Weighted Scores Analysis

# Scenario 1: Mixed Rescaled Scores (Simple Avg = -0.0625)

## Easy Setting (k=1, x0=0.3) - Agg. Score: -0.289

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case A1 | Case A2 | Case A3 | Case A4 | SUMS |
| Score (s) | +1.0 | -0.5 | +0.25 | -1.0 |  |
| Weight Calc (Easy) | `1/(1+e^(1\*(1-0.3)))` | `1/(1+e^(1\*(-0.5-0.3)))` | `1/(1+e^(1\*(0.25-0.3)))` | `1/(1+e^(1\*(-1-0.3)))` |  |
| Weight (Easy) | 0.332 | 0.690 | 0.512 | 0.786 | 2.320 |
| Contrib. (Easy) | 0.332 | -0.345 | 0.128 | -0.786 | -0.671 |

## Medium Setting (k=2, x0=0) - Agg. Score: -0.490

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case A1 | Case A2 | Case A3 | Case A4 | SUMS |
| Score (s) | +1.0 | -0.5 | +0.25 | -1.0 |  |
| Weight Calc (Med) | `1/(1+e^(2\*(1-0)))` | `1/(1+e^(2\*(-0.5-0)))` | `1/(1+e^(2\*(0.25-0)))` | `1/(1+e^(2\*(-1-0)))` |  |
| Weight (Med) | 0.119 | 0.731 | 0.378 | 0.881 | 2.109 |
| Contrib. (Med) | 0.119 | -0.366 | 0.094 | -0.881 | -1.034 |

## Hard Setting (k=3, x0=0) - Agg. Score: -0.577

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case A1 | Case A2 | Case A3 | Case A4 | SUMS |
| Score (s) | +1.0 | -0.5 | +0.25 | -1.0 |  |
| Weight Calc (Hard) | `1/(1+e^(3\*(1-0)))` | `1/(1+e^(3\*(-0.5-0)))` | `1/(1+e^(3\*(0.25-0)))` | `1/(1+e^(3\*(-1-0)))` |  |
| Weight (Hard) | 0.047 | 0.818 | 0.321 | 0.952 | 2.138 |
| Contrib. (Hard) | 0.047 | -0.409 | 0.080 | -0.952 | -1.234 |

# Scenario 2: Mostly High Rescaled Scores (Simple Avg = +0.65)

## Easy Setting (k=1, x0=0.3) - Agg. Score: +0.537

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case B1 | Case B2 | Case B3 | Case B4 | SUMS |
| Score (s) | +1.0 | +0.8 | +0.9 | -0.1 |  |
| Weight Calc (Easy) | `1/(1+e^(1\*(1-0.3)))` | `1/(1+e^(1\*(0.8-0.3)))` | `1/(1+e^(1\*(0.9-0.3)))` | `1/(1+e^(1\*(-0.1-0.3)))` |  |
| Weight (Easy) | 0.332 | 0.378 | 0.354 | 0.599 | 1.663 |
| Contrib. (Easy) | 0.332 | 0.302 | 0.319 | -0.060 | 0.893 |

## Medium Setting (k=2, x0=0) - Agg. Score: +0.333

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case B1 | Case B2 | Case B3 | Case B4 | SUMS |
| Score (s) | +1.0 | +0.8 | +0.9 | -0.1 |  |
| Weight Calc (Med) | `1/(1+e^(2\*(1-0)))` | `1/(1+e^(2\*(0.8-0)))` | `1/(1+e^(2\*(0.9-0)))` | `1/(1+e^(2\*(-0.1-0)))` |  |
| Weight (Med) | 0.119 | 0.168 | 0.142 | 0.550 | 0.979 |
| Contrib. (Med) | 0.119 | 0.134 | 0.128 | -0.055 | 0.326 |

## Hard Setting (k=3, x0=0) - Agg. Score: +0.147

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case B1 | Case B2 | Case B3 | Case B4 | SUMS |
| Score (s) | +1.0 | +0.8 | +0.9 | -0.1 |  |
| Weight Calc (Hard) | `1/(1+e^(3\*(1-0)))` | `1/(1+e^(3\*(0.8-0)))` | `1/(1+e^(3\*(0.9-0)))` | `1/(1+e^(3\*(-0.1-0)))` |  |
| Weight (Hard) | 0.047 | 0.083 | 0.063 | 0.574 | 0.767 |
| Contrib. (Hard) | 0.047 | 0.066 | 0.057 | -0.057 | 0.113 |

# Scenario 3: Mostly Low Rescaled Scores (Simple Avg = -0.65)

## Easy Setting (k=1, x0=0.3) - Agg. Score: -0.738

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case C1 | Case C2 | Case C3 | Case C4 | SUMS |
| Score (s) | -0.8 | -0.9 | -1.0 | +0.1 |  |
| Weight Calc (Easy) | `1/(1+e^(1\*(-0.8-0.3)))` | `1/(1+e^(1\*(-0.9-0.3)))` | `1/(1+e^(1\*(-1-0.3)))` | `1/(1+e^(1\*(0.1-0.3)))` |  |
| Weight (Easy) | 0.750 | 0.768 | 0.786 | 0.450 | 2.754 |
| Contrib. (Easy) | -0.600 | -0.691 | -0.786 | 0.045 | -2.032 |

## Medium Setting (k=2, x0=0) - Agg. Score: -0.753

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case C1 | Case C2 | Case C3 | Case C4 | SUMS |
| Score (s) | -0.8 | -0.9 | -1.0 | +0.1 |  |
| Weight Calc (Med) | `1/(1+e^(2\*(-0.8-0)))` | `1/(1+e^(2\*(-0.9-0)))` | `1/(1+e^(2\*(-1-0)))` | `1/(1+e^(2\*(0.1-0)))` |  |
| Weight (Med) | 0.832 | 0.858 | 0.881 | 0.450 | 3.021 |
| Contrib. (Med) | -0.666 | -0.772 | -0.881 | 0.045 | -2.274 |

## Hard Setting (k=3, x0=0) - Agg. Score: -0.769

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Field | Case C1 | Case C2 | Case C3 | Case C4 | SUMS |
| Score (s) | -0.8 | -0.9 | -1.0 | +0.1 |  |
| Weight Calc (Hard) | `1/(1+e^(3\*(-0.8-0)))` | `1/(1+e^(3\*(-0.9-0)))` | `1/(1+e^(3\*(-1-0)))` | `1/(1+e^(3\*(0.1-0)))` |  |
| Weight (Hard) | 0.917 | 0.937 | 0.952 | 0.426 | 3.232 |
| Contrib. (Hard) | -0.734 | -0.843 | -0.952 | 0.043 | -2.486 |