

**STAAR Alternate  
2013 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 2013 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 6.

## 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> percentile) 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:  $\text{CUM PCT} = \text{CUM FREQ} \div N \times 100$ .

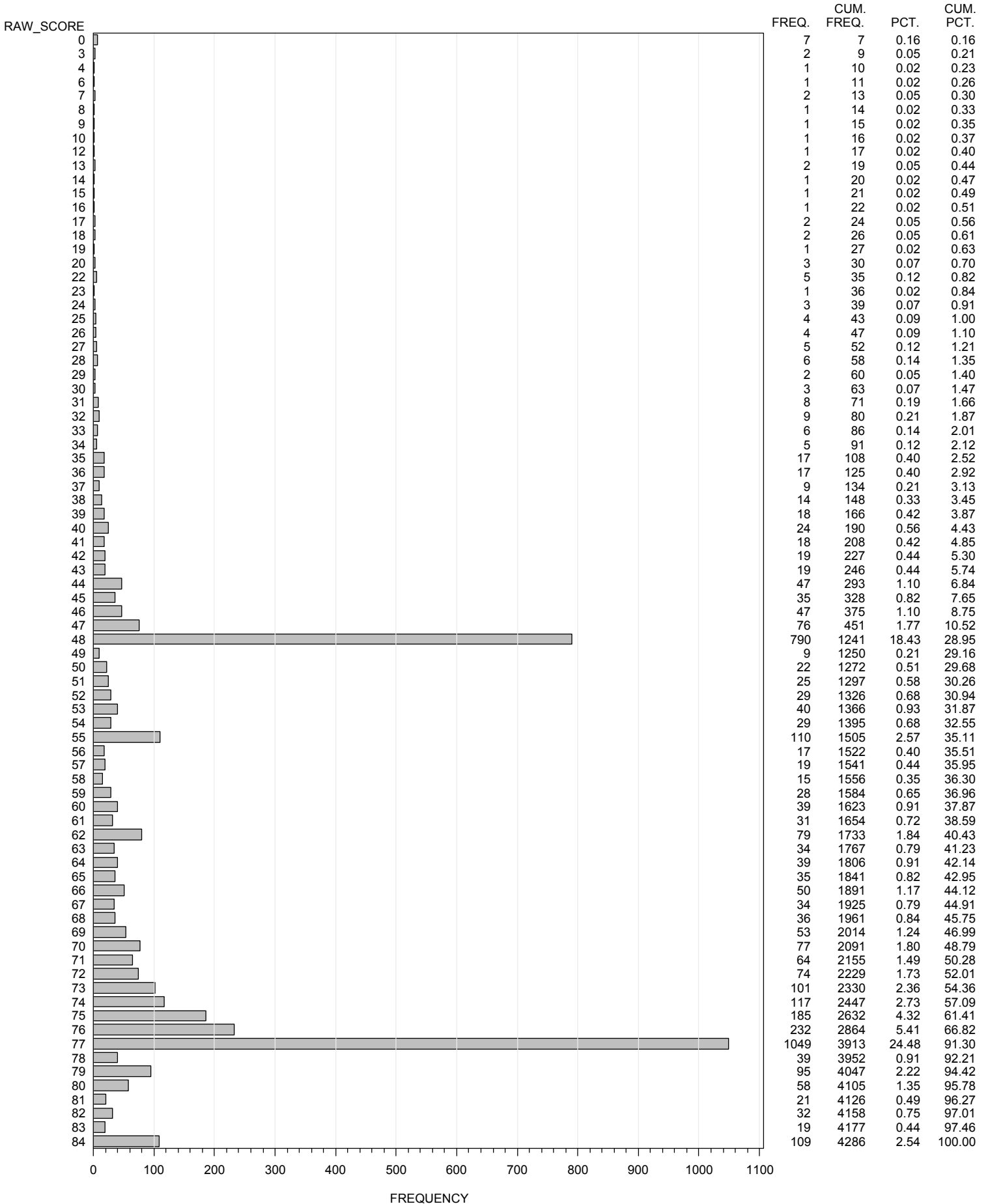
## Raw Score Descriptive Statistics for 2013 STAAR Alternate 3–8 Assessments

Subject	N	Mean	Median	Mode	Interquartile		SD	Variance	Skewness	Kurtosis
					Range	Range				
GRADE 3 READING	4286	64.30	71	77	84	29	14.85	220.57	-0.7678	-0.0347
GRADE 4 READING	4257	64.44	71	77	84	29	14.93	222.88	-0.7045	-0.3320
GRADE 5 READING	4062	63.84	70	77	84	29	15.15	229.60	-0.7304	0.0540
GRADE 6 READING	3940	65.11	73	77	84	29	14.90	221.95	-0.7701	-0.1191
GRADE 7 READING	3496	64.30	71	77	84	29	14.79	218.78	-0.7161	-0.1672
GRADE 8 READING	3438	64.32	71	77	84	29	15.06	226.73	-0.6955	-0.2445
GRADE 3 MATHEMATICS	4286	65.17	72	77	84	29	14.93	223.01	-0.8241	0.1085
GRADE 4 MATHEMATICS	4258	67.13	75	77	84	26	14.41	207.56	-0.8371	-0.3188
GRADE 5 MATHEMATICS	4062	66.30	74	77	84	27	14.61	213.51	-0.9402	0.3585
GRADE 6 MATHEMATICS	3940	66.12	74	77	84	29	14.65	214.64	-0.7623	-0.2727
GRADE 7 MATHEMATICS	3495	65.10	72	77	84	29	14.48	209.60	-0.6801	-0.4331
GRADE 8 MATHEMATICS	3439	65.58	74	77	84	29	15.16	229.75	-0.8189	0.0251
GRADE 5 SCIENCE	4062	66.05	74	77	84	29	14.58	212.71	-0.8247	-0.0439
GRADE 8 SCIENCE	3440	66.44	75	77	84	29	14.57	212.16	-0.8575	-0.1116
GRADE 8 SOCIAL STUDIES	3438	66.05	75	77	84	29	14.42	208.03	-0.8215	-0.0624
GRADE 4 WRITING	4257	65.29	73	77	84	29	14.69	215.91	-0.8007	-0.0555
GRADE 7 WRITING	3493	64.31	71	77	84	29	14.67	215.26	-0.7351	-0.0920

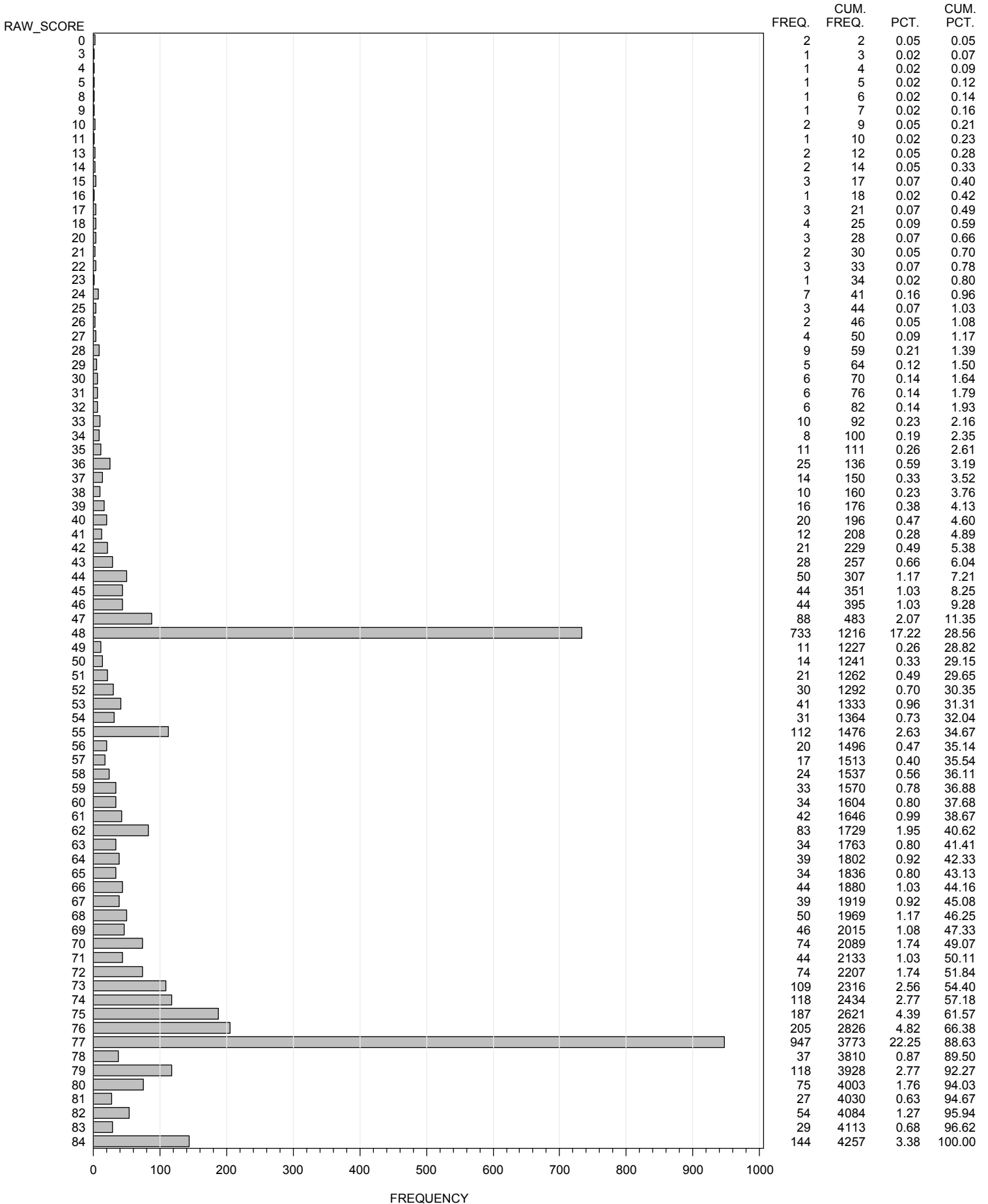
## Raw Score Descriptive Statistics for 2013 STAAR Alternate EOC Assessments

Subject	N	Mean	Median	Mode	Interquartile		SD	Variance	Skewness	Kurtosis
					Range	Range				
ENGLISH I	3142	64.14	72	77	84	29	15.53	241.17	-0.7899	0.1044
ENGLISH II	2967	63.91	72	77	84	29	15.62	243.91	-0.7897	0.0844
ENGLISH III	2732	63.53	71	77	84	29	15.71	246.86	-0.7542	0.1286
ALGEBRA I	3159	63.64	71	77	84	29	15.43	238.11	-0.6754	-0.1551
GEOMETRY	2986	65.49	74	77	84	29	14.97	224.20	-0.6620	-0.4899
BIOLOGY	3370	64.58	73	77	84	29	15.21	231.47	-0.7594	-0.1169
WORLD GEOGRAPHY	3036	64.14	73	77	84	29	15.52	240.84	-0.7950	0.0361
WORLD HISTORY	2557	63.68	71	77	84	29	15.63	244.29	-0.6288	-0.3305
U.S. HISTORY	2817	65.25	74	77	84	29	14.86	220.78	-0.7687	-0.2024

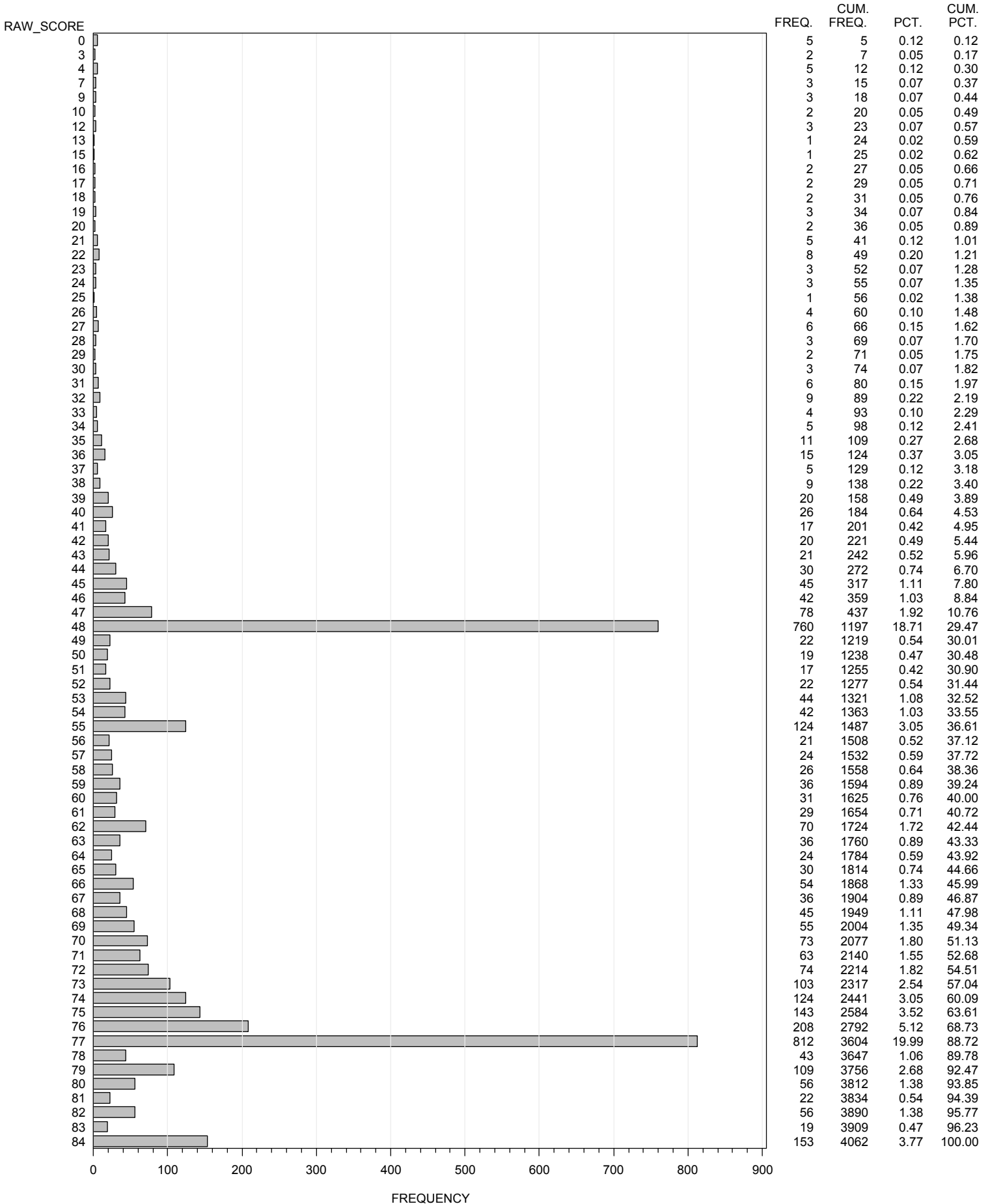
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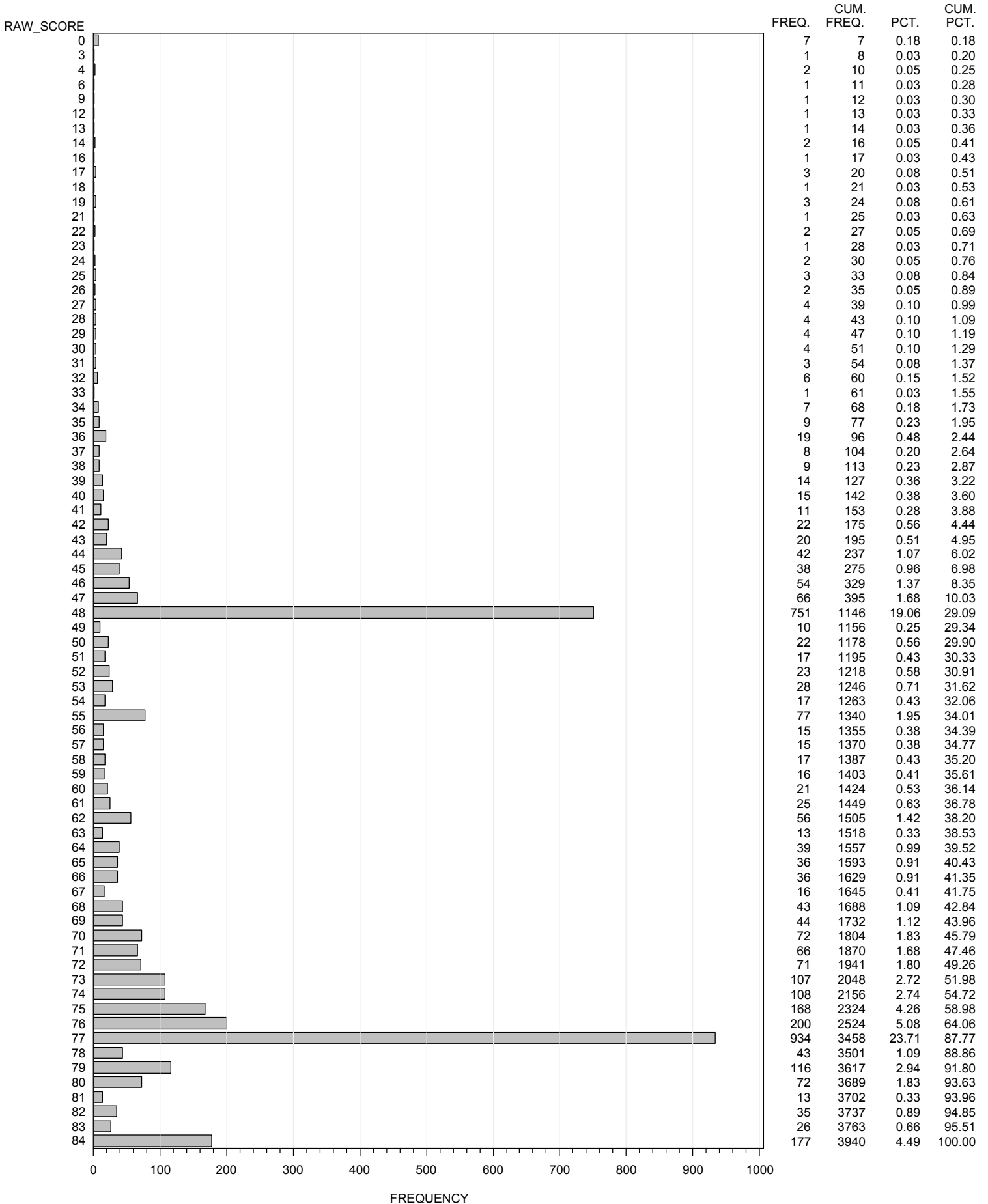


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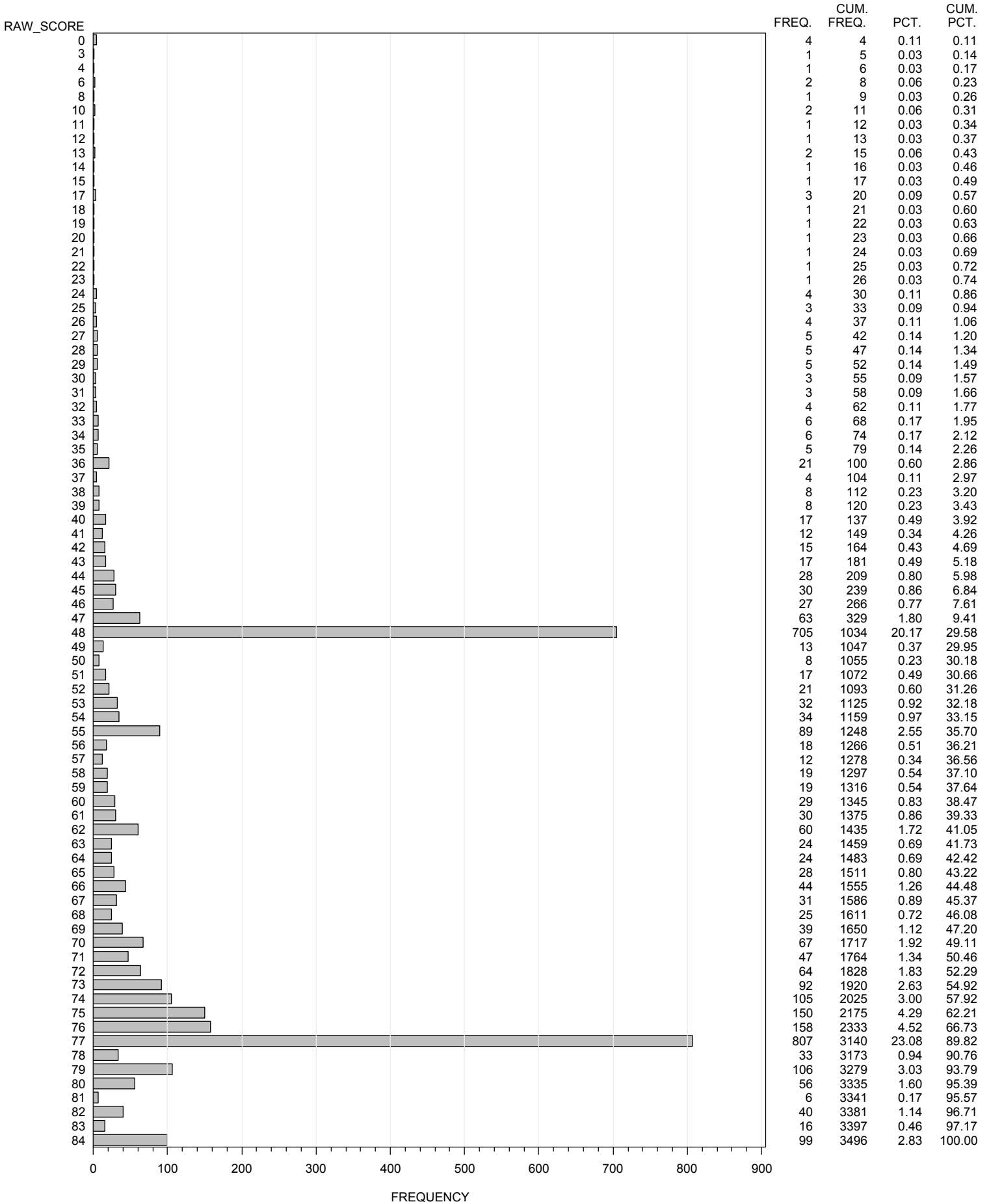




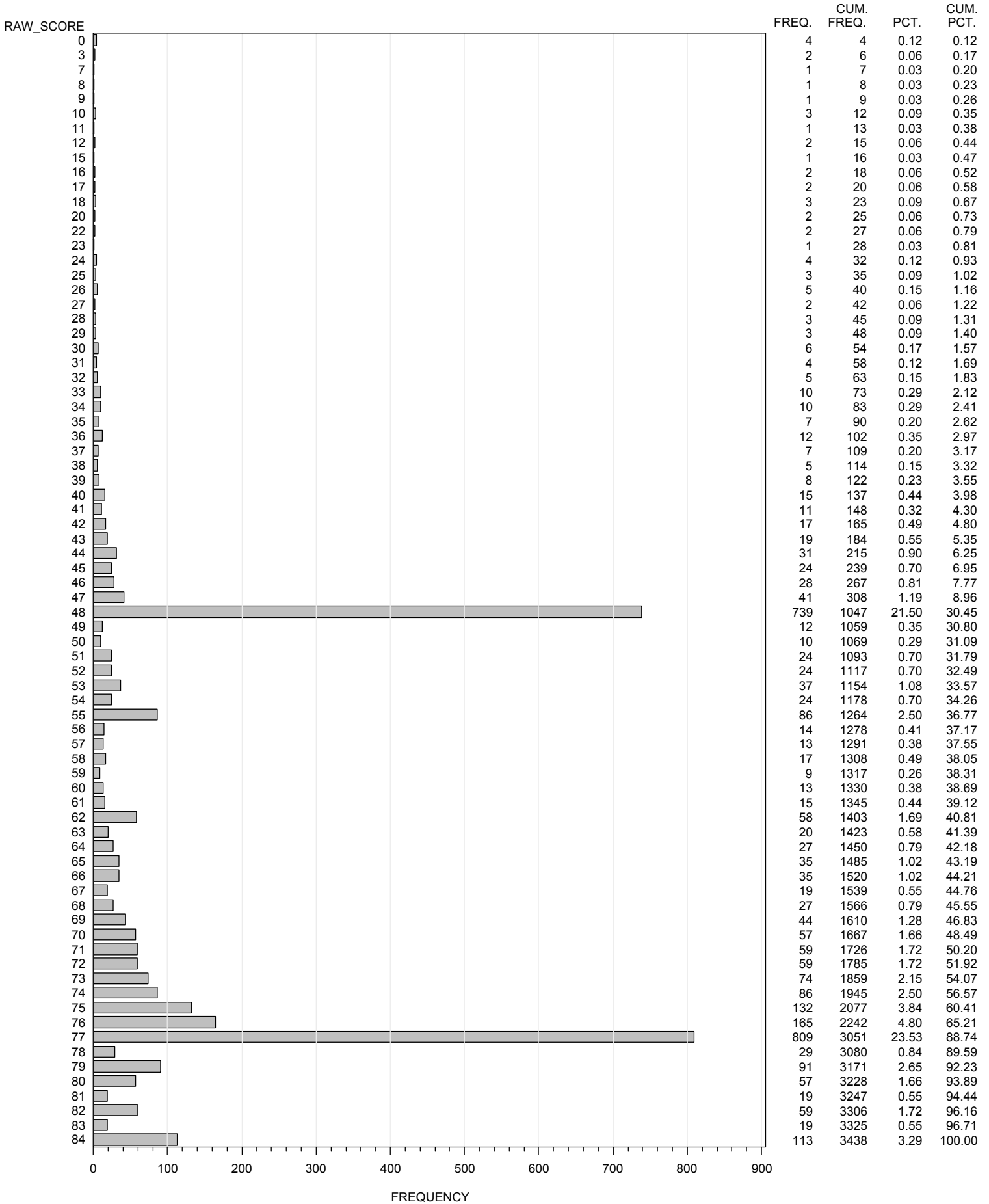
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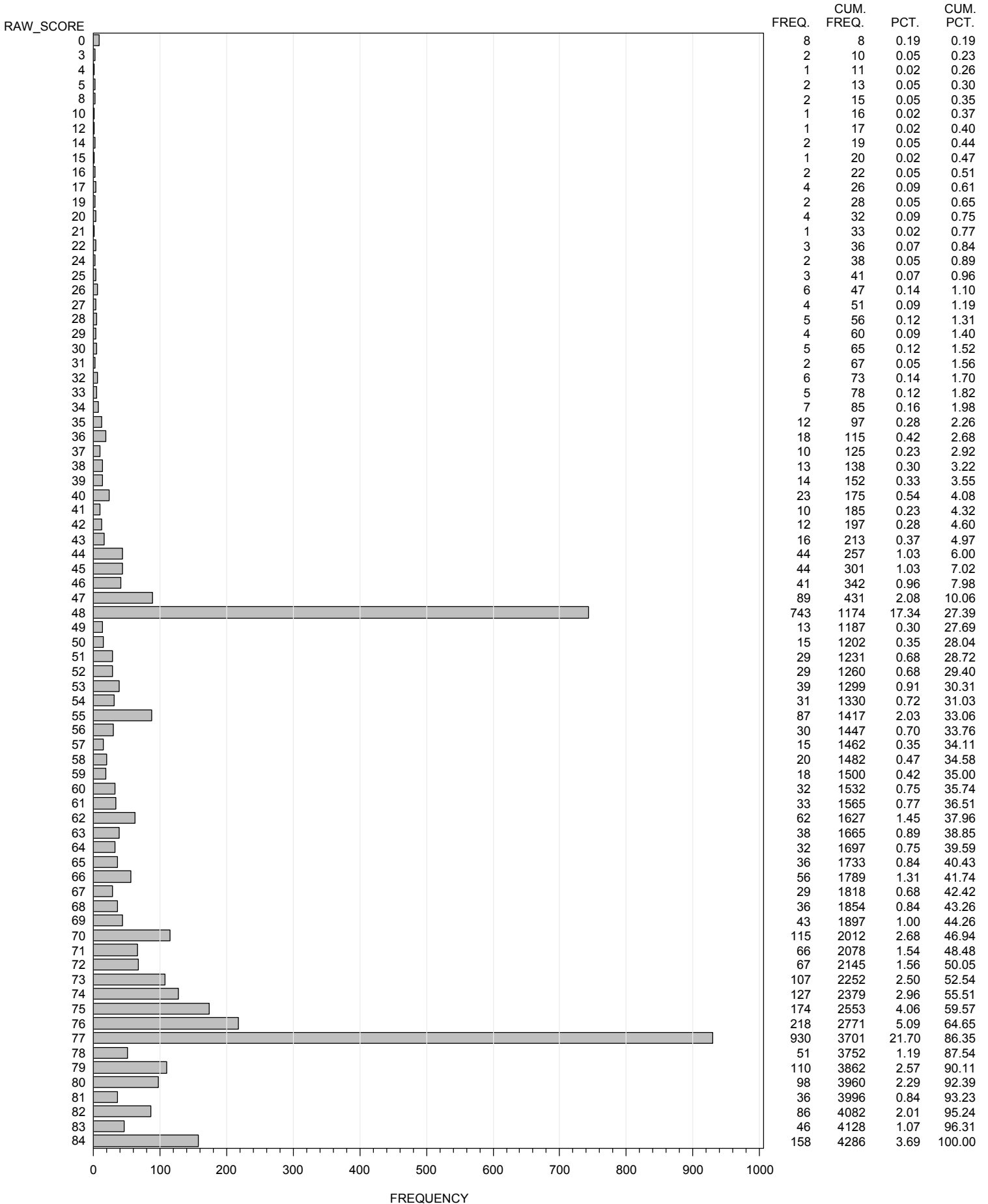
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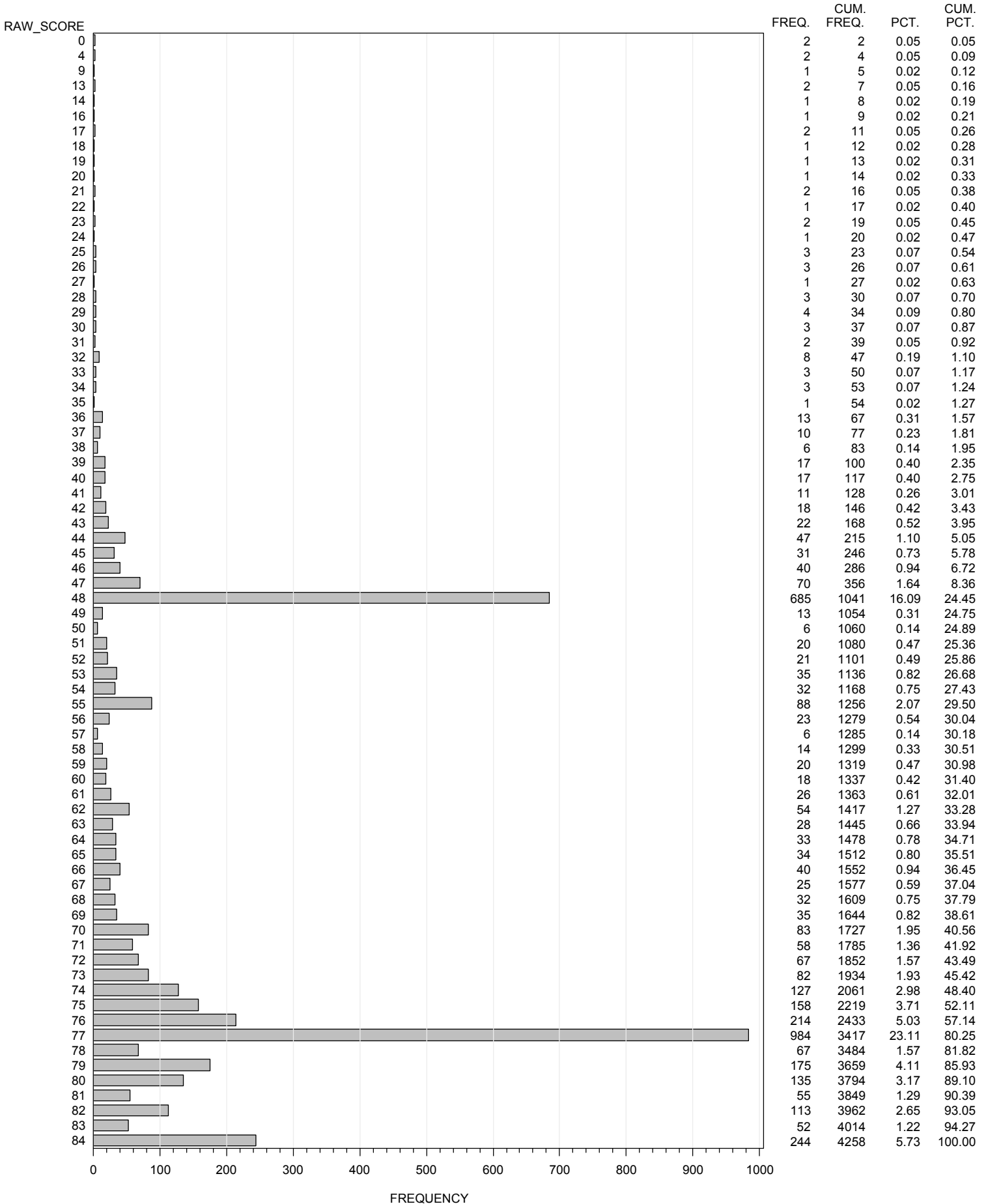
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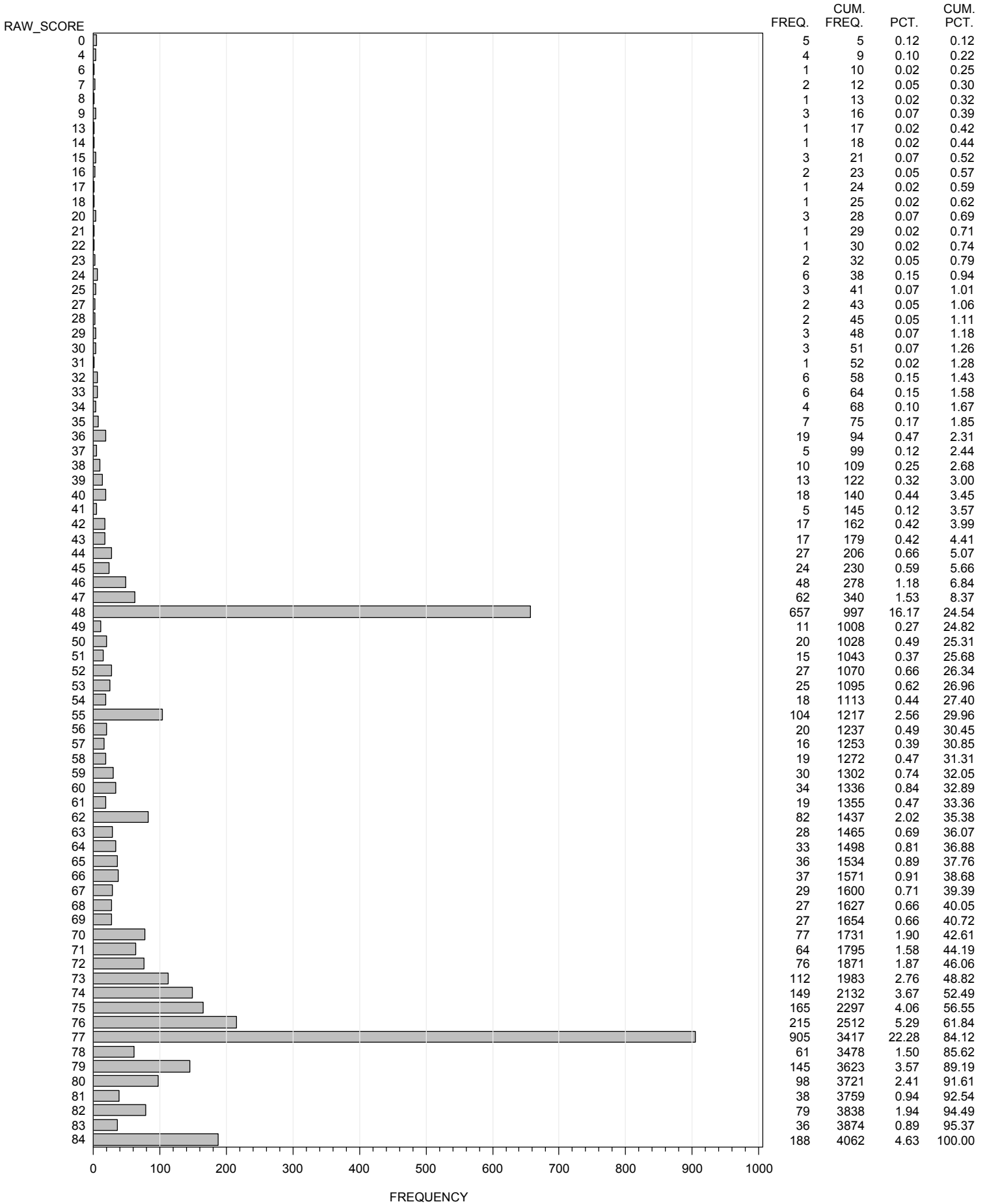
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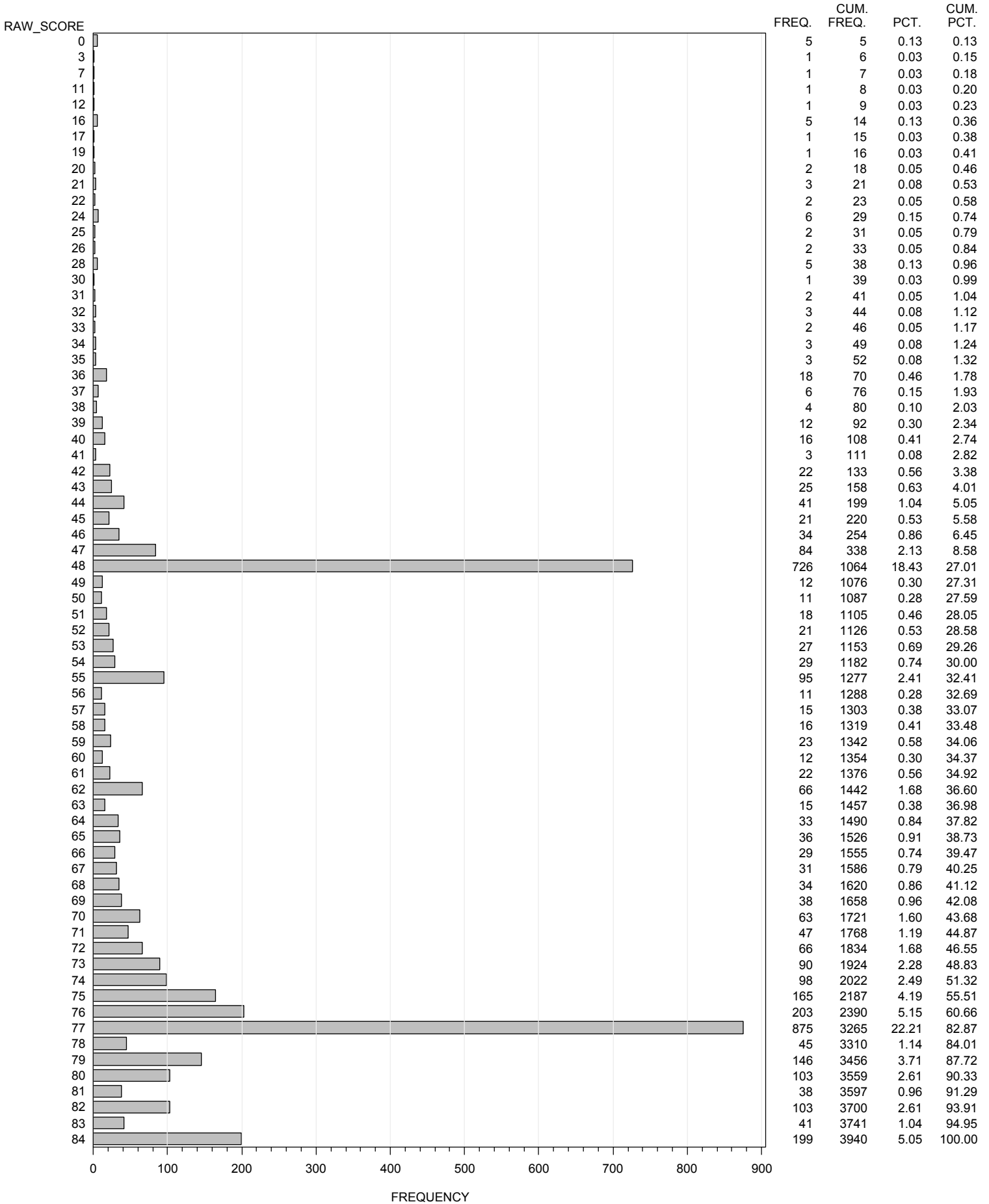
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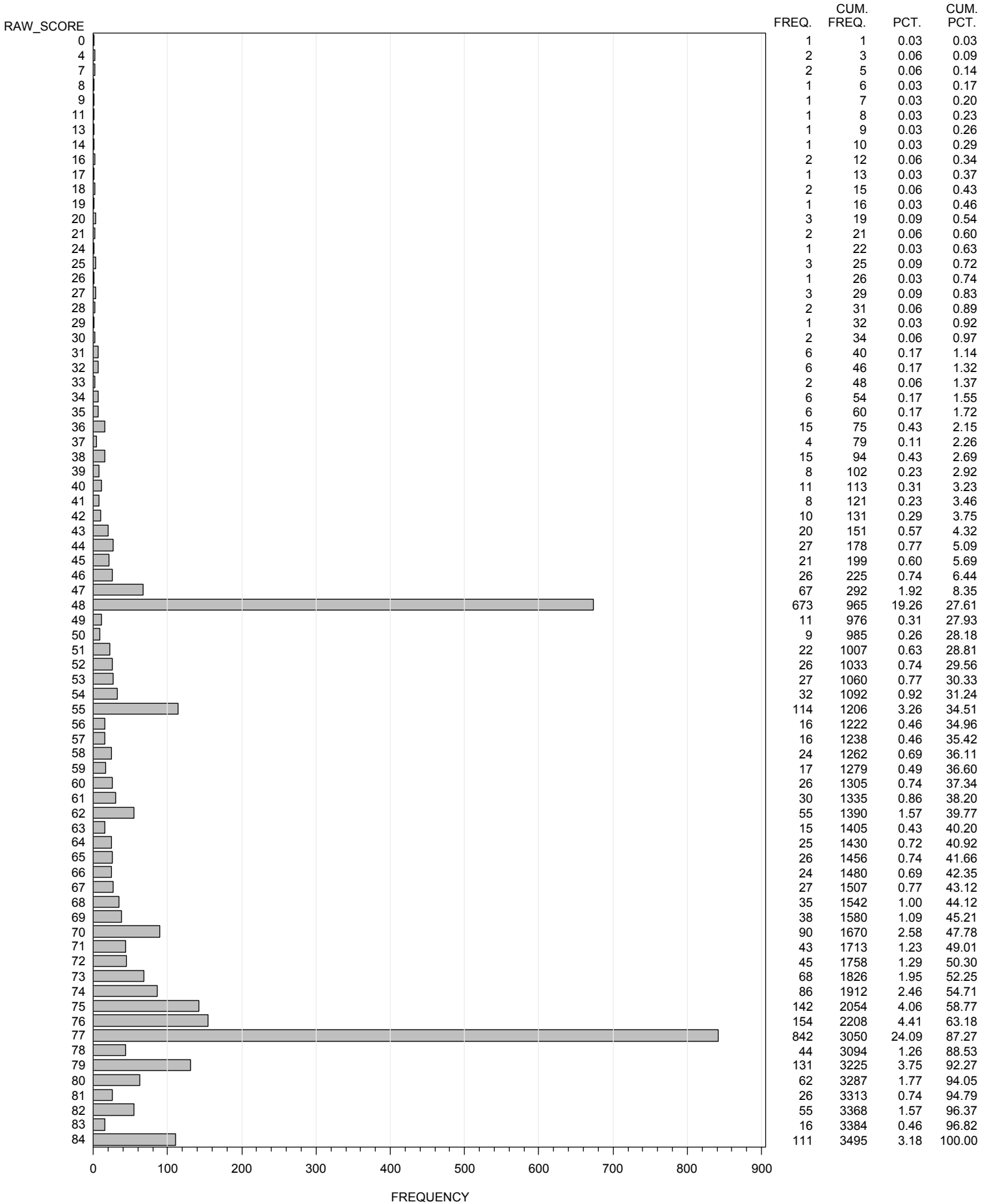
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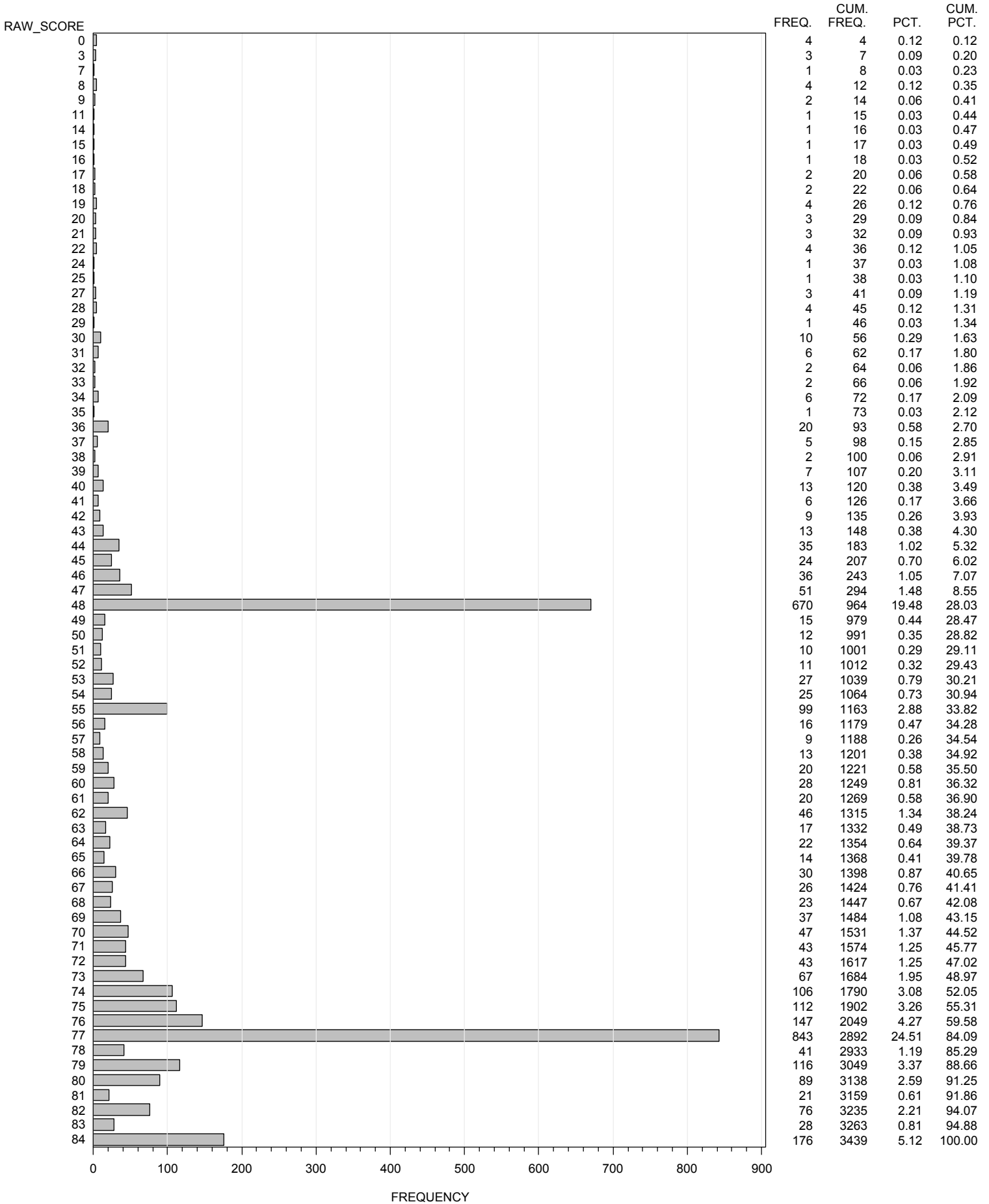


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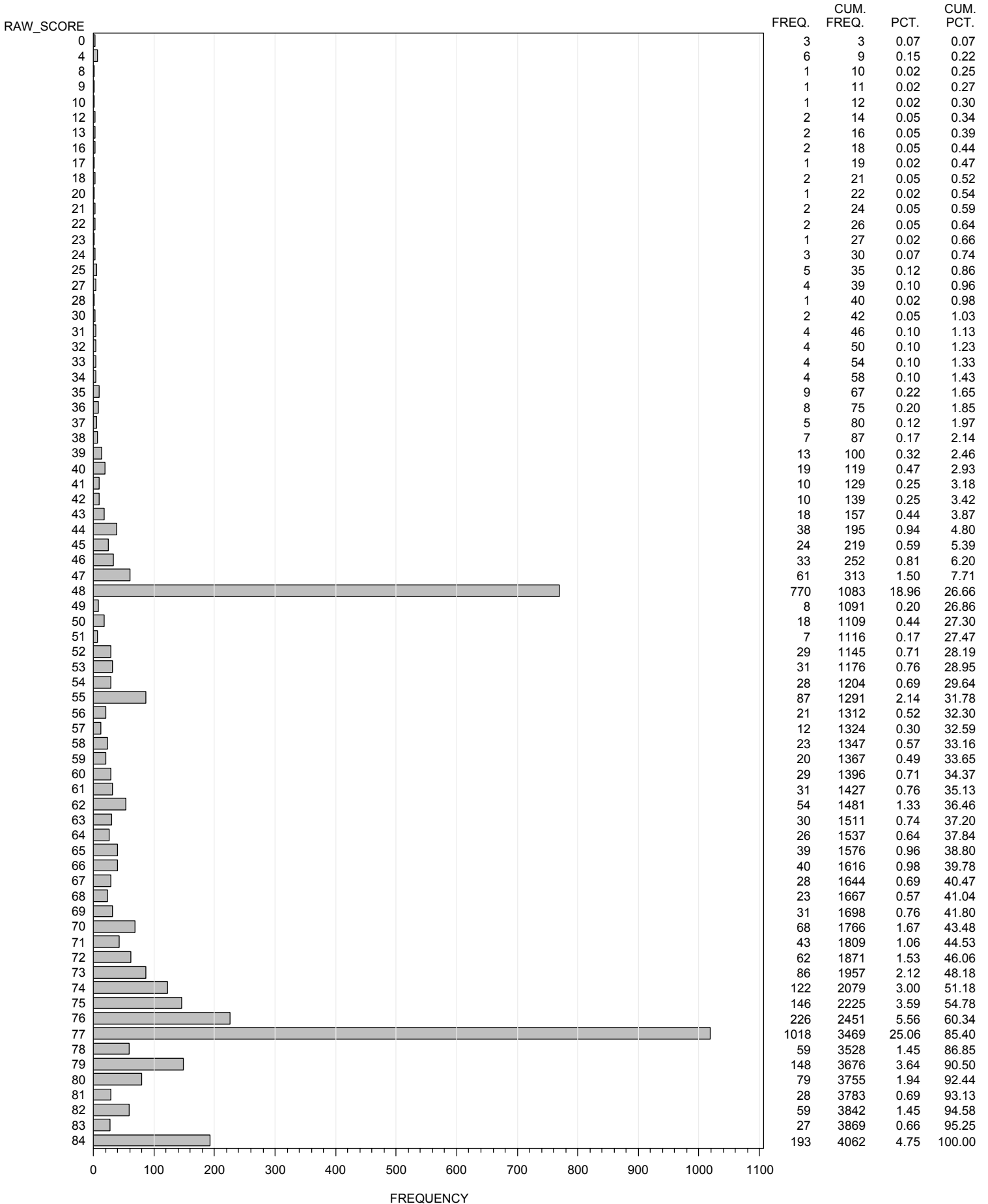




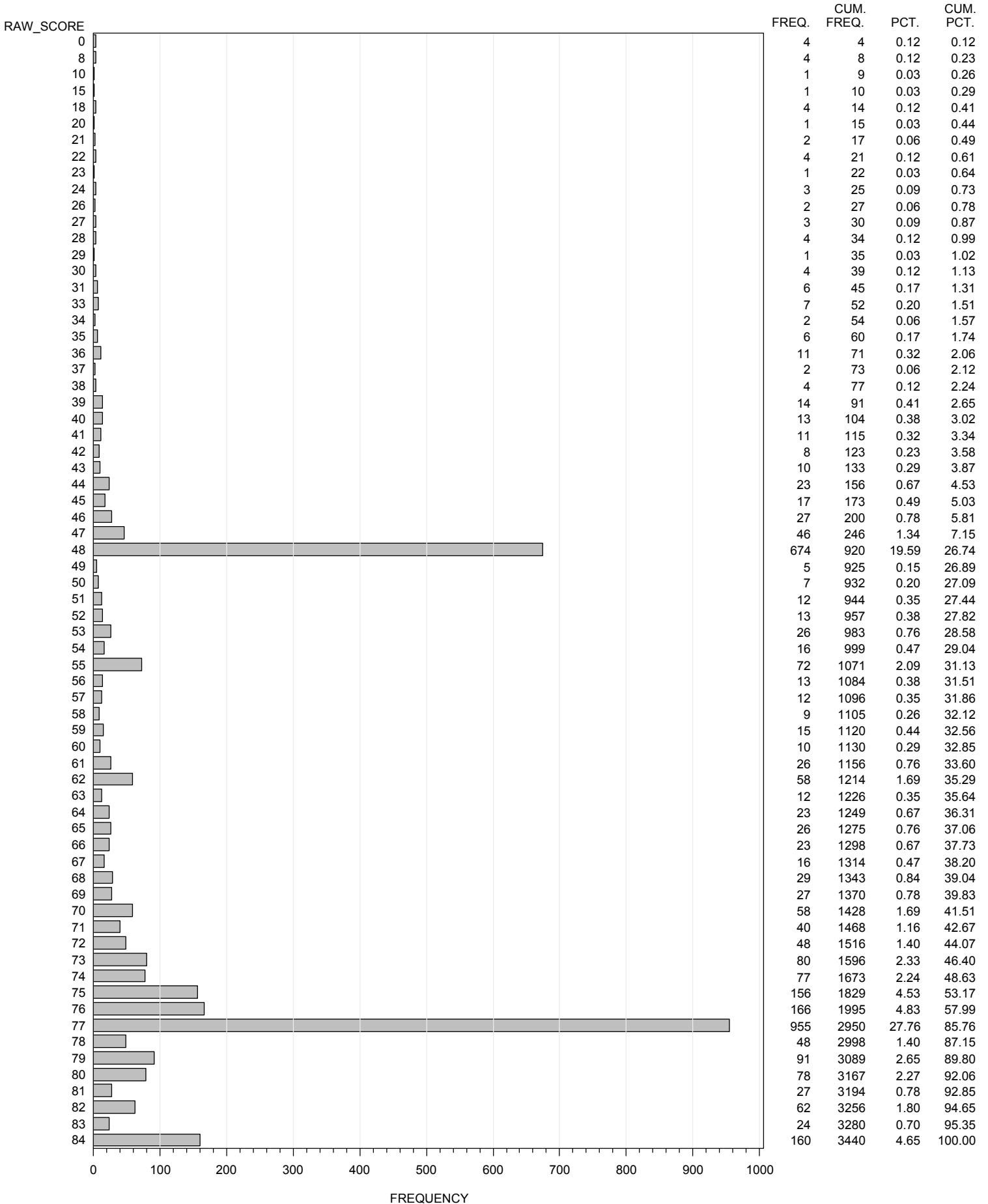
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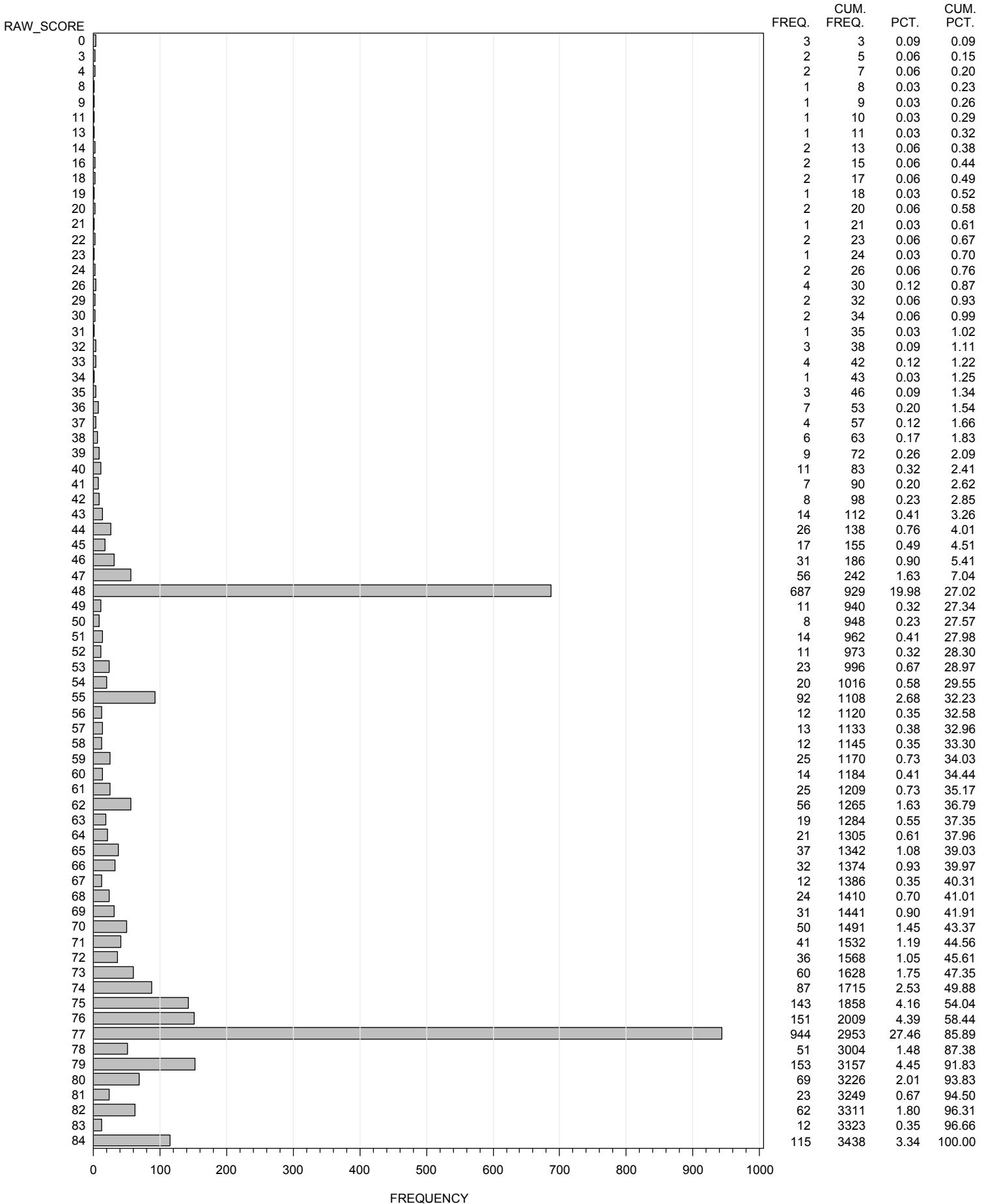
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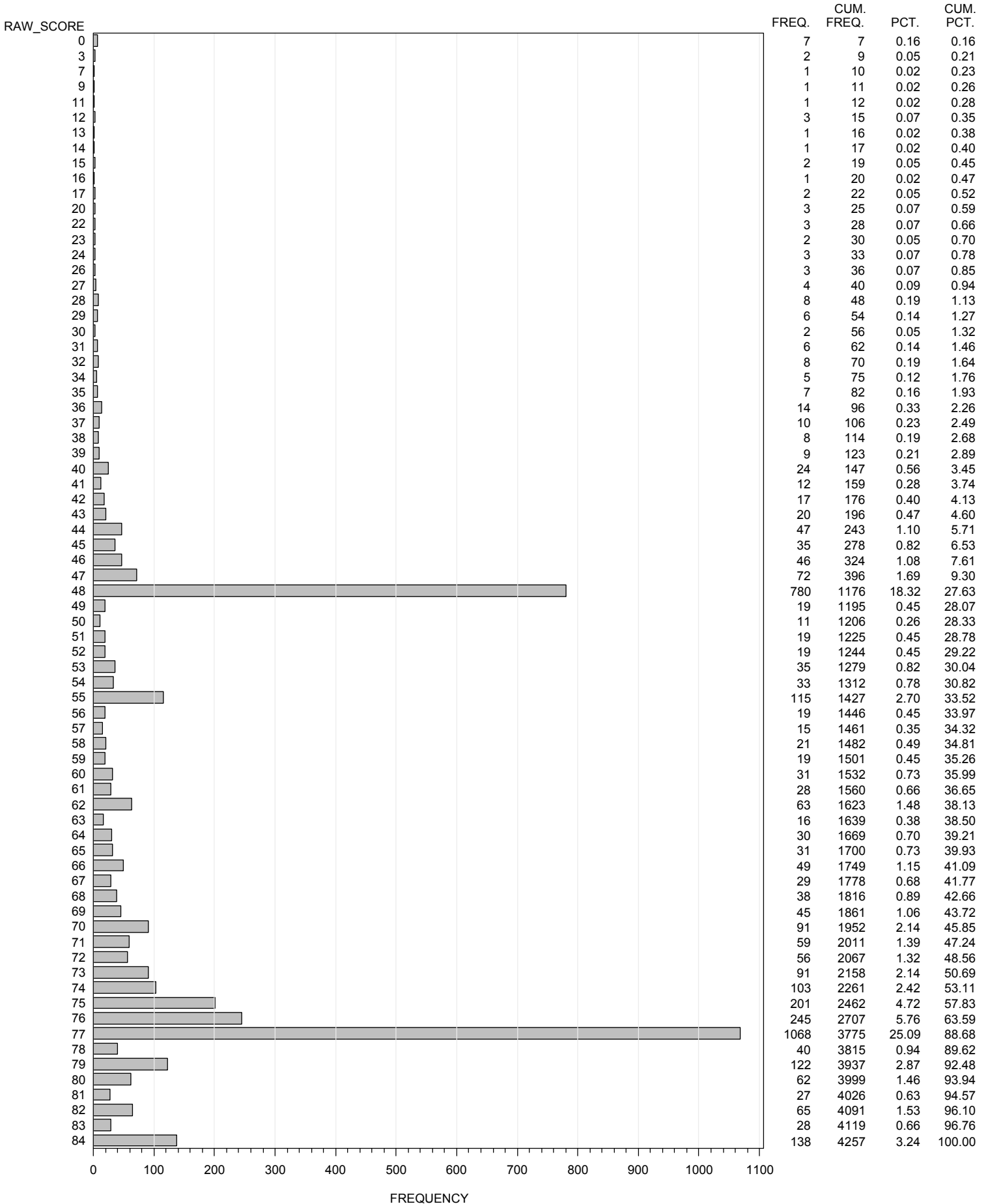
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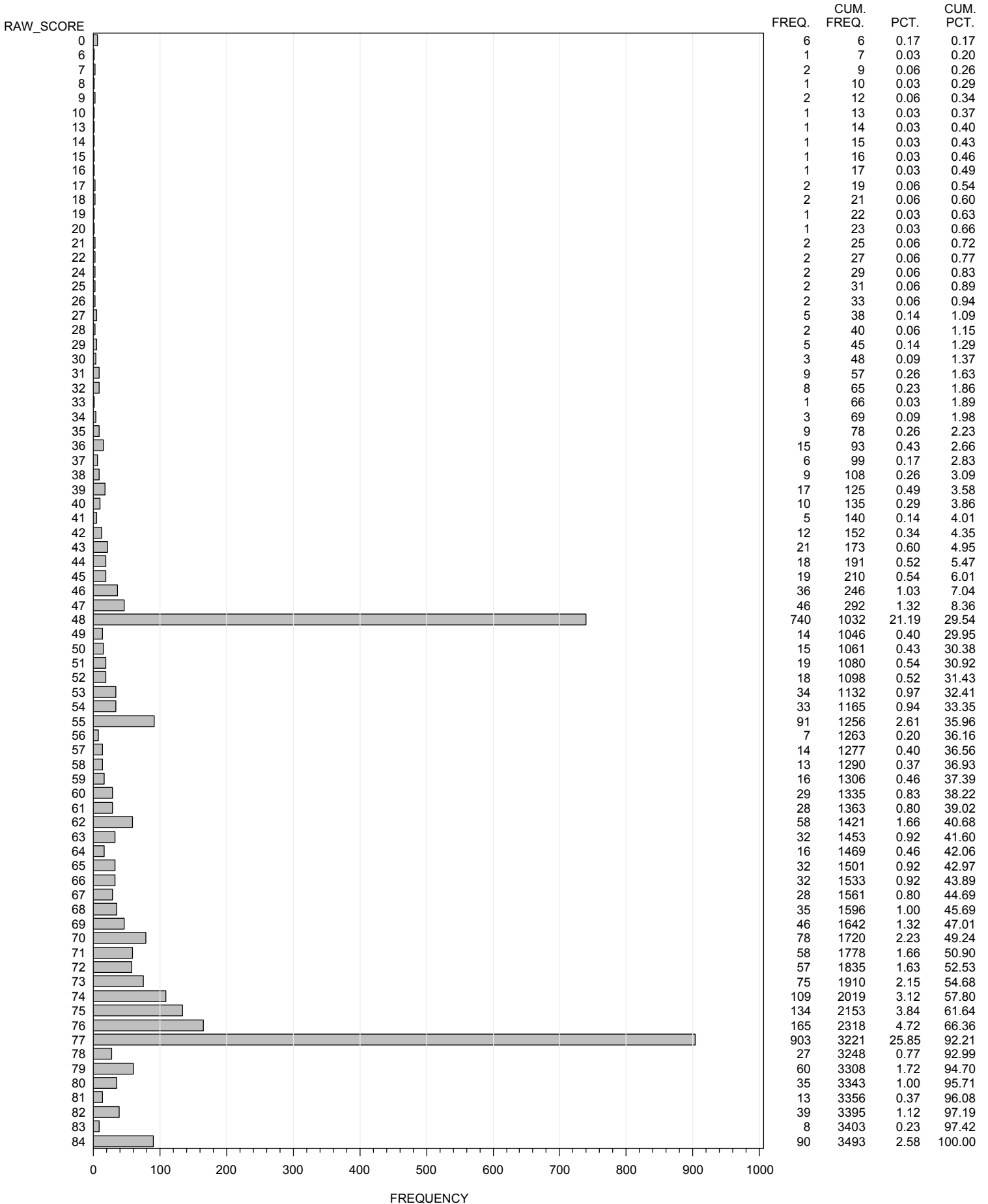
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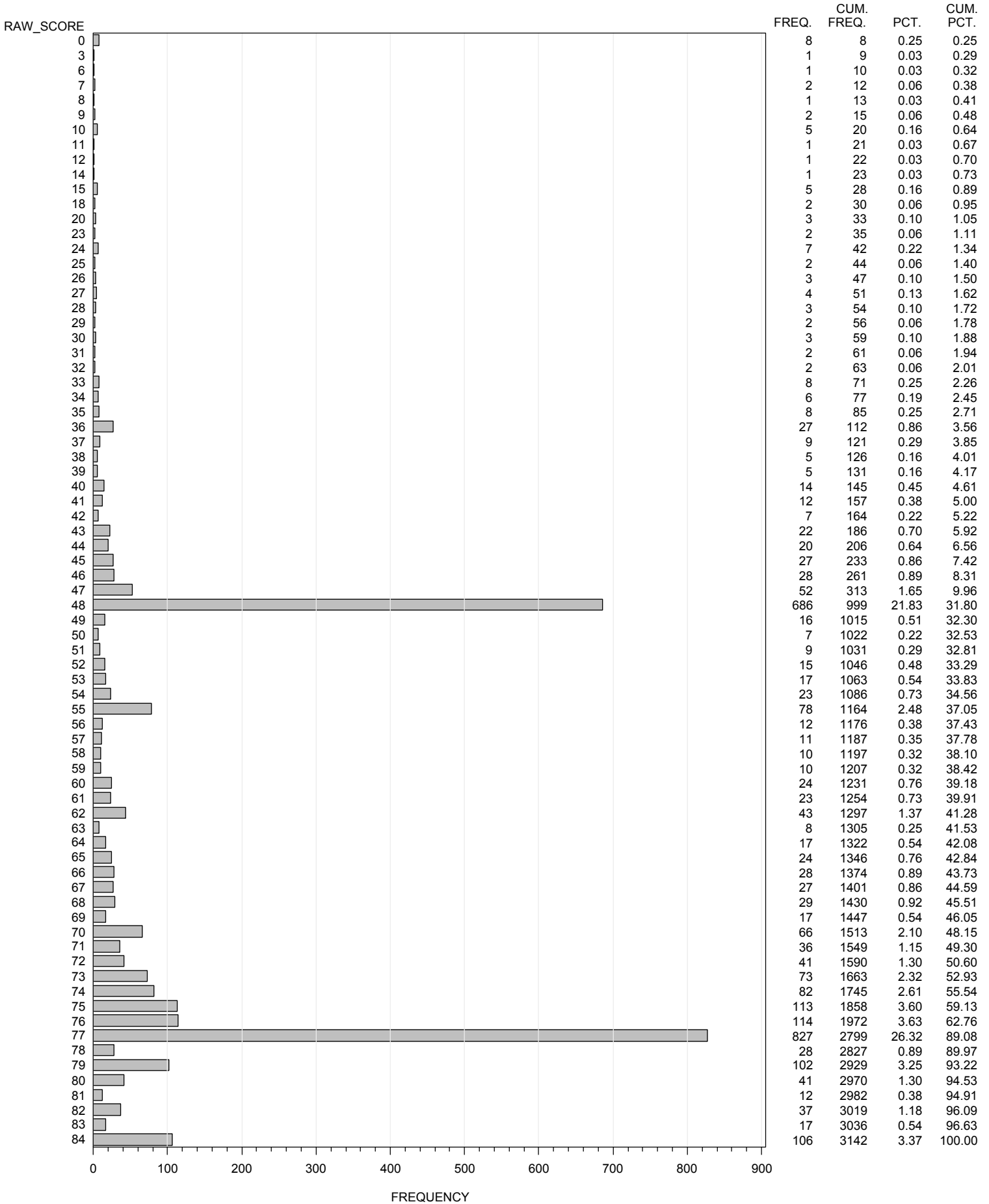
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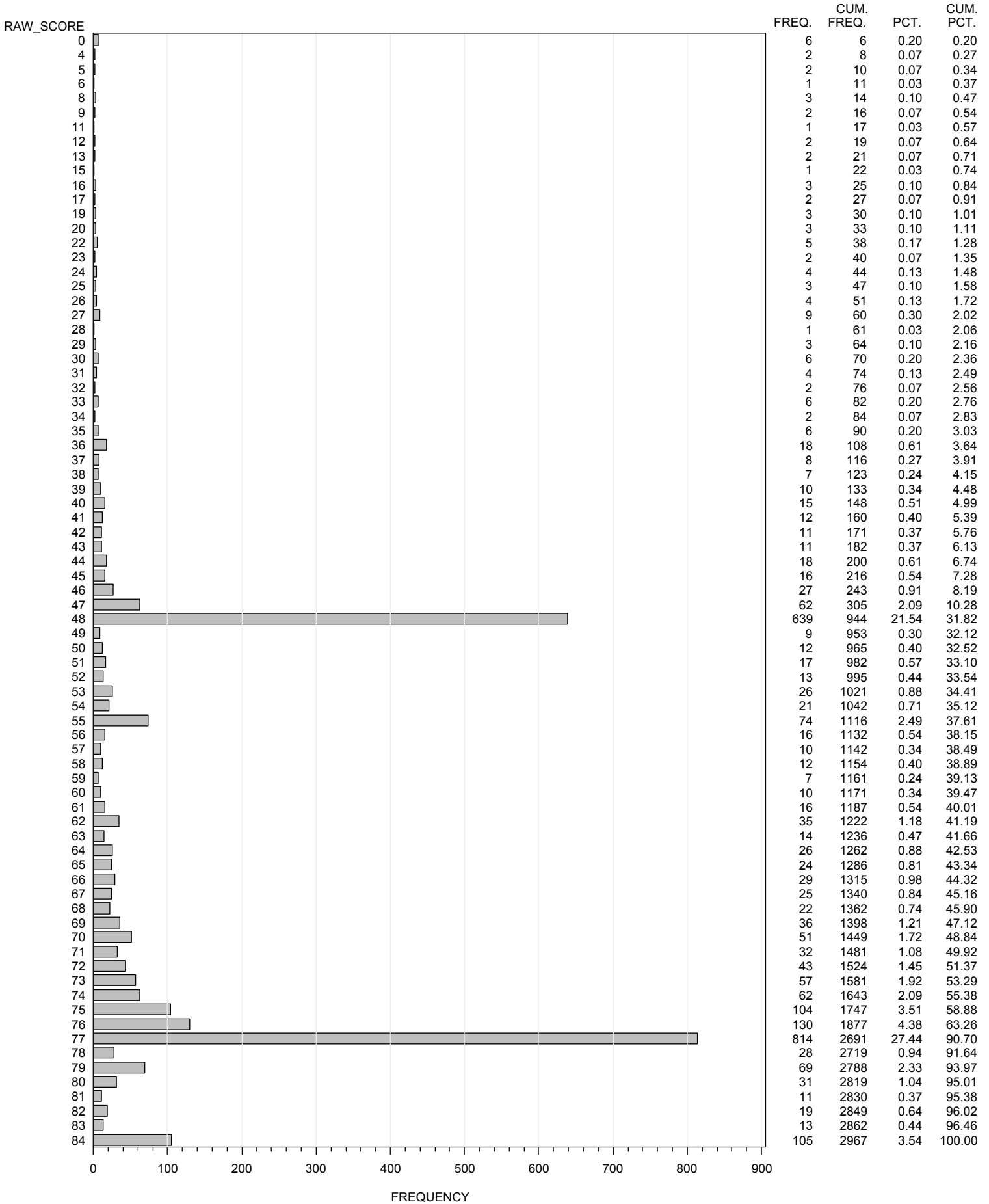
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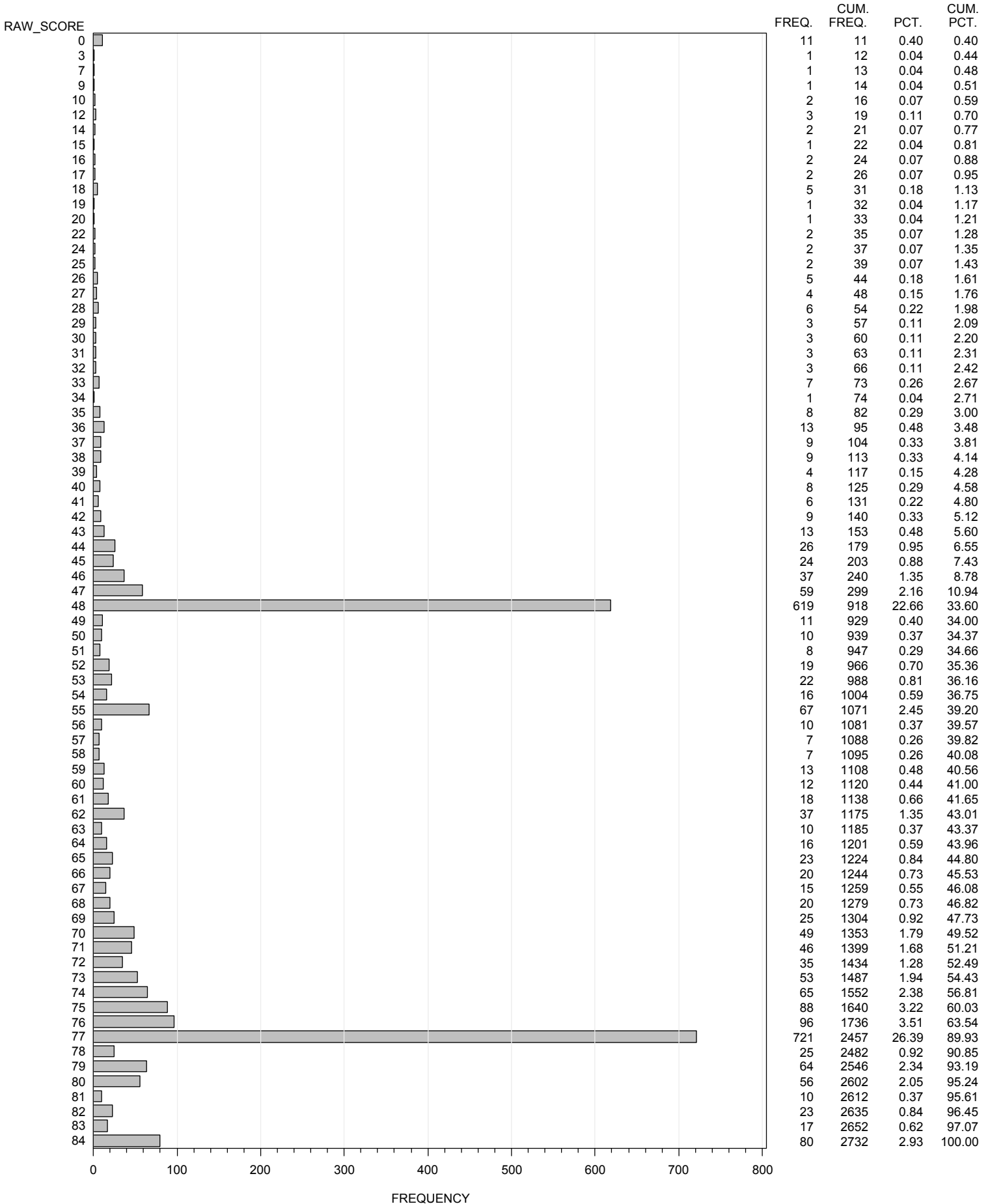


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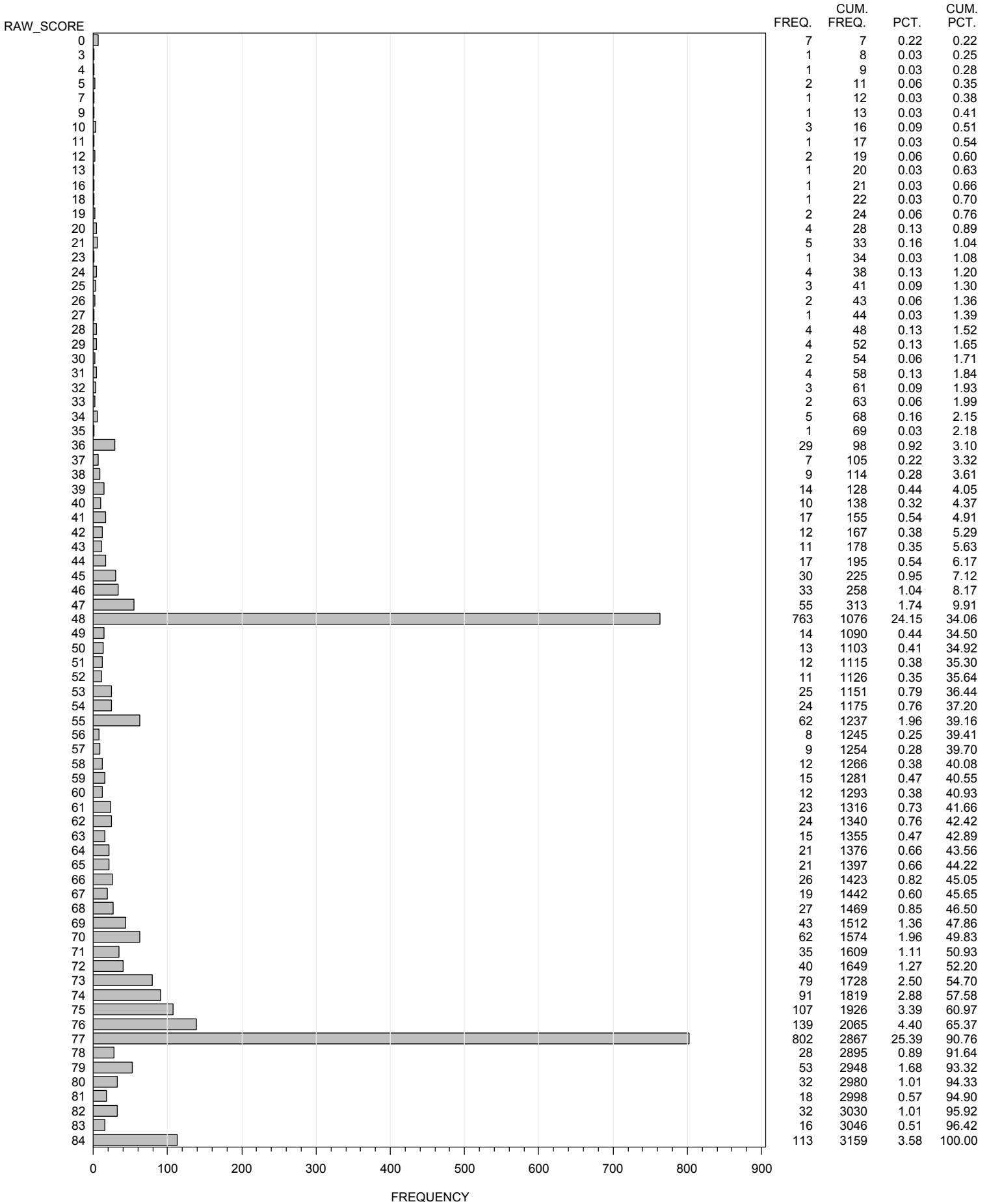




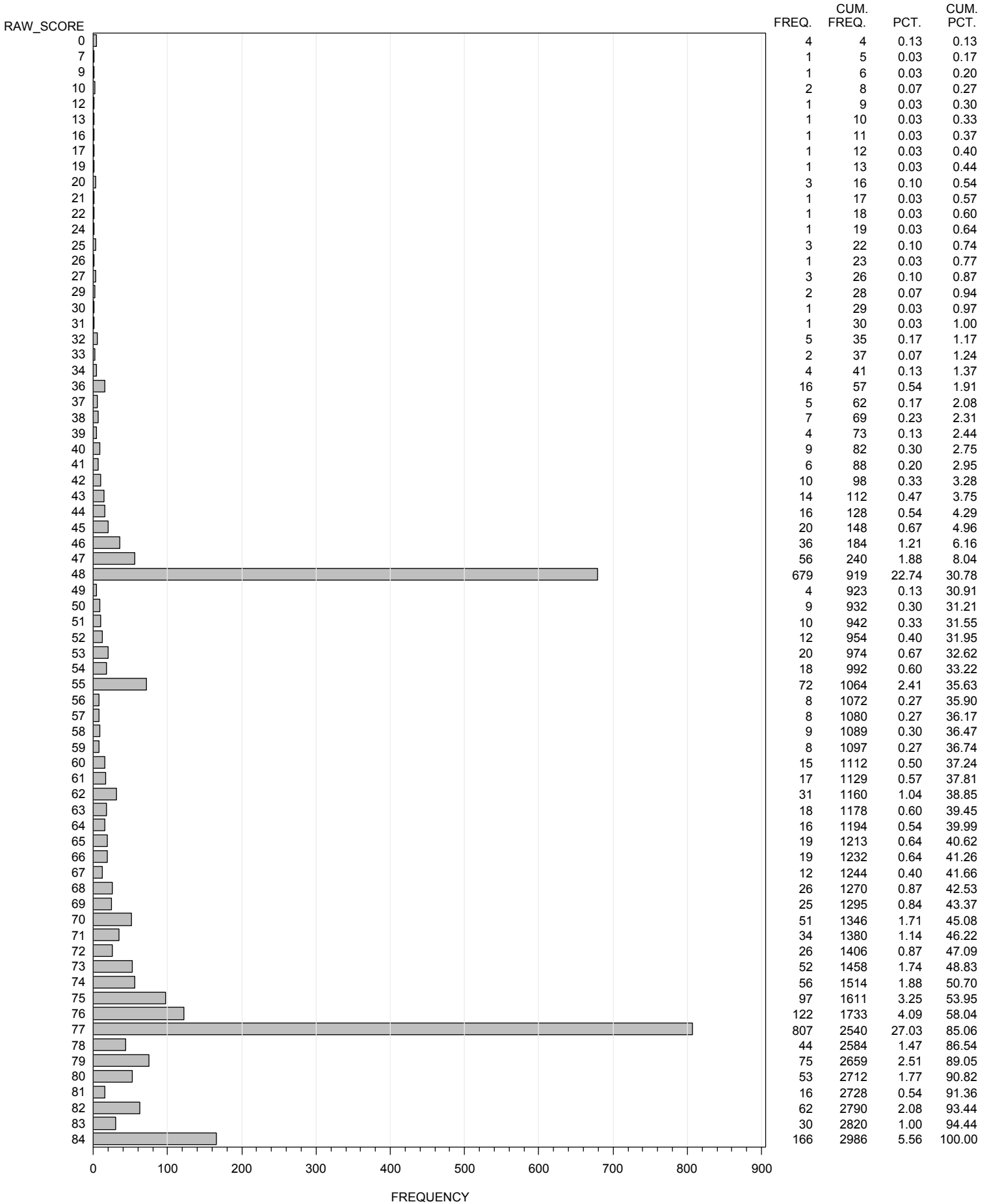
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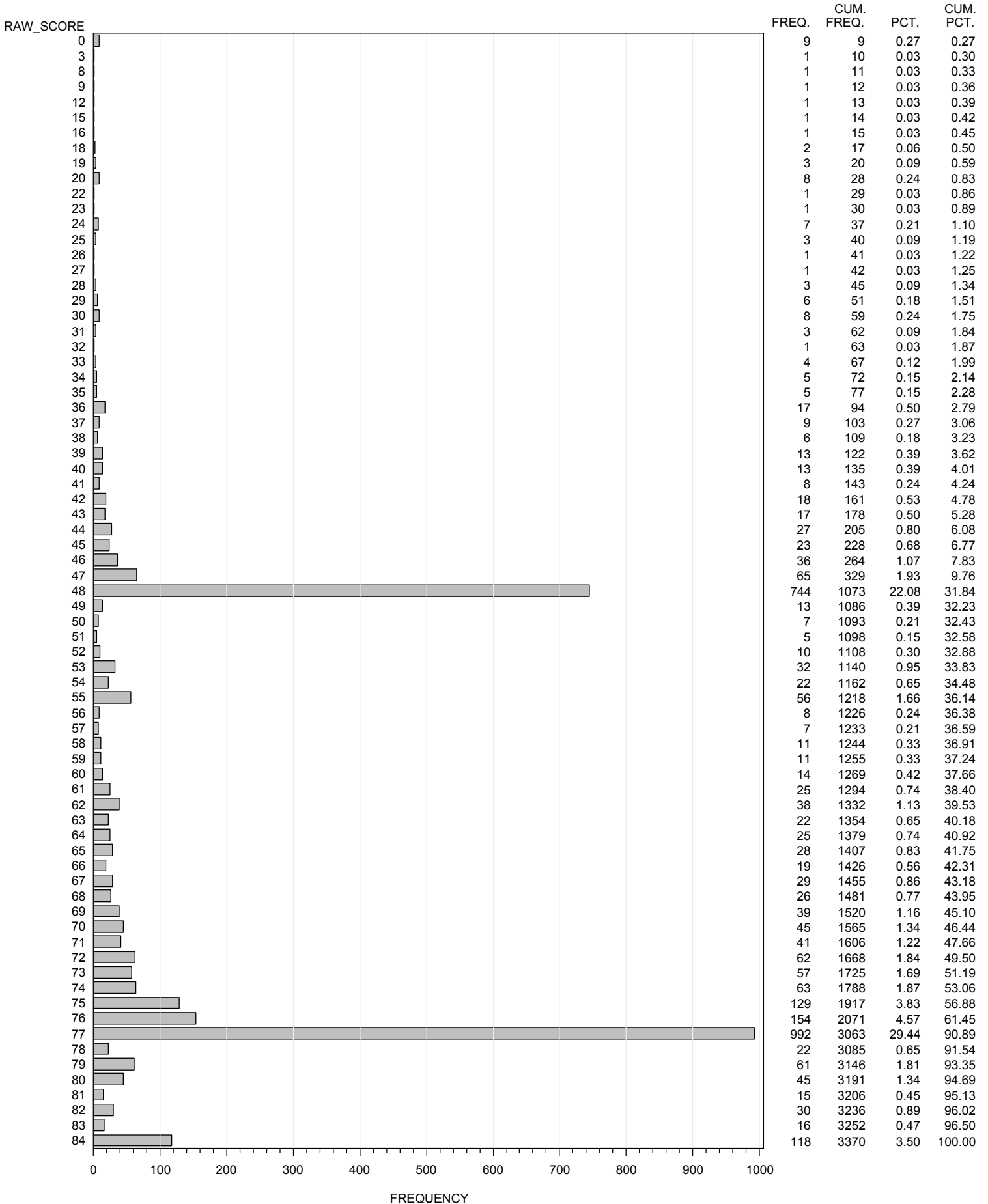
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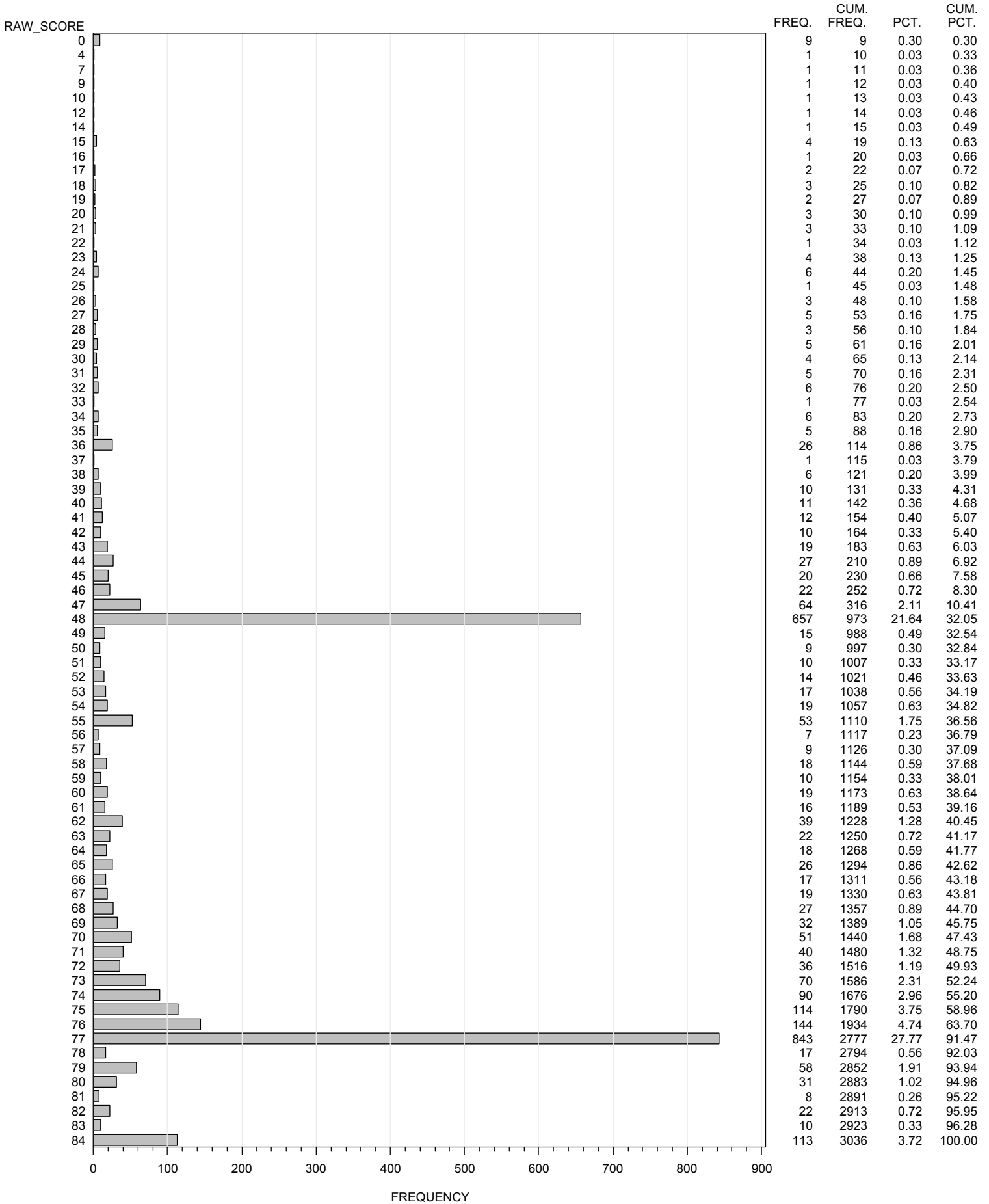
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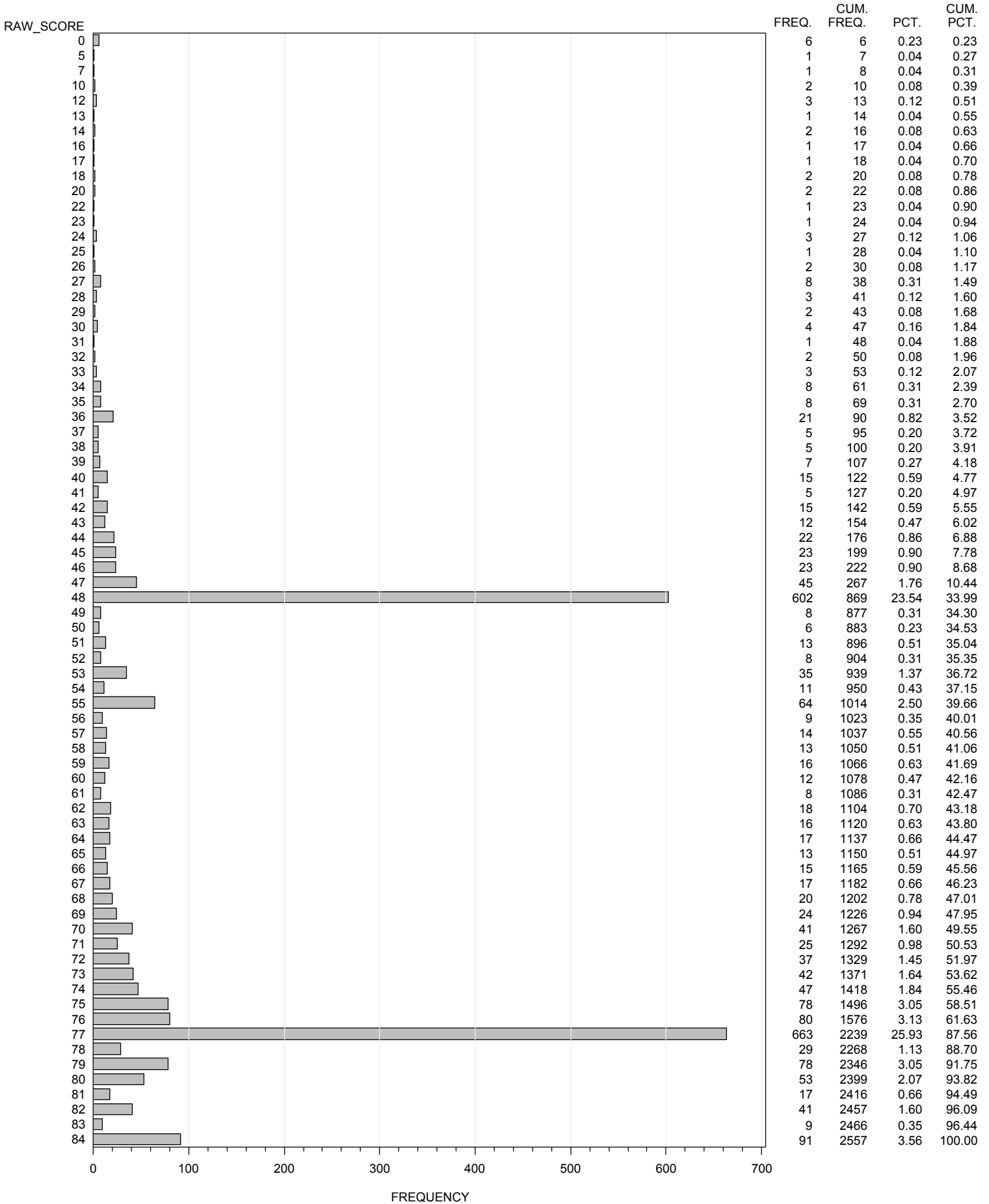
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