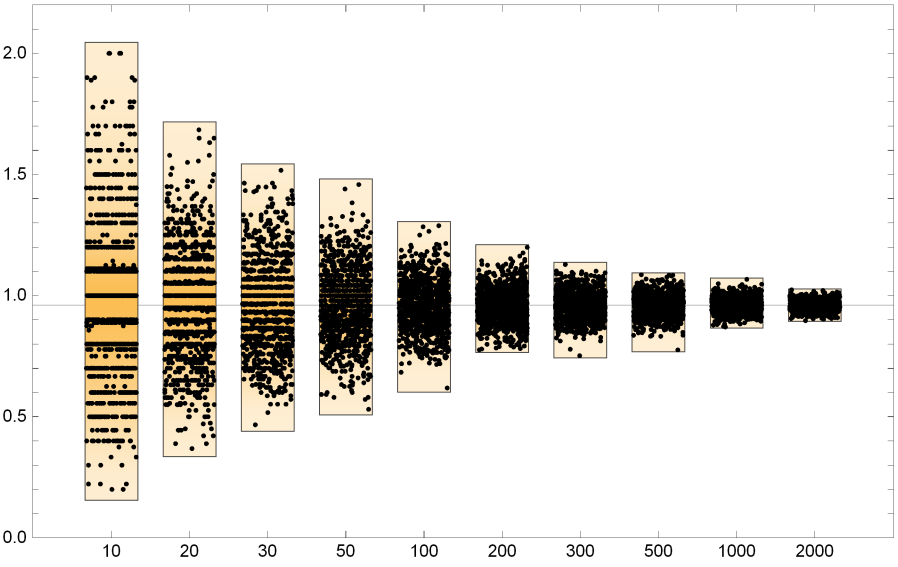
```
Module[{iterations = {10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000}},
 DistributionChart[Table[
   Module[{alphabet = Alphabet[], samples = #, data, firstSelection, secondSelection},
    data = Table[RandomSample[Alphabet[]], samples];
    data = DeleteCases[data,{"a"}~Join~ConstantArray[_,25]];
           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[ ]=

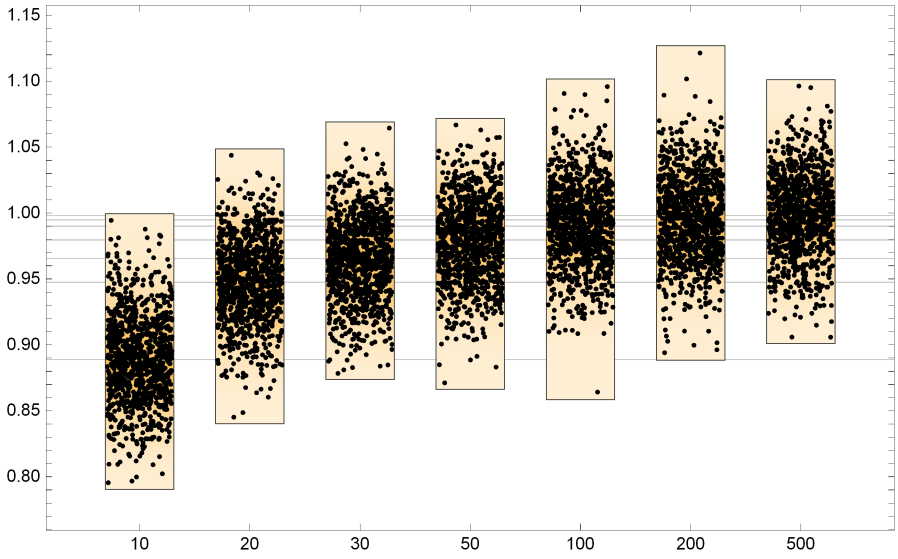


Out[ ]= D:\Mathematica Files 4K\sheldon_ross\sheldon_ross_chapter_03\sheldon_ross_example_3.17\sheldon_ross_example_3.17_chart_01.png

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]
```

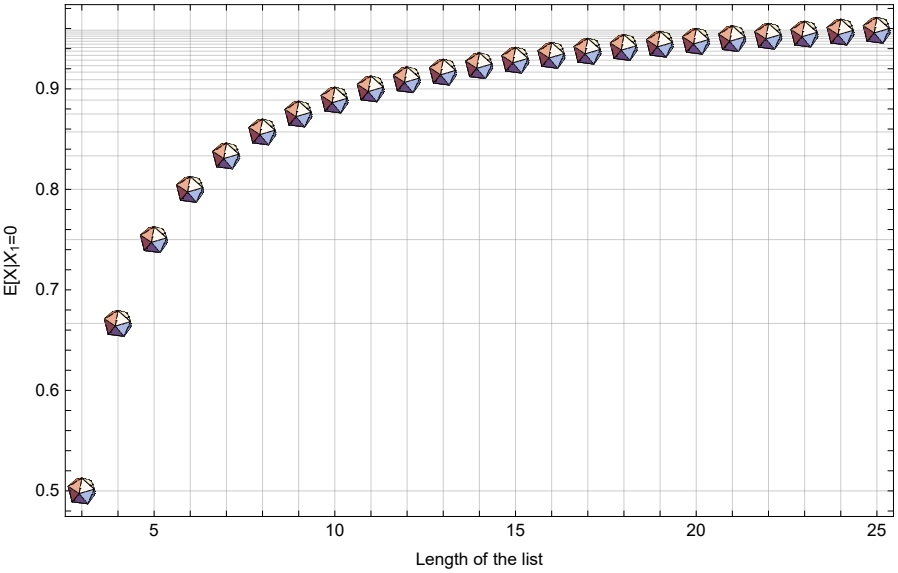
Out[ ]=



Out[ ]= D:\Mathematica Files 4K\sheldon_ross\sheldon_ross_chapter_03\sheldon_ross_example_3.17\sheldon_ross_example_3.17_chart_02.png

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]
```