Harper — PS 10 — 2025-02-25

EIWL Sections 26-28

Section 26

Out[248]=

In[249]:=

In[247]:= Grid [{#, EntityValue[#, "Flag"]} & /@ EntityList [Group of 5 COUNTRIES ...], Frame → All

Out[247]= France Germany Japan **United Kingdom United States**

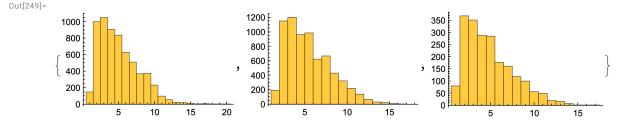
In[248]:= WordCloud[WikipediaData[#]] & /@ {"apple", "peach", "pear"}

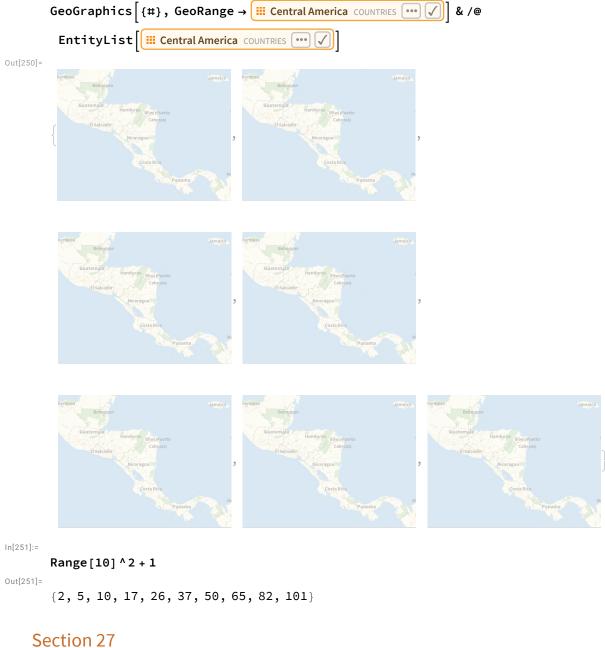
color England high cidername aphid nuts diseases goddess cooking time leaves 2017 United varieties University used Aphrodite form fresh group genomeny thology cultivated North include trees production domestica rawdisease rootstocks fruit Malus states use Chinastorage Cultivated Mynth new species ISBN Asia cultivar Cfound growing calledproduced Century cultivation ize GreekCollection popular introduced browning small cooked flowering commonly controlled breeding Pests juicewild brown different grown eating ethylearly grow

Englishrelated worldapple borer total blossomperiod growinggeneticflower color America production published leaves BCE burger full to the production of the produc skinsouthPrunusfruit cultivarsused3
mothsignificant moth significant domestication cm sourceswi
United European grown modern called
State eastern centralchillingstone
fleshwhite years cherry place

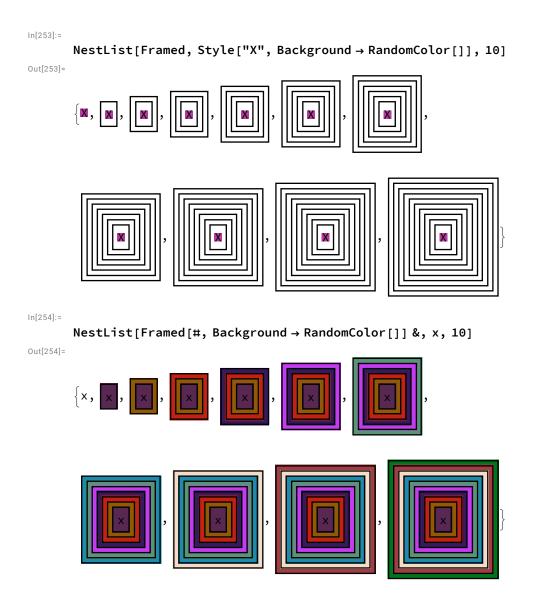
Book Latin According Calleryanal eaves edible flowers from Subsp. Chin aussuriensis variety applescider food produce Chin aussuriensis variety applescider food produce Chin aussuriensis variety applescider food produce Cultivate do no shape perryinstruments Communis Asia ripen Varieties 3/YTUS Europeangenus produced produced Subspiritus Produced 3,000 amainly tree 20 Cal Subspiritus Allert and Subspiritus Alle Europe ipe North +1 Western ripe North PerNorth 1 x Cultivarstall 2 cultivation SPECIES com green manufacture/Asian native sinkiangensis fruit pfurnitureBureau summer de foundpyrifoliabretschneideriknown world regions-ripeningrootstocksagricultureCooking Like History whitewordaccountsBradfordtableAward

Histogram[StringLength[TextWords[WikipediaData[#]]]] & /@ {"apple", "peach", "pear"}

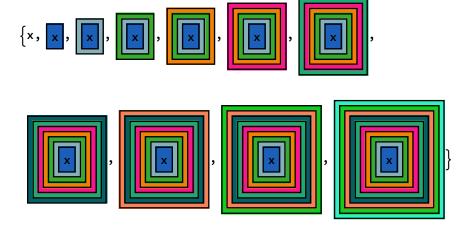




In[252]:= NestList[Blur, Rasterize[Style["X", 30]], 10] Out[252]= $\{X, X, X, X, X, X, X, X, X, X\}$

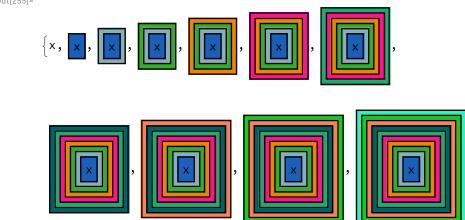


In[255]:=



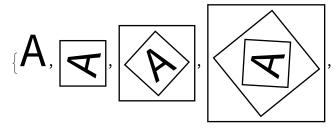
(*I don't understand how the above function avoids the problem of the previous*)

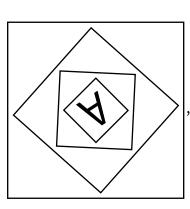
Out[255]=

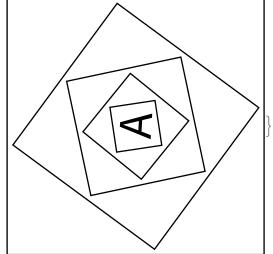


NestList[Framed[Rotate[#, RandomReal[{0, 360 °}]]] &, Style["A", 50], 5]

Out[256]=

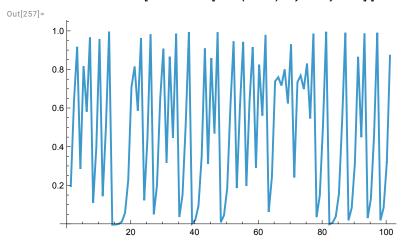






In[257]:=

ListLinePlot[NestList[4 # (1 - #) &, 0.2, 100]]



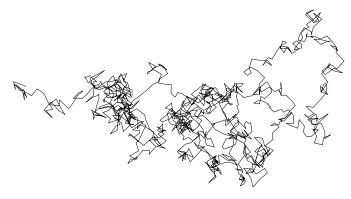
In[258]:=

N[Nest[1+1/#&, 1, 30]]

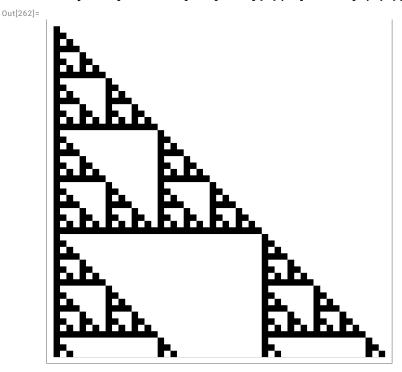
Out[258]=

1.61803

```
In[259]:=
        NestList[3 * # &, 1, 10]
Out[259]=
         {1, 3, 9, 27, 81, 243, 729, 2187, 6561, 19683, 59049}
In[260]:=
        NestList[(#+2/#)/2&, 1.0, 5] - Sqrt[2]
Out[260]=
         \left\{-\text{0.414214, 0.0857864, 0.0024531, 2.1239} \times \text{10}^{-6}, \text{1.59472} \times \text{10}^{-12}, \text{-2.22045} \times \text{10}^{-16}\right\}
In[261]:=
        Graphics[Line[NestList[#+RandomReal[{-1, 1}, 2] &, {0, 0}, 1000]]]
Out[261]=
```

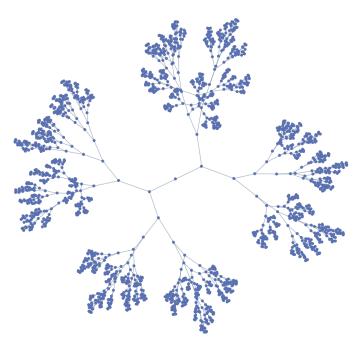


In[262]:= ArrayPlot[NestList[Mod[Join[{0}, #] + Join[#, {0}], 2] &, {1}, 50]]



In[263]:= NestGraph[$\{# \rightarrow # + 1, # \rightarrow 2 #\} \&, 0, 10$]

Out[263]=



In[264]:= NestGraph[#["BorderingCountries"] &, Entity["Country", "USA"], 4, VertexLabels → All]

Out[264]=



Section 28

In[265]:= 123 ^ 321 > 456 ^ 123

Out[265]=

True

In[266]:= Select[Range[100], Total[IntegerDigits[#]] < 5 &]</pre>

Out[266]= $\{1, 2, 3, 4, 10, 11, 12, 13, 20, 21, 22, 30, 31, 40, 100\}$

In[267]:= If[PrimeQ[#], Style[#, Red], #] & /@ Range[20]

Out[267]= $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

```
In[268]:=
      Select[WordList[], StringTake[#, 1] == StringTake[StringReverse[#], 1] == "p" &]
Out[268]=
      {pap, paperclip, parsnip, partisanship, partnership, pawnshop, peep, penmanship,
       pep, pickup, pileup, pip, plop, plump, polyp, pomp, pop, premiership,
       prep, primp, professorship, prop, proprietorship, pulp, pump, pup}
In[269]:=
      Out[269]=
      241, 251, 271, 281, 311, 331, 401, 421, 431, 461, 491, 521, 541}
In[270]:=
      Select[RomanNumeral[Range[100]], ! MemberQ[Characters[#], "I"] &]
Out[270]=
      \{V, X, XV, XX, XXV, XXX, XXXV, XL, XLV,
       L, LV, LX, LXV, LXX, LXXV, LXXXV, XC, XCV, C}
In[271]:=
      Select[RomanNumeral[Range[1000]], StringReverse[#] == # &]
Out[271]=
      {I, II, III, V, X, XIX, XX, XXX, L, C, CXC, CC, CCC, D, M}
In[272]:=
      Select[IntegerName[Range[100]], StringTake[#, 1] == StringTake[StringReverse[#], 1] &]
Out[272]=
      {nineteen, twenty-eight, thirty-eight, eighty-one,
       eighty-three, eighty-five, eighty-nine, ninety-seven}
In[273]:=
      Out[273]=
      {yibi-jarran-gabun, yibi-gabun-jarran, orthographically,
       multiple-morpheme, Proto-Indo-European, 978-0-08-044854-1}
In[274]:=
      NestList[If[EvenQ[#], #/2, 3 # + 1] &, 1000, 200]
Out[274]=
      {1000, 500, 250, 125, 376, 188, 94, 47, 142, 71, 214, 107, 322, 161, 484, 242, 121, 364,
       182, 91, 274, 137, 412, 206, 103, 310, 155, 466, 233, 700, 350, 175, 526, 263,
       790, 395, 1186, 593, 1780, 890, 445, 1336, 668, 334, 167, 502, 251, 754, 377,
       1132, 566, 283, 850, 425, 1276, 638, 319, 958, 479, 1438, 719, 2158, 1079, 3238,
       1619, 4858, 2429, 7288, 3644, 1822, 911, 2734, 1367, 4102, 2051, 6154, 3077,
       9232, 4616, 2308, 1154, 577, 1732, 866, 433, 1300, 650, 325, 976, 488, 244, 122,
       61, 184, 92, 46, 23, 70, 35, 106, 53, 160, 80, 40, 20, 10, 5, 16, 8, 4, 2, 1, 4, 2,
       1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4,
       2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1,
       4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2}
```

```
In[275]:=
       WordCloud[Select[TextWords[WikipediaData["Computers"]], StringLength[#] == 5 &]]
Out[275]=
           break. chips
                          doingabove drove
           casesbased Mouse undercards found gates Along
                                                 FNIAC range
       still
       field
         roots human
         <sup>1970s</sup>large
       bytes<sub>1950s</sub>
                         afterpaperabout cause until 1,500
                                shortusageBerry
                 equalallow
         carry
                                                     2000seight
In[276]:=
       Select[WordList[],
        StringTake(#, 3) == StringTake(StringReverse(#), 3) &&# # StringReverse(#) &)
       ••• StringTake: Cannot take positions 1 through 3 in "a".
       ••• StringTake: Cannot take positions 1 through 3 in "a".
       ... StringTake: Cannot take positions 1 through 3 in "ad".
       💬 General: Further output of StringTake::take will be suppressed during this calculation. 🕖
Out[276]=
       {despised, detected, detested, drainboard,
        foolproof, lackadaisical, marjoram, revolver}
```

In[277]:=

Select[WordList[], StringLength[#] == 10 && Total[LetterNumber[#]] == 100 &]

Out[277]=

```
{accumulate, alienation, answerable, apoplectic, aquamarine, bewitching, censurable,
ceramicist, chastening, chimpanzee, clinically, collecting, condensate,
congenital, conjugated, connivance, declension, deliquesce, demobilize,
demodulate, denominate, diagonally, discipline, discommode, egoistical,
emasculate, embodiment, emendation, empathetic, fatalistic, fatherhood,
geographer, hemoglobin, inadequacy, interbreed, leveraging, liberalism,
likelihood, martingale, mercantile, meridional, neoclassic, paramecium,
plebiscite, potbellied, quadrangle, reciprocal, regimented, reschedule,
researcher, scoreboard, septicemia, shibboleth, sleepyhead, stagecraft,
stalemated, temperance, thickening, threatened, uncombined, unmodified}
```