

**STAAR Alternate
2012 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 2012 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 1st and 3rd quartiles (or 25th and 75th percentile) 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: $\text{CUM PCT} = \text{CUM FREQ} \div N \times 100$.

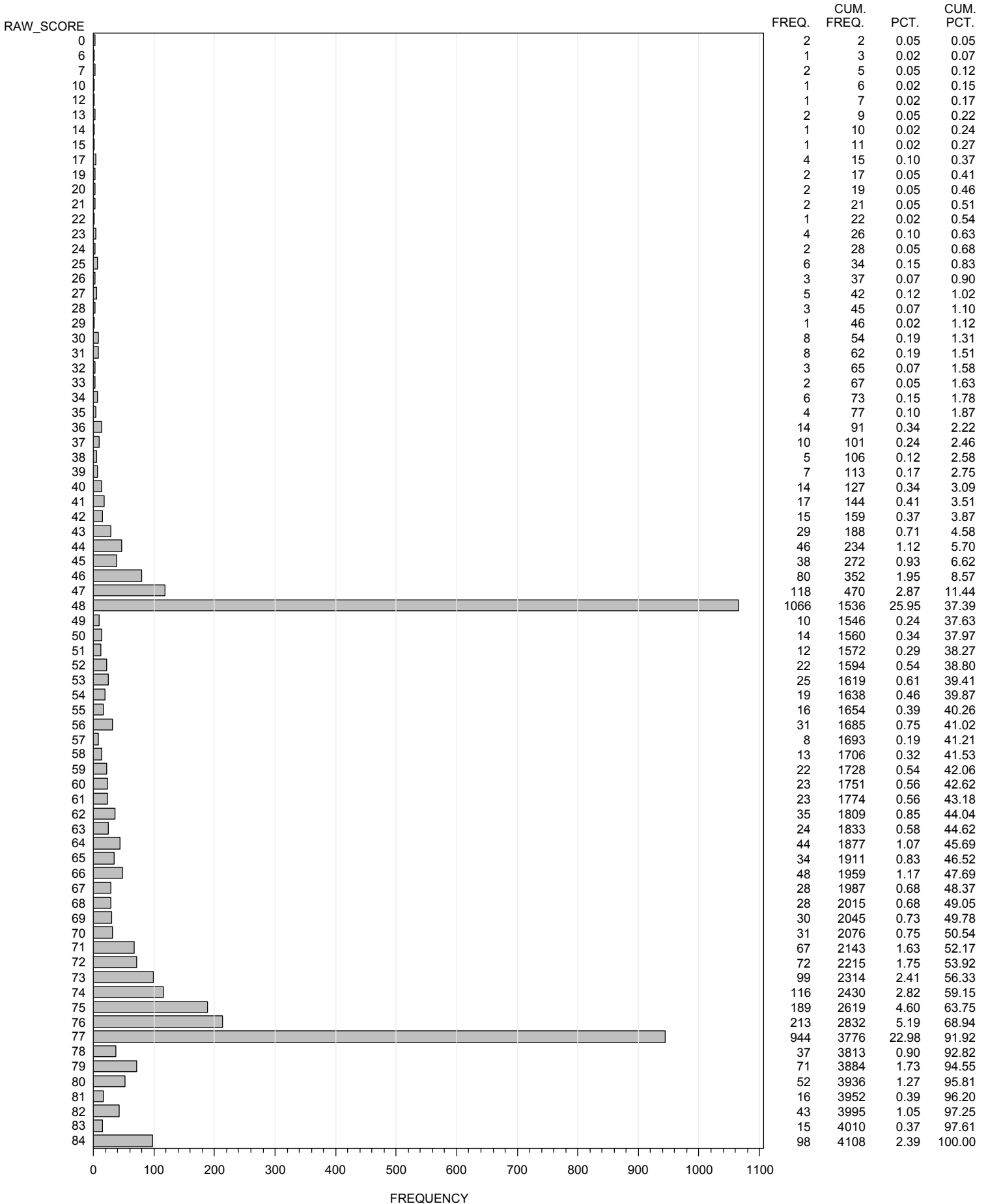
Raw Score Descriptive Statistics for 2012 STAAR Alternate 3–8 Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile Range	SD	Variance	Skewness	Kurtosis
GRADE 3 READING	4108	63.14	70	48	84	29	14.90	222.01	-0.4411	-0.9138
GRADE 4 READING	3928	63.43	71	48	84	29	15.52	240.93	-0.5754	-0.6195
GRADE 5 READING	3827	63.89	72	48	84	29	15.07	227.13	-0.5386	-0.7516
GRADE 6 READING	3483	64.04	72	48	84	29	14.59	212.86	-0.3595	-1.3440
GRADE 7 READING	3292	64.10	73	77	84	29	14.97	224.08	-0.5832	-0.7712
GRADE 8 READING	3175	64.05	72	48	84	29	14.88	221.53	-0.5320	-0.6856
GRADE 3 MATHEMATICS	4110	64.90	73	48	80	29	14.72	216.69	-0.5357	-0.9955
GRADE 4 MATHEMATICS	3929	66.34	75	77	84	29	15.05	226.60	-0.6808	-0.7557
GRADE 5 MATHEMATICS	3828	65.38	74	48	84	29	14.74	217.40	-0.6067	-0.8379
GRADE 6 MATHEMATICS	3484	64.66	73	48	84	29	14.87	220.99	-0.3989	-1.2580
GRADE 7 MATHEMATICS	3294	65.80	75	77	84	29	14.57	212.35	-0.6486	-0.8246
GRADE 8 MATHEMATICS	3175	65.26	74	48	84	29	14.88	221.28	-0.5495	-0.8605
GRADE 5 SCIENCE	3827	65.03	74	77	81	29	14.79	218.63	-0.5703	-0.9399
GRADE 8 SCIENCE	3172	66.16	75	77	84	29	14.62	213.63	-0.6202	-0.8882
GRADE 8 SOCIAL STUDIES	3173	65.42	74	77	84	29	14.51	210.40	-0.5876	-0.8097
GRADE 4 WRITING	3929	65.06	74	48	84	29	15.32	234.67	-0.6703	-0.5182
GRADE 7 WRITING	3293	64.00	72	77	84	29	14.90	221.96	-0.5581	-0.8059

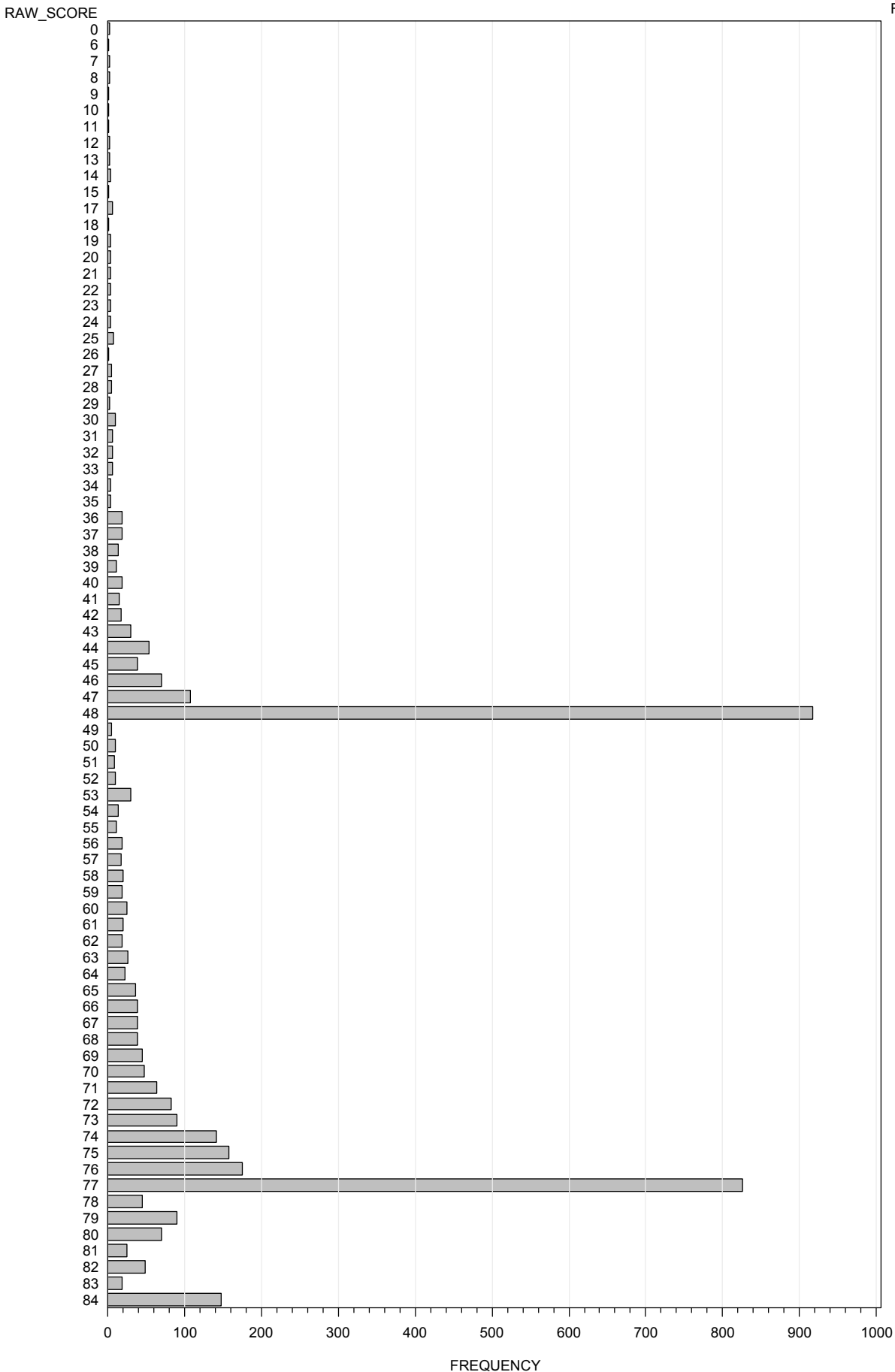
Raw Score Descriptive Statistics for 2012 STAAR Alternate EOC Assessments

Subject	N	Mean	Median	Mode	Range	Interquartile Range	SD	Variance	Skewness	Kurtosis
ENGLISH I	2971	63.33	72	48	84	29	15.39	236.89	-0.3679	-1.1920
ENGLISH II	2822	63.29	71	48	84	29	15.52	240.83	-0.4719	-0.8688
ENGLISH III	2435	63.75	72	48	81	29	15.30	234.21	-0.4953	-0.8888
ALGEBRA I	2971	62.62	69	48	84	29	15.49	239.87	-0.3332	-1.0700
GEOMETRY	2821	63.85	73	48	81	29	15.35	235.73	-0.3835	-1.1270
BIOLOGY	3581	63.76	73	77	84	29	15.15	229.61	-0.4460	-1.0420
WORLD GEOGRAPHY	3076	62.93	71	48	84	29	15.56	242.19	-0.4182	-0.9624
WORLD HISTORY	2345	63.24	71	48	84	29	15.63	244.20	-0.4860	-0.8368
U.S. HISTORY	2425	64.86	74	77	81	29	15.17	230.08	-0.6054	-0.6778

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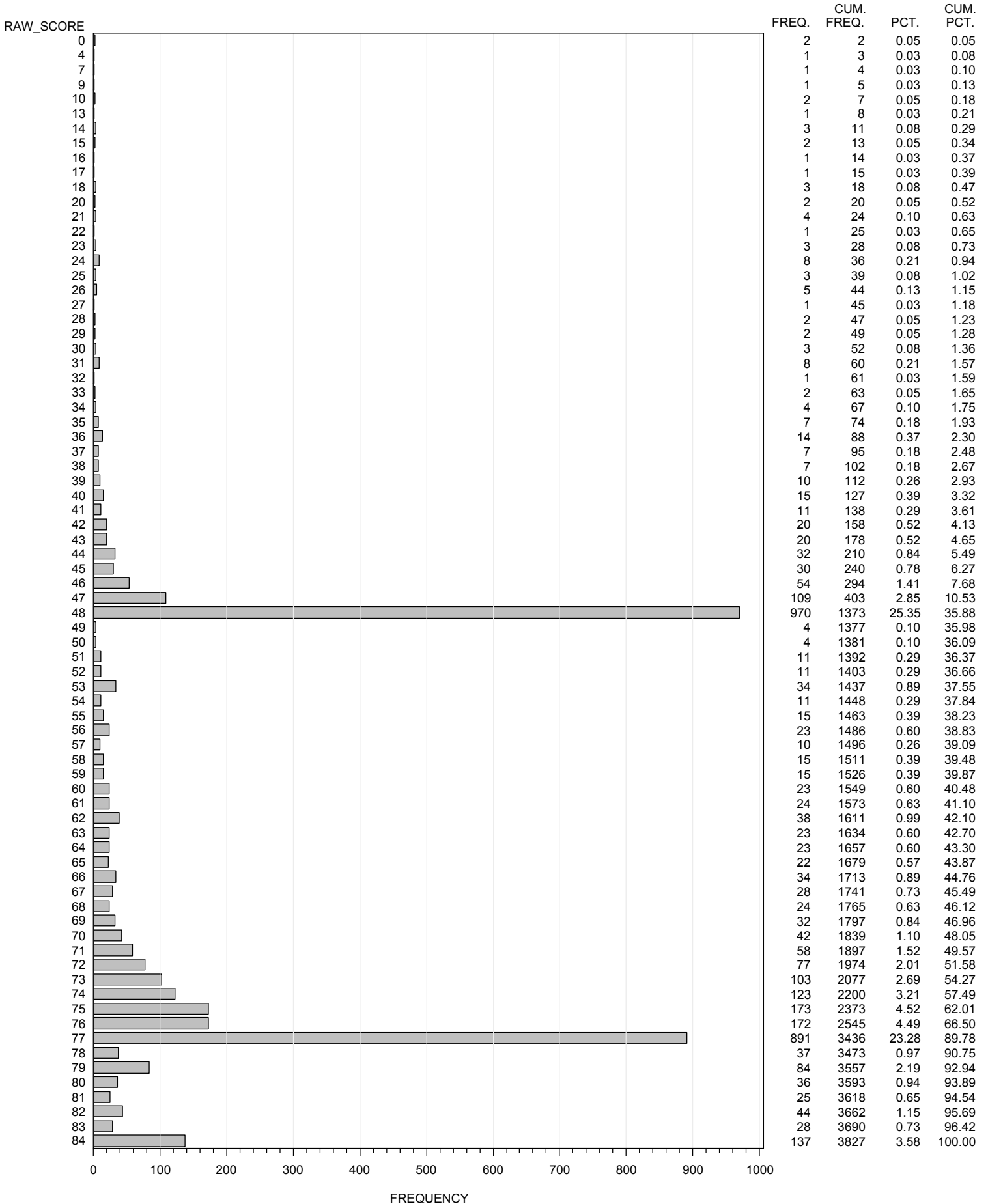


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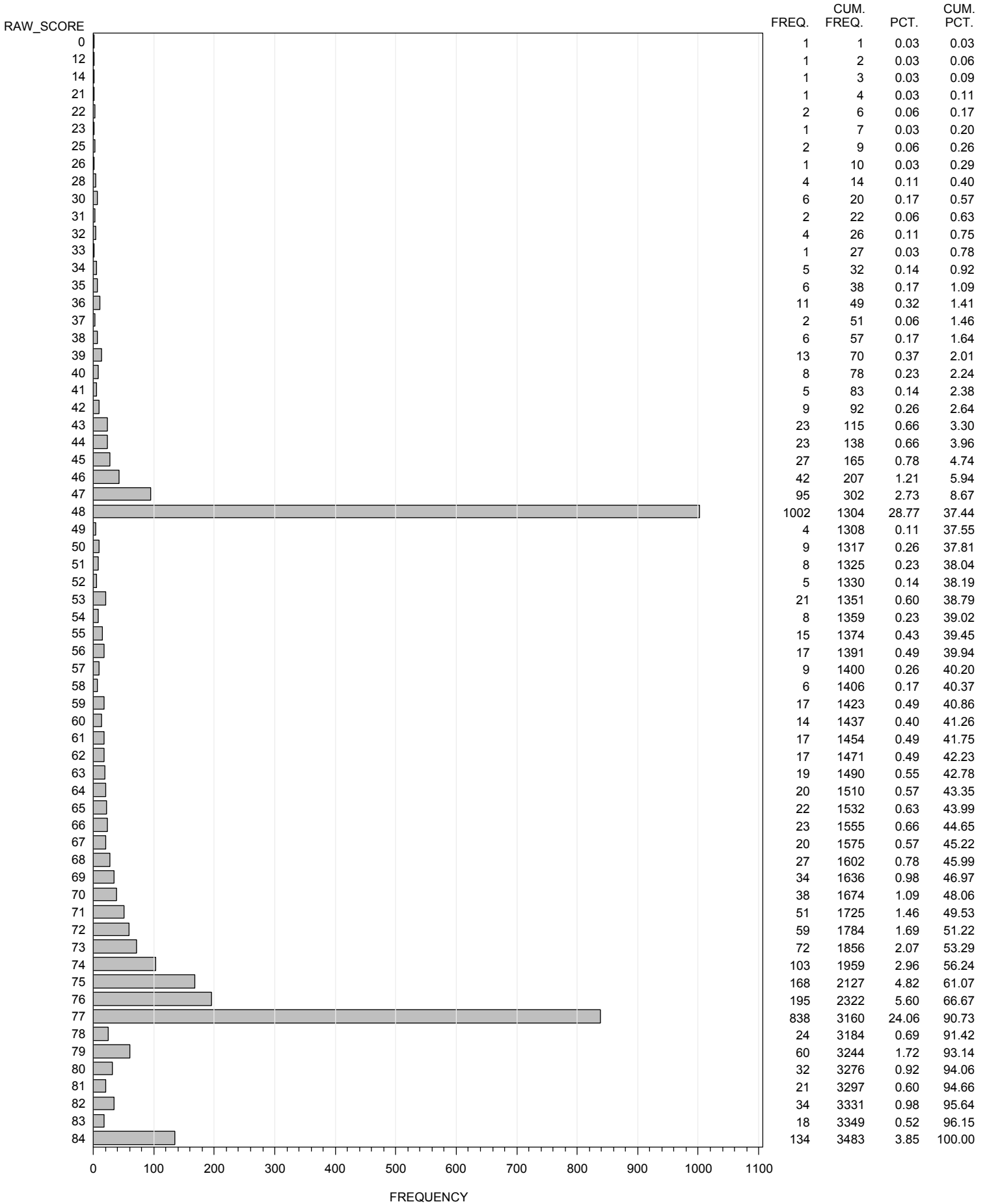


RAW_SCORE	FREQ.	CUM. FREQ.	PCT.	CUM. PCT.
0	2	2	0.05	0.05
6	1	3	0.03	0.08
7	2	5	0.05	0.13
8	2	7	0.05	0.18
9	1	8	0.03	0.20
10	1	9	0.03	0.23
11	1	10	0.03	0.25
12	2	12	0.05	0.31
13	2	14	0.05	0.36
14	3	17	0.08	0.43
15	1	18	0.03	0.46
17	6	24	0.15	0.61
18	1	25	0.03	0.64
19	4	29	0.10	0.74
20	4	33	0.10	0.84
21	3	36	0.08	0.92
22	3	39	0.08	0.99
23	3	42	0.08	1.07
24	4	46	0.10	1.17
25	7	53	0.18	1.35
26	1	54	0.03	1.37
27	5	59	0.13	1.50
28	5	64	0.13	1.63
29	2	66	0.05	1.68
30	10	76	0.25	1.93
31	6	82	0.15	2.09
32	6	88	0.15	2.24
33	6	94	0.15	2.39
34	3	97	0.08	2.47
35	4	101	0.10	2.57
36	19	120	0.48	3.05
37	18	138	0.46	3.51
38	13	151	0.33	3.84
39	11	162	0.28	4.12
40	18	180	0.46	4.58
41	15	195	0.38	4.96
42	17	212	0.43	5.40
43	30	242	0.76	6.16
44	53	295	1.35	7.51
45	39	334	0.99	8.50
46	70	404	1.78	10.29
47	108	512	2.75	13.03
48	917	1429	23.35	36.38
49	5	1434	0.13	36.51
50	10	1444	0.25	36.76
51	8	1452	0.20	36.97
52	10	1462	0.25	37.22
53	30	1492	0.76	37.98
54	13	1505	0.33	38.31
55	11	1516	0.28	38.59
56	19	1535	0.48	39.08
57	17	1552	0.43	39.51
58	20	1572	0.51	40.02
59	18	1590	0.46	40.48
60	25	1615	0.64	41.12
61	20	1635	0.51	41.62
62	19	1654	0.48	42.11
63	26	1680	0.66	42.77
64	22	1702	0.56	43.33
65	36	1738	0.92	44.25
66	39	1777	0.99	45.24
67	39	1816	0.99	46.23
68	39	1855	0.99	47.23
69	45	1900	1.15	48.37
70	47	1947	1.20	49.57
71	63	2010	1.60	51.17
72	83	2093	2.11	53.28
73	90	2183	2.29	55.58
74	141	2324	3.59	59.16
75	158	2482	4.02	63.19
76	175	2657	4.46	67.64
77	826	3483	21.03	88.67
78	45	3528	1.15	89.82
79	90	3618	2.29	92.11
80	70	3688	1.78	93.89
81	25	3713	0.64	94.53
82	49	3762	1.25	95.77
83	19	3781	0.48	96.26
84	147	3928	3.74	100.00

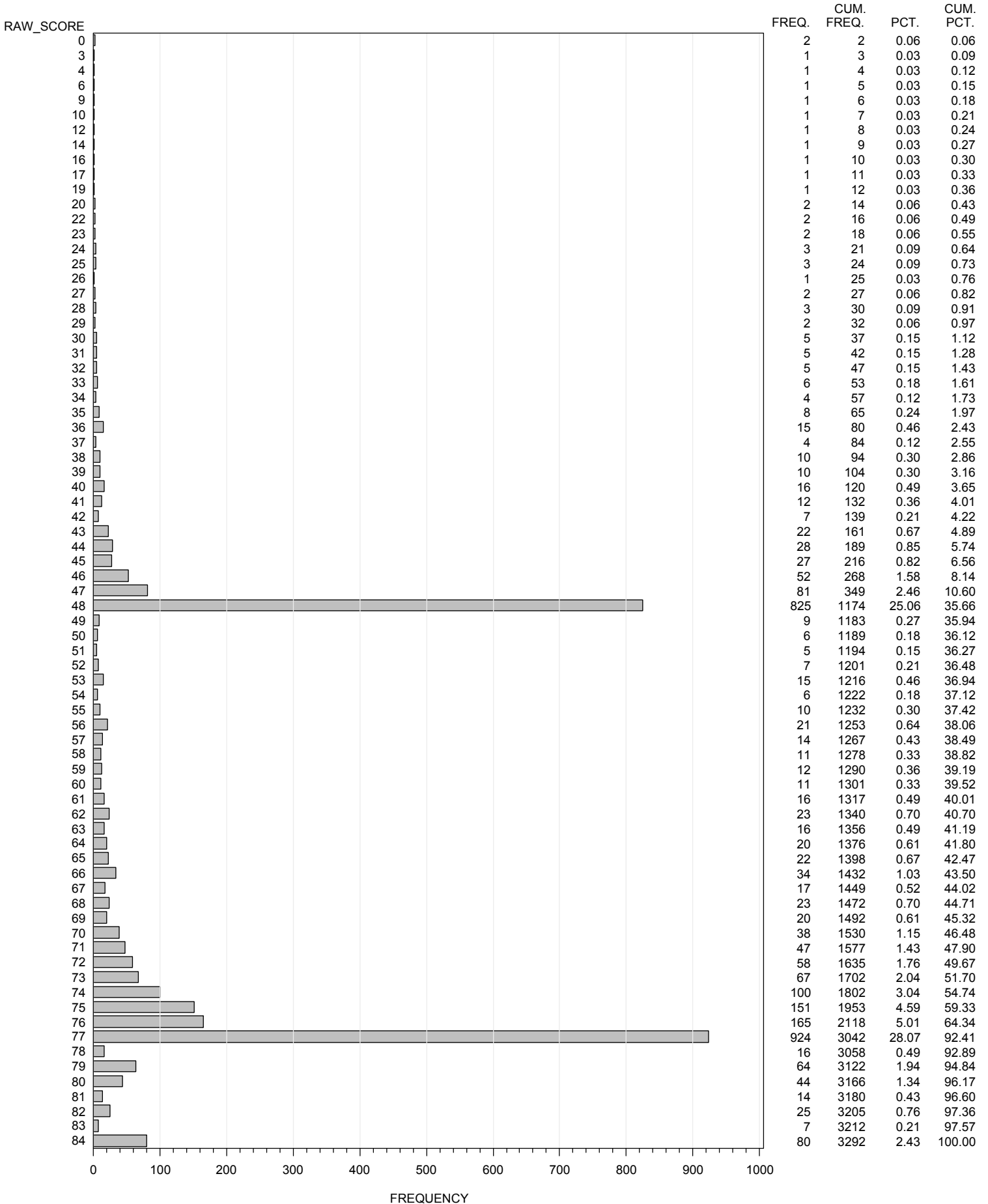
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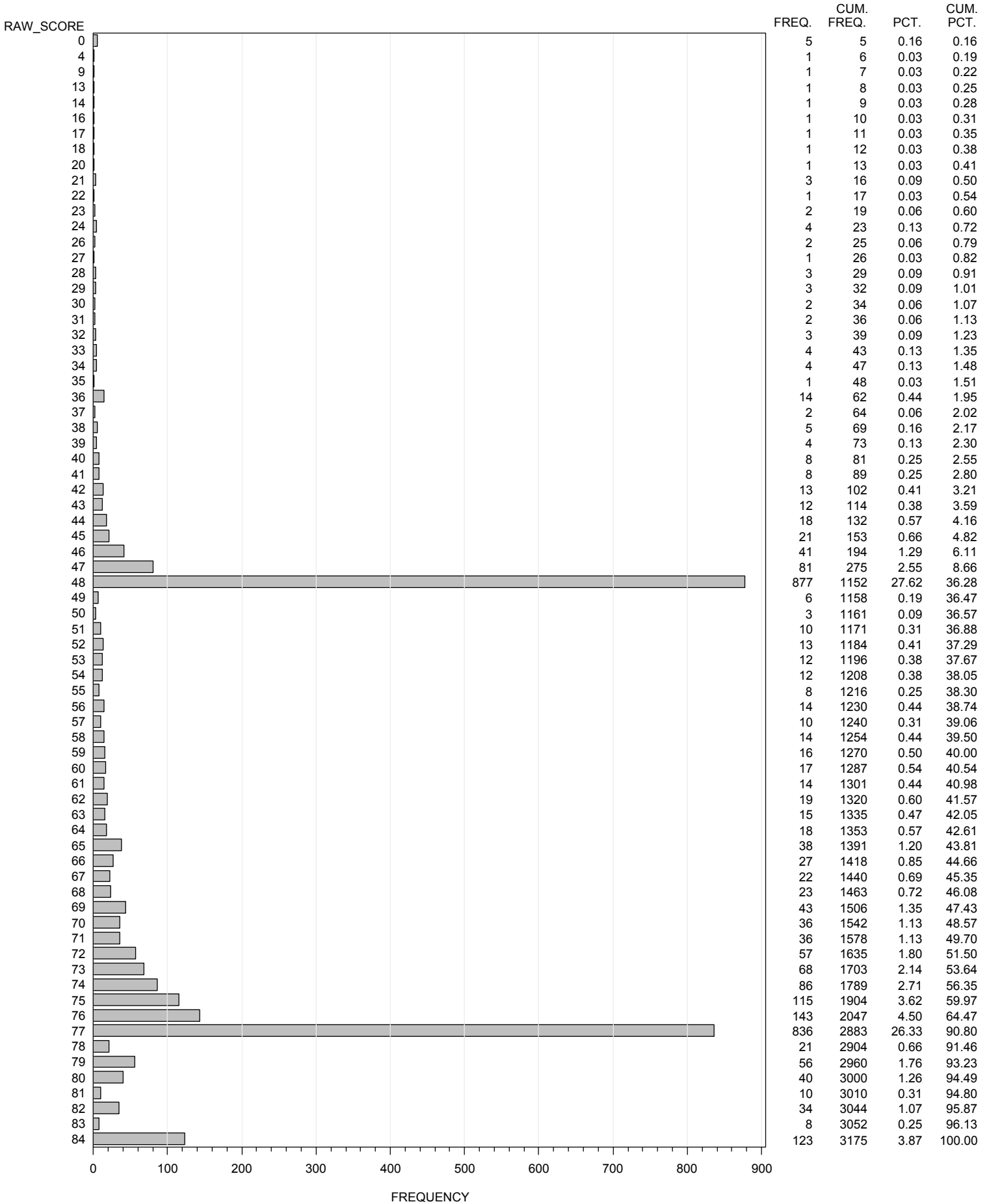
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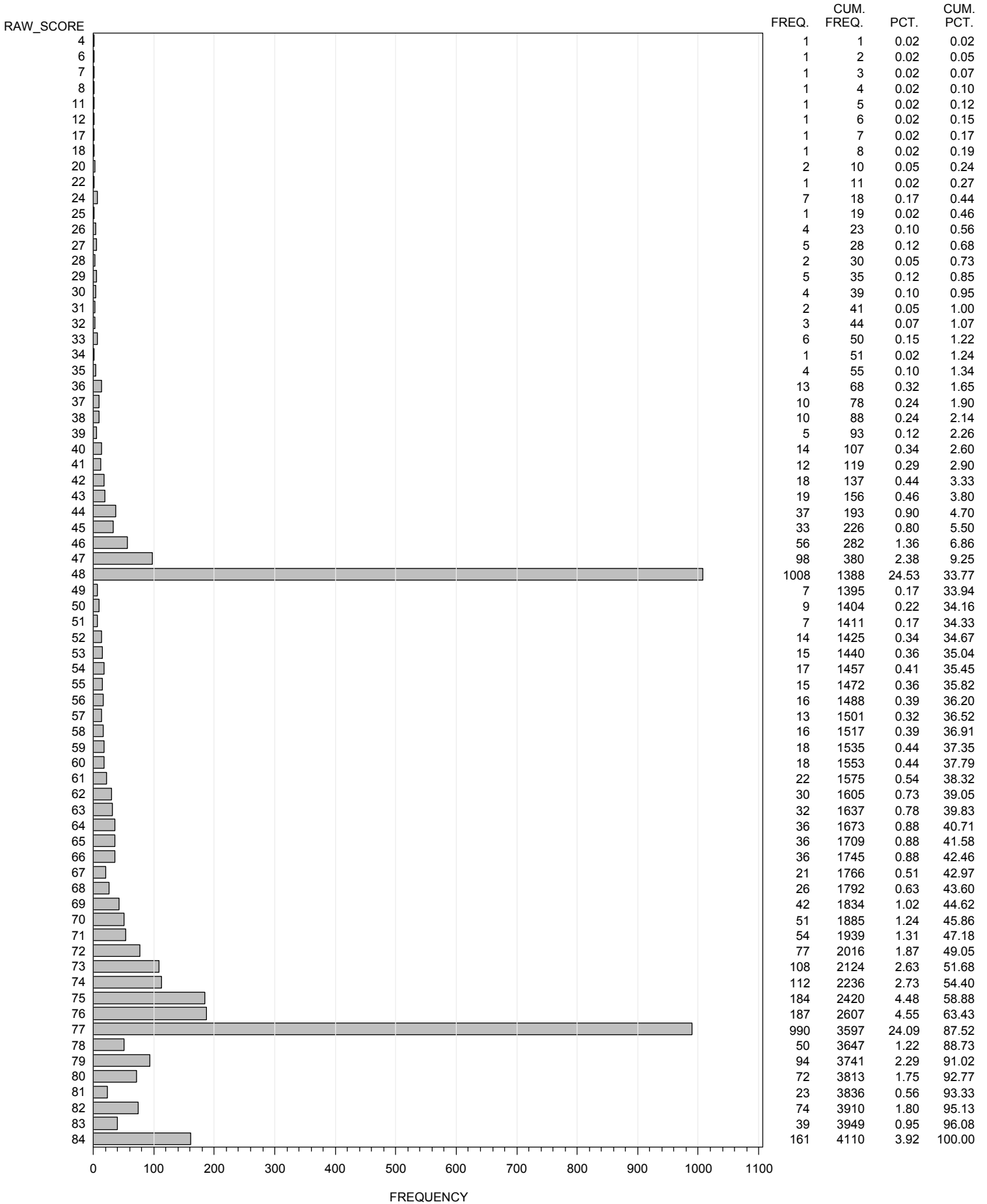
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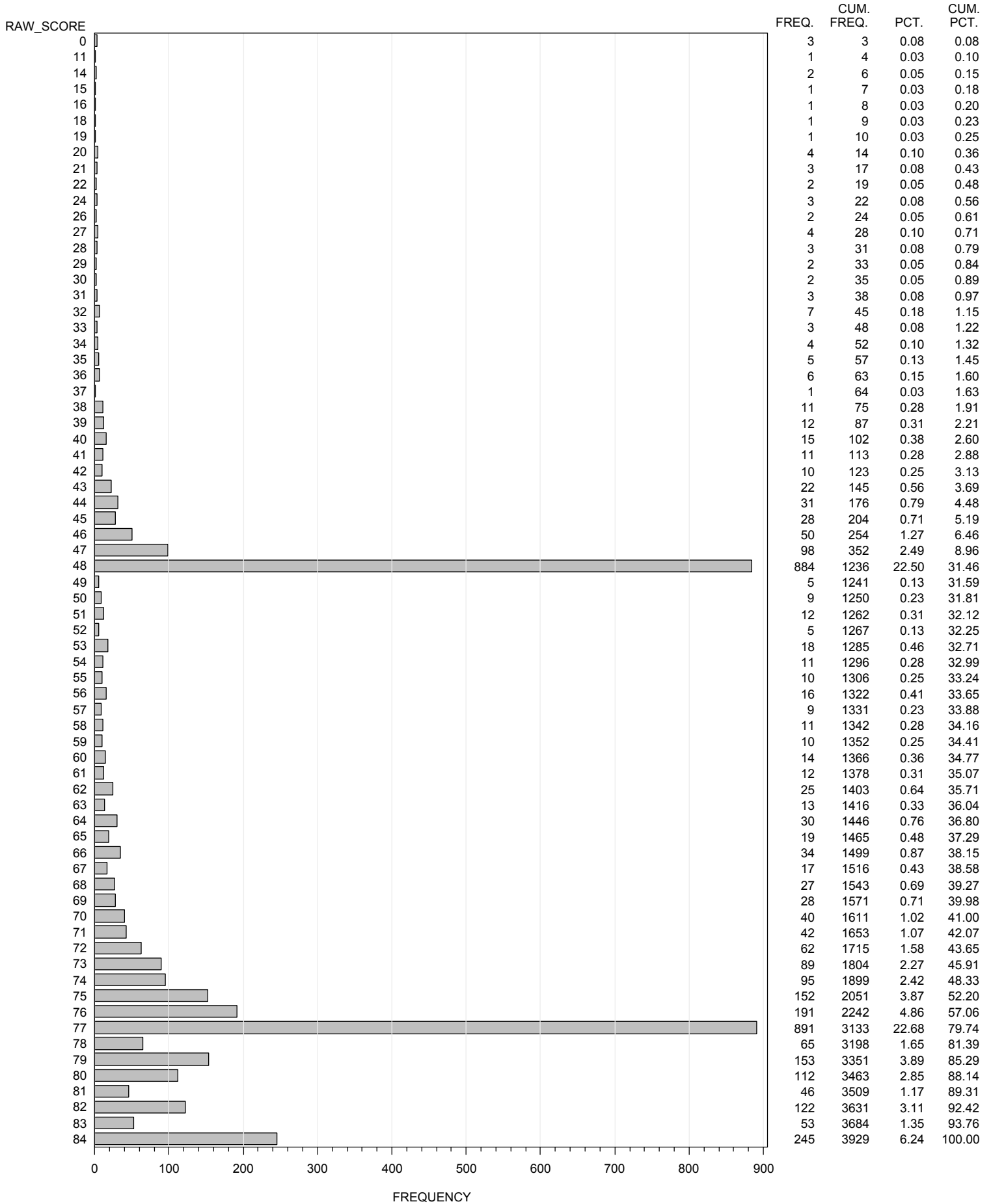
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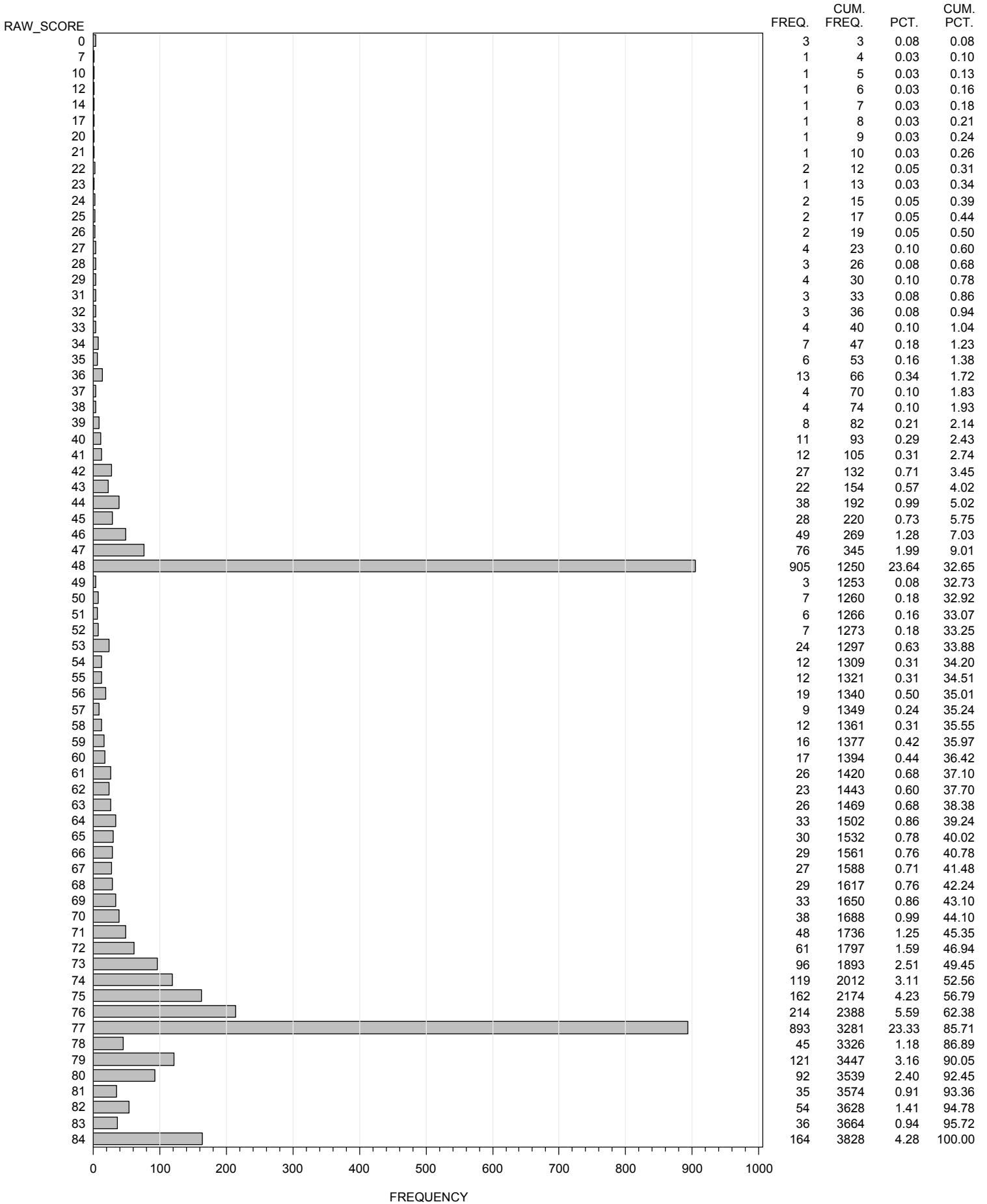
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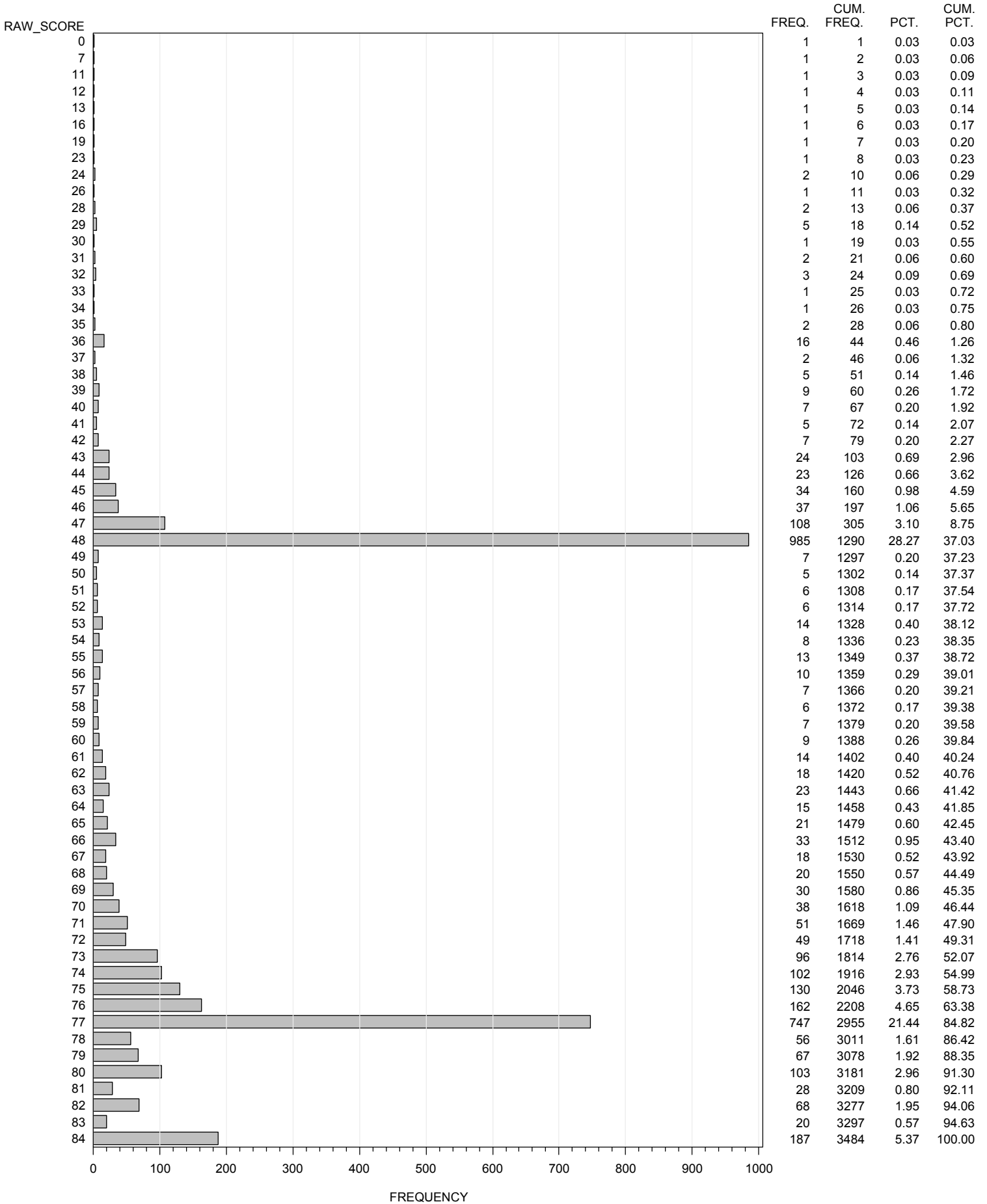
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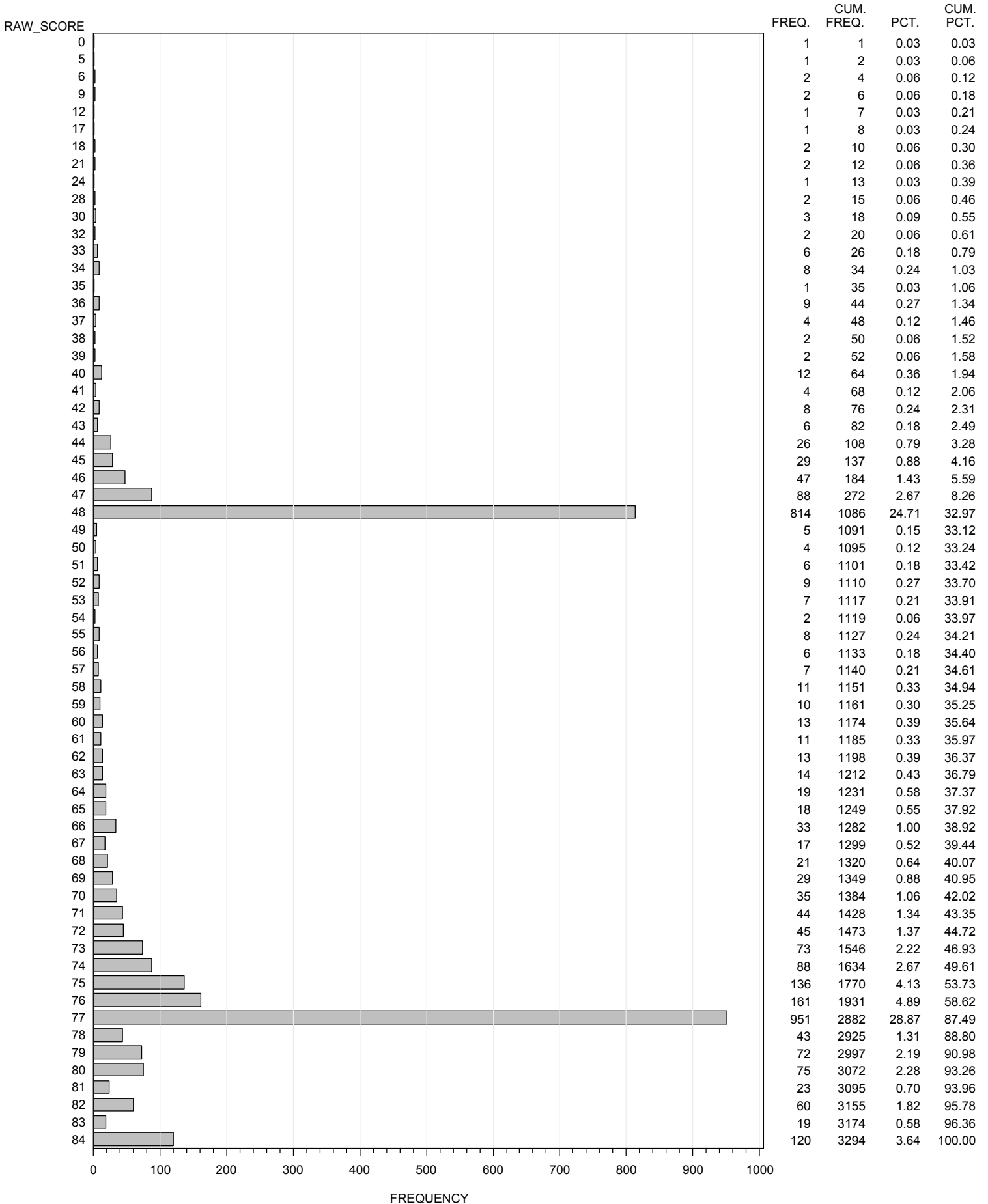
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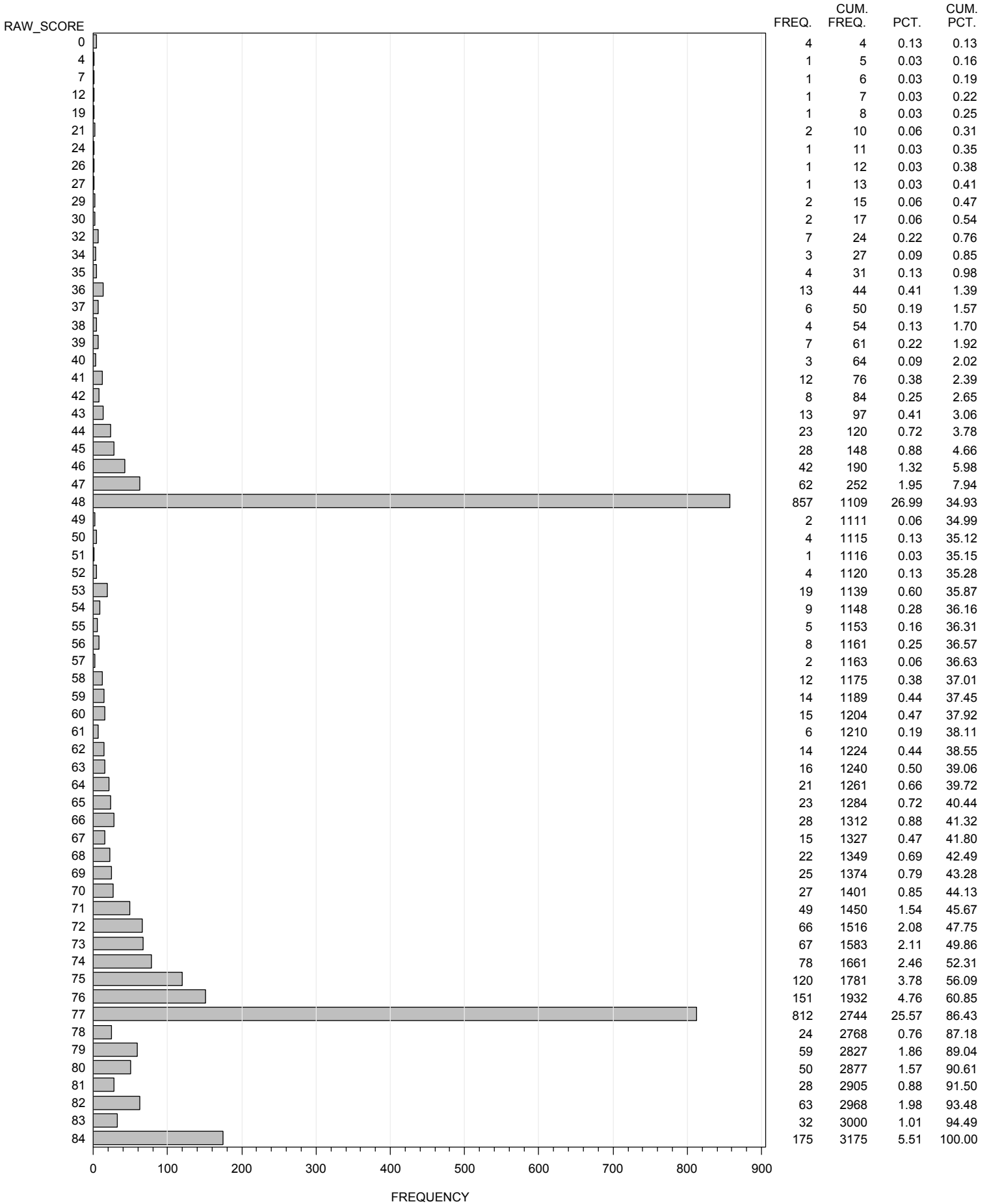
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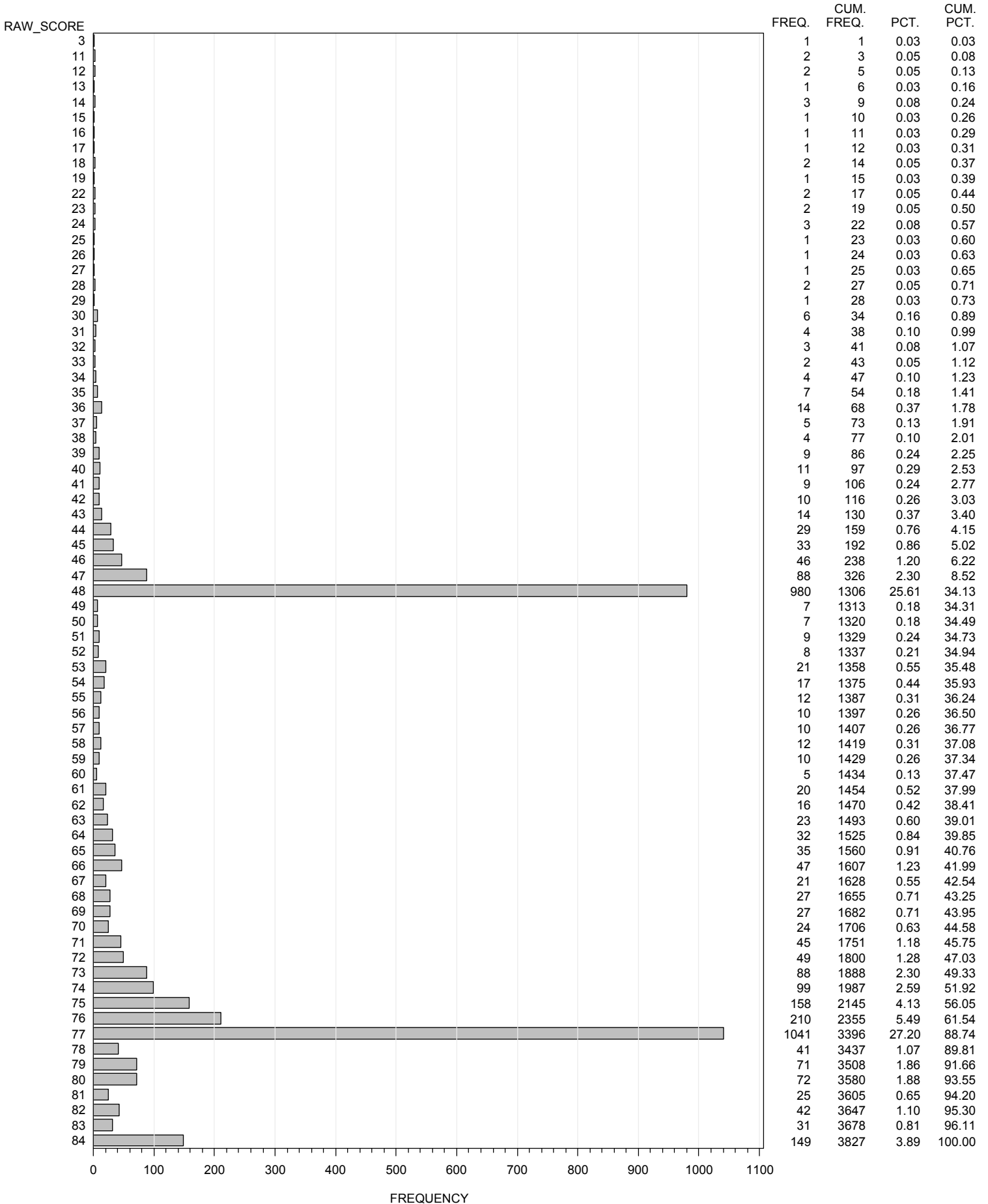
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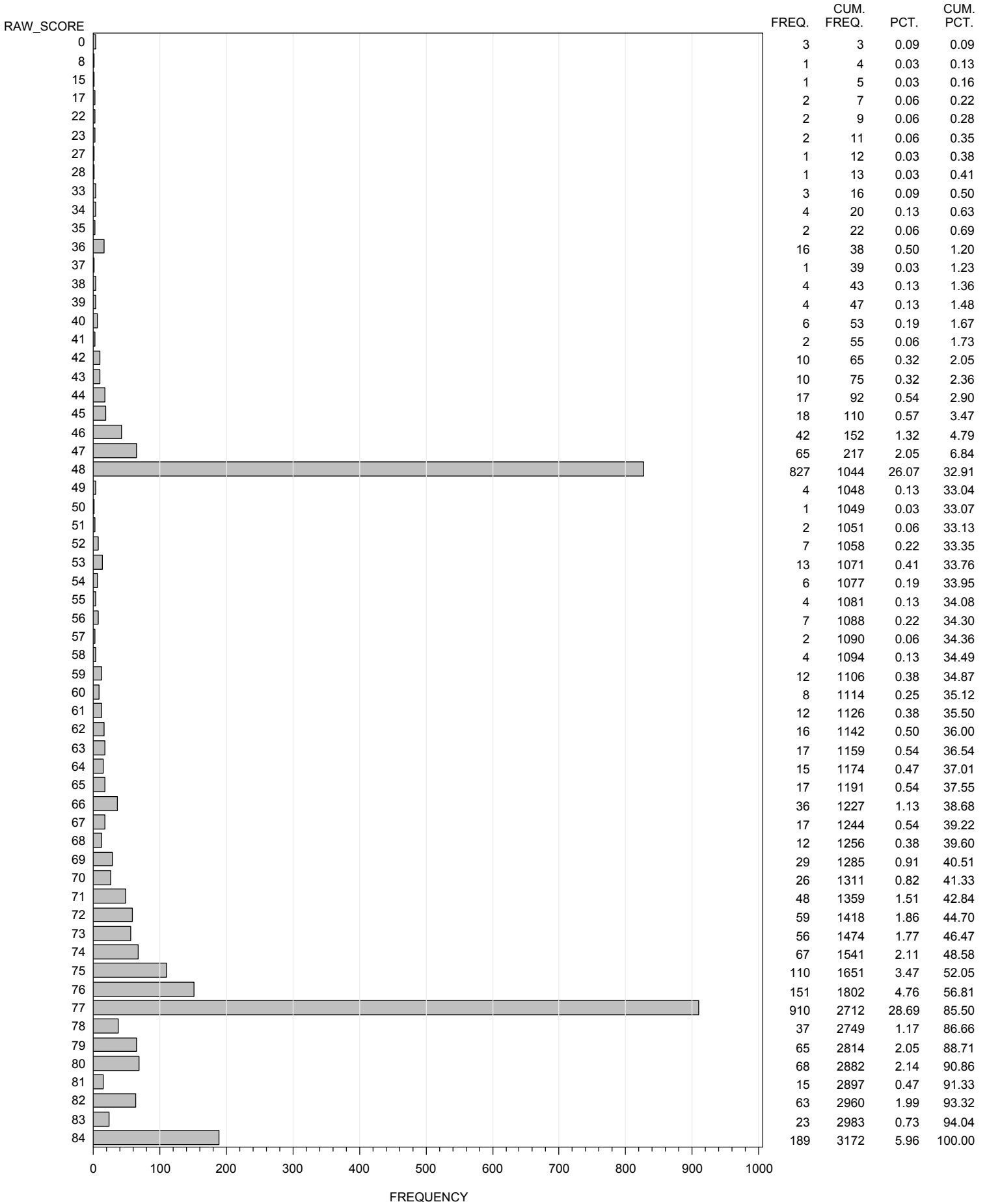
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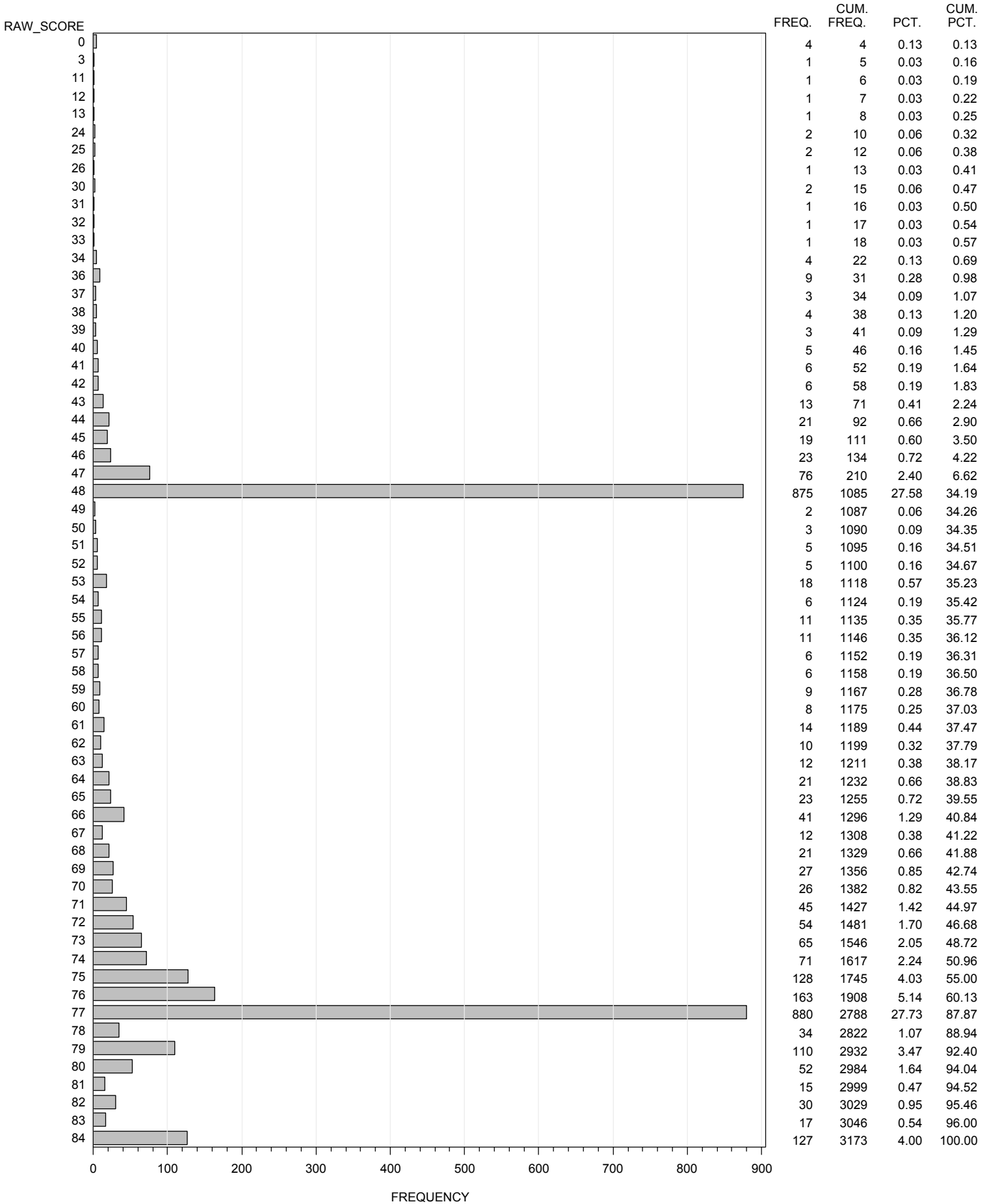
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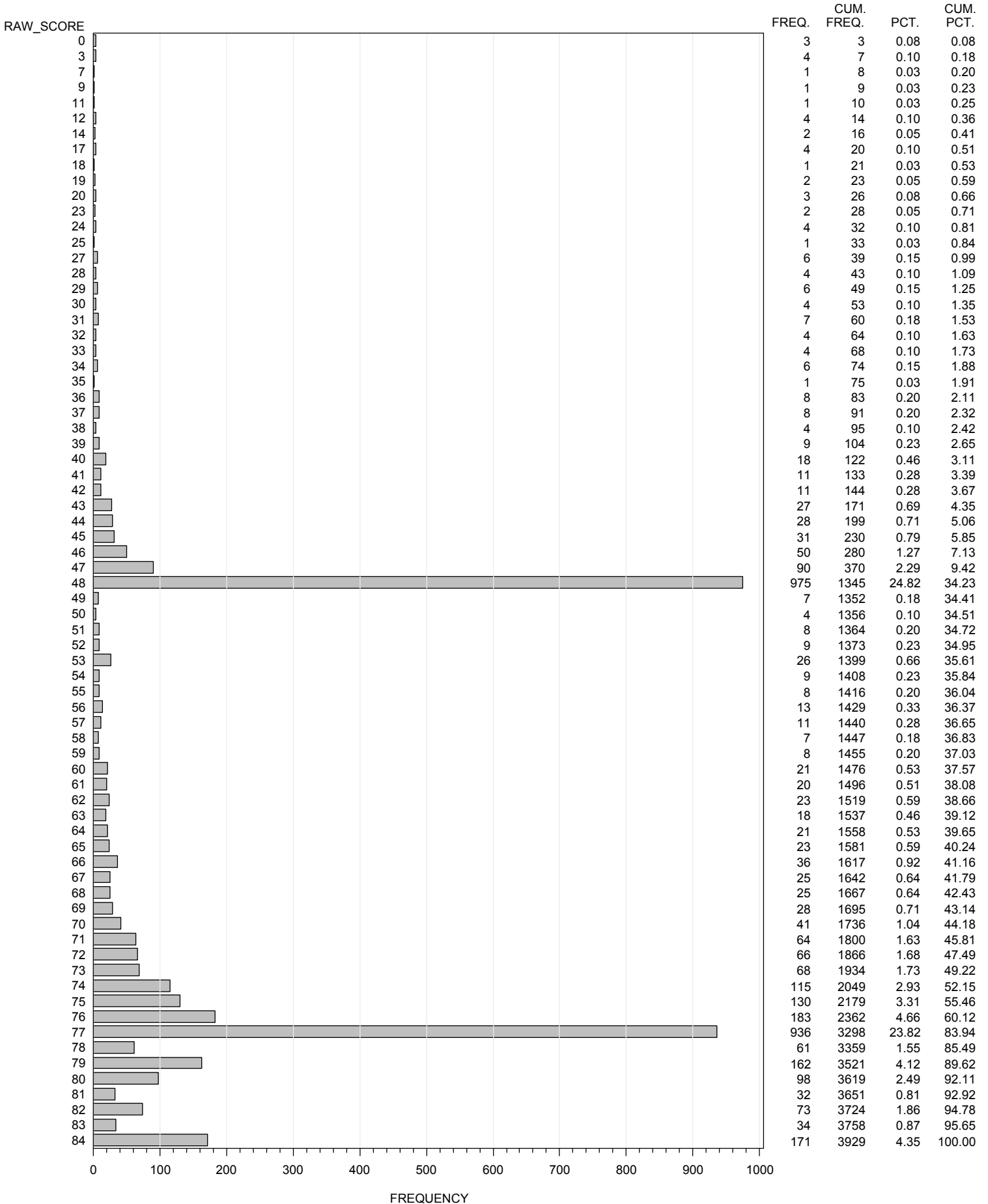
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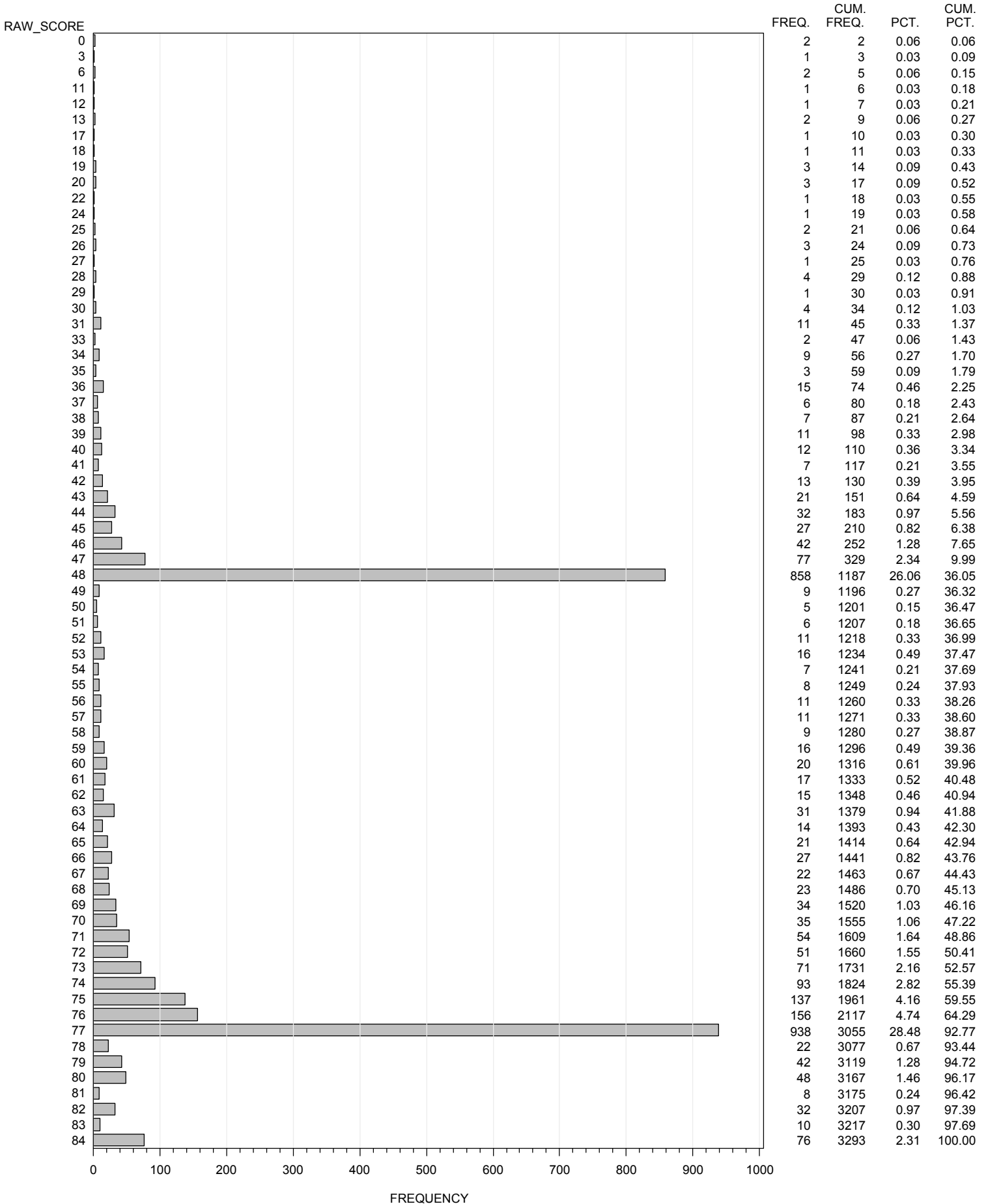
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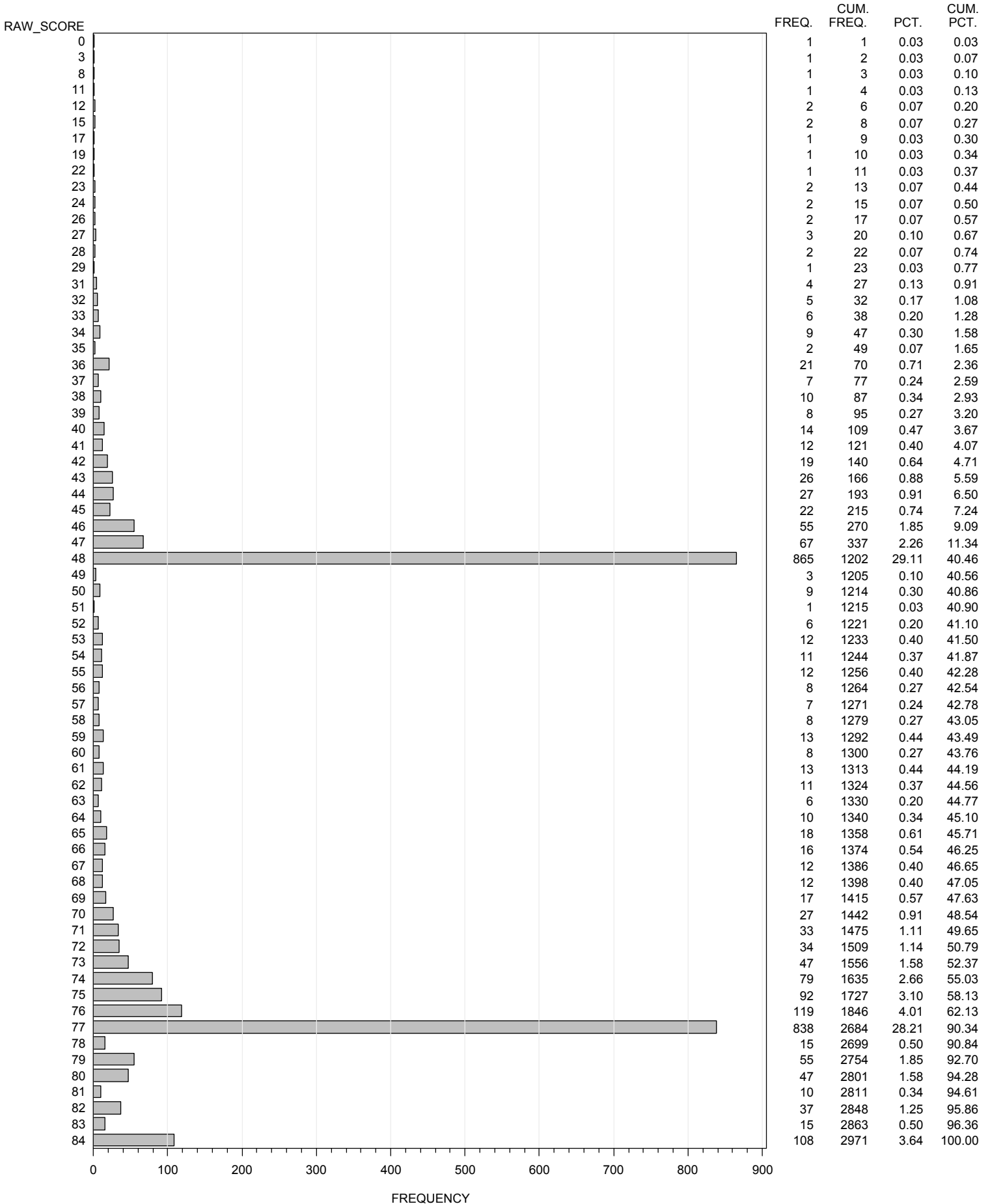
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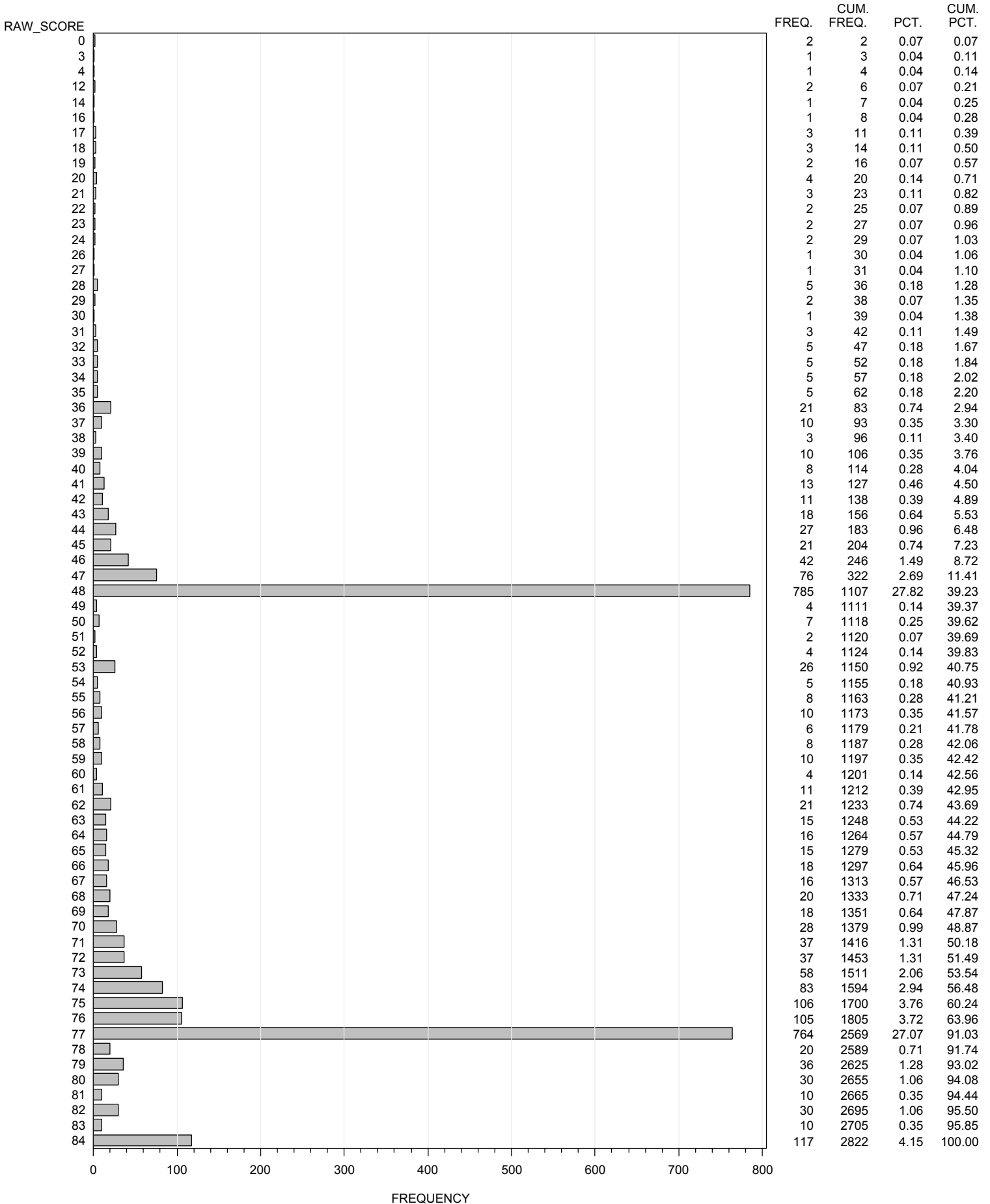
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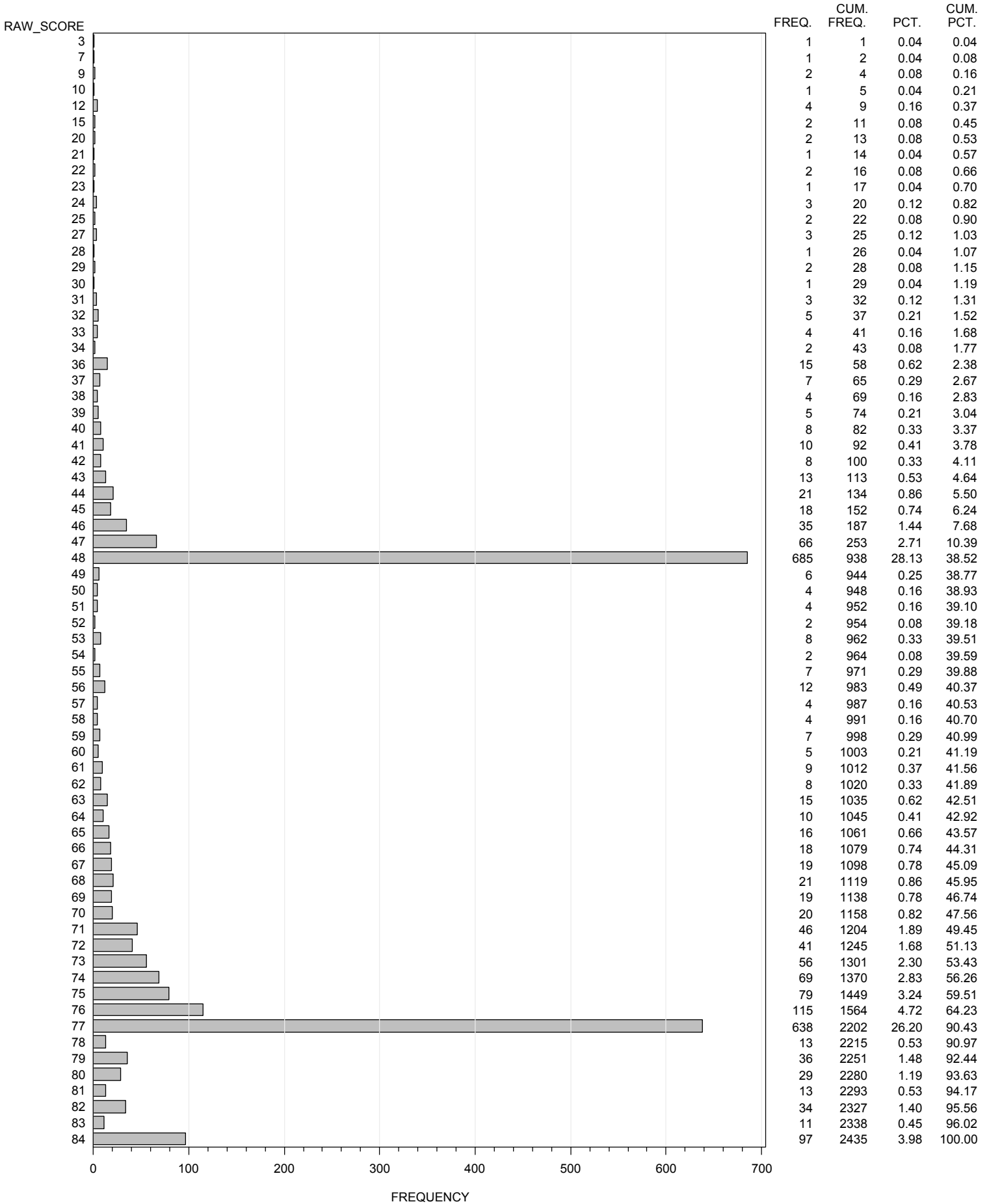
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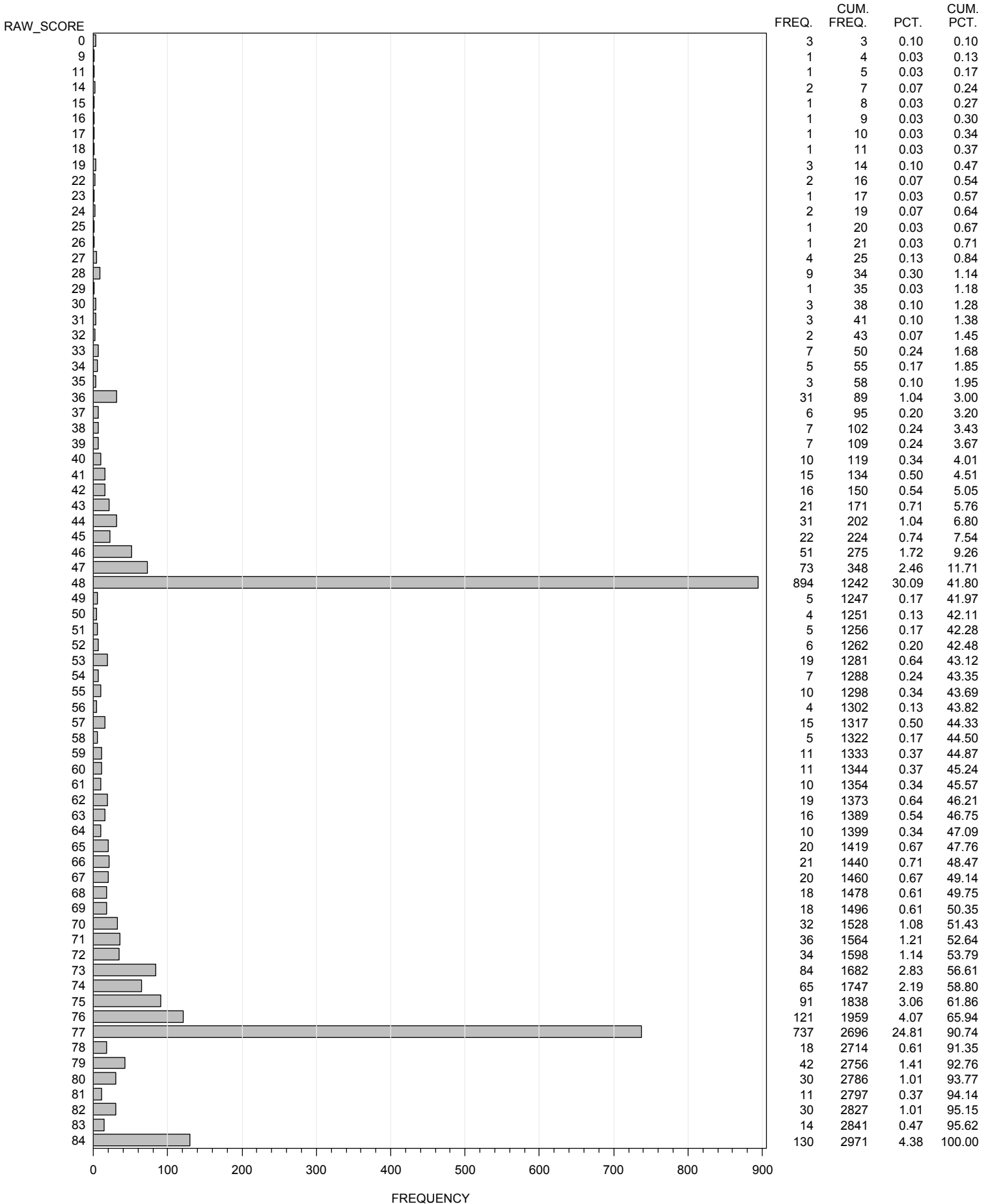
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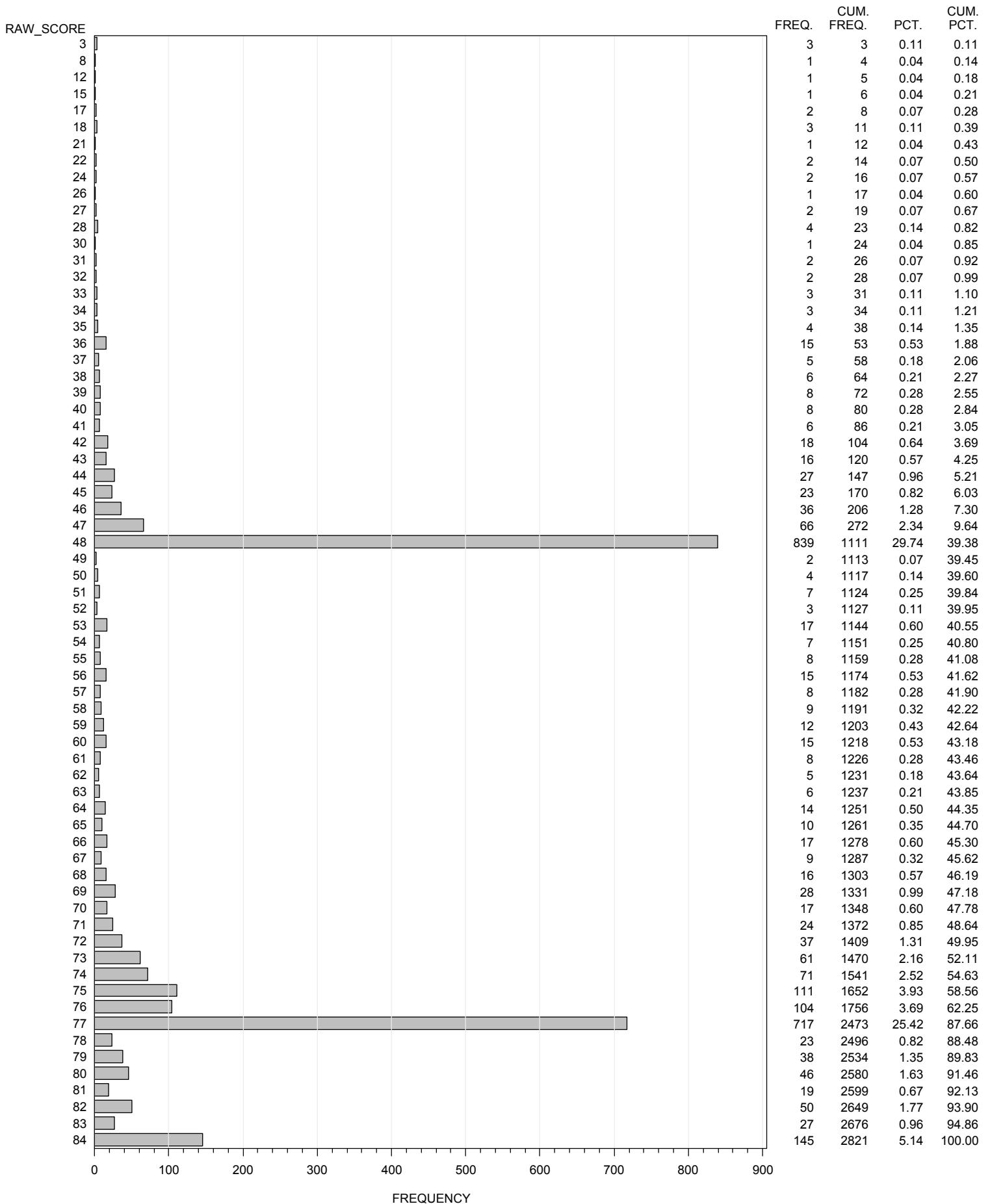
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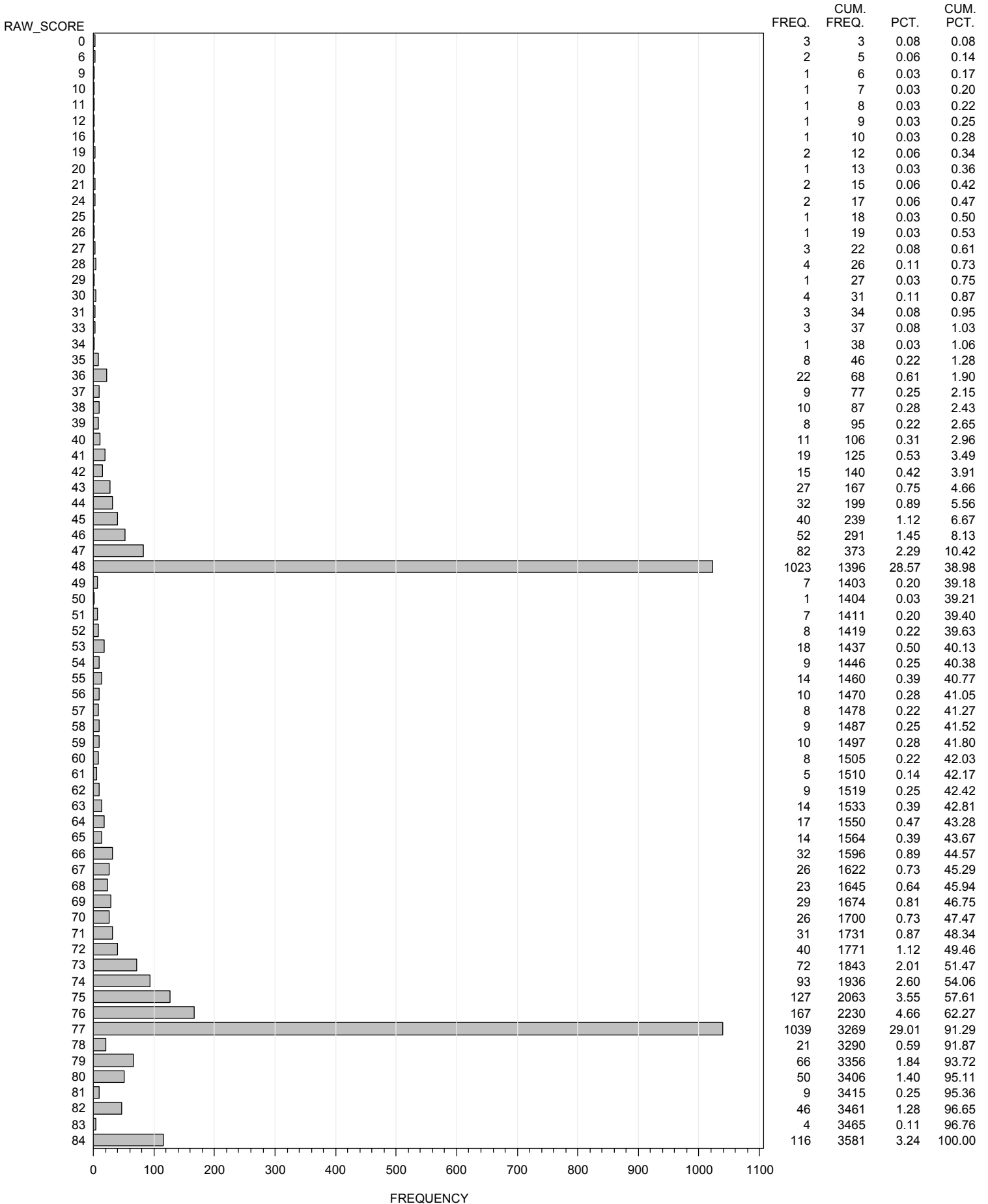
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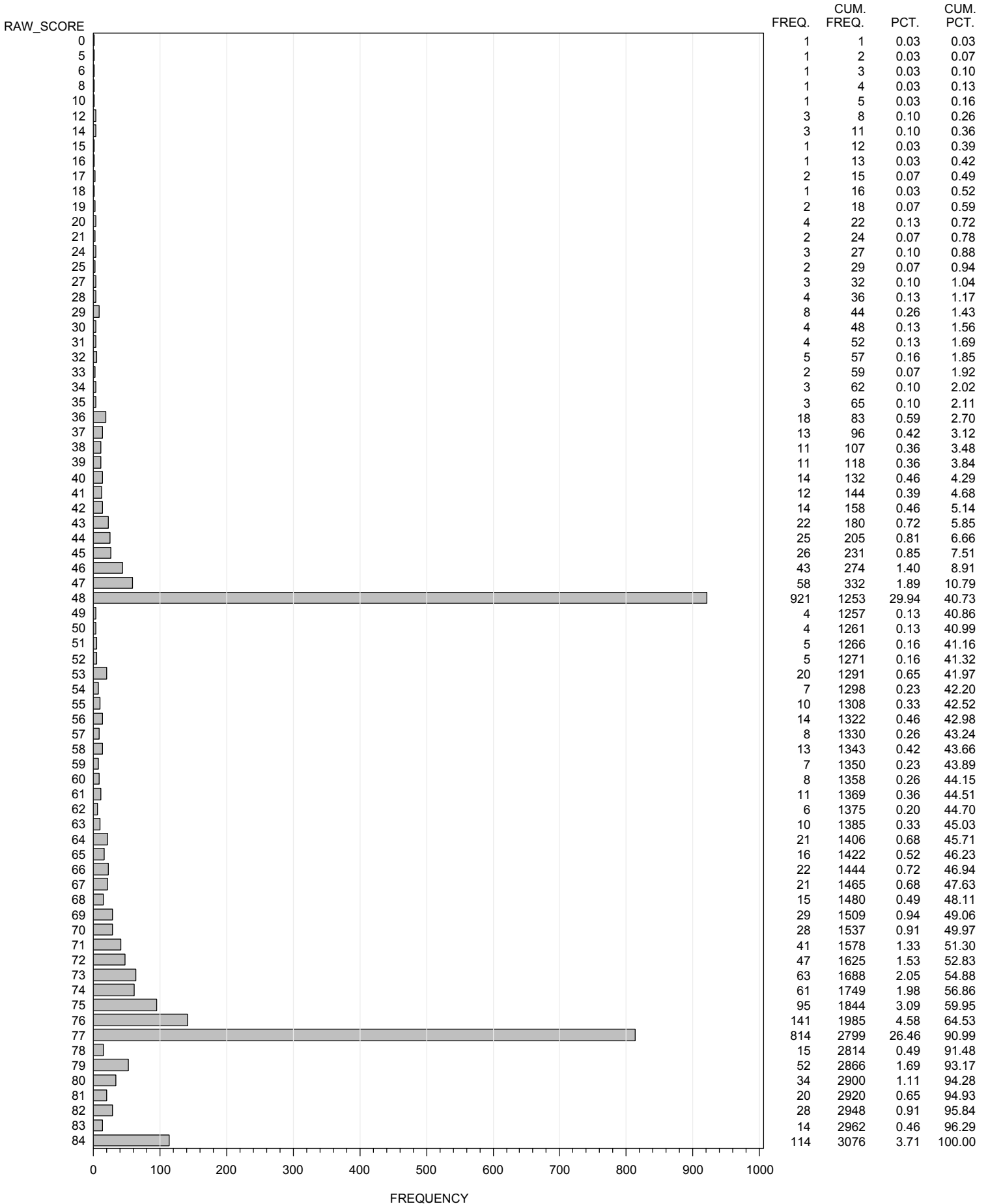
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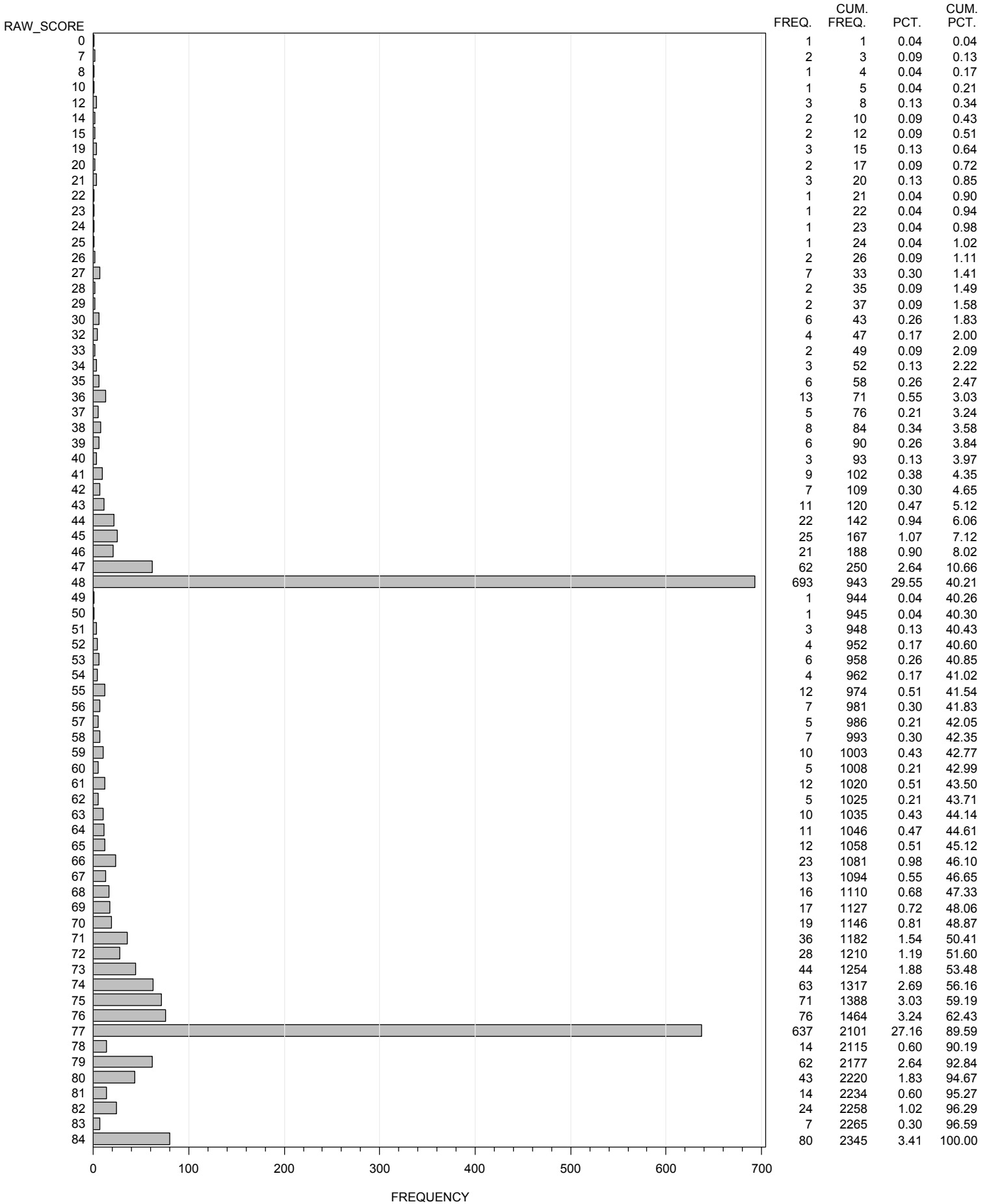
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