```
Module[{iterations = {10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000}},
  DistributionChart[Table[
      Module[{alphabet = Alphabet[], samples = #, data, firstSelection, secondSelection},
       data = Table[RandomSample[Alphabet[]], samples];
       data = DeleteCases[data, {"a"} ~ Join ~ ConstantArray[_, 25]];
       firstSelection = Length[data];
       N@Mean[Count[MapThread[#1 == #2 &, {Alphabet[], #}], True] & /@ data]
      ], 1000] & /@ iterations,
    ChartElementFunction → "PointDensity", GridLines → {None, {0.96}},
    ChartLabels → iterations, ImageSize → 788]]

Export[StringReplace[NotebookFileName[], ".nb" → "_chart_01.png"],
  %, ImageResolution → 500]
```
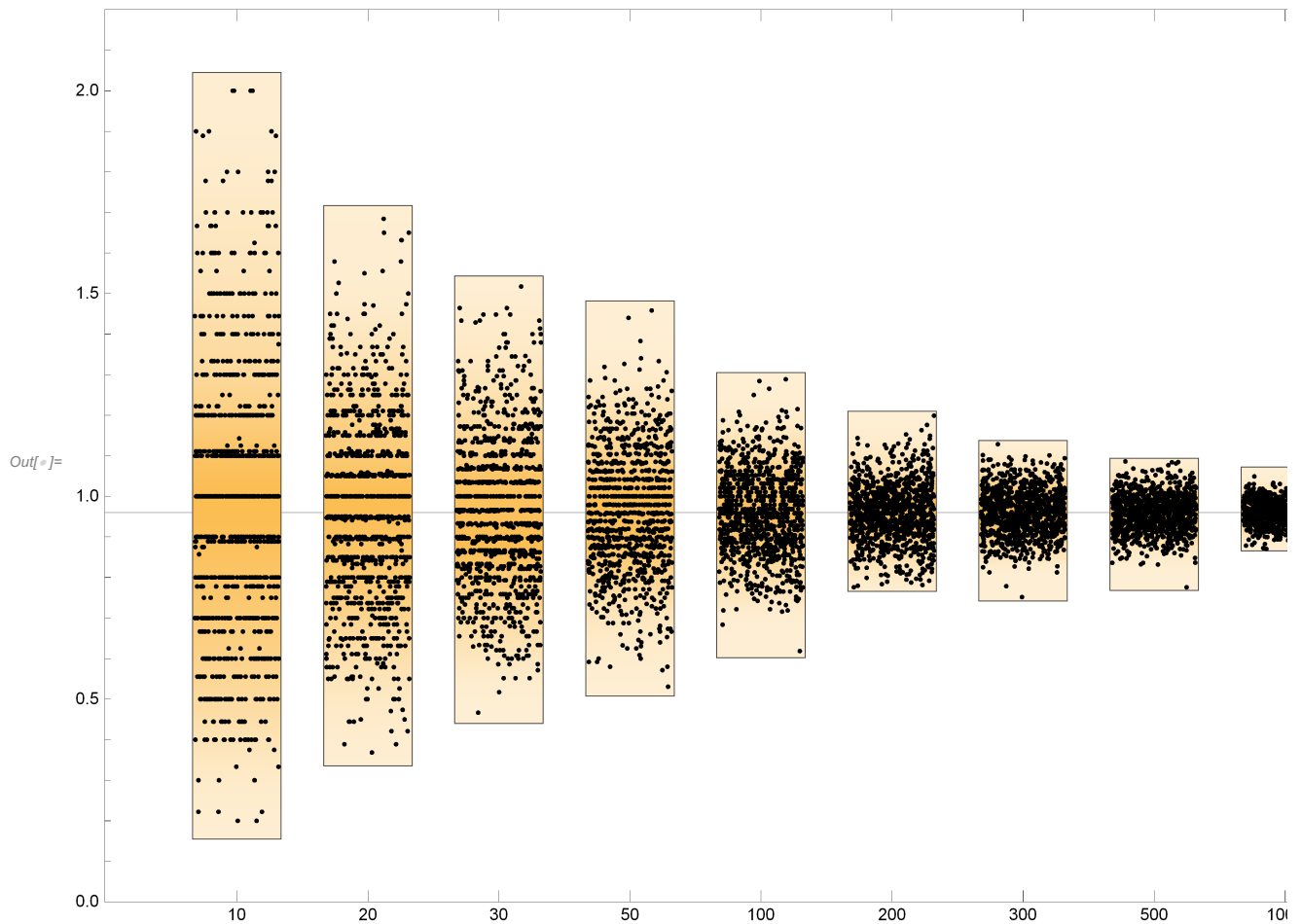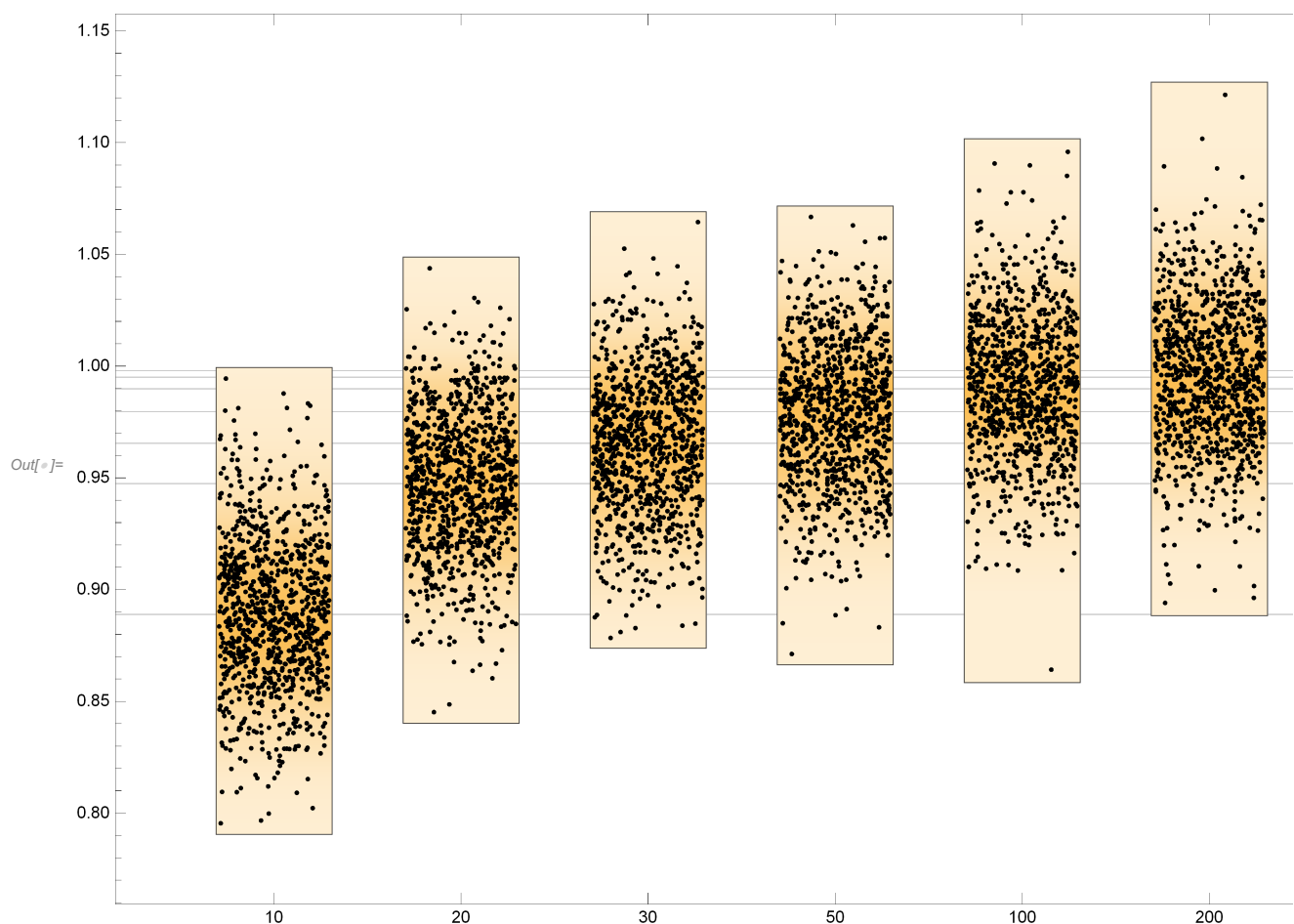


Out[●]= D:\Mathematica Files
    4K\sheldon_ross\sheldon_ross_chapter_03\sheldon_ross_example_3.17\sheldon_ross_example
    _3.17_chart_01.png

```
In[ ]:= mixAndMatchHats2[listIn_List] := Module[{samples = 1000},
          DistributionChart[Table[Module[{list = #, data, firstSelection, secondSelection},
              data = Table[RandomSample[list], samples];
              data = DeleteCases[data, {list[[1]]} ~ Join ~ ConstantArray[_, Length@list - 1]];
              N@Mean[Count[MapThread[#1 == #2 &, {list, #}], True] & /@ data]
            ], 1000] & /@ listIn, ChartElementFunction → "PointDensity", ImageSize → 788,
          GridLines → {None, ((# - 2) / (# - 1)) & /@ (Length /@ listIn)},
          ChartLabels → Length /@ listIn]]
```

```
       mixAndMatchHats2[Table[Range[n], {n, {10, 20, 30, 50, 100, 200, 500}}]]
       Export[StringReplace[NotebookFileName[], ".nb" → "_chart_02.png"],
        %, ImageResolution → 500]
```
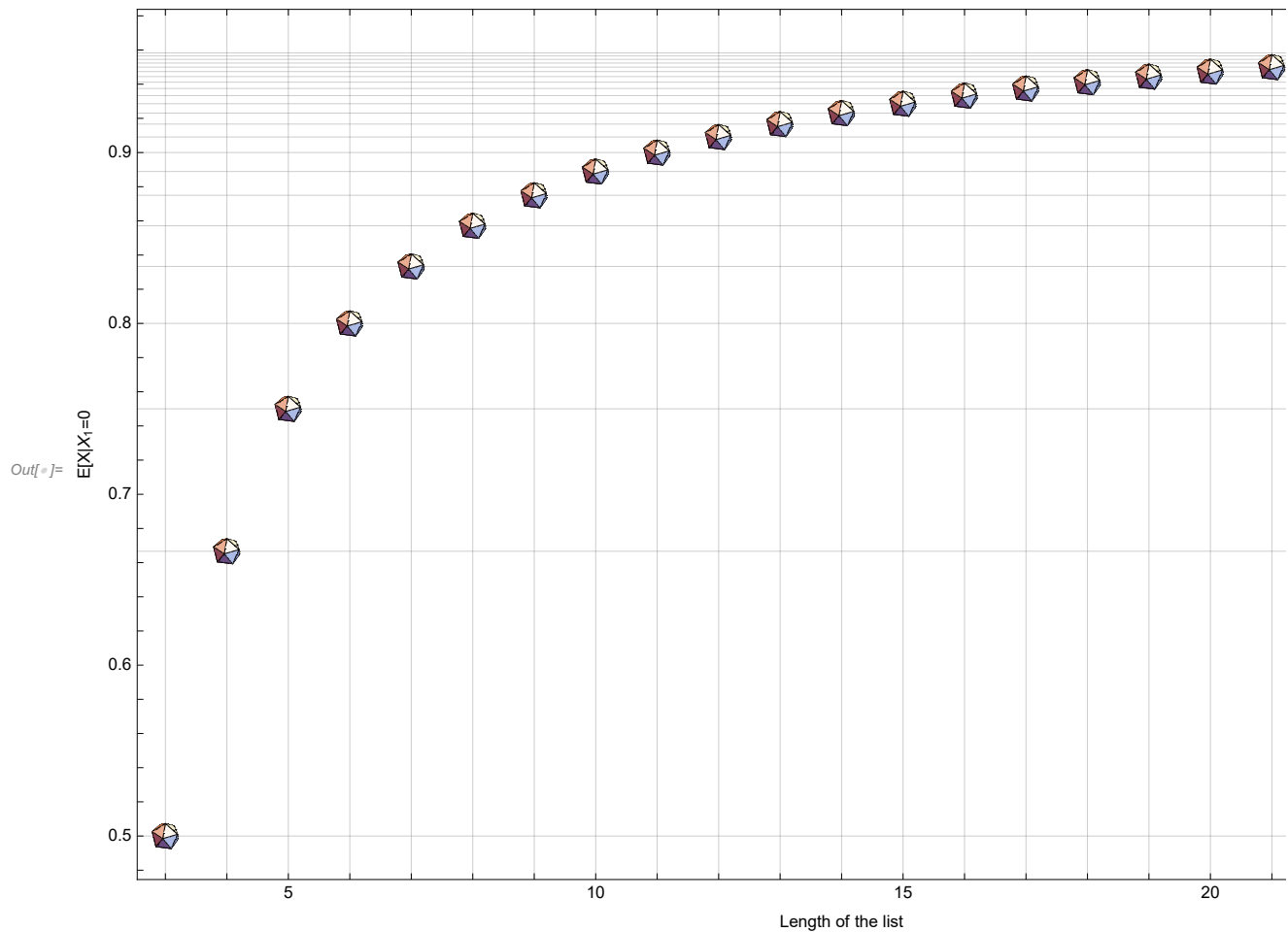
```
In[∘]:= ListPlot[Table[{n, (n - 2) / (n - 1)}, {n, 3, 25}],
     GridLines → {# & /@ Range[3, 25], (# - 2) / (# - 1) & /@ Range[3, 25]},
     ImageSize → 788, PlotStyle → PointSize[0.01], Frame → True, PlotMarkers → 🔷 ,
     FrameLabel → {"Length of the list", "E[X|X₁=0"}, PlotRange → All]
     Export[StringReplace[NotebookFileName[], ".nb" → "_chart_03.png"],
      %, ImageResolution → 500]
```

$$Out[∘]=$$


```
Out[∘]= D:\Mathematica Files
     4K\sheldon_ross\sheldon_ross_chapter_03\sheldon_ross_example_3.17\sheldon_ross_example
     _3.17_chart_03.png
```

```
In[1]:= SetOptions[SelectedNotebook[],
     PrintingStyleEnvironment → "Printout", ShowSyntaxStyles → True]
```