"FRENCH's Triangle" $\{\frac{3}{5}, \frac{5}{2}\}$
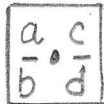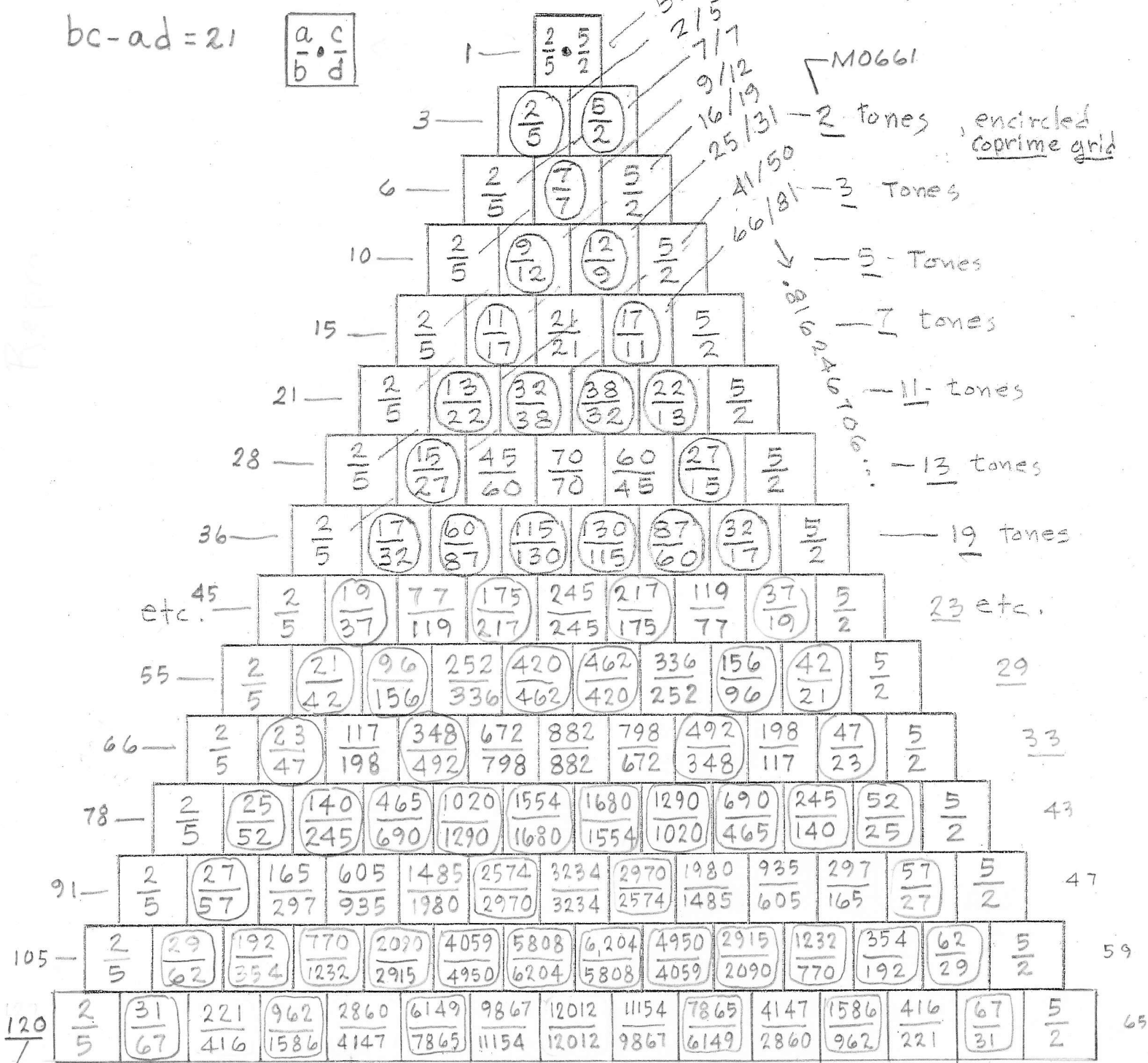
as Interpreted by Erv Wilson
Oct 8, 2004; Oct 3, 2005

dual phyllotaxis
sums of diagonals

$$bc - ad = 21 \qquad \boxed{\dfrac{a}{b} \cdot \dfrac{c}{d}}$$

M0661
encircled coprime grid

sums of diagonals: 5|2, 2|5, 7|7, 9|12, 16|19, 25|31, 41|50, 66|81, ... 18,24,46,106...

Tones (right side): 2 tones — 3 Tones — 5-Tones — 7 tones — 11-tones — 13 tones — 19 Tones — 23 etc.

(row sum)																(right)
1							$\frac{2}{5} \cdot \frac{5}{2}$									
3							$\frac{2}{5}$	$\frac{5}{2}$								
6						$\frac{2}{5}$	$\frac{7}{7}$	$\frac{5}{2}$								
10						$\frac{2}{5}$	$\frac{9}{12}$	$\frac{12}{9}$	$\frac{5}{2}$							
15					$\frac{2}{5}$	$\frac{11}{17}$	$\frac{21}{21}$	$\frac{17}{11}$	$\frac{5}{2}$							
21					$\frac{2}{5}$	$\frac{13}{22}$	$\frac{32}{38}$	$\frac{38}{32}$	$\frac{22}{13}$	$\frac{5}{2}$						
28				$\frac{2}{5}$	$\frac{15}{27}$	$\frac{45}{60}$	$\frac{70}{70}$	$\frac{60}{45}$	$\frac{27}{15}$	$\frac{5}{2}$						
36				$\frac{2}{5}$	$\frac{17}{32}$	$\frac{60}{87}$	$\frac{115}{130}$	$\frac{30}{115}$	$\frac{87}{60}$	$\frac{32}{17}$	$\frac{5}{2}$					
45			$\frac{2}{5}$	$\frac{19}{37}$	$\frac{77}{119}$	$\frac{175}{217}$	$\frac{245}{245}$	$\frac{217}{175}$	$\frac{119}{77}$	$\frac{37}{19}$	$\frac{5}{2}$					23 etc.
55			$\frac{2}{5}$	$\frac{21}{42}$	$\frac{96}{156}$	$\frac{252}{336}$	$\frac{420}{462}$	$\frac{462}{420}$	$\frac{336}{252}$	$\frac{156}{96}$	$\frac{42}{21}$	$\frac{5}{2}$				29
66			$\frac{2}{5}$	$\frac{23}{47}$	$\frac{117}{198}$	$\frac{348}{492}$	$\frac{672}{798}$	$\frac{882}{882}$	$\frac{798}{672}$	$\frac{492}{348}$	$\frac{198}{117}$	$\frac{47}{23}$	$\frac{5}{2}$			33
78		$\frac{2}{5}$	$\frac{25}{52}$	$\frac{140}{245}$	$\frac{465}{690}$	$\frac{1020}{1290}$	$\frac{1554}{1680}$	$\frac{1680}{1554}$	$\frac{1290}{1020}$	$\frac{690}{465}$	$\frac{245}{140}$	$\frac{52}{25}$	$\frac{5}{2}$			43
91		$\frac{2}{5}$	$\frac{27}{57}$	$\frac{165}{297}$	$\frac{605}{935}$	$\frac{1485}{1980}$	$\frac{2574}{2970}$	$\frac{3234}{3234}$	$\frac{2970}{2574}$	$\frac{1980}{1485}$	$\frac{935}{605}$	$\frac{297}{165}$	$\frac{57}{27}$	$\frac{5}{2}$		47
105	$\frac{2}{5}$	$\frac{29}{62}$	$\frac{192}{354}$	$\frac{770}{1232}$	$\frac{2090}{2915}$	$\frac{4059}{4950}$	$\frac{5808}{6204}$	$\frac{6,204}{5808}$	$\frac{4950}{4059}$	$\frac{2915}{2090}$	$\frac{1232}{770}$	$\frac{354}{192}$	$\frac{62}{29}$	$\frac{5}{2}$		59
120	$\frac{2}{5}$	$\frac{31}{67}$	$\frac{221}{416}$	$\frac{962}{1586}$	$\frac{2860}{4147}$	$\frac{6149}{7865}$	$\frac{9867}{11154}$	$\frac{12012}{12012}$	$\frac{11154}{9867}$	$\frac{7865}{6149}$	$\frac{4147}{2860}$	$\frac{1586}{962}$	$\frac{416}{221}$	$\frac{67}{31}$	$\frac{5}{2}$	65

pebble count
M2535

The Opposite Spirals of Sinecuiche

3Oct05.EW
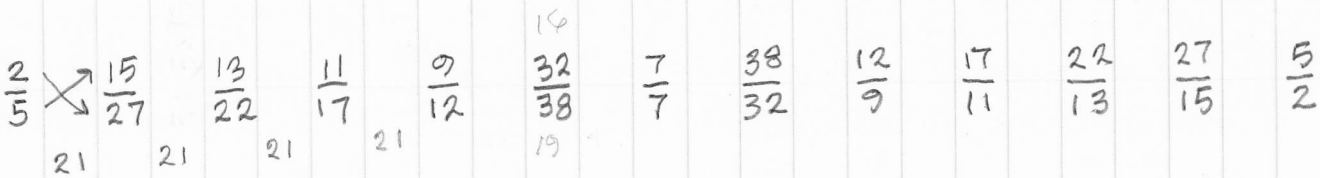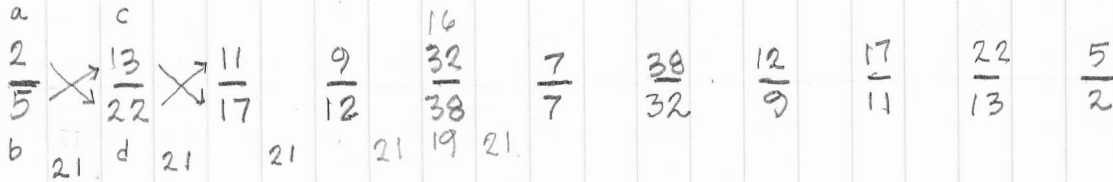
French's Triangle
bc - ad = 21 (some hand reduction required)
by Erv Wilson Oct 8, 2002

— $\underline{7}$ tone-count in scale

$\left(\dfrac{2}{5}\right)$ ✗ $\left(\dfrac{11}{17}\right)$ ✗ $\left(\dfrac{9}{12}\right)$ ✗ $\left(\dfrac{7}{7}\right)$ ✗ $\left(\dfrac{12}{9}\right)$ ✗ $\left(\dfrac{17}{11}\right)$ ✗ $\left(\dfrac{5}{2}\right)$

$(5\times11)-(2\times17)=21$
$(17\times9)-(11\times12)=21$
$(12\times7)-(9\times7)=21$
$(7\times12)-(7\times9)=21$
$(9\times17)-(12\times11)=21$
$(11\times5)-(17\times2)=21$

— $\underline{11}$ count

a $\dfrac{2}{5}$ ✗ c $\dfrac{13}{22}$ ✗ $\dfrac{11}{17}$ $\dfrac{9}{12}$ $\begin{smallmatrix}16\\32\\38\\19\end{smallmatrix}$ $\dfrac{32}{38}$ $\dfrac{7}{7}$ $\dfrac{38}{32}$ $\dfrac{12}{9}$ $\dfrac{17}{11}$ $\dfrac{22}{13}$ $\dfrac{5}{2}$

b 21   d 21   21   21   21

— $\underline{13}$ count

$\dfrac{2}{5}$ ✗ $\dfrac{15}{27}$ $\dfrac{13}{22}$ $\dfrac{11}{17}$ $\dfrac{9}{12}$ $\dfrac{32}{38}$ $\dfrac{7}{7}$ $\dfrac{38}{32}$ $\dfrac{12}{9}$ $\dfrac{17}{11}$ $\dfrac{22}{13}$ $\dfrac{27}{15}$ $\dfrac{5}{2}$

21   21   21   21

.400 $\dfrac{2}{5}$ .531 $\dfrac{17}{32}$ .556 $\dfrac{15}{27}$ .591 $\dfrac{13}{22}$ .641 $\dfrac{11}{17}$ .690 $\dfrac{60}{87}$ .750 $\dfrac{9}{12}$ .842 $\dfrac{32}{38}$ .885 $\dfrac{115}{130}$ $\dfrac{7}{7}$ — — — — — — — —

20   60)87   29   21

Page 2

15 Feb 2003. EW

$$\begin{bmatrix} 12 \\ 12 \\ 12 \end{bmatrix} \begin{matrix} 16 & 20 \\ 31\frac{1}{2} & 19 \\ 30 & 18 \end{matrix} = \left\{ \begin{matrix} 24 \;^{(8)} & 32 \;^{(8)} & 40 \\ 24 \;^{(7)} & 31 \;^{(7)} & 38 \\ 24 \;^{(6)} & 30 \;^{(6)} & 36 \end{matrix} \right\}$$

Some Notes on Sums and Stuff of the Arithmetic Triangle (Meru Prastāra)

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["Chinese Triangle" as known to Fibonacci]
per H.E. Huntley in "The Divine Proportion"
1970 Dover. "It is possible that Leonardo
Fibonacci ... stumbled (on his series) thru an
examination of the Chinese Triangle".
No documentation from China.

Sums of horizontals →

```
                          Fibonacci
                            1
                            2  3
                              5  8
                                  13      ← Sums of Diagonals
 1 ——— 1
 2 ——— 1  1
 4 ——— 1  2  1
 8 ——— 1  3  3  1
16 ——— 1  4  6  4  1
32 ——— 1  5  10 10 5  1
64 ——— 1  6  15 20 15 6  1
        7  21 35 35 21 7  1  ← Sums of verticals
```

```
Sums of Diagonals
  1
  2
  3
  5
  8
  13
```
Compare with
row 7

```
                1      ——————        1   ← Sums of the Horizontals
              1   1    ——————        2
            1   2   1  ——————        4
          1   3   3   1  —————       8        Euler Combinations
        1   4   6   4   1  ————      16       (Pascal, Mendel? Pingala)
      1   5   10  10  5   1  ———      32      No documentation for Mendel?
    1   6   15  20  15  6   1  ——     64      Partch uses combinations but never
 (1   7   21  35  35  21  7   1 )              cites Pascal or Fibonacci. Further-
```
more the monophonic fabric Imbeds the Farey
series (Goodwyn sequence) and the Fibonacci sequence.

Sums of the Diagonals
(Fibonacci, Thomas M. Green,
Pēlog, S'lendro, Chinese, Pascal,
Pingala ? we don't know.)
Note the relation between factors
and prime numbers — Straightforward.

```
            1
          1   1      2
        1   2   1      3
      1   3   3   1      5
    1   4   6   4   1      8
  1   5   10  10  5   1      13
1   6   15  20  15  6   1    Fibonacci
```

15 Feb 2003. EW