

```
In[69]:= (* Gives a plot of the Renyi Entropies for  $\alpha \geq 0$ , RUN BLUE CELL FIRST *)
H0 = Log[n] // N; (* H0 = Hartley Entropy*)
```

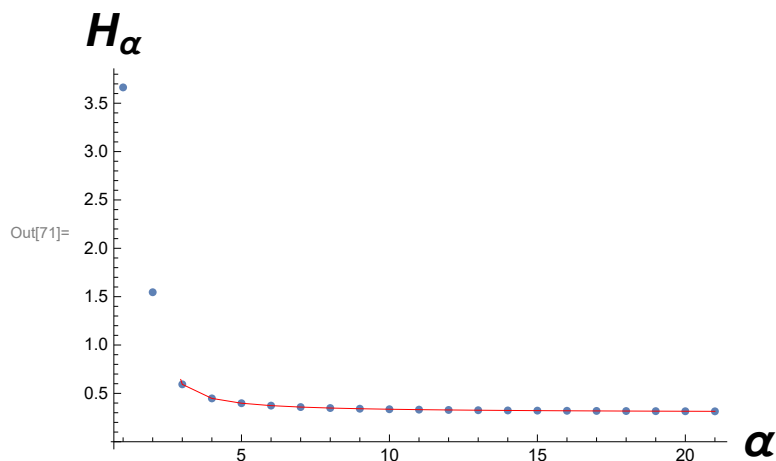
```
H1 = -Sum[(set[[i]]) (Log[2, set[[i]]])], {i, 1, n}] // N;
(* H1 = Shannon Entropy*)
```

```
H2onward = Table[H[a], {a, 2, 20}] // N; (* H2 onward *)
```

```
RenyiEntropyofPCV1Data = Join[{H0}, {H1}, H2onward]
```

```
Show[
  ListPlot[RenyiEntropyofPCV1Data, PlotRange → All,
    AxesLabel → {Style[" $\alpha$ ", Large, Bold], Style["H $\alpha$ ", Large, Bold]}],
  ListLinePlot[RenyiEntropyofPCV1Data, PlotStyle → {Red, Thin}]
]
```

```
Out[70]= {3.66356, 1.5457, 0.593519, 0.448015, 0.39826, 0.373369, 0.358435,
  0.348478, 0.341366, 0.336032, 0.331884, 0.328565, 0.32585, 0.323587,
  0.321672, 0.320031, 0.318608, 0.317364, 0.316266, 0.31529, 0.314416}
```



```
In[72]:= Table[{"The  $\alpha$ -th Renyi Entropy  $H_\alpha$  -> "  $H_{i-1}$ , " = ", RenyiEntropyofPCV1Data[[i]]},
  {i, 1, Length[RenyiEntropyofPCV1Data]}] // MatrixForm
```

```
Out[72]//MatrixForm=
```

The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_0$	=	3.66356
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_1$	=	1.5457
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_2$	=	0.593519
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_3$	=	0.448015
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_4$	=	0.39826
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_5$	=	0.373369
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_6$	=	0.358435
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_7$	=	0.348478
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_8$	=	0.341366
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_9$	=	0.336032
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{10}$	=	0.331884
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{11}$	=	0.328565
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{12}$	=	0.32585
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{13}$	=	0.323587
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{14}$	=	0.321672
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{15}$	=	0.320031
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{16}$	=	0.318608
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{17}$	=	0.317364
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{18}$	=	0.316266
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{19}$	=	0.31529
The $\alpha$ -th Renyi Entropy $H_\alpha$ ->	$H_{20}$	=	0.314416