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|---------|---------------------------------------|---|--|--|--|--|
| Inputs | | | | | | |
| | -7.19863 | 0 | | | | |
| | -1.46999 | 1 | | | | |
| | -4.17069 | 2 | | | | |
| | -7.37683 | 3 | | | | |
| | -4.69943 | 4 | | | | |
| Outputs | $Z := excel_{\text{"Sheet1!A2:B62"}}$ | | | | | |

$$E_{ref} := 0$$

$$Lo_{match} := match(E_{ref}, Z, "gt") \qquad Hi_{match} := match(E_{ref}, Z, "lt")$$

$$\begin{aligned} \text{rows}(Lo_{match}) &= 73 & \text{rows}(Hi_{match}) &= 48 \\ \frac{\text{rows}(Lo_{match})}{\text{rows}(Z)} &= 1.197 & \frac{\text{rows}(Hi_{match})}{\text{rows}(Z)} &= 0.787 \end{aligned}$$

How do you get more matches than you have data points?

$$N_{pts} := \frac{48 \text{ hr}}{1 \text{ sec}} = 1.728 \cdot 10^5, \text{ but from your PDF:}$$

| | |
|--|--|
| $Lo_{match} := match(E_{ref}, Z, "gt")$ | $Hi_{match} := match(E_{ref}, Z, "lt")$ |
| $Lo_{count} := \text{rows}(Lo_{match}) = 3.208 \cdot 10^5$ | $Hi_{count} := \text{rows}(Hi_{match}) = 2.659 \cdot 10^5$ |

Match only first column ("actual data", not time)

$$Lo_{match} := match(E_{ref}, Z^{(0)}, "gt") \qquad Hi_{match} := match(E_{ref}, Z^{(0)}, "lt")$$

$$\begin{aligned} \text{rows}(Lo_{match}) &= 13 & \text{rows}(Hi_{match}) &= 48 \\ \frac{\text{rows}(Lo_{match})}{\text{rows}(Z)} &= 21.311\% & \frac{\text{rows}(Hi_{match})}{\text{rows}(Z)} &= 78.689\% \end{aligned}$$

$$.21311 + .78689 = 100\%$$

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DEX(V,ref) :=
  j ← 0
  flag ← 0
  for i ∈ 0 .. rows(V) - 1
    if (Vi < ref) ∧ flag = 0
      dxj,0 ← i
      flag ← 1
    also if (Vi ≥ ref) ∧ flag = 1
      dxj,1 ← i
      j ← j + 1
      flag ← 0
  return dx

```

```

dx := DEX(Z(0), Eref) =
  [ 0  8 ]
  [ 9 10 ]
  [11 14 ]
  [16 17 ]
  [18 19 ]
  [20 21 ]
  [22 37 ]
  [39 41 ]
  [42 49 ]
  [50 54 ]
  [55 59 ]
  [60  0 ]

```

$i := 0 \dots \text{rows}(dx) - 1$

$len_i := dx_{i,1} - dx_{i,0}$

$maxLo := \max(len) = 15$

$T_{max} := maxLo \cdot sec = 15 \text{ sec}$

$len =$

```

  [ 8 ]
  [ 1 ]
  [ 3 ]
  [ 1 ]
  [ 1 ]
  [ 1 ]
  [15 ]
  [ 2 ]
  [ 7 ]
  [ 4 ]
  [ 4 ]
  [-60]

```