Cálculo de Cantidades y Arreglo de Grafos:

Matrices Reales con Threshold (1 = 0.7, 2 = 0.8, 3 = 0.9)

In[1955]:= **MEX1** =

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\begin{pmatrix}
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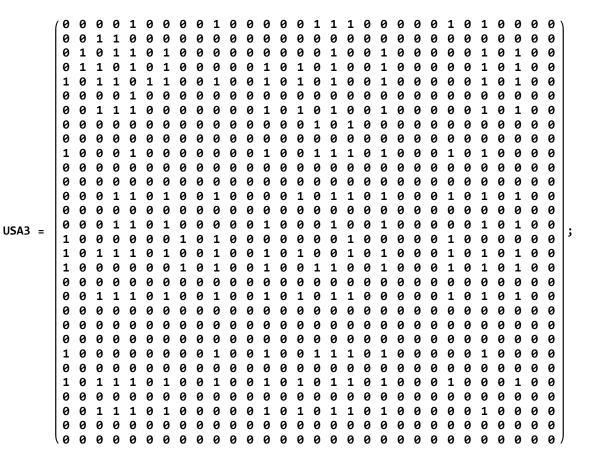\end{pmatrix} ;
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1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 1 \\
1 & 1 & 1 & 1 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
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0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 1 \\
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 1 & 1 \\
0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 \\
0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 & 1 \\
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 \\
0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 \\
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 0 & 1 \\
0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 0 & 0 & 1 & 1 & 0 \\
0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 1 & 1 & 1 \\
1 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 & 1 & 0 & 1 & 1 & 0 & 1 & 0 \\
1 & 0 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 \\
0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0
\end{pmatrix};
$$

$$
\text{USAe2} =
\begin{pmatrix}
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&1&1&1&0&0&1&1&0&1&1&1&1&1&0&1&1&1&1&1&1&1&1&1&0&1&0&0&1\\
0&1&0&1&0&1&0&1&1&0&1&1&0&1&0&1&0&0&1&1&1&1&1&1&1&0&0&0&0&1\\
0&1&1&0&1&1&1&1&1&0&1&1&0&1&1&1&1&1&1&1&1&1&1&1&1&0&1&0&0&1\\
0&1&0&1&0&1&0&0&0&0&0&1&1&0&0&0&1&0&0&1&0&0&0&0&0&0&0&0&0&1\\
0&0&1&1&1&0&0&1&1&0&0&1&0&0&0&1&0&1&1&1&1&1&1&0&0&0&1&0&0&1\\
0&0&0&1&0&0&0&1&0&0&0&1&1&1&0&0&0&0&1&0&1&1&0&1&0&0&1&0&1&1\\
0&1&1&1&0&1&1&0&1&1&1&1&0&1&1&1&0&1&1&1&1&1&1&1&1&0&1&0&1&1\\
0&1&1&1&0&1&0&1&0&0&1&0&0&1&0&0&0&0&0&0&0&0&1&1&1&0&0&0&0&0\\
0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&1&0&0&0&0&1&0&0&0&1&1&0&1&0\\
0&1&1&1&0&0&0&1&1&0&0&0&0&1&0&1&0&1&0&1&1&1&0&1&1&0&0&0&0&1\\
0&1&1&1&1&1&1&1&0&0&0&0&1&1&1&1&0&1&1&1&1&1&1&1&1&0&1&0&1&1\\
0&1&0&0&1&0&1&0&0&0&0&1&0&0&0&0&1&0&1&0&0&0&0&0&0&0&0&0&0&0\\
0&1&1&1&0&0&1&1&1&0&1&1&0&0&1&0&0&1&1&1&1&1&1&1&1&0&1&0&0&1\\
0&1&0&1&0&0&0&1&0&0&0&1&0&1&0&0&0&0&1&0&0&0&1&1&0&0&1&0&0&1\\
0&0&1&1&0&1&0&1&0&0&1&1&0&0&0&0&1&0&1&1&1&1&1&1&1&0&1&1&0&1\\
0&1&0&1&1&0&0&0&0&1&0&0&1&0&0&1&0&0&1&0&0&0&0&0&0&0&0&1&0&0\\
0&1&0&1&0&1&0&1&0&0&1&1&0&1&0&0&0&0&1&0&1&0&1&1&1&0&0&0&0&1\\
0&1&1&1&0&1&1&1&0&0&0&1&1&1&1&1&1&1&0&1&1&1&1&1&1&0&0&0&0&1\\
0&1&1&1&1&1&0&1&0&0&1&1&0&1&0&1&0&0&1&0&1&1&1&1&1&0&1&0&0&1\\
0&1&1&1&0&1&1&1&0&0&1&1&0&1&0&1&0&1&1&1&0&1&1&1&1&0&1&0&0&1\\
0&1&1&1&0&1&1&1&0&1&1&1&0&1&0&1&0&0&1&1&1&0&1&1&1&0&1&0&1&1\\
0&1&1&1&0&1&0&1&1&0&1&1&0&1&1&1&0&1&1&1&1&1&0&1&1&0&1&0&1&1\\
0&1&1&1&0&0&1&1&1&0&1&1&0&1&1&1&0&1&1&1&1&1&1&0&1&0&1&0&0&1\\
0&1&1&1&0&0&0&1&1&0&1&1&0&1&0&1&0&1&1&1&1&1&1&1&0&0&0&0&0&1\\
0&0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&1&0&1&0&1&1&1&0&1&0&1&0&1&1&1&0&0&0&1&1&1&1&0&0&0&0&1&1&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&1&1&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&1&1&0&1&0&1&0&0&0&0&0&0&0&0&1&1&0&0&0&1&0&0&1\\
0&1&1&1&1&1&1&1&1&0&0&1&1&0&1&1&1&0&1&1&1&1&1&1&1&1&0&1&0&1&0
\end{pmatrix}
;
$$

$$USAe3 = \begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 1 \\
0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 1 \\
0 & 1 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 1 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 0 & 1 & 0 & 1 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 0
\end{pmatrix} ;$$

■ Para las matrices reales:

Matrices Mexicanas

In[2071]:=
```
Tally[Flatten[MEX1]]
Tally[Flatten[MEX2]]
Tally[Flatten[MEX3]]
```

Out[2071]= {{0, 760}, {1, 140}}

Out[2072]= {{0, 842}, {1, 58}}

Out[2073]= {{0, 892}, {1, 8}}

In[2121]:= **probMEX1 = {760 - 30, 140}**
probMEX2 = {842 - 30, 58}
probMEX3 = {892 - 30, 8}

Out[2121]= {730, 140}

Out[2122]= {812, 58}

Out[2123]= {862, 8}

In[2124]:= **Total[probMEX1]**
Total[probMEX2]
Total[probMEX3]

Out[2124]= 870

Out[2125]= 870

Out[2126]= 870

In[2127]:= **probnormMEX1 = probMEX1 / Total[probMEX1]**
probnormMEX2 = probMEX2 / Total[probMEX2]
probnormMEX3 = probMEX3 / Total[probMEX3]

Out[2127]= $\left\{\dfrac{73}{87}, \dfrac{14}{87}\right\}$

Out[2128]= $\left\{\dfrac{14}{15}, \dfrac{1}{15}\right\}$

Out[2129]= $\left\{\dfrac{431}{435}, \dfrac{4}{435}\right\}$

In[2130]:= **HMEX1 = N$\left[-\sum_{i=1}^{2}$ probnormMEX1[[i]] Log[2, probnormMEX1[[i]]]$\right]$**

Out[2130]= 0.636505

In[2131]:= **HMEX2 = N$\left[-\sum_{i=1}^{2}$ probnormMEX2[[i]] Log[2, probnormMEX2[[i]]]$\right]$**

Out[2131]= 0.353359

In[2132]:= **HMEX3 = N$\left[-\sum_{i=1}^{2}$ probnormMEX3[[i]] Log[2, probnormMEX3[[i]]]$\right]$**

Out[2132]= 0.0754107

Matrices Estadounidenses

In[2133]:= **Tally[Flatten[USA1]]**
Tally[Flatten[USA2]]
Tally[Flatten[USA3]]

Out[2133]= $\{\{0, 424\}, \{1, 476\}\}$

Out[2134]= $\{\{0, 552\}, \{1, 348\}\}$

Out[2135]= $\{\{0, 750\}, \{1, 150\}\}$

In[2136]:= **probUSA1 = {424 - 30, 476}**
probUSA2 = {552 - 30, 348}
probUSA3 = {750 - 30, 150}

Out[2136]= $\{394, 476\}$

Out[2137]= $\{522, 348\}$

Out[2138]= $\{720, 150\}$

In[2139]:= **Total[probUSA1]**
Total[probUSA2]
Total[probUSA3]

Out[2139]= 870

Out[2140]= 870

Out[2141]= 870

In[2142]:= **probnormUSA1 = probUSA1 / Total[probUSA1]**
probnormUSA2 = probUSA2 / Total[probUSA2]
probnormUSA3 = probUSA3 / Total[probUSA3]

Out[2142]= $\left\{ \dfrac{197}{435}, \dfrac{238}{435} \right\}$

Out[2143]= $\left\{ \dfrac{3}{5}, \dfrac{2}{5} \right\}$

Out[2144]= $\left\{ \dfrac{24}{29}, \dfrac{5}{29} \right\}$

In[2145]:= `HUSA1 = N[-`$\sum_{i=1}^{2}$`probnormUSA1[[i]] Log[2, probnormUSA1[[i]]]]`

`HUSA2 = N[-`$\sum_{i=1}^{2}$`probnormUSA2[[i]] Log[2, probnormUSA2[[i]]]]`

`HUSA3 = N[-`$\sum_{i=1}^{2}$`probnormUSA3[[i]] Log[2, probnormUSA3[[i]]]]`

Out[2145]= 0.993582

Out[2146]= 0.970951

Out[2147]= 0.663197

Matrices Mexicanas Evolucionadas

In[2118]:= `Tally[Flatten[MEXe1]]`
`Tally[Flatten[MEXe2]]`
`Tally[Flatten[MEXe3]]`

Out[2118]= {{0, 410}, {1, 490}}

Out[2119]= {{0, 690}, {1, 210}}

Out[2120]= {{0, 836}, {1, 64}}

In[2148]:= `probMEXe1 = {410 - 30, 490}`
`probMEXe2 = {690 - 30, 210}`
`probMEXe3 = {836 - 30, 64}`

Out[2148]= {380, 490}

Out[2149]= {660, 210}

Out[2150]= {806, 64}

In[2151]:= `Total[probMEXe1]`
`Total[probMEXe2]`
`Total[probMEXe3]`

Out[2151]= 870

Out[2152]= 870

Out[2153]= 870

In[2154]:= `probnormMEXe1 = probMEXe1 / Total[probMEXe1]`
`probnormMEXe2 = probMEXe2 / Total[probMEXe2]`
`probnormMEXe3 = probMEXe3 / Total[probMEXe3]`

Out[2154]= $\left\{\dfrac{38}{87}, \dfrac{49}{87}\right\}$

Out[2155]= $\left\{\dfrac{22}{29}, \dfrac{7}{29}\right\}$

Out[2156]= $\left\{\dfrac{403}{435}, \dfrac{32}{435}\right\}$

In[2157]:= `HMEXe1 = N`$\left[-\sum_{i=1}^{2}\right.$`probnormMEXe1[[i]] Log[2, probnormMEXe1[[i]]]`$\left.\right]$

`HMEXe2 = N`$\left[-\sum_{i=1}^{2}\right.$`probnormMEXe2[[i]] Log[2, probnormMEXe2[[i]]]`$\left.\right]$

`HMEXe3 = N`$\left[-\sum_{i=1}^{2}\right.$`probnormMEXe3[[i]] Log[2, probnormMEXe3[[i]]]`$\left.\right]$

Out[2157]= `0.988437`

Out[2158]= `0.797327`

Out[2159]= `0.379082`

Matrices Estadounidenses Evolucionadas

In[2160]:= `Tally[Flatten[USAe1]]`
`Tally[Flatten[USAe2]]`
`Tally[Flatten[USAe3]]`

Out[2160]= `{{0, 260}, {1, 640}}`

Out[2161]= `{{0, 472}, {1, 428}}`

Out[2162]= `{{0, 632}, {1, 268}}`

In[2163]:= `probUSAe1 = {260 – 30, 640}`
`probUSAe2 = {472 – 30, 428}`
`probUSAe3 = {632 – 30, 268}`

Out[2163]= `{230, 640}`

Out[2164]= `{442, 428}`

Out[2165]= `{602, 268}`

In[2166]:= **Total[probUSAe1]**
Total[probUSAe2]
Total[probUSAe3]

Out[2166]= 870

Out[2167]= 870

Out[2168]= 870

In[2169]:= **probnormUSAe1 = probUSAe1 / Total[probUSAe1]**
probnormUSAe2 = probUSAe2 / Total[probUSAe2]
probnormUSAe3 = probUSAe3 / Total[probUSAe3]

Out[2169]= $\left\{ \frac{23}{87}, \frac{64}{87} \right\}$

Out[2170]= $\left\{ \frac{221}{435}, \frac{214}{435} \right\}$

Out[2171]= $\left\{ \frac{301}{435}, \frac{134}{435} \right\}$

In[2175]:= **HUSAe1 = N$\left[-\sum_{i=1}^{2}$probnormUSAe1[[i]] Log[2, probnormUSAe1[[i]]] $\right]$**

HUSAe2 = N$\left[-\sum_{i=1}^{2}$probnormUSAe2[[i]] Log[2, probnormUSAe2[[i]]] $\right]$

HUSAe3 = N$\left[-\sum_{i=1}^{2}$probnormUSAe3[[i]] Log[2, probnormUSAe3[[i]]] $\right]$

Out[2175]= 0.833266

Out[2176]= 0.999813

Out[2177]= 0.890905

Probabilidad Mezclada entre red real y evolucionada

In[2216]:= $\text{pmezMEX1} = \frac{1}{2} \text{MapThread}[\text{Plus}, \{\text{probnormMEX1}, \text{probnormMEXe1}\}]$

$\text{pmezMEX2} = \frac{1}{2} \text{MapThread}[\text{Plus}, \{\text{probnormMEX2}, \text{probnormMEXe2}\}]$

$\text{pmezMEX3} = \frac{1}{2} \text{MapThread}[\text{Plus}, \{\text{probnormMEX3}, \text{probnormMEXe3}\}]$

Out[2216]= $\left\{ \frac{37}{58}, \frac{21}{58} \right\}$

Out[2217]= $\left\{ \frac{368}{435}, \frac{67}{435} \right\}$

Out[2218]= $\left\{ \frac{139}{145}, \frac{6}{145} \right\}$

In[2219]:= $\text{pmezUSA1} = \frac{1}{2} \text{MapThread}[\text{Plus}, \{\text{probnormUSA1}, \text{probnormUSAe1}\}]$

$\text{pmezUSA2} = \frac{1}{2} \text{MapThread}[\text{Plus}, \{\text{probnormUSA2}, \text{probnormUSAe2}\}]$

$\text{pmezUSA3} = \frac{1}{2} \text{MapThread}[\text{Plus}, \{\text{probnormUSA3}, \text{probnormUSAe3}\}]$

Out[2219]= $\left\{ \frac{52}{145}, \frac{93}{145} \right\}$

Out[2220]= $\left\{ \frac{241}{435}, \frac{194}{435} \right\}$

Out[2221]= $\left\{ \frac{661}{870}, \frac{209}{870} \right\}$

Divergencia Kullback-Leibler de real-evol, evol-real

In[2222]:= $\text{DreMEX1} = N\left[\sum_{i=1}^{2} \text{probnormMEX1}[[i]] \left(\text{Log}\left[2, \frac{\text{probnormMEX1}[[i]]}{\text{pmezMEX1}[[i]]}\right] /. \text{Log}[2, 0] :\to 0\right)\right]$

$\text{DreMEX2} = N\left[\sum_{i=1}^{2} \text{probnormMEX2}[[i]] \left(\text{Log}\left[2, \frac{\text{probnormMEX2}[[i]]}{\text{pmezMEX2}[[i]]}\right] /. \text{Log}[2, 0] :\to 0\right)\right]$

$\text{DreMEX3} = N\left[\sum_{i=1}^{2} \text{probnormMEX3}[[i]] \left(\text{Log}\left[2, \frac{\text{probnormMEX3}[[i]]}{\text{pmezMEX3}[[i]]}\right] /. \text{Log}[2, 0] :\to 0\right)\right]$

Out[2222]= 0.143516

Out[2223]= 0.0517818

Out[2224]= 0.0272491

In[2225]:= `DerMEX1 = N[`$\sum_{i=1}^{2}$`probnormMEXe1[[i]] (Log[2,` $\frac{\text{probnormMEXe1[[i]]}}{\text{pmezMEX1[[i]]}}$ `] /. Log[2, 0] :> 0)]`

`DerMEX2 = N[`$\sum_{i=1}^{2}$`probnormMEXe2[[i]] (Log[2,` $\frac{\text{probnormMEXe2[[i]]}}{\text{pmezMEX2[[i]]}}$ `] /. Log[2, 0] :> 0)]`

`DerMEX3 = N[`$\sum_{i=1}^{2}$`probnormMEXe3[[i]] (Log[2,` $\frac{\text{probnormMEXe3[[i]]}}{\text{pmezMEX3[[i]]}}$ `] /. Log[2, 0] :> 0)]`

Out[2225]= `0.120316`

Out[2226]= `0.0371662`

Out[2227]= `0.0154197`

In[2228]:= `DreUSA1 = N[`$\sum_{i=1}^{2}$`probnormUSA1[[i]] (Log[2,` $\frac{\text{probnormUSA1[[i]]}}{\text{pmezUSA1[[i]]}}$ `] /. Log[2, 0] :> 0)]`

`DreUSA2 = N[`$\sum_{i=1}^{2}$`probnormUSA2[[i]] (Log[2,` $\frac{\text{probnormUSA2[[i]]}}{\text{pmezUSA2[[i]]}}$ `] /. Log[2, 0] :> 0)]`

`DreUSA3 = N[`$\sum_{i=1}^{2}$`probnormUSA3[[i]] (Log[2,` $\frac{\text{probnormUSA3[[i]]}}{\text{pmezUSA3[[i]]}}$ `] /. Log[2, 0] :> 0)]`

Out[2228]= `0.0270017`

Out[2229]= `0.00622226`

Out[2230]= `0.019573`

In[2231]:= `DerUSA1 = N[`$\sum_{i=1}^{2}$`probnormUSAe1[[i]] (Log[2,` $\frac{\text{probnormUSAe1[[i]]}}{\text{pmezUSA1[[i]]}}$ `] /. Log[2, 0] :> 0)]`

`DerUSA2 = N[`$\sum_{i=1}^{2}$`probnormUSAe2[[i]] (Log[2,` $\frac{\text{probnormUSAe2[[i]]}}{\text{pmezUSA2[[i]]}}$ `] /. Log[2, 0] :> 0)]`

`DerUSA3 = N[`$\sum_{i=1}^{2}$`probnormUSAe3[[i]] (Log[2,` $\frac{\text{probnormUSAe3[[i]]}}{\text{pmezUSA3[[i]]}}$ `] /. Log[2, 0] :> 0)]`

Out[2231]= `0.0292144`

Out[2232]= `0.0061391`

Out[2233]= `0.0171699`

Distancia Jensen-Shannon

In[2234]:= $\textbf{JSDMEX1} = \frac{1}{2} \left(\textbf{DreMEX1} + \textbf{DerMEX1} \right)$

$\textbf{JSDMEX2} = \frac{1}{2} \left(\textbf{DreMEX2} + \textbf{DerMEX2} \right)$

$\textbf{JSDMEX3} = \frac{1}{2} \left(\textbf{DreMEX3} + \textbf{DerMEX3} \right)$

Out[2234]= 0.131916

Out[2235]= 0.044474

Out[2236]= 0.0213344

In[2237]:= $\textbf{JSDUSA1} = \frac{1}{2} \left(\textbf{DreUSA1} + \textbf{DerUSA1} \right)$

$\textbf{JSDUSA2} = \frac{1}{2} \left(\textbf{DreUSA2} + \textbf{DerUSA2} \right)$

$\textbf{JSDUSA3} = \frac{1}{2} \left(\textbf{DreUSA3} + \textbf{DerUSA3} \right)$

Out[2237]= 0.028108

Out[2238]= 0.00618068

Out[2239]= 0.0183714