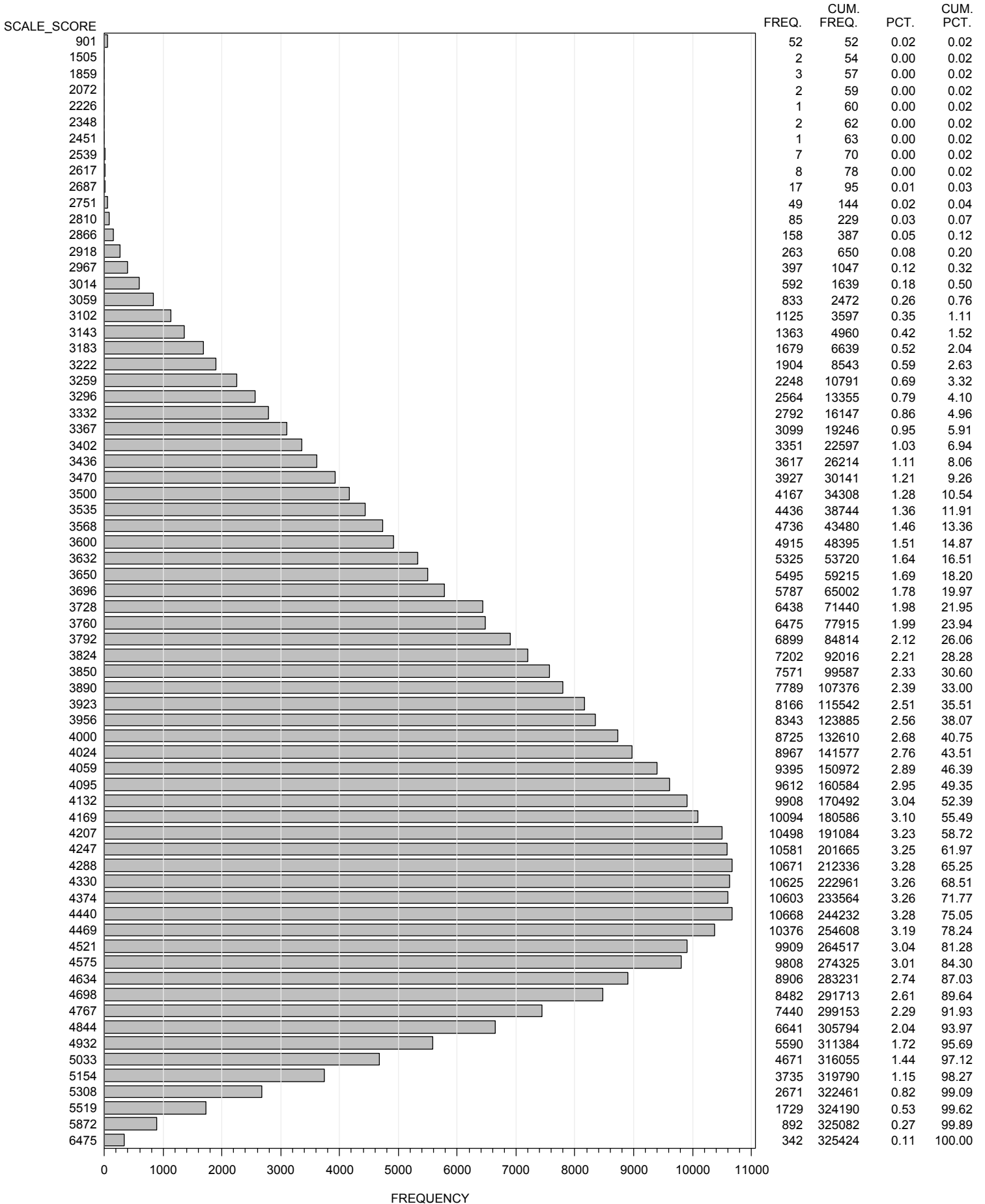


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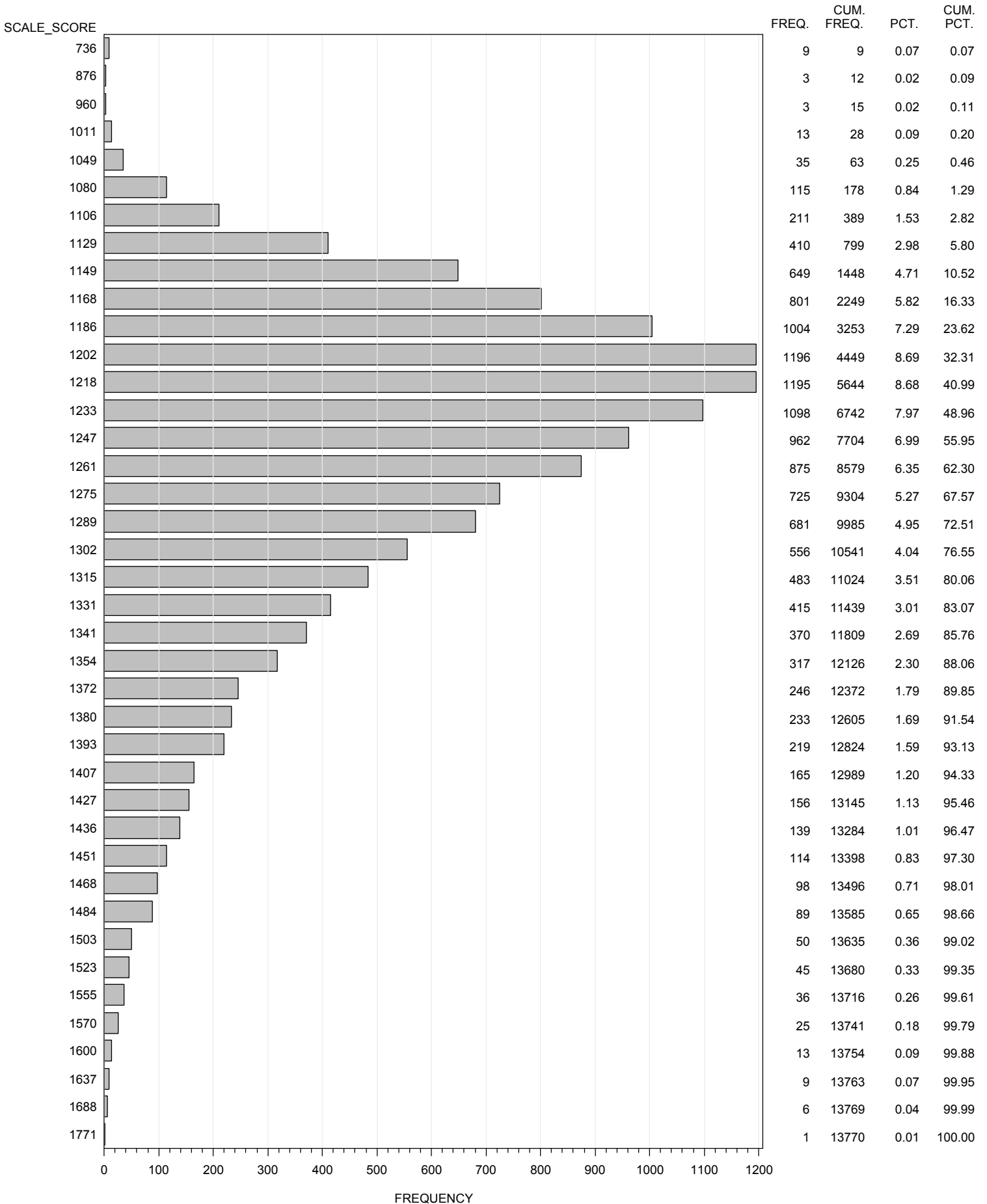




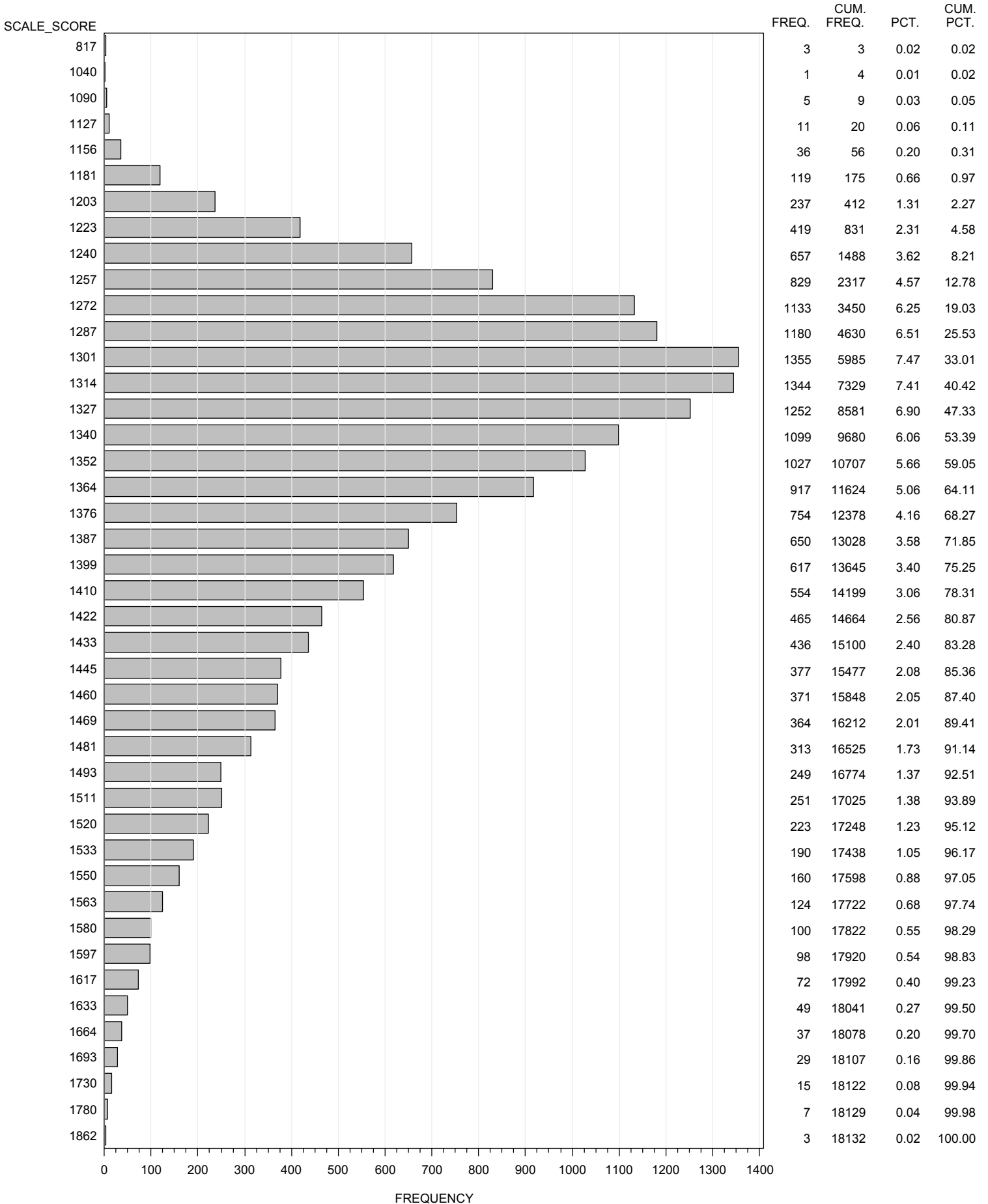
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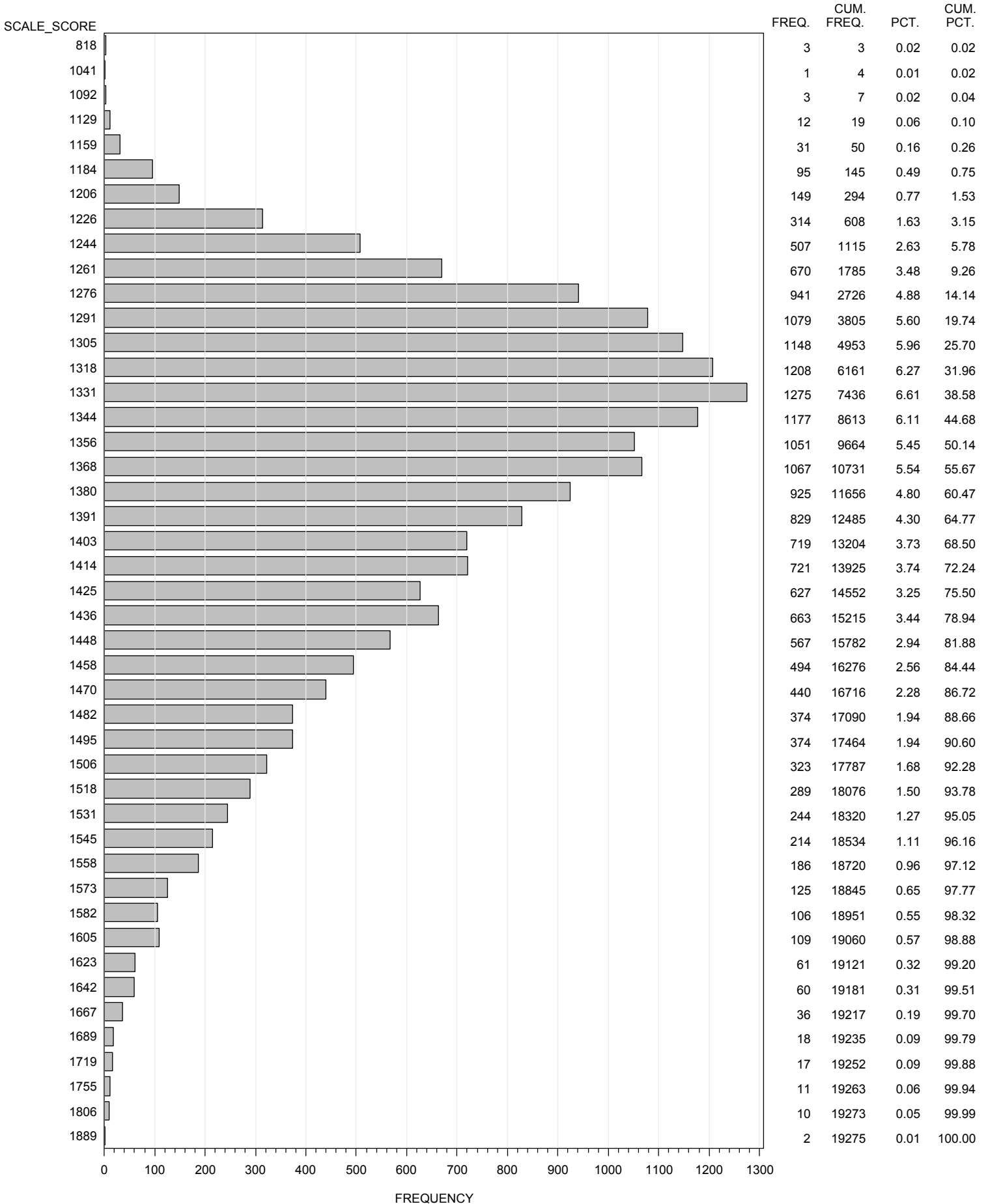
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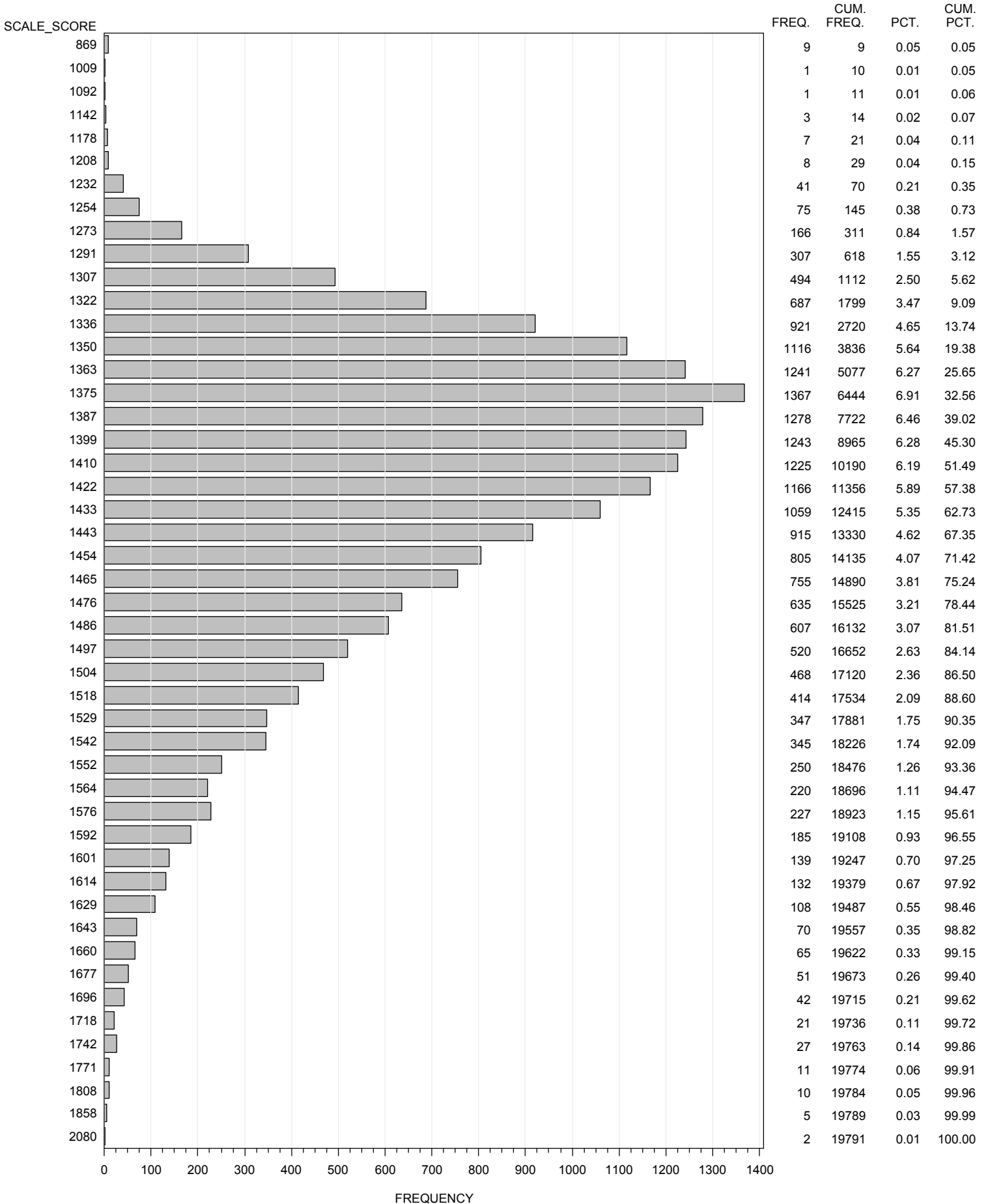
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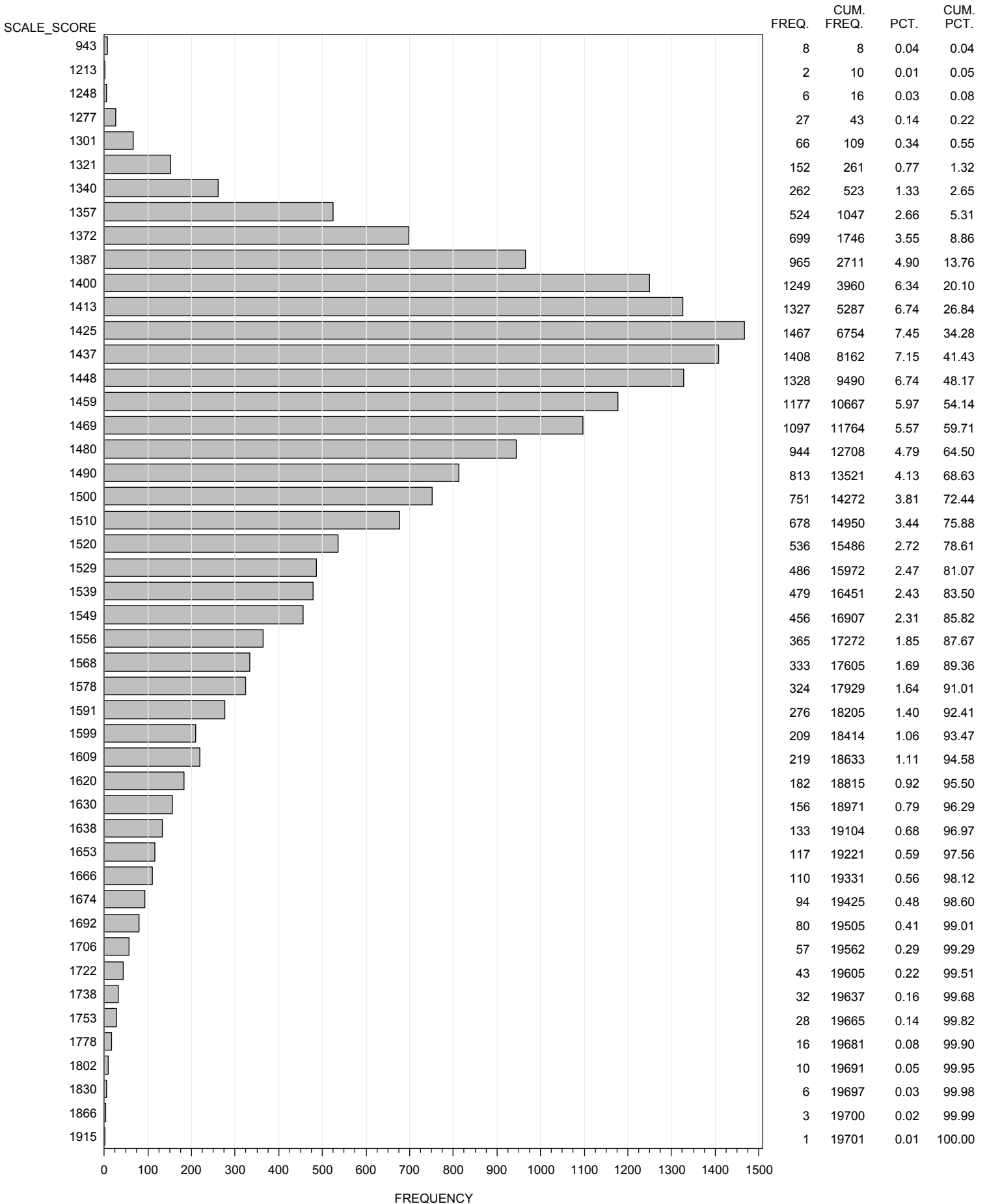
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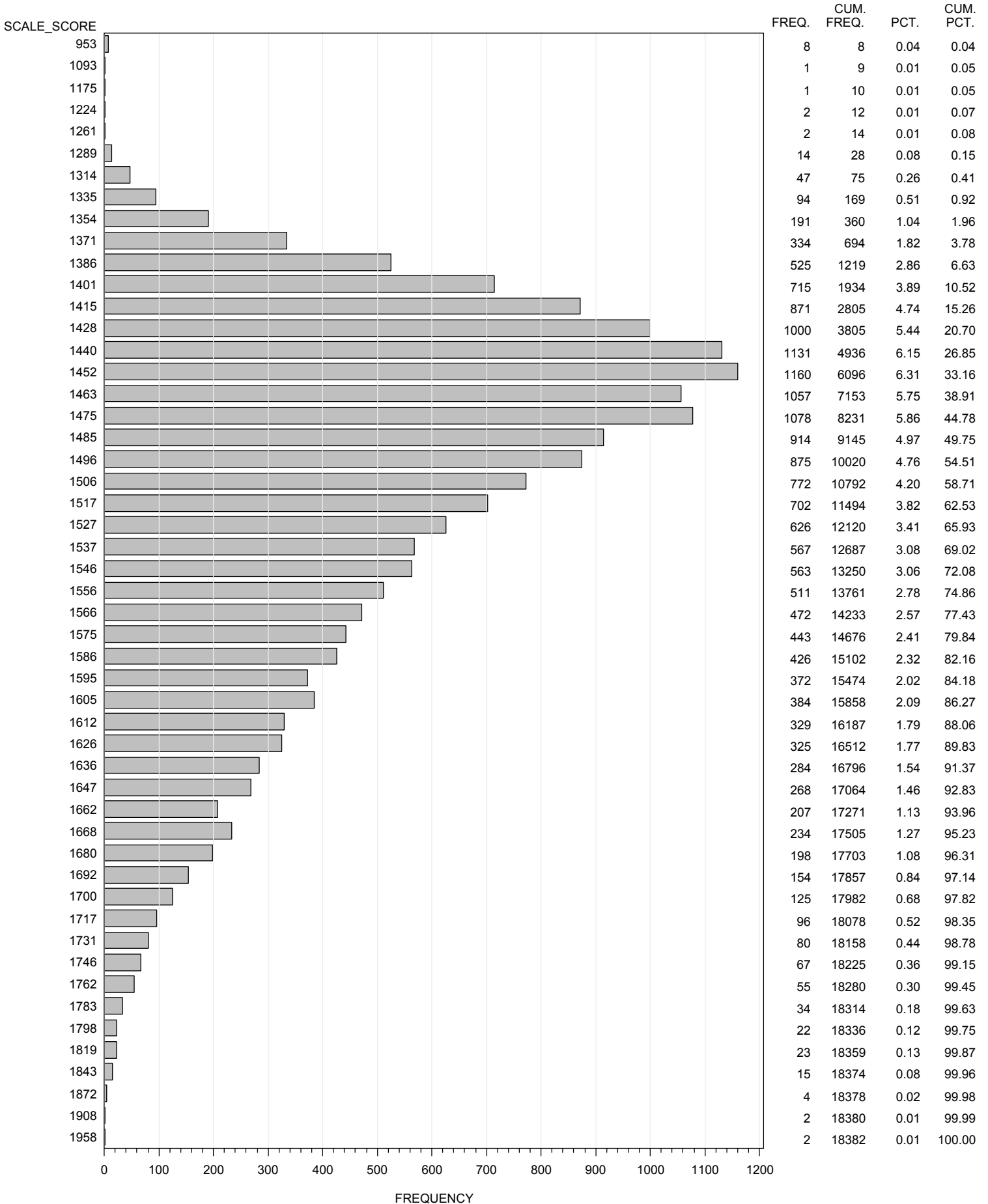
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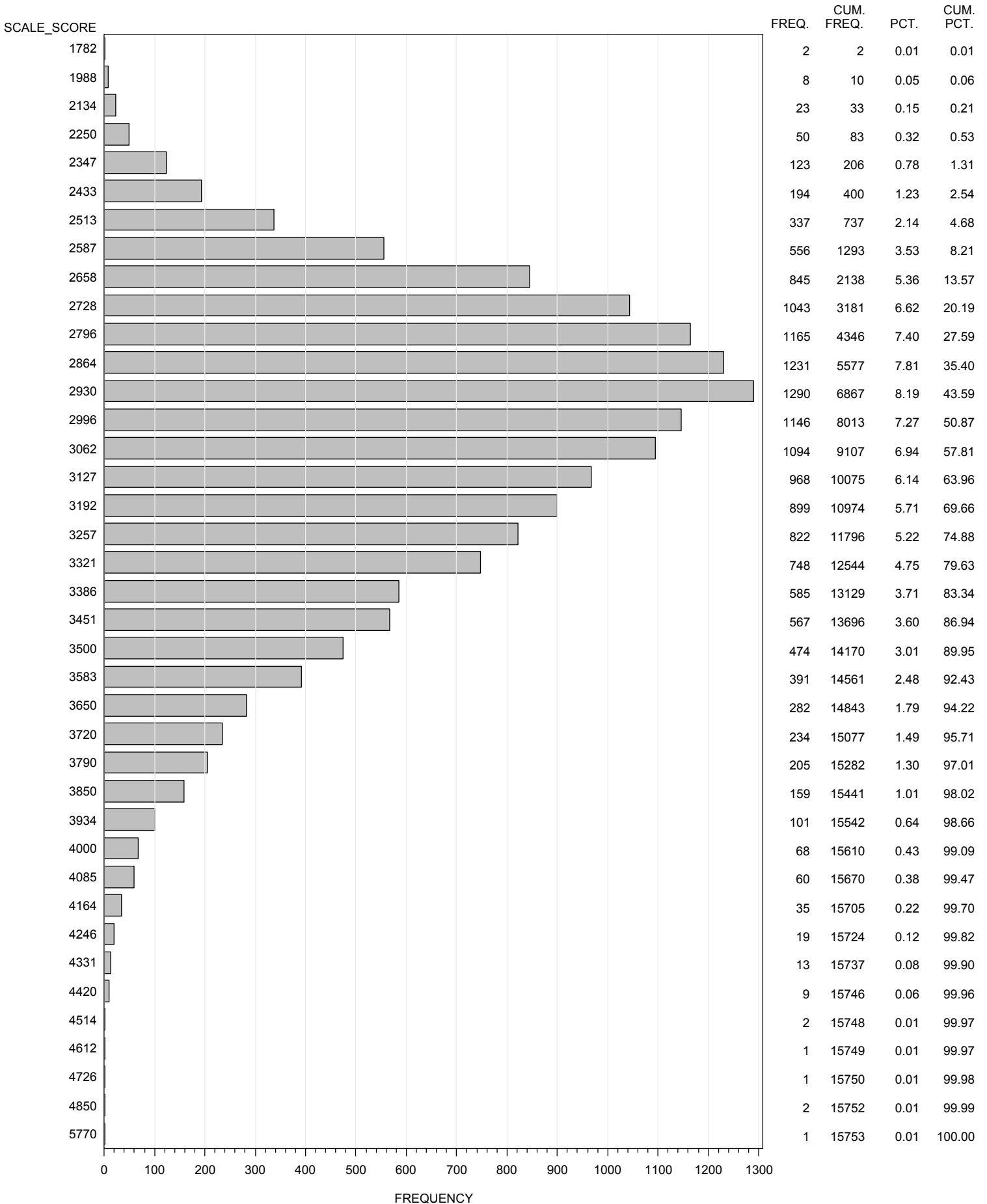
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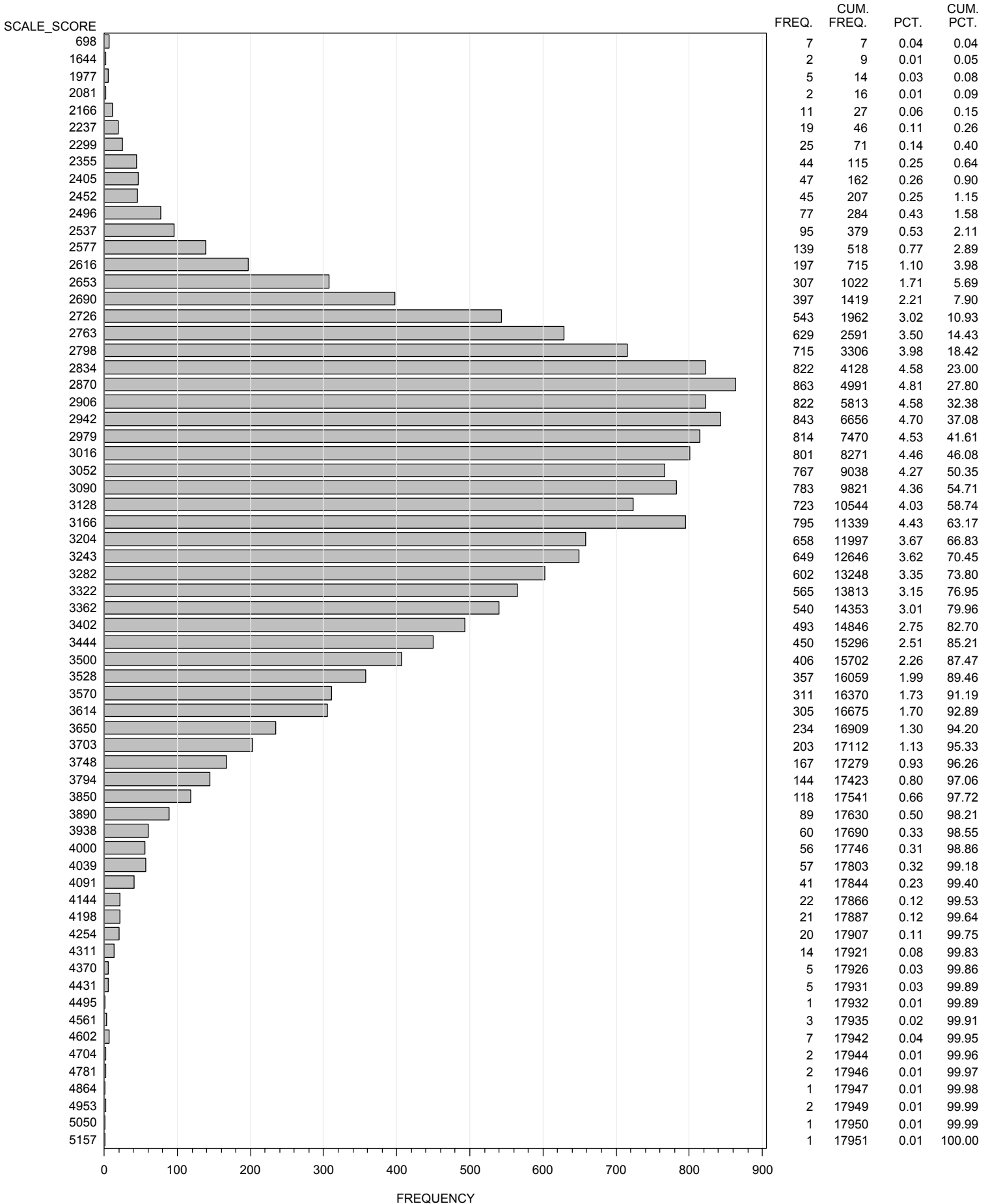


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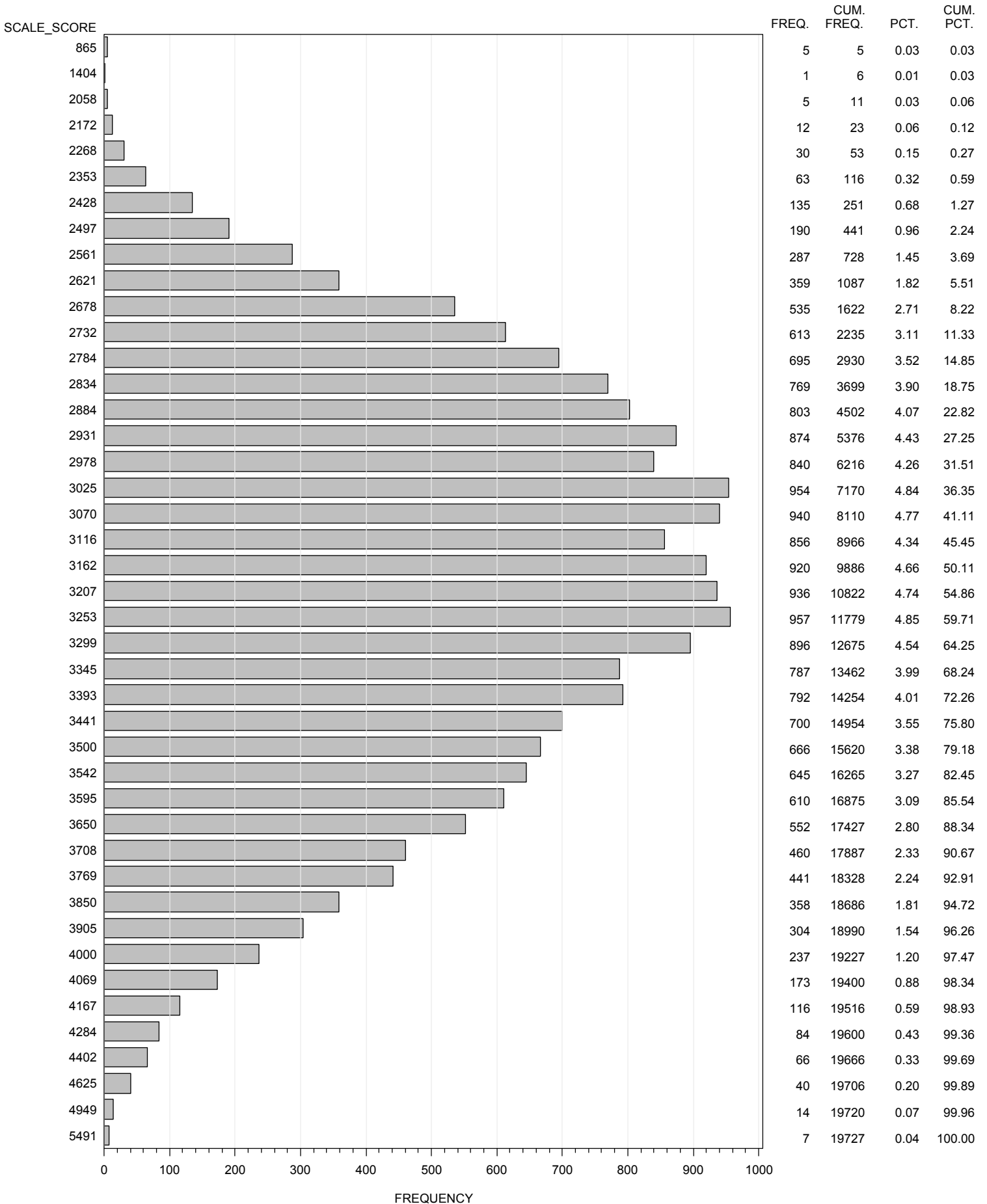




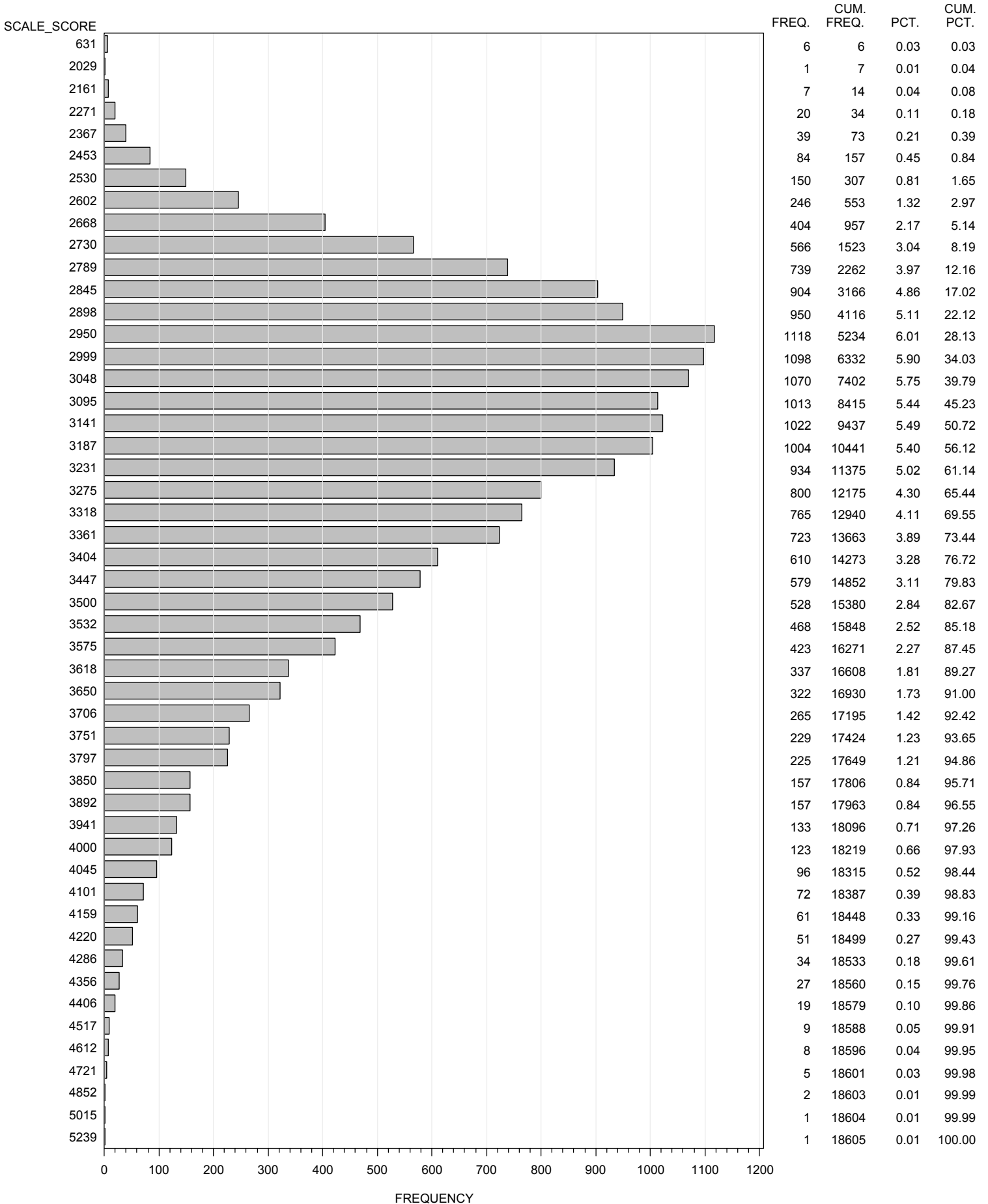
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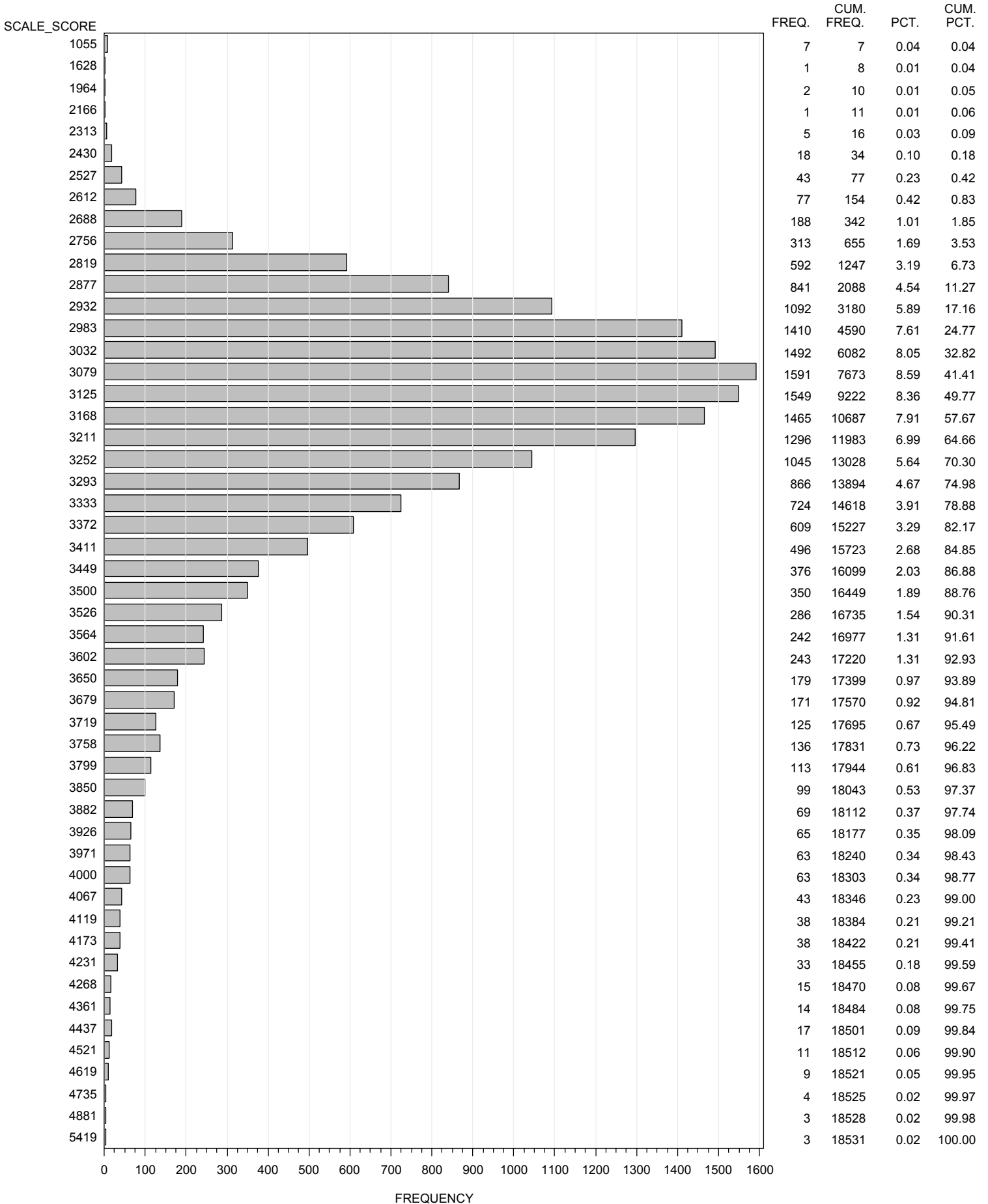
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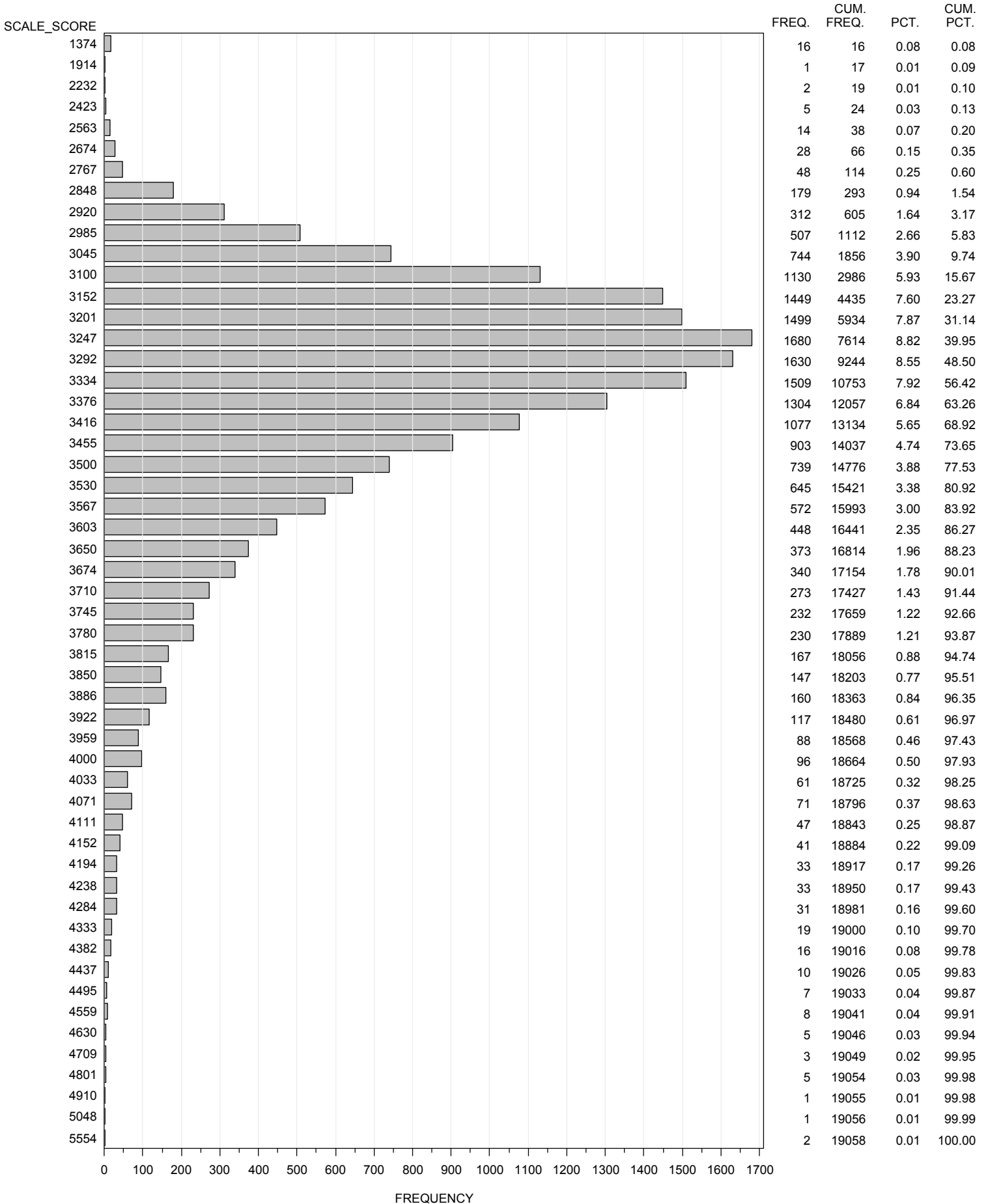
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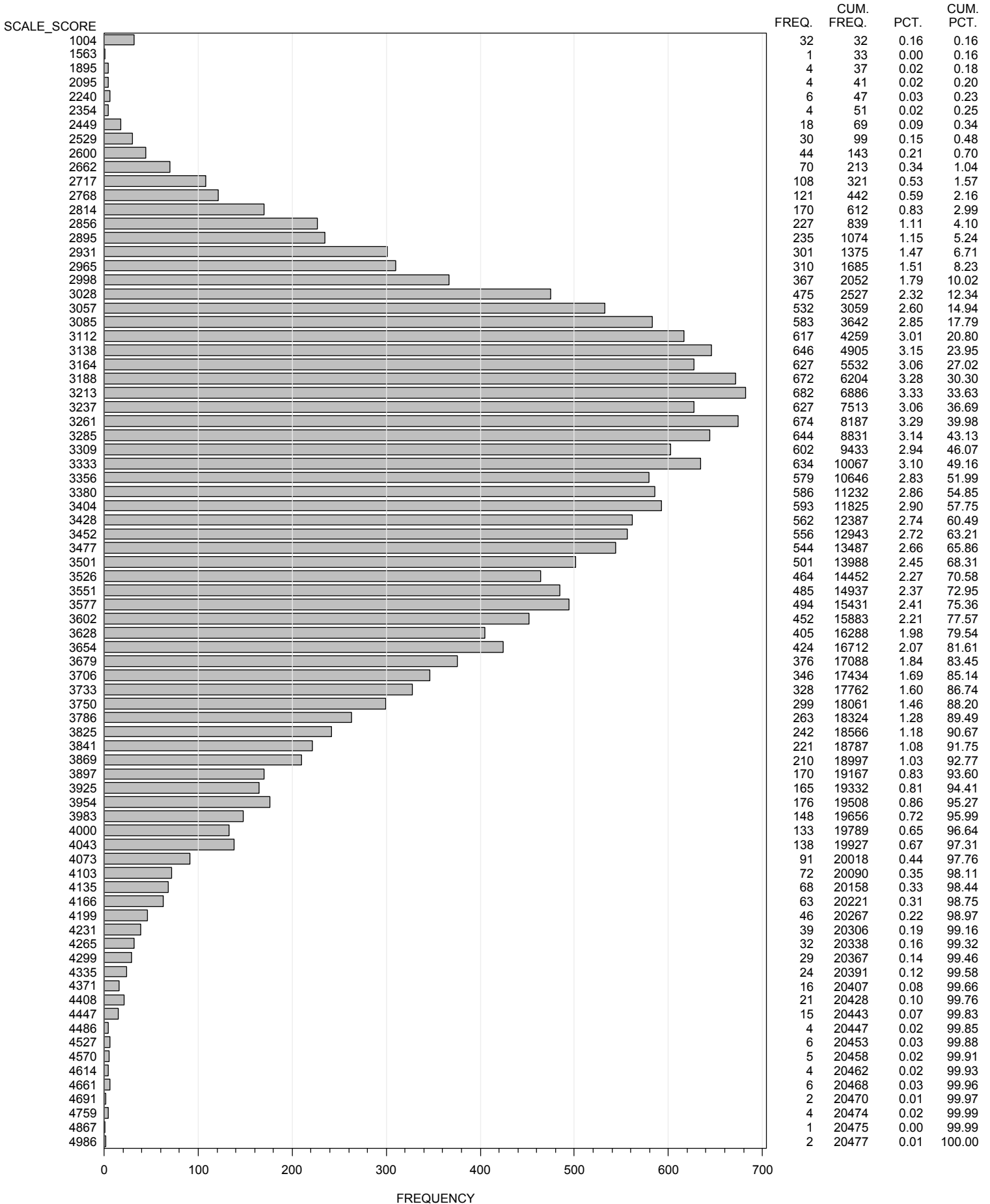
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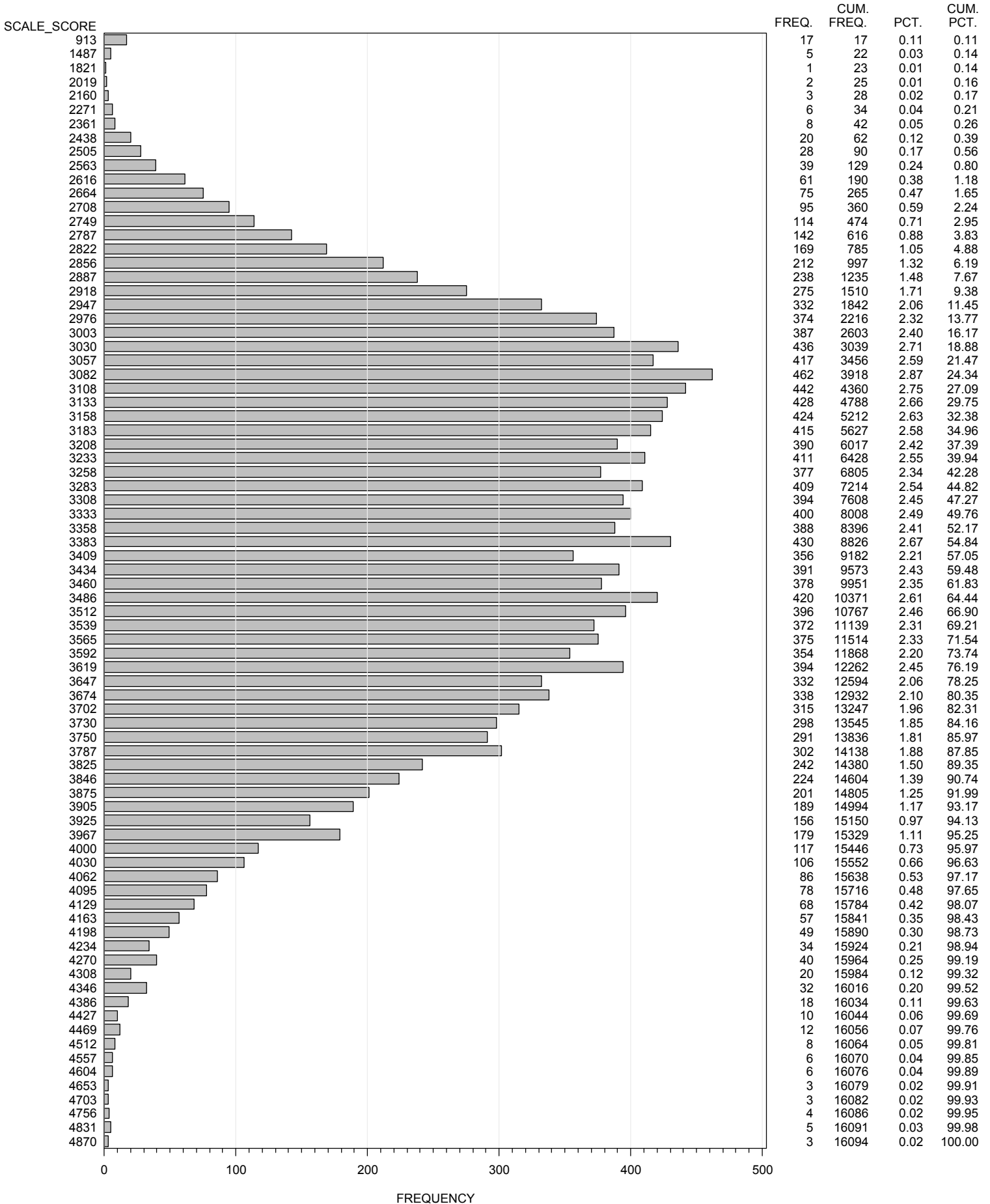
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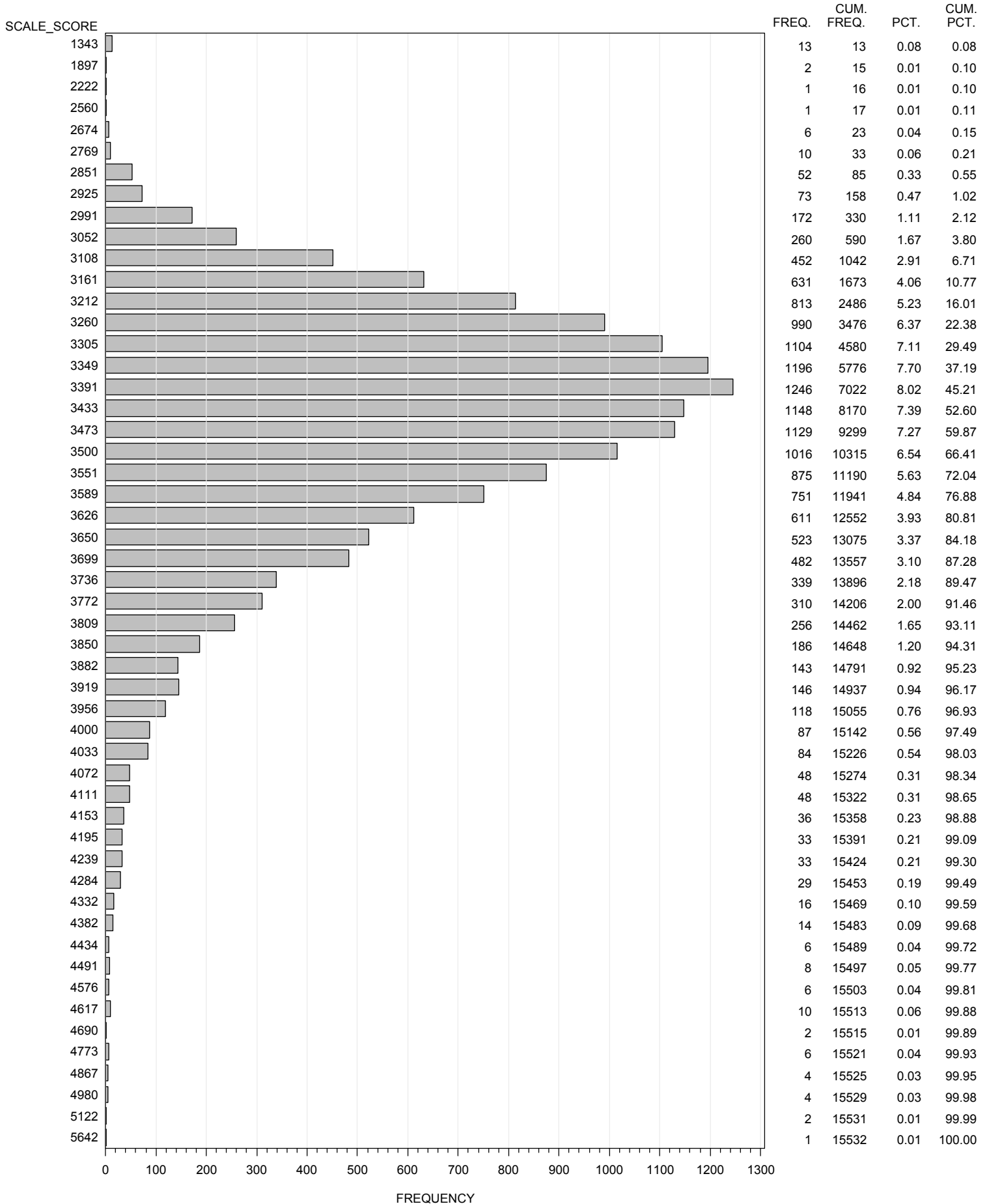
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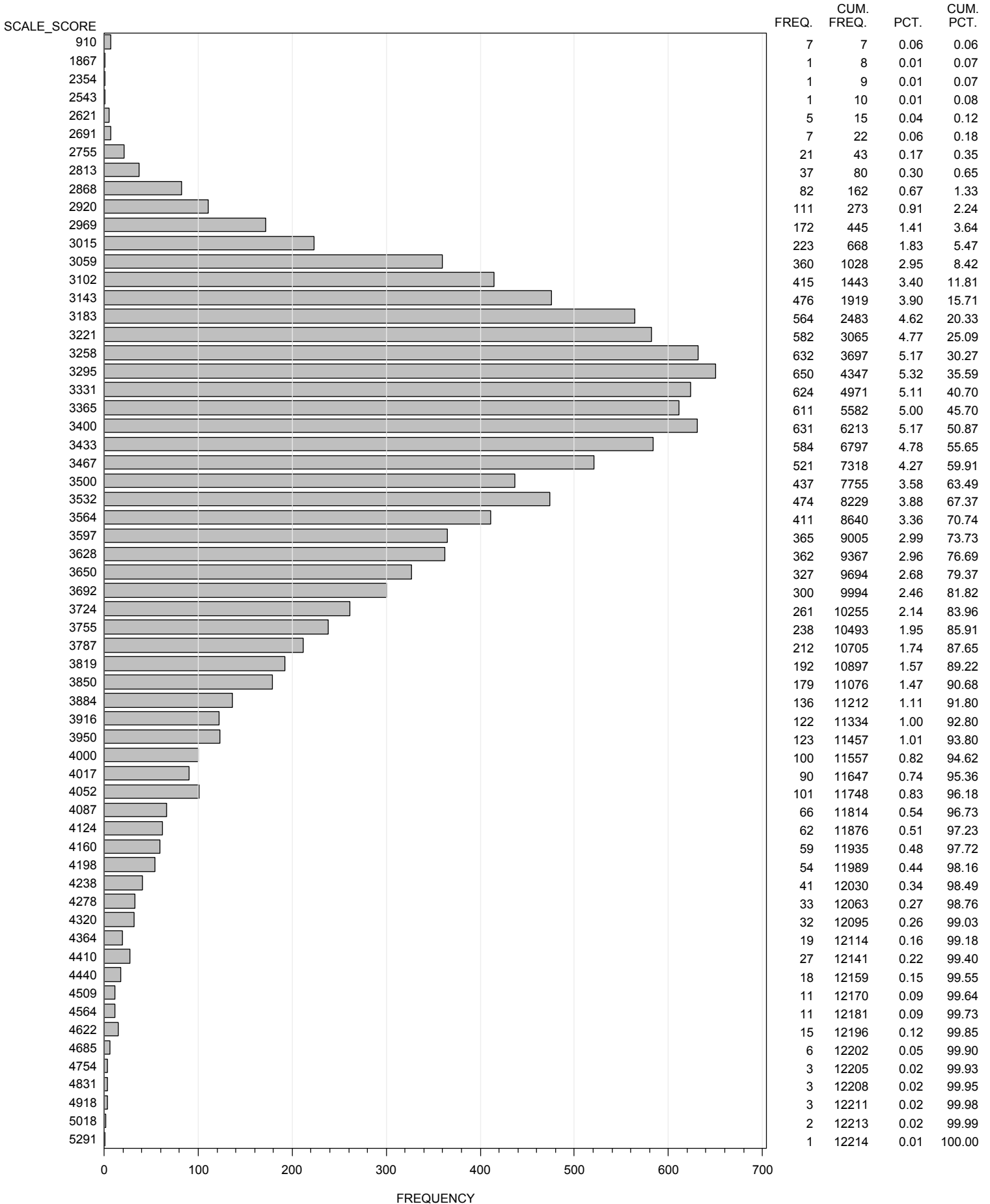


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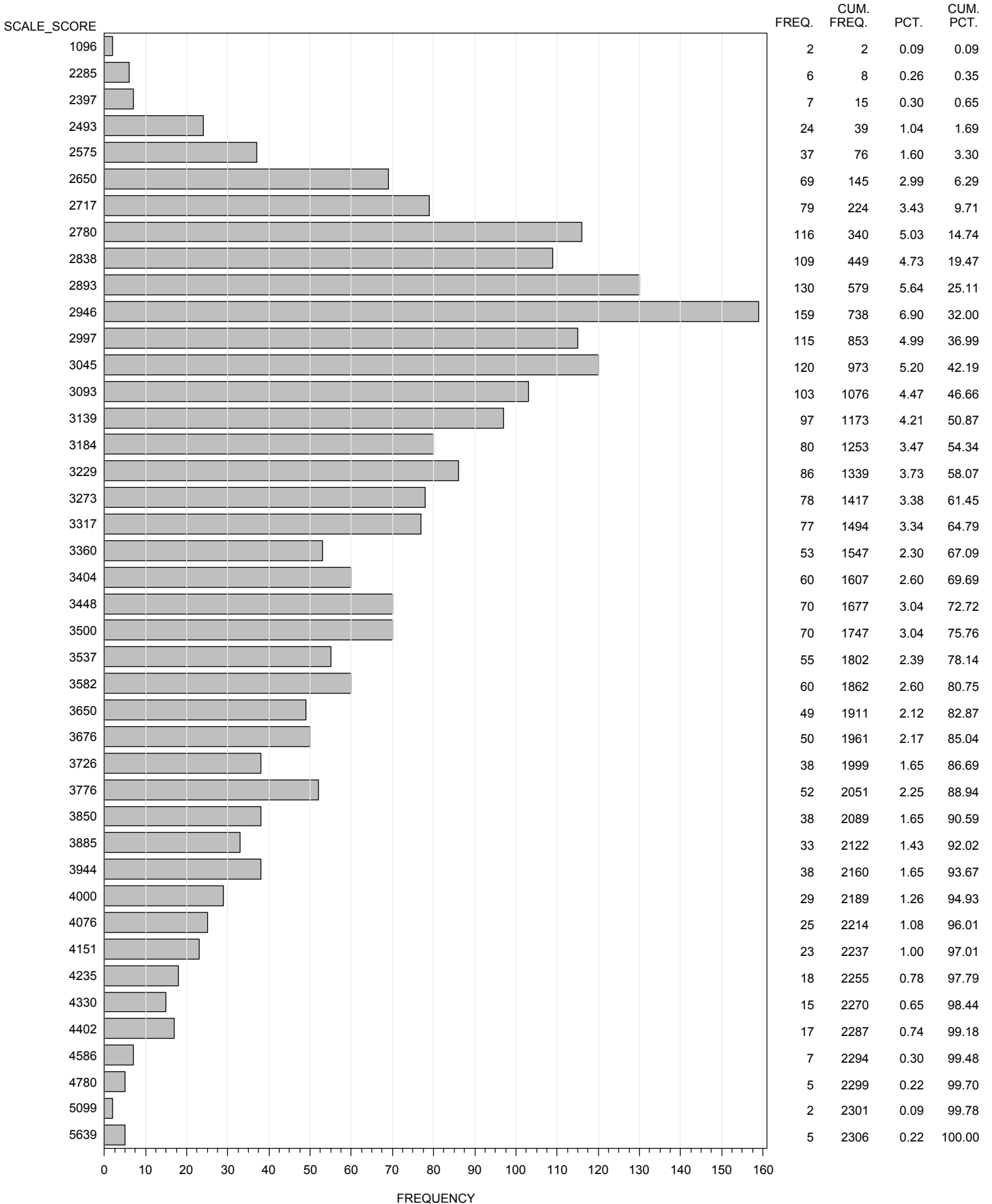




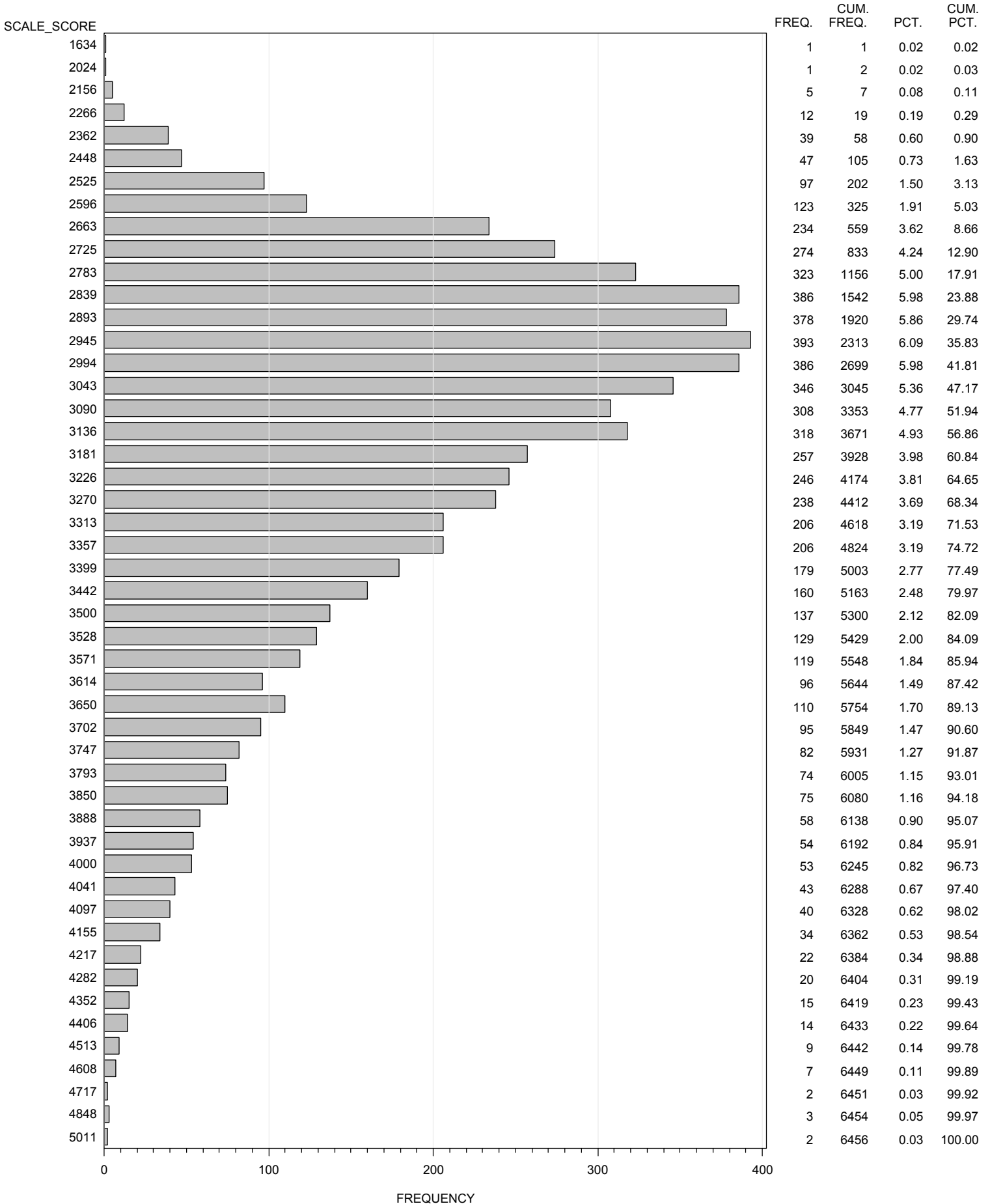
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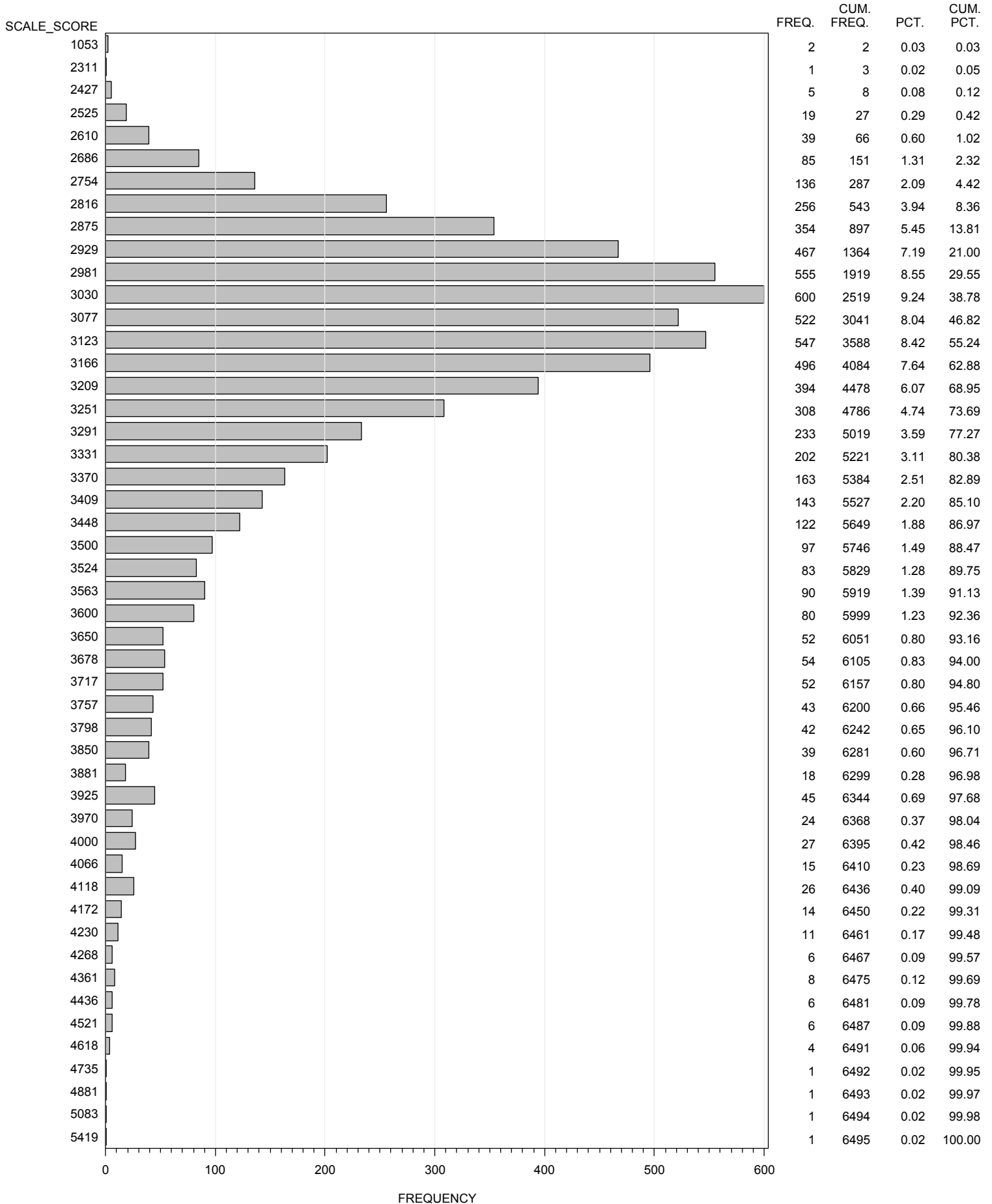
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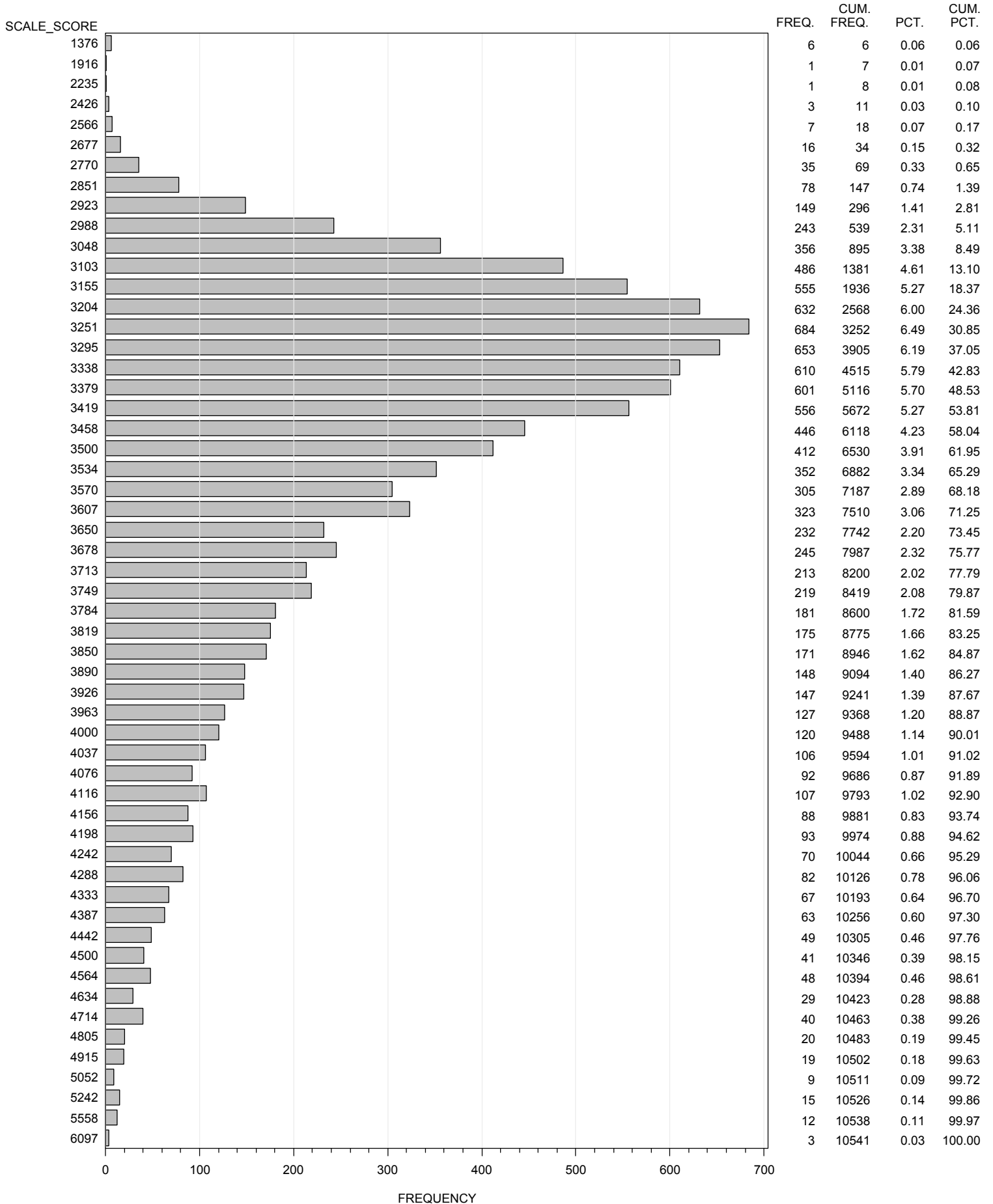
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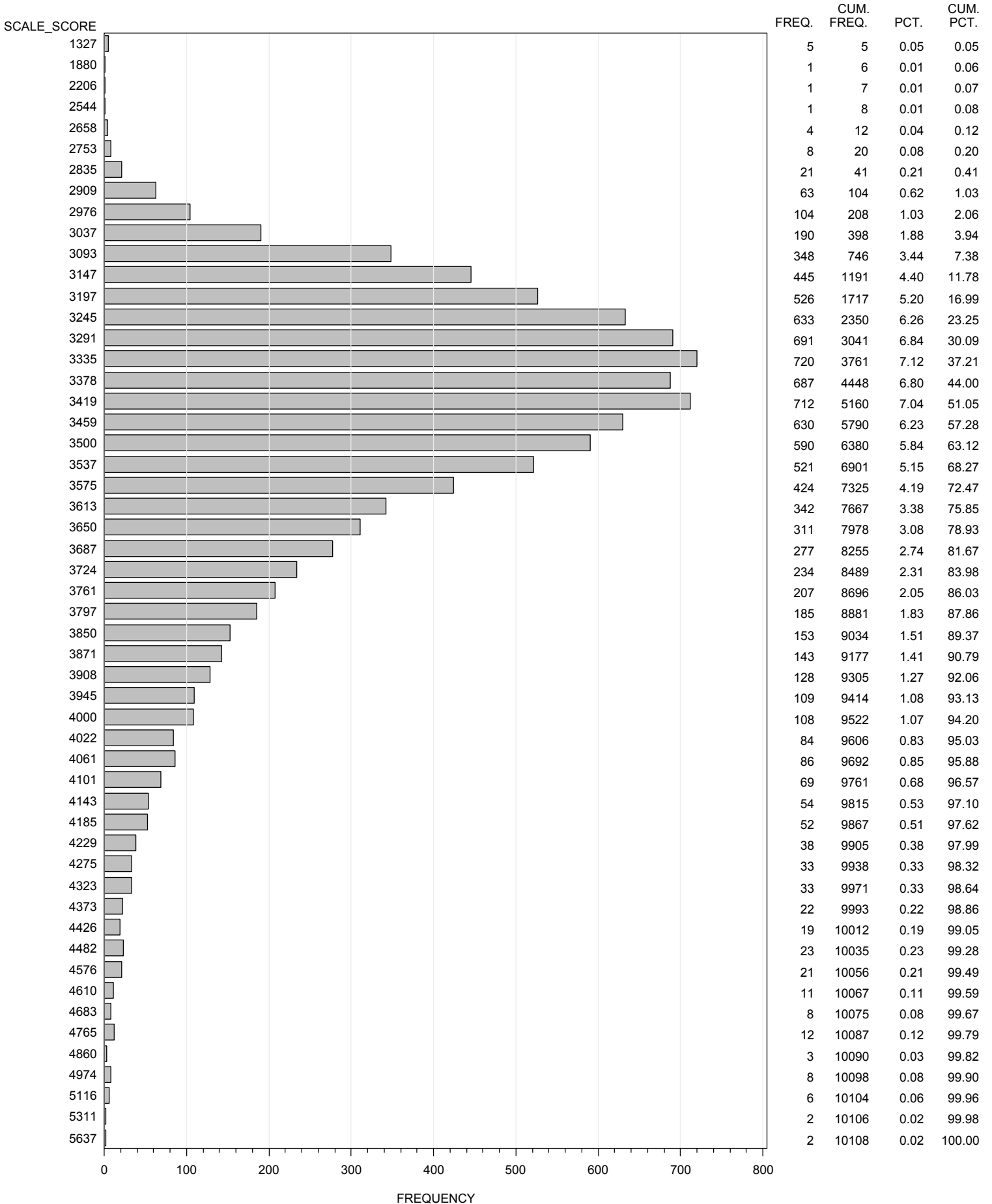
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