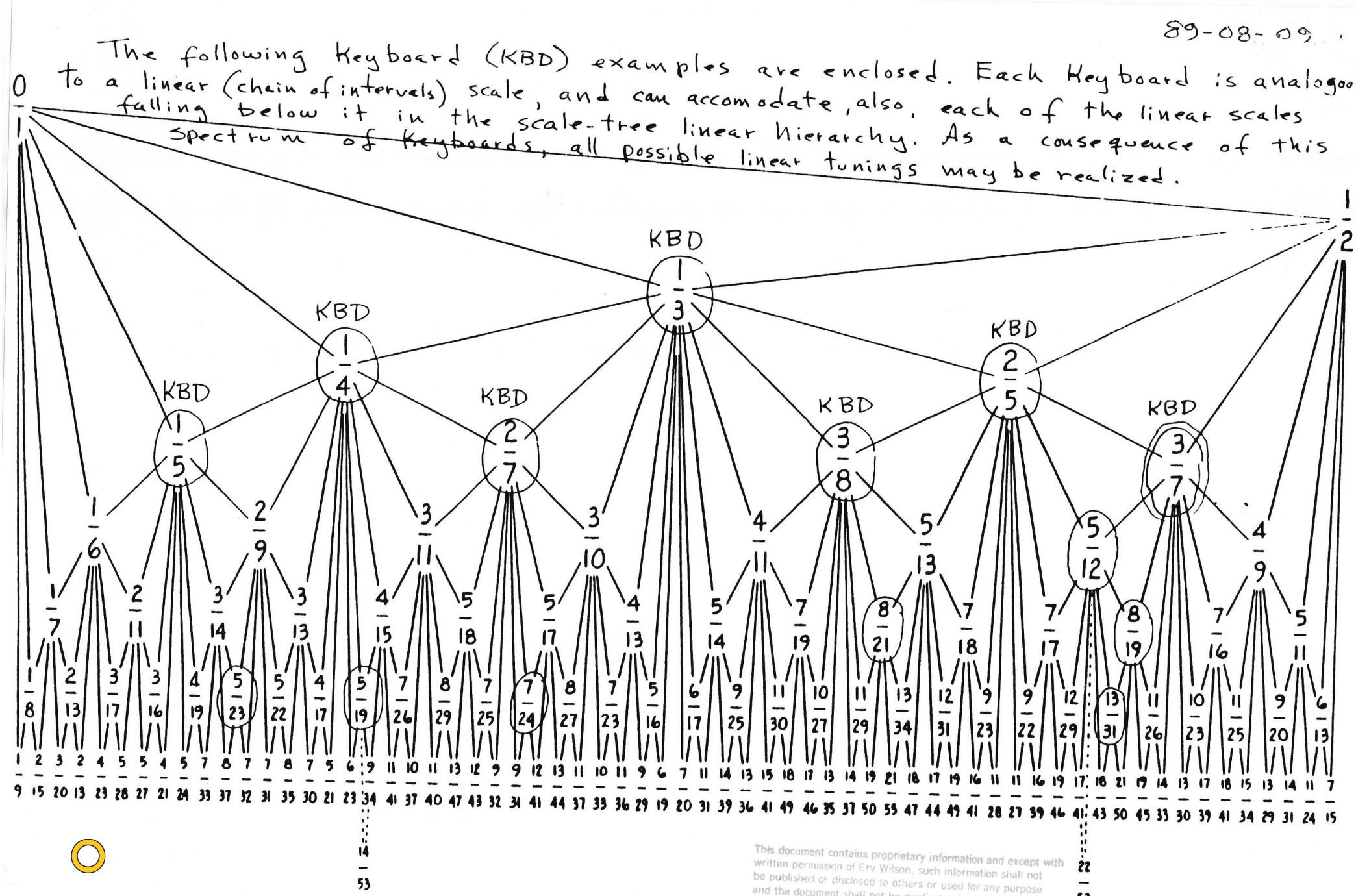
Multi-Keyboard Gridiron

Fred returned

89-08-09

The following Keyboard (KBD) examples are enclosed. Each Keyboard is analogous to a linear (chain of intervals) scale, and can accomodate, also, each of the linear scales falling below it in the scale-tree linear hierarchy. As a consequence of this spectrum of ~~Keyboards~~, all possible linear tunings may be realized.



SCALE TREE

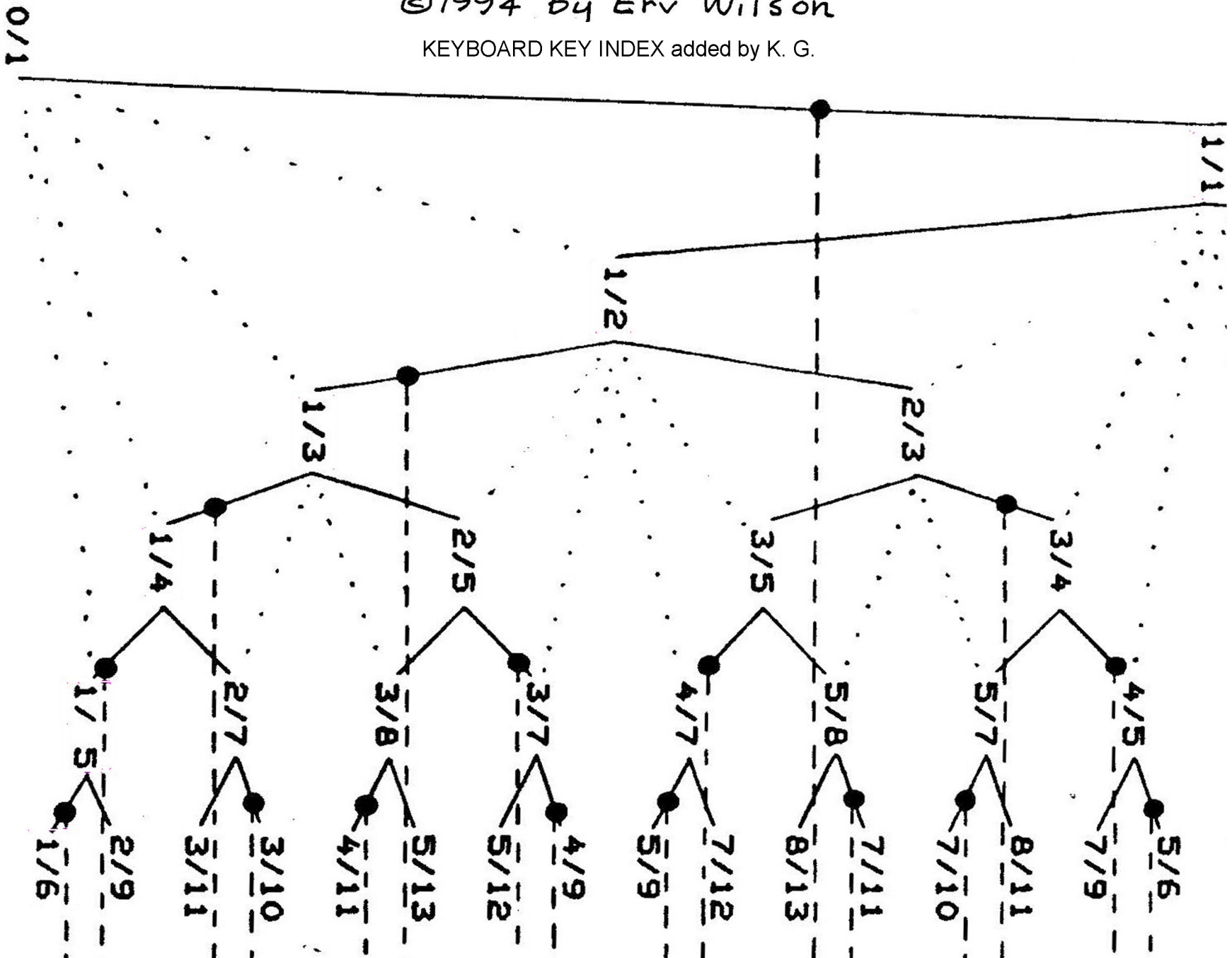
The scale examples are circled in blue. The denominator expresses the number of tones in the scale. The numerator expresses the fraction (of the respective scale), which forms the linear tuning sequence.

Yours,

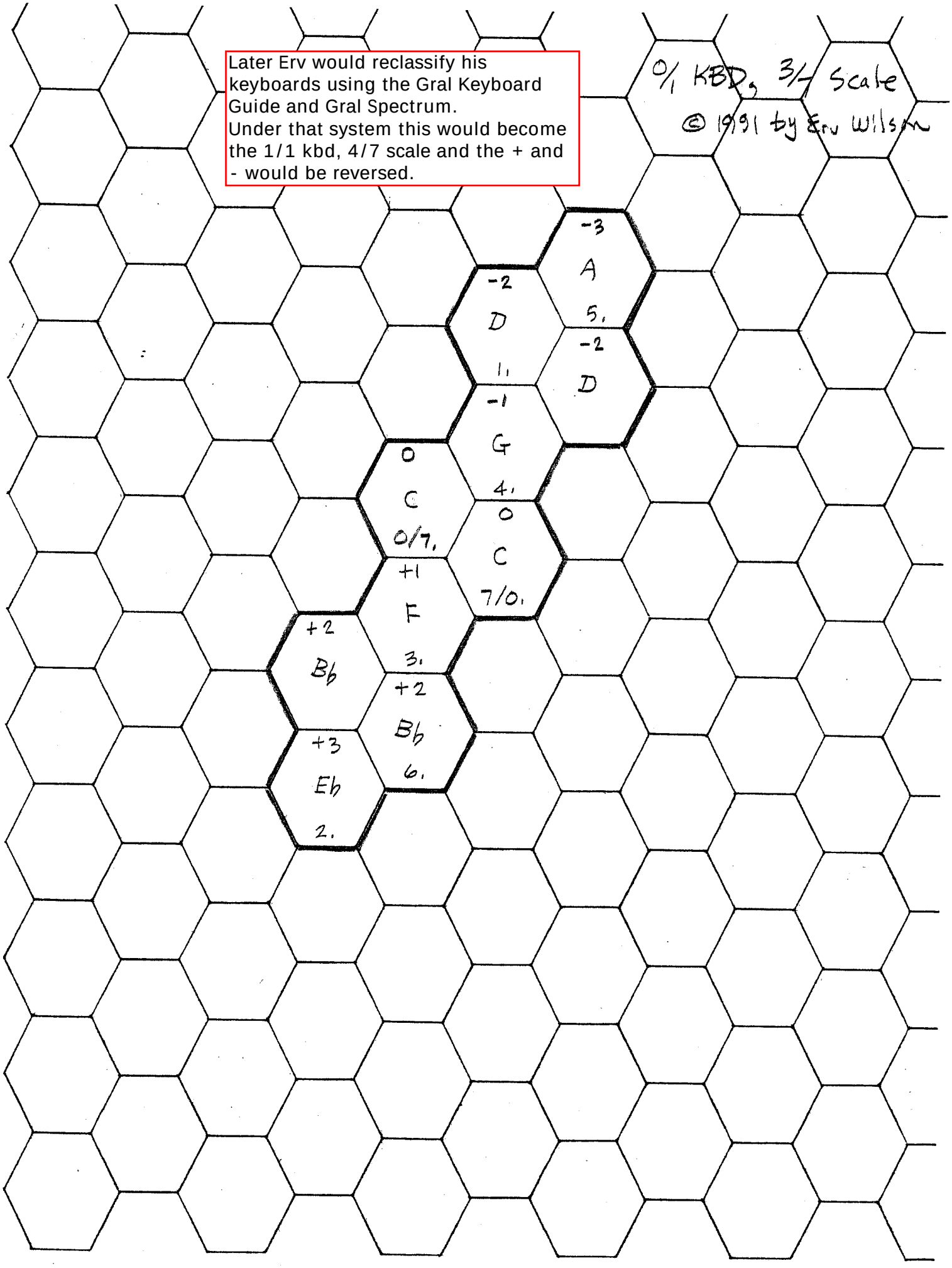
Erv Wilson

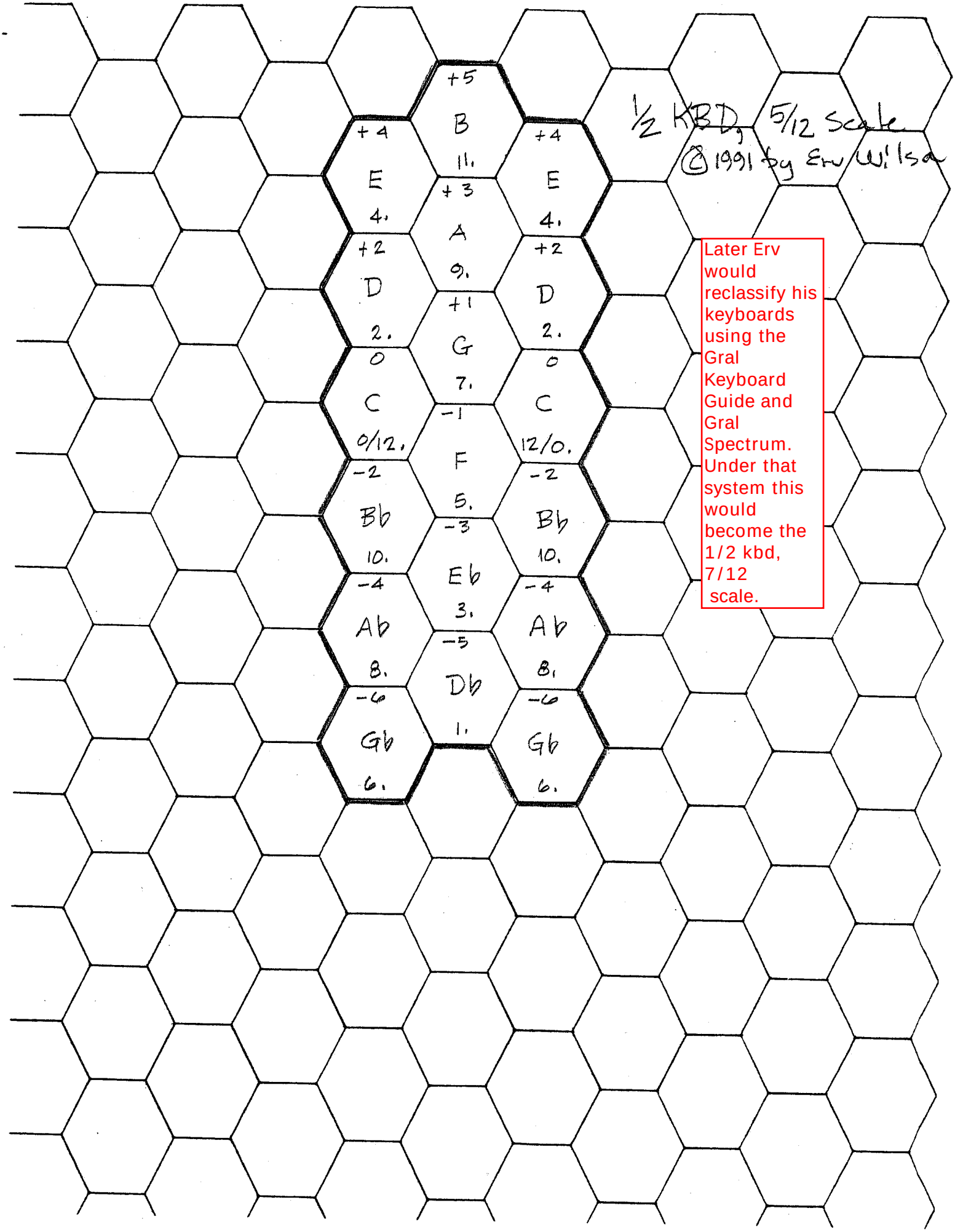
Scale-Tree (Peirce Sequence)

KEYBOARD KEY INDEX added by K. G.

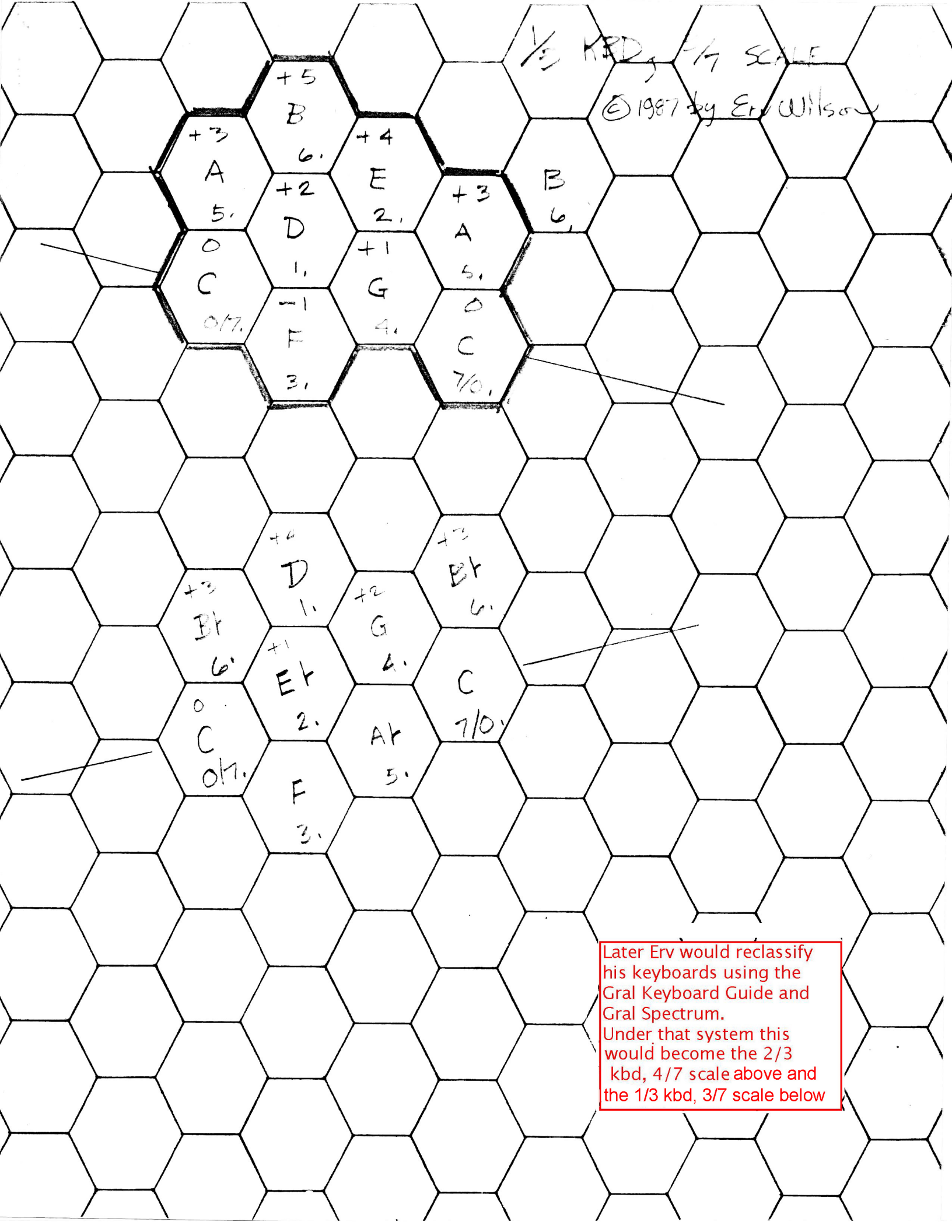


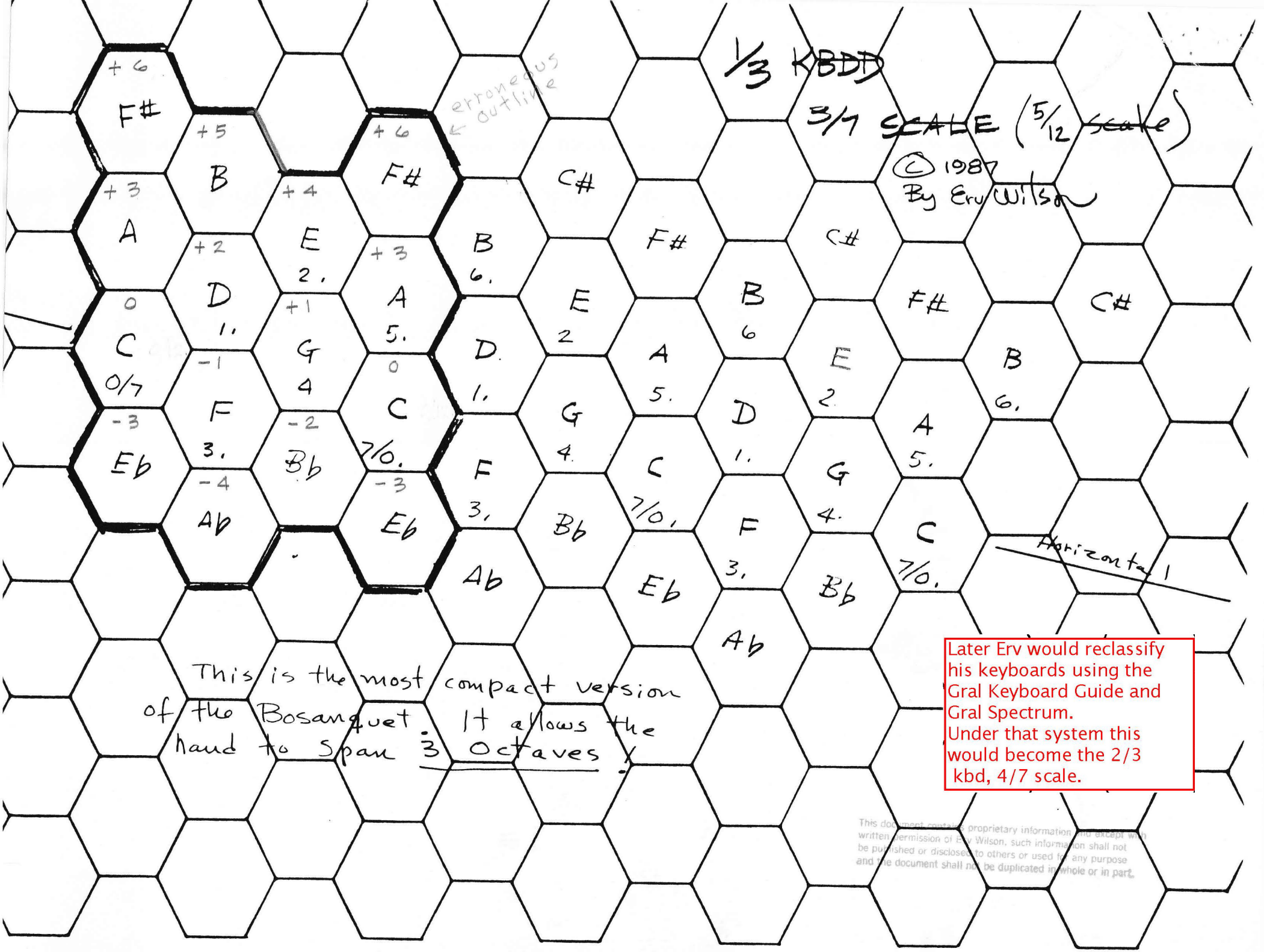
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum.
Under that system this would become the 1/1 kbd, 4/7 scale and the + and - would be reversed.





Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 1/2 kbd, 7/12 scale.


1/3 KBD, 4/7 SCALE
© 1987 by Erv Wilson
+5
B
6.
+3
A
5.
0
C
0/7.
+4
E
2.
+2
D
1.
−1
F
3.
+1
G
4.
+3
A
5.
0
C
7/0.
B
6.
+4
D
1.
+3
B♭
6.
0
C
0/7.
+3
B♭
6.
+1
E♭
2.
F
3.
+2
G
4.
A♭
5.
+3
B♭
6.
C
7/0.
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum.
Under that system this would become the 2/3 kbd, 4/7 scale above and the 1/3 kbd, 3/7 scale below



+14
etc.

+13
(F')
8.

+12
D
3.

+11
B
17.

+12
D
3.

1/4 KBD,

5/19 SCALE

+12
D
3.

+10
G#
12.

+8
Db
2.

+9
E#
7.

+7
Bb
16.

+8
Db
2.

+6
G
11.

+4
C#
1.

+5
E
6.

+3
A#
15.

+4
C#
1.

+2
Gb
10.

0
C
19/0.

+1
Eb
5.

-1
A
14.

0
C
0/19.

-2
F#
9.

-4
Cb
18.

-3
* D,#
4.

-5
Ab
13.

-4
Cb
18.

-6
F
8.

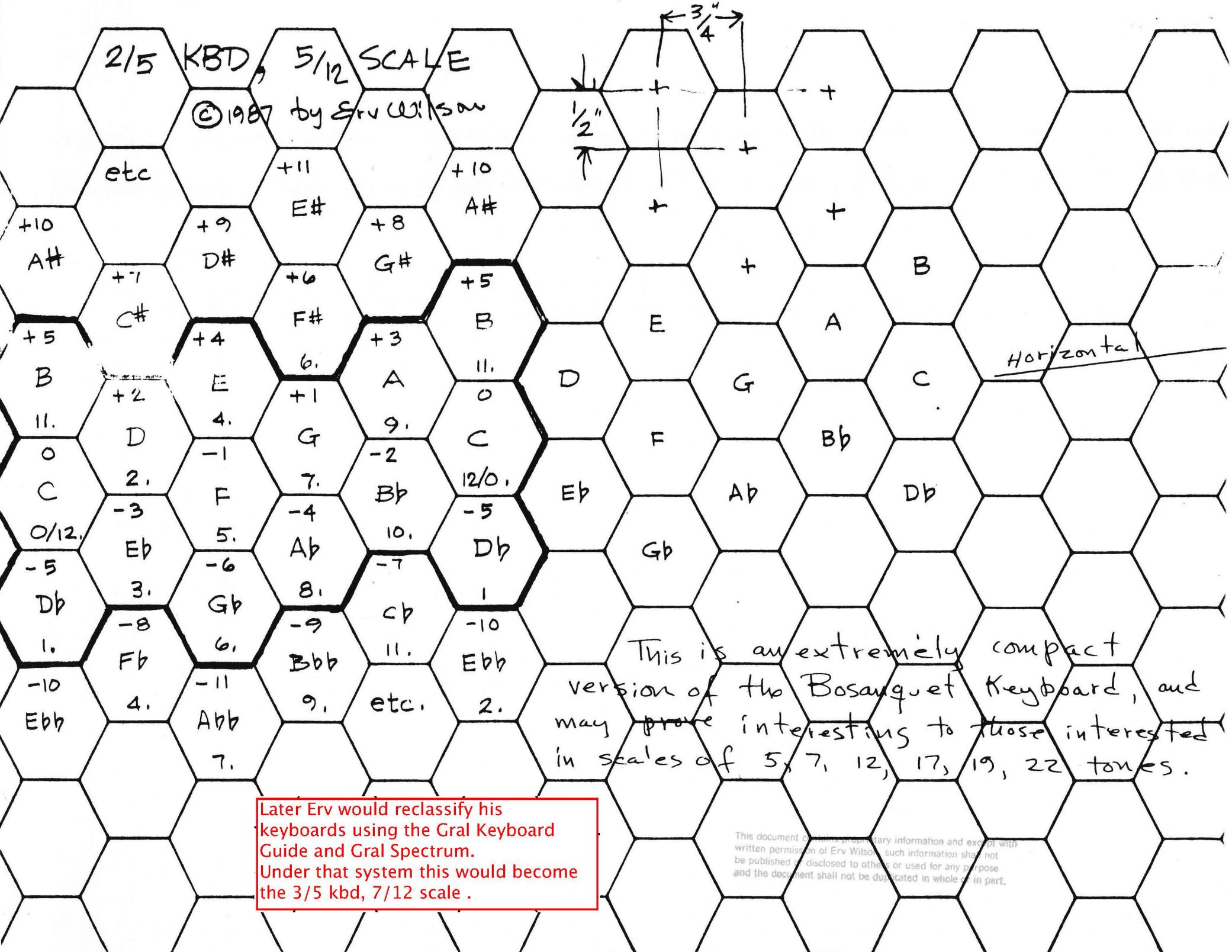
-7
(D,)
3.

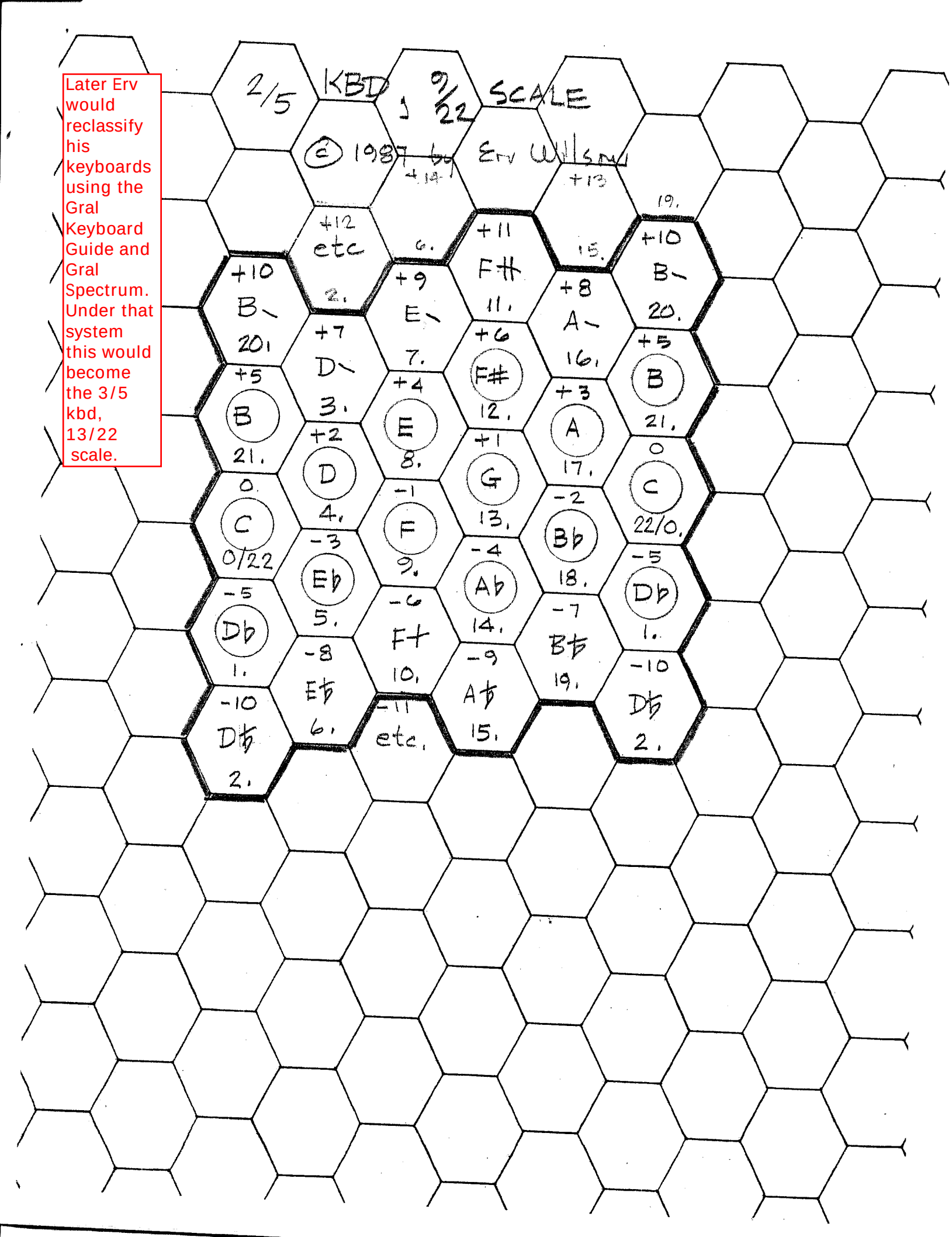
-8
etc.

HORIZONTAL

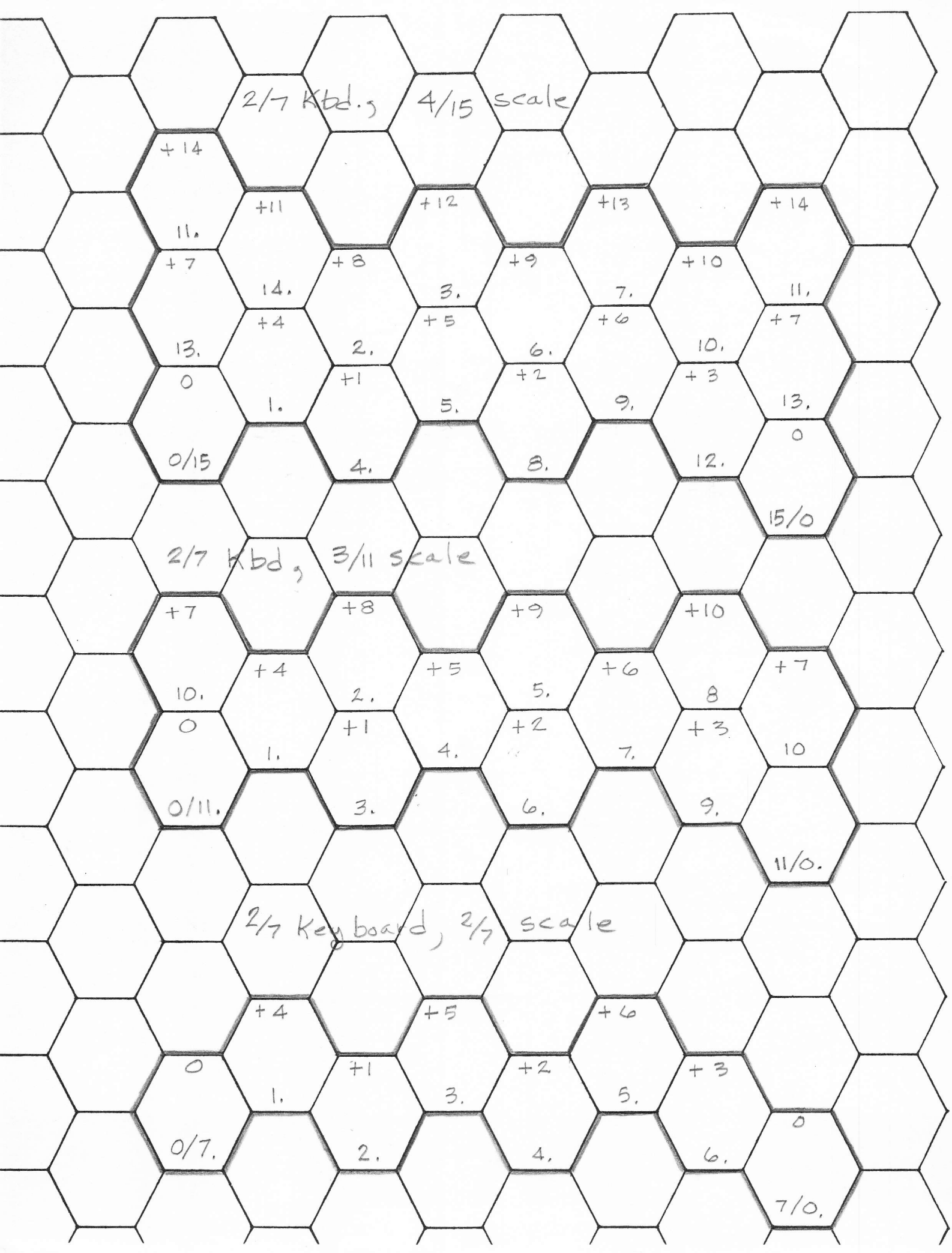
* semantic problem with notation

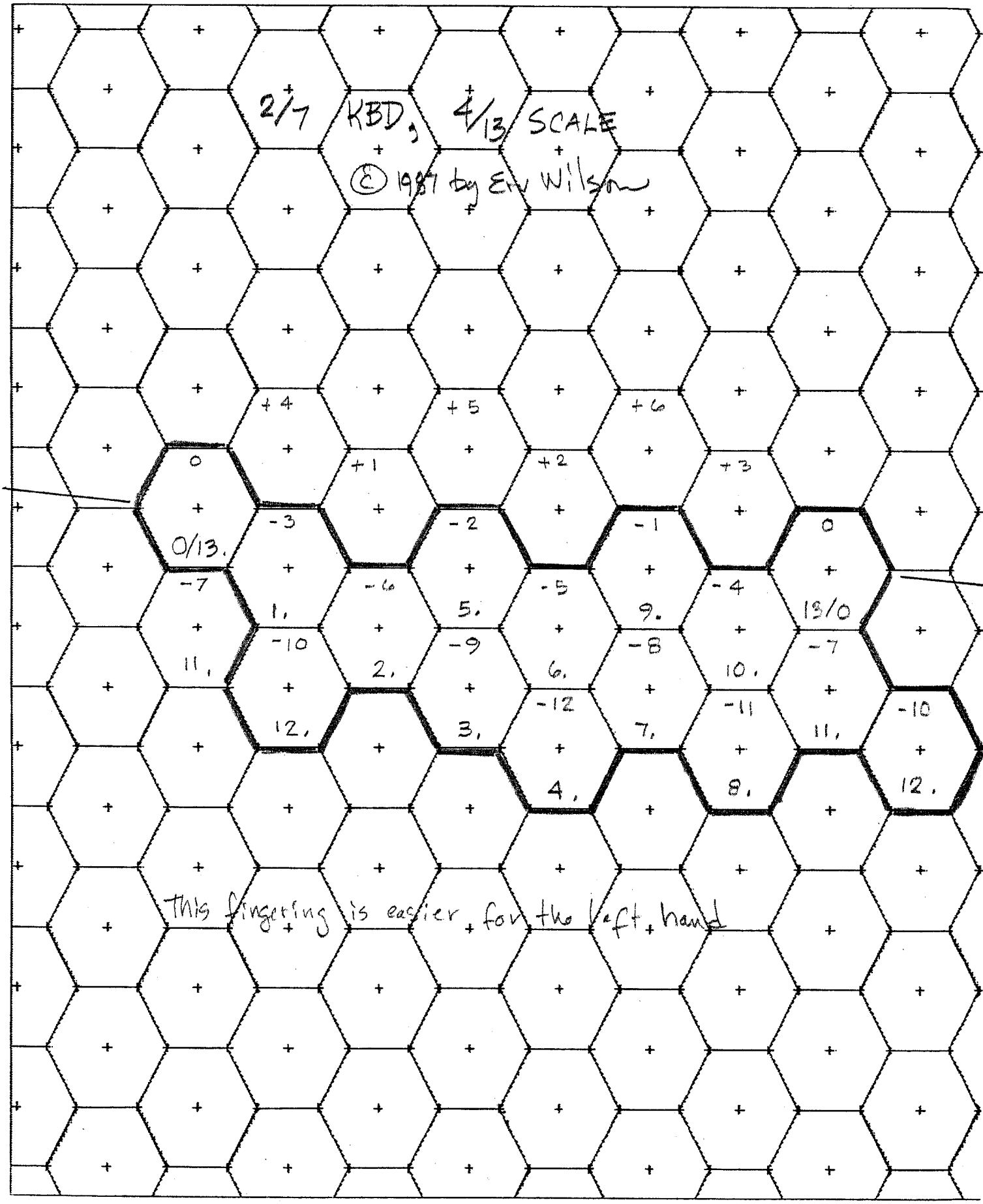
This extremely compact keyboard is ammenable to tuning by $\sqrt[6]{3}$, (an uncommonly good idea).



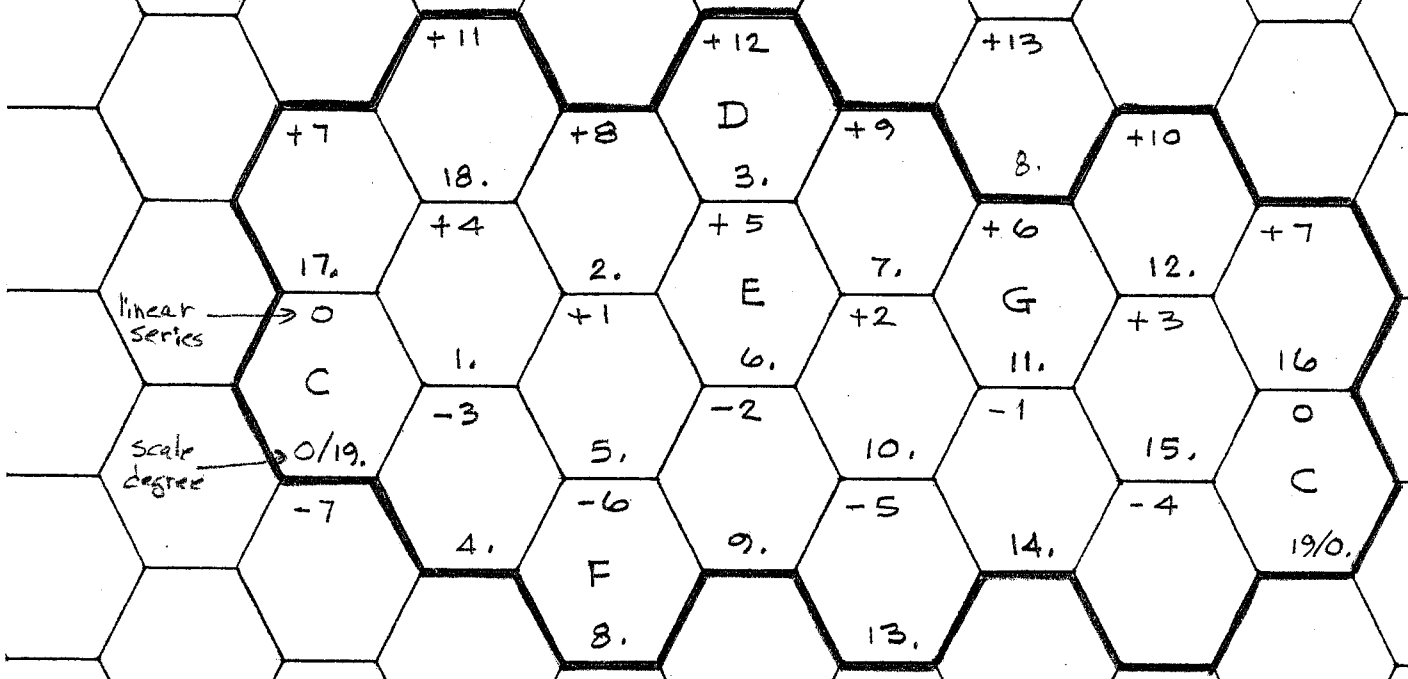


Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 3/5 kbd, 13/22 scale.


2/7 Kbd. 4/15 scale
+14
11.
+11
+12
+13
+14
+7
14.
+8
3.
+9
7.
+10
11.
13.
+4
2.
+5
6.
+6
10.
+7
0
1.
+1
5.
+2
9.
+3
13.
0/15
4.
8.
12.
0
15/0
2/7 Kbd, 3/11 scale
+7
+8
+9
+10
10.
+4
2.
+5
5.
+6
8
+7
0
1.
+1
4.
+2
7.
+3
10
0/11.
3.
6.
9.
11/0.
2/7 Keyboard, 2/7 scale
+4
+5
+6
0
1.
+1
3.
+2
5.
+3
0
0/7.
2.
4.
6.
7/0.


2/7 KBD, 4/13 SCALE
© 1987 by Erv Wilson
+4
+5
+6
0
+1
+2
+3
-3
-2
-1
0
0/13.
-7
-6
-5
-4
1,
5.
9.
13/0
-10
-9
-8
-7
11,
2,
6.
10,
-12
-11
-10
12,
3,
7,
11,
4,
8,
12,
This fingering is easier for the left hand

2/1 KBD, 5/19 scale

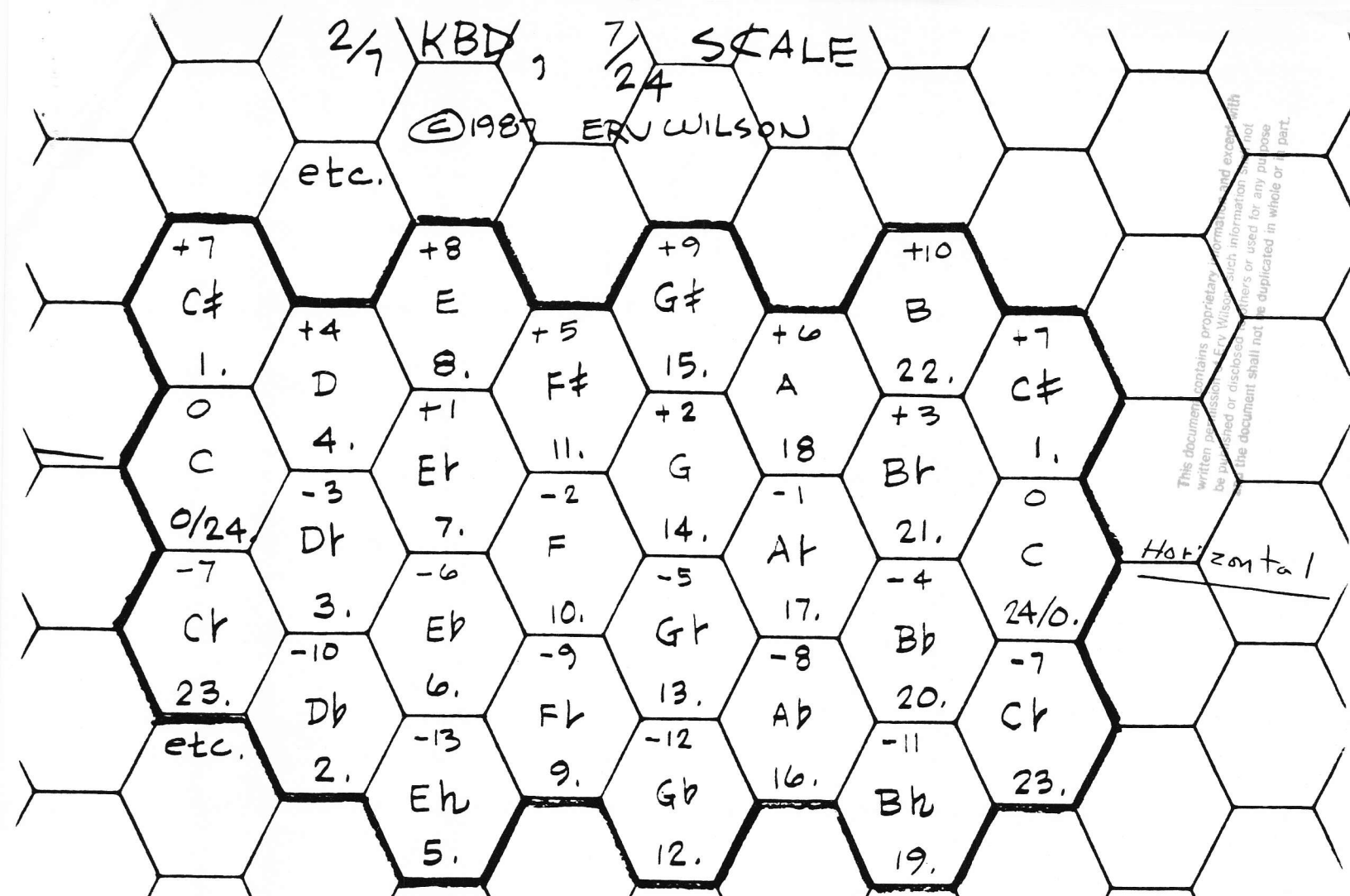


Reference; Verbal communication with Larry Hanson, and his unpublished works.

(Linear subsets of 1-, 2-, 3-, 4-, 7-, 11-, & 15-tones.)

The generating interval of the linear series (giving the 19-tone scale) may vary between 1/4 8ve and 4/15 8ve. This will include 5/19, 9/34, 14/53, and 19/72; all admirable tonal systems where linear t6 ≠ 3/2 or its functional equivalent.

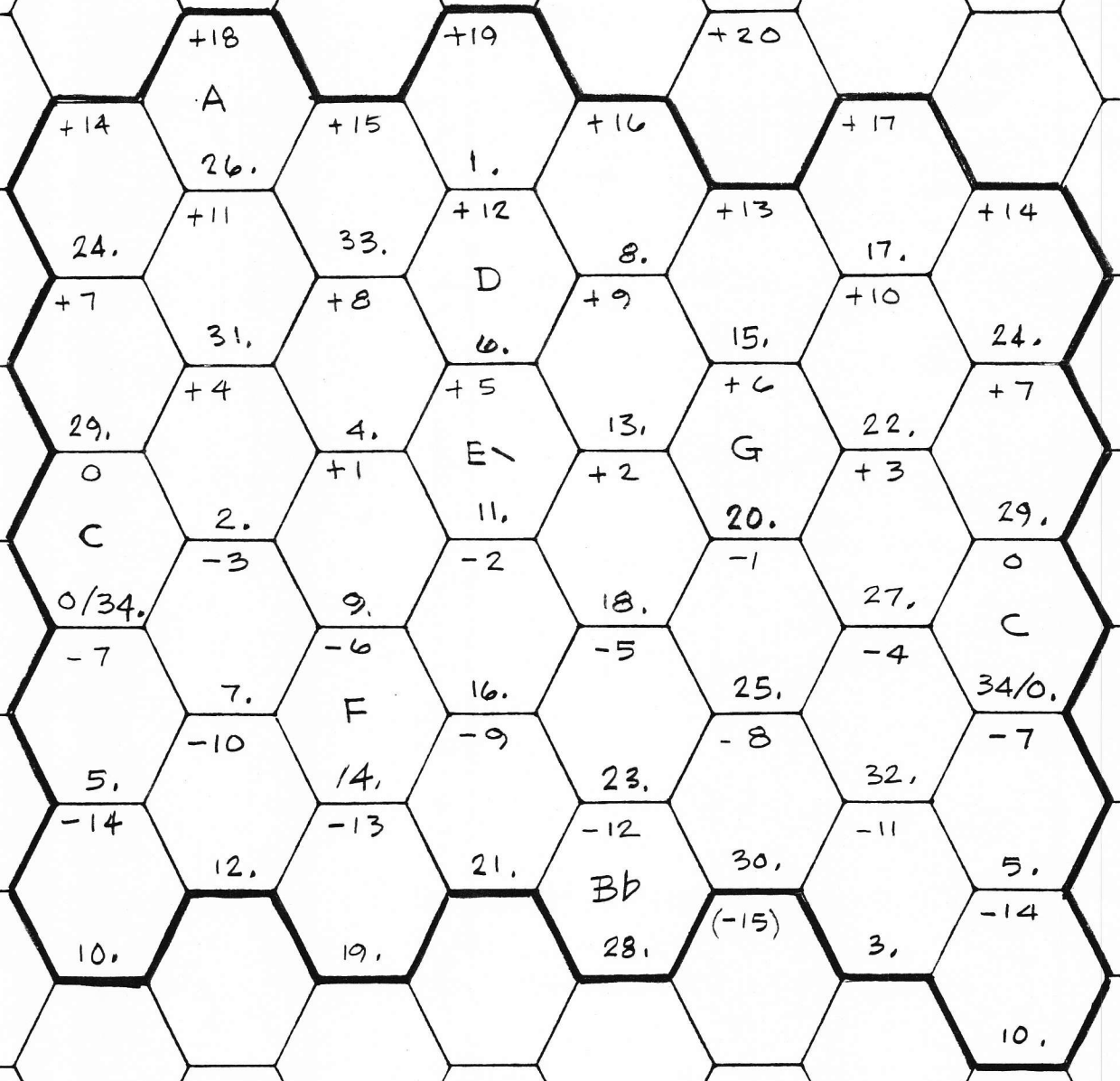
2/7 KBD, 7/24 SCALE



Horizontal

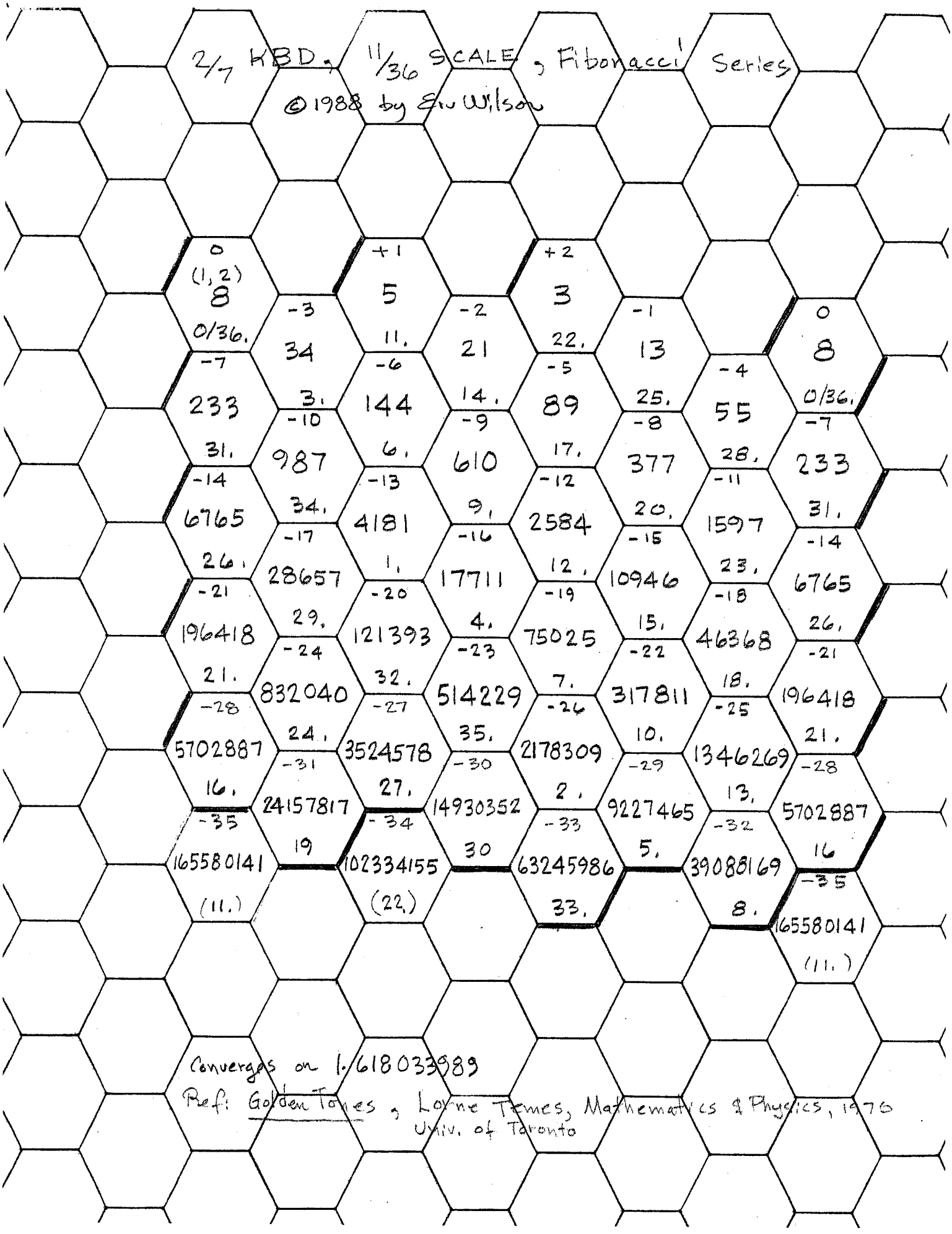
This is the best "quarter-tone" keyboard ~~Keg~~ around. It works beautifully for near-eastern scales and bag-pipe scales (where the minor third and/or the perfect Fifth is frequently divided into half. it is well suited to any tuning that can be expressed as a chain of Thirds. (I. E Collin Brown's tuning scheme) a good Keyboard for 17.

2/7 KBD, 9/34 Scale



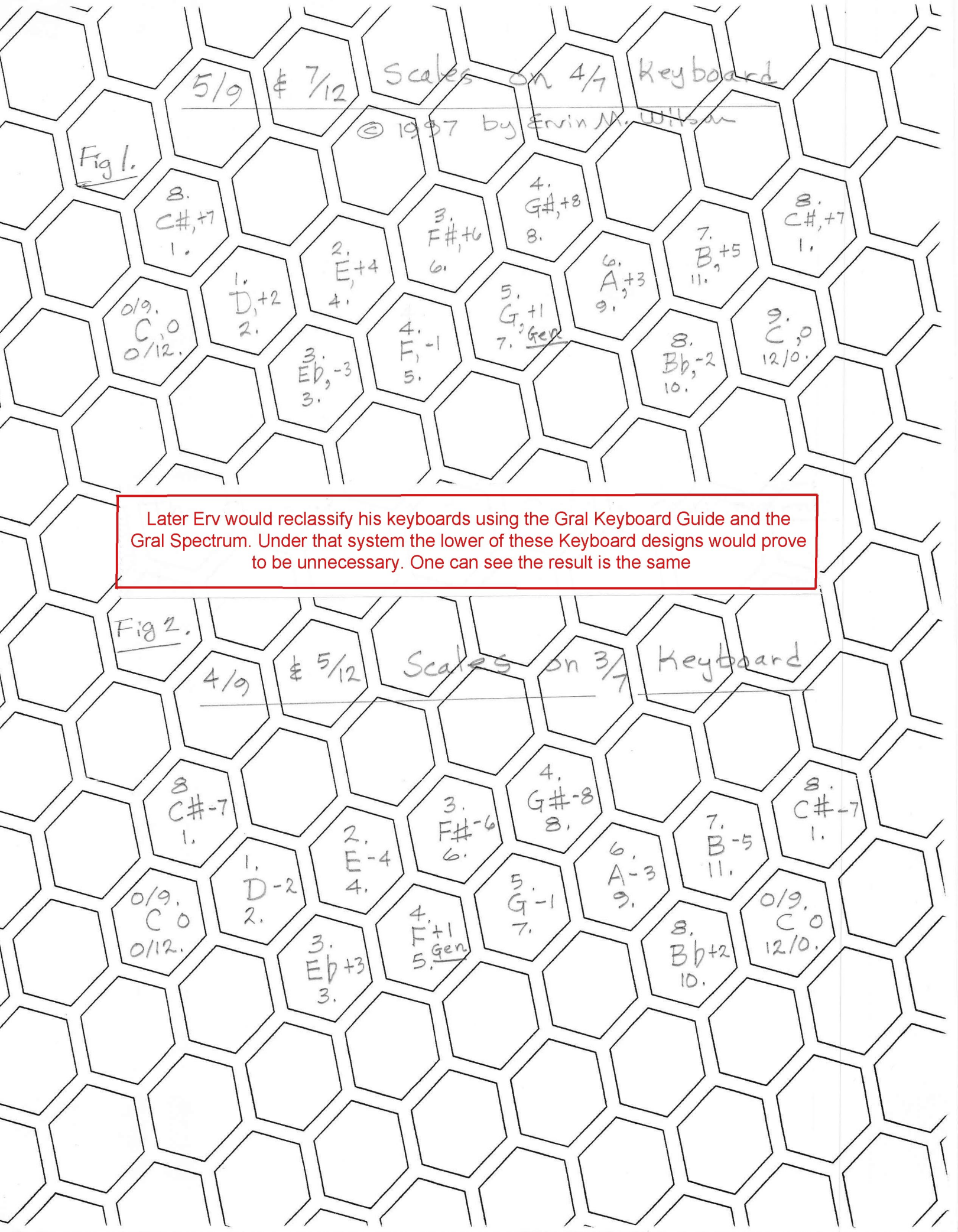
7-rank variation of Hanson Keyboard Geometry
used by permission

2/7 KBD, 11/36 SCALE, Fibonacci Series



Converges on 1.618033989

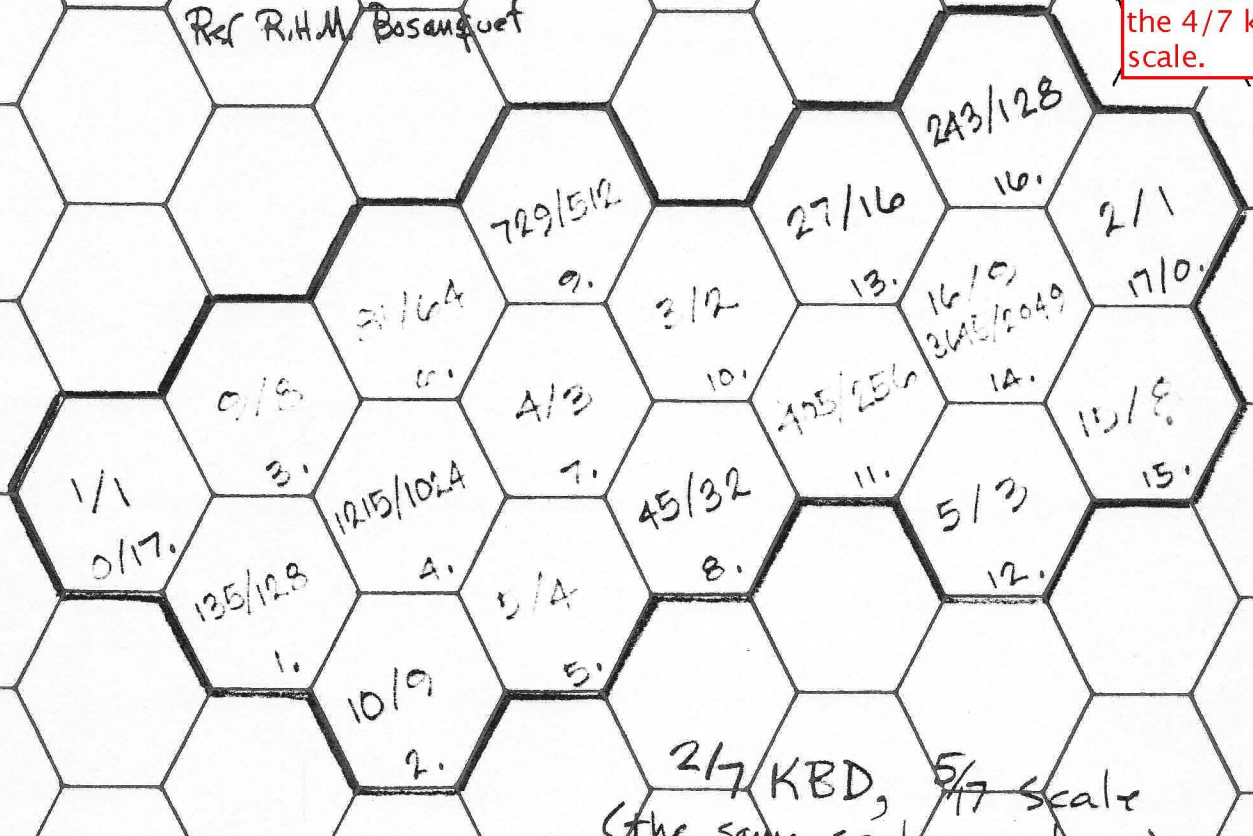
Ref: Golden Tones, Lorne Temes, Mathematics & Physics, 1976
Univ. of Toronto


5/9 & 7/12 Scales on 4/7 Keyboard
© 1997 by Ervin N. Wilson
Fig 1.
8. C#,+7 1.
1. D,+2 2.
2. E,+4 4.
3. F#,+6 6.
4. G#,+8 8.
5. G,+1 7. Gen
6. A,+3 9.
7. B,+5 11.
8. C#,+7 1.
0/9. C,0 0/12.
3. Eb,-3 3.
4. F,-1 5.
8. Bb,-2 10.
9. C,0 12/10.
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and the Gral Spectrum. Under that system the lower of these Keyboard designs would prove to be unnecessary. One can see the result is the same
Fig 2.
4/9 & 5/12 Scales on 3/7 Keyboard
8 C#-7 1.
1. D-2 2.
2. E-4 4.
3. F#-6 6.
4. G#-8 8.
5. G-1 7.
6. A-3 9.
7. B-5 11.
8. C#-7 1.
0/9. C 0 0/12.
3. Eb +3 3.
4. F +1 5. Gen
8. Bb +2 10.
0/9. C 0 12/10.

Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 7/17 scale.

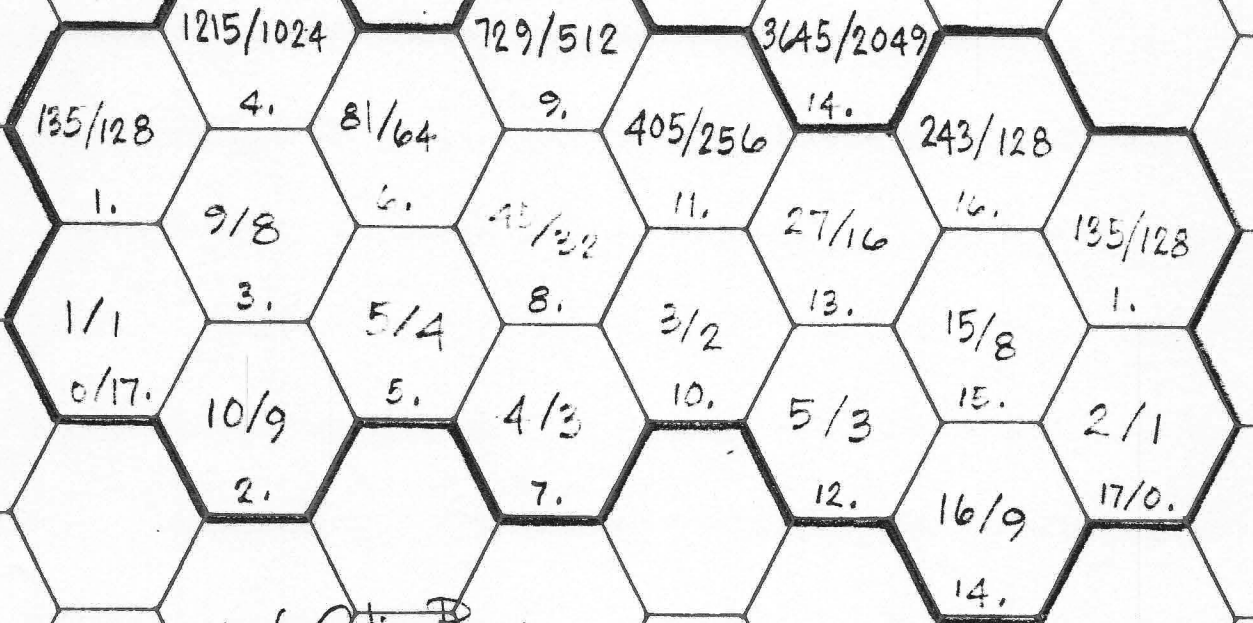
3/4 KBD, 7/17 Scale, (Just)

Ref R.H.M. Bosanquet



2/7 KBD, 5/7 Scale

(the same scale as above)



ref: Colin Brown

Diosanqoet

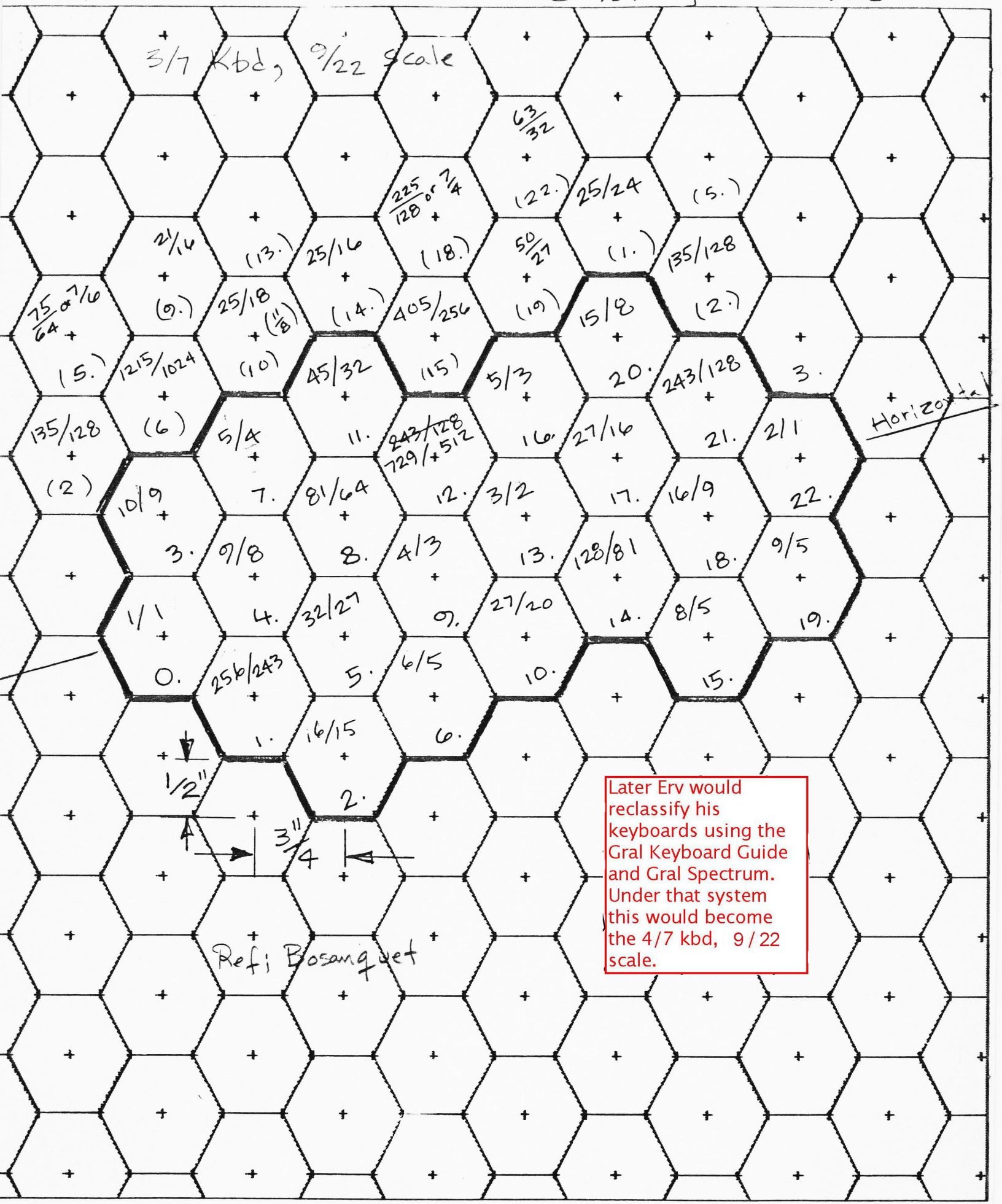
3/7 KBDs 8/19 Scale

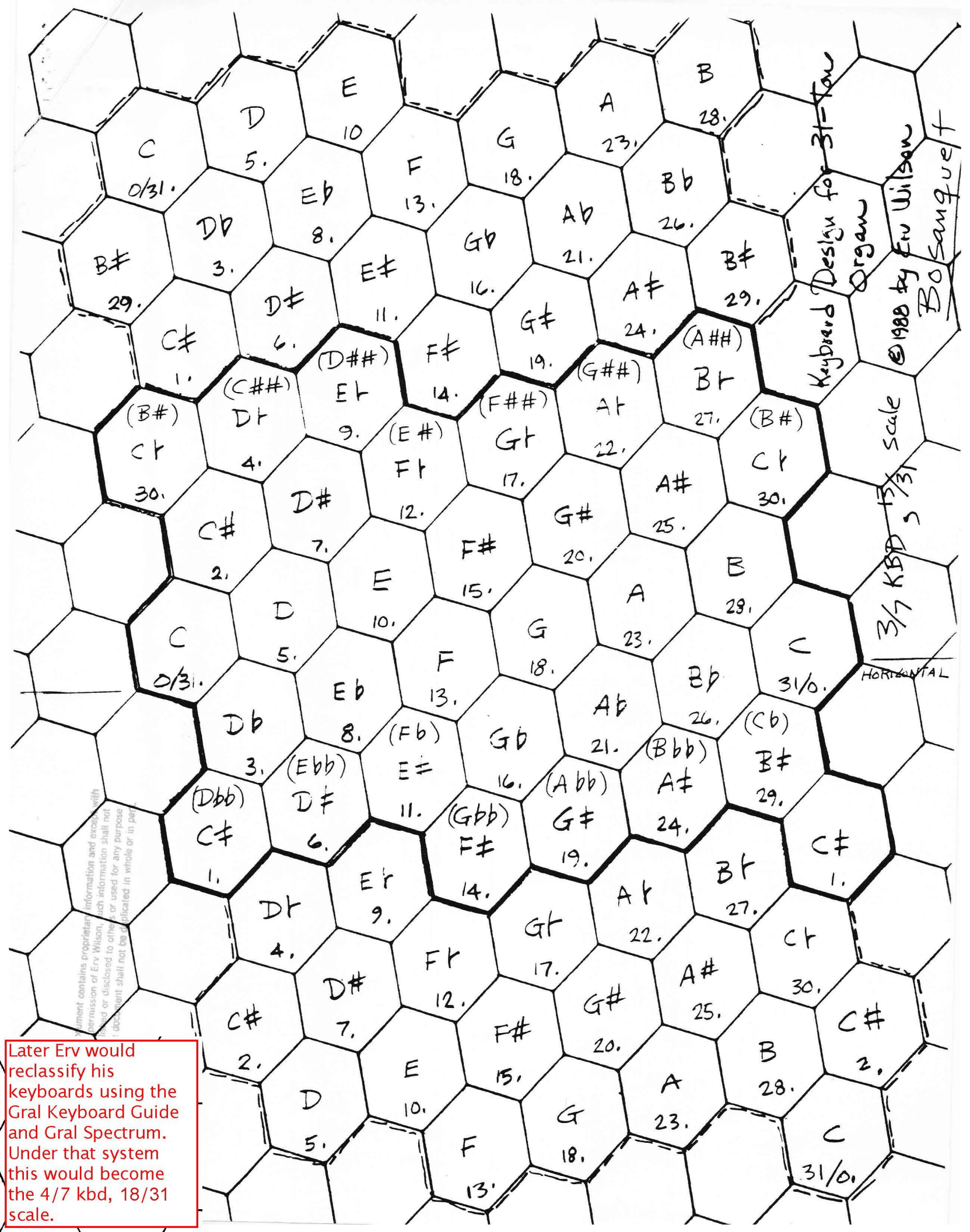
This is the most classic kind of keyboard, and it does justice to any tuning that can be expressed as a series of Fourths/Fifths. That is 5, 7, 12, 17, 19, 22, 31, 41, 43 etc.

There is a very great amount of interest in these scales.

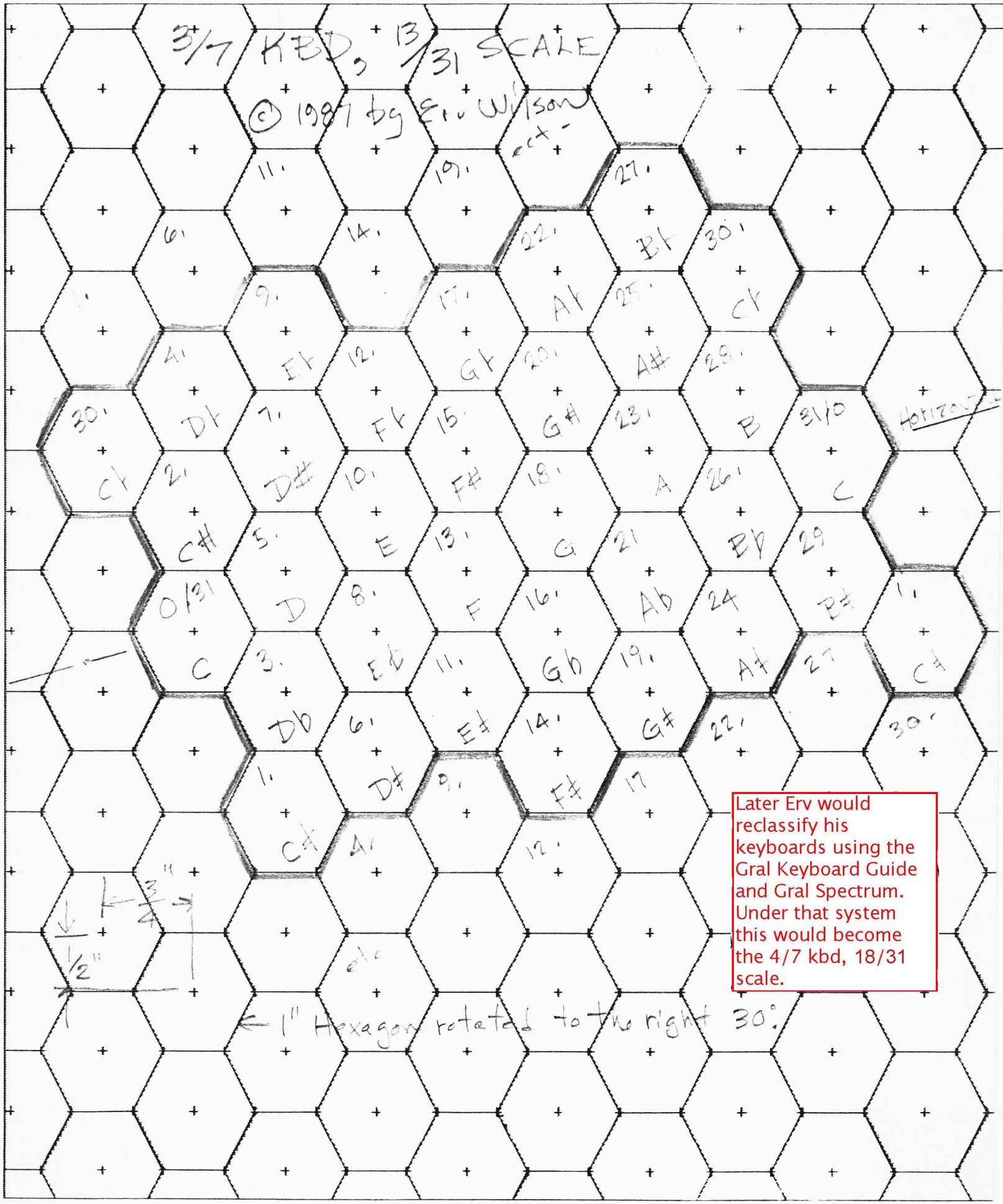
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 11/19 scale.

22-tone keyboard

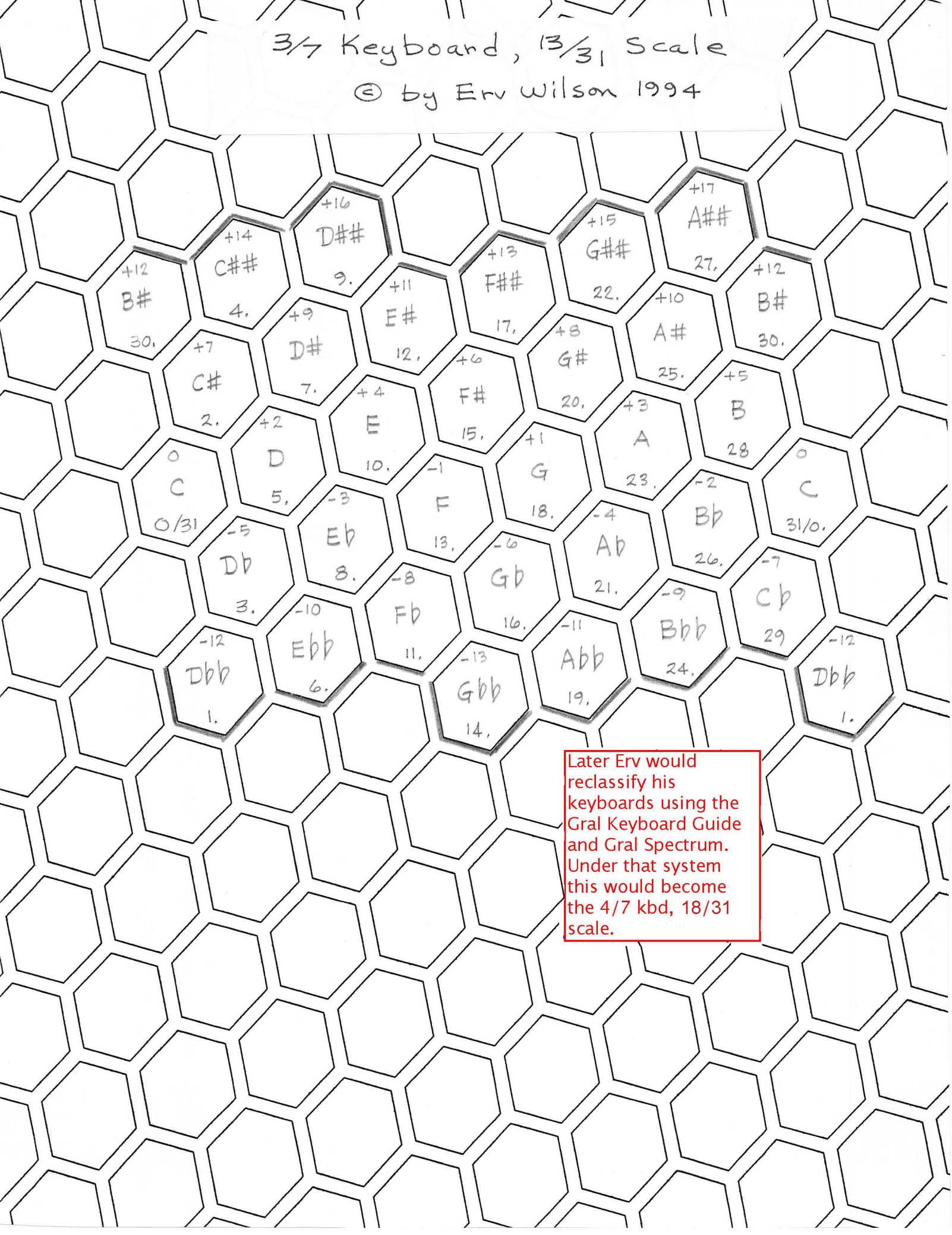




Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 18/31 scale.


3/7 KBD, 13/31 SCALE
© 1987 by E. L. Wilson
ect-
11.
19.
27.
6.
14.
22.
B♭
30.
1.
9.
17.
A♭
25.
C♭
4.
E♭
12.
G♭
20.
A♯
28.
30.
D♭
7.
F♭
15.
G♯
23.
B
31/0
C♭
2.
D♯
10.
F♯
18.
A
26.
C
C♯
5.
E
13.
G
21
B♭
29
0/31
D
8.
F
16.
Ab
24
B♯
1.
C
3.
E♭
11.
G♭
19.
A♮
27
C♯
D♭
6.
E♮
14.
G♯
22.
30.
1.
D♮
9.
F♯
17
C♮
4.
12.
3/4"
1/2"
1" Hexagon rotated to the right 30°.
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 18/31 scale.

3/7 Keyboard, 13/31 Scale

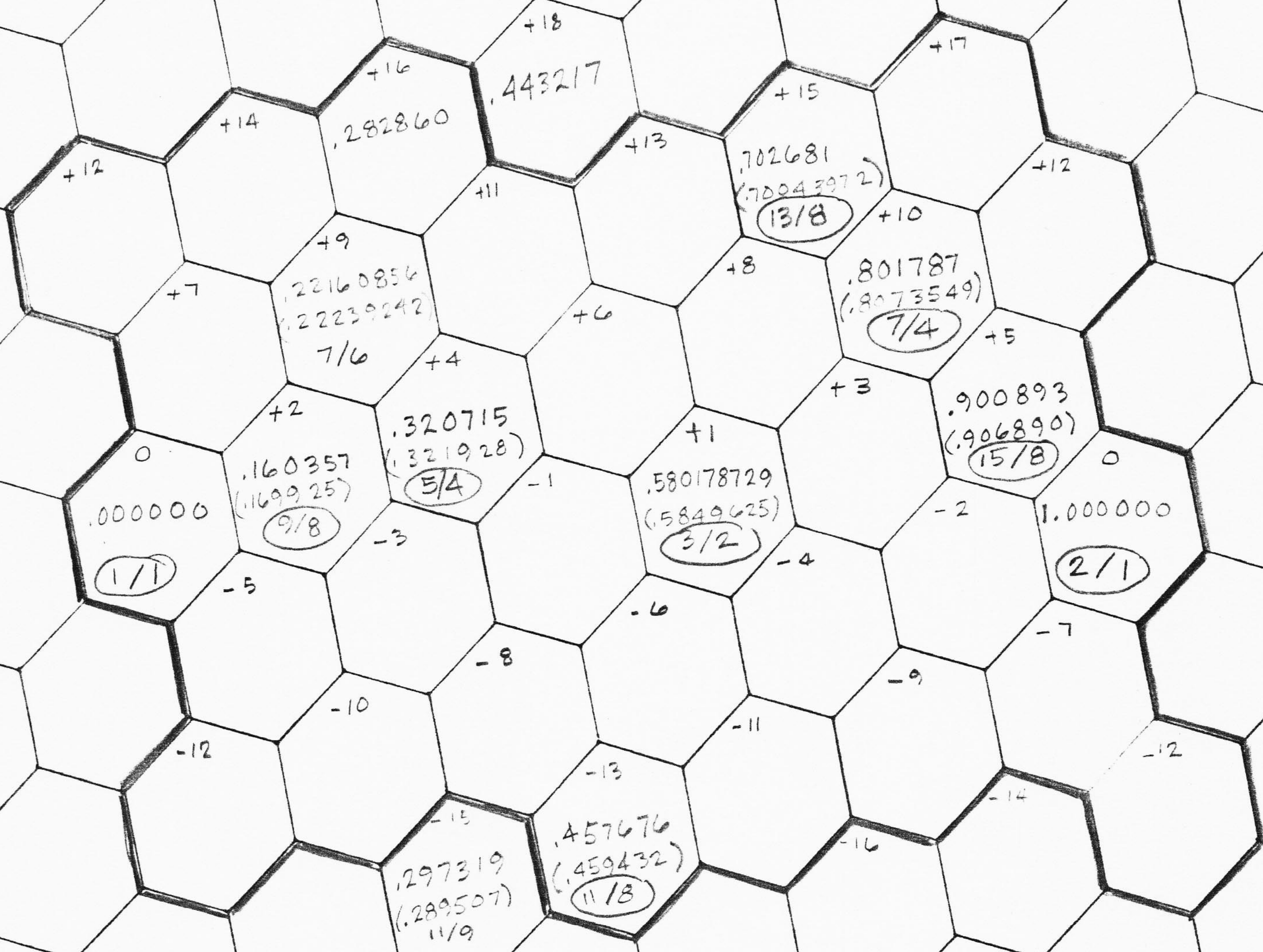


Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 18/31 scale.

Variation on the Bosanquet Keyboard

© by Erv Wilson 1988

Showing Golden Section, Thorvald Kornerup*, To 31 Places



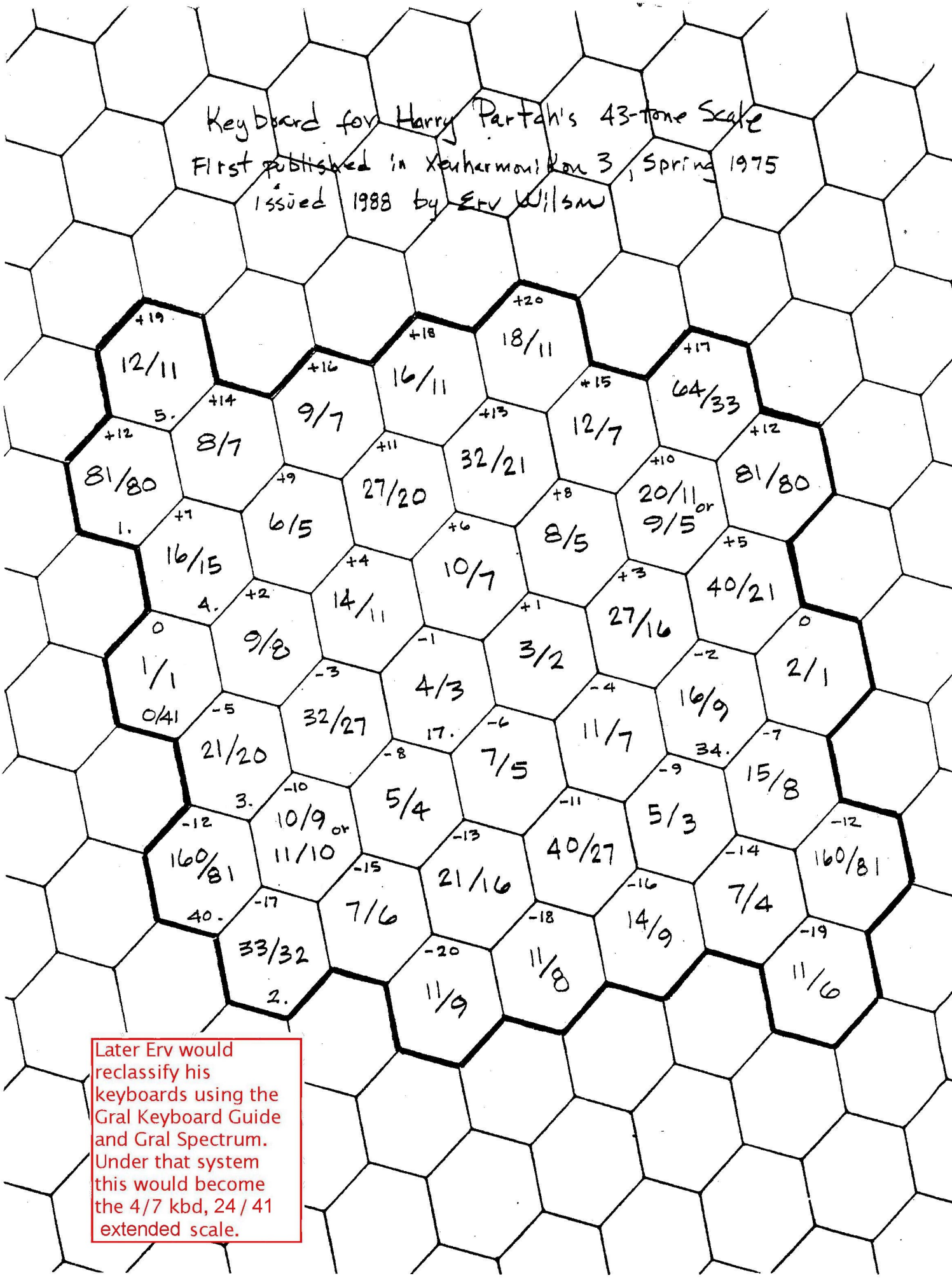
* Reference; Das goldene Tonsystem als fundament der theoretischen Akustik, Thorvald Kornerup, Copenhagen 1935

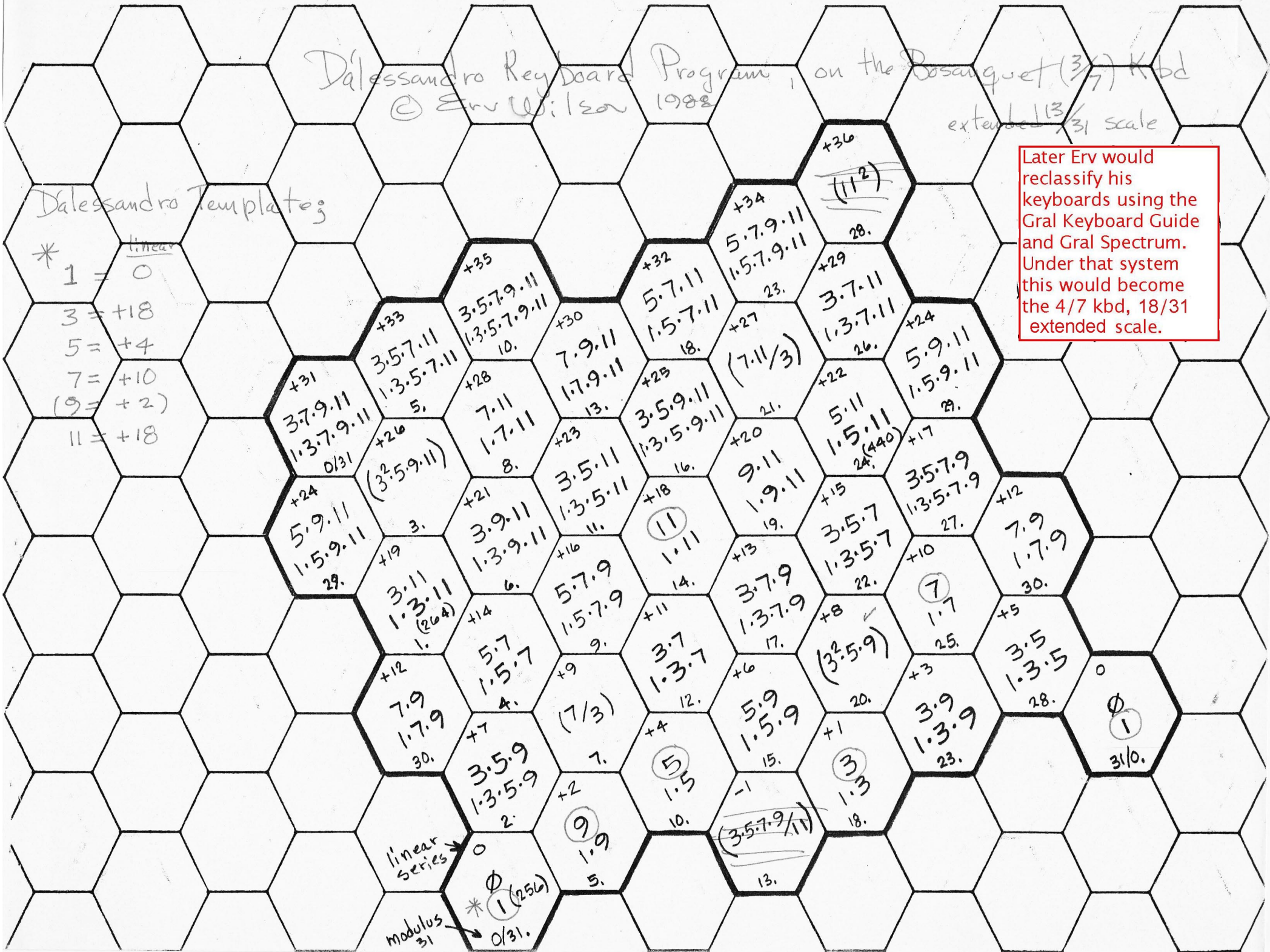
13/11 → $\frac{16.24100810}{28}$ = .58003(6)003

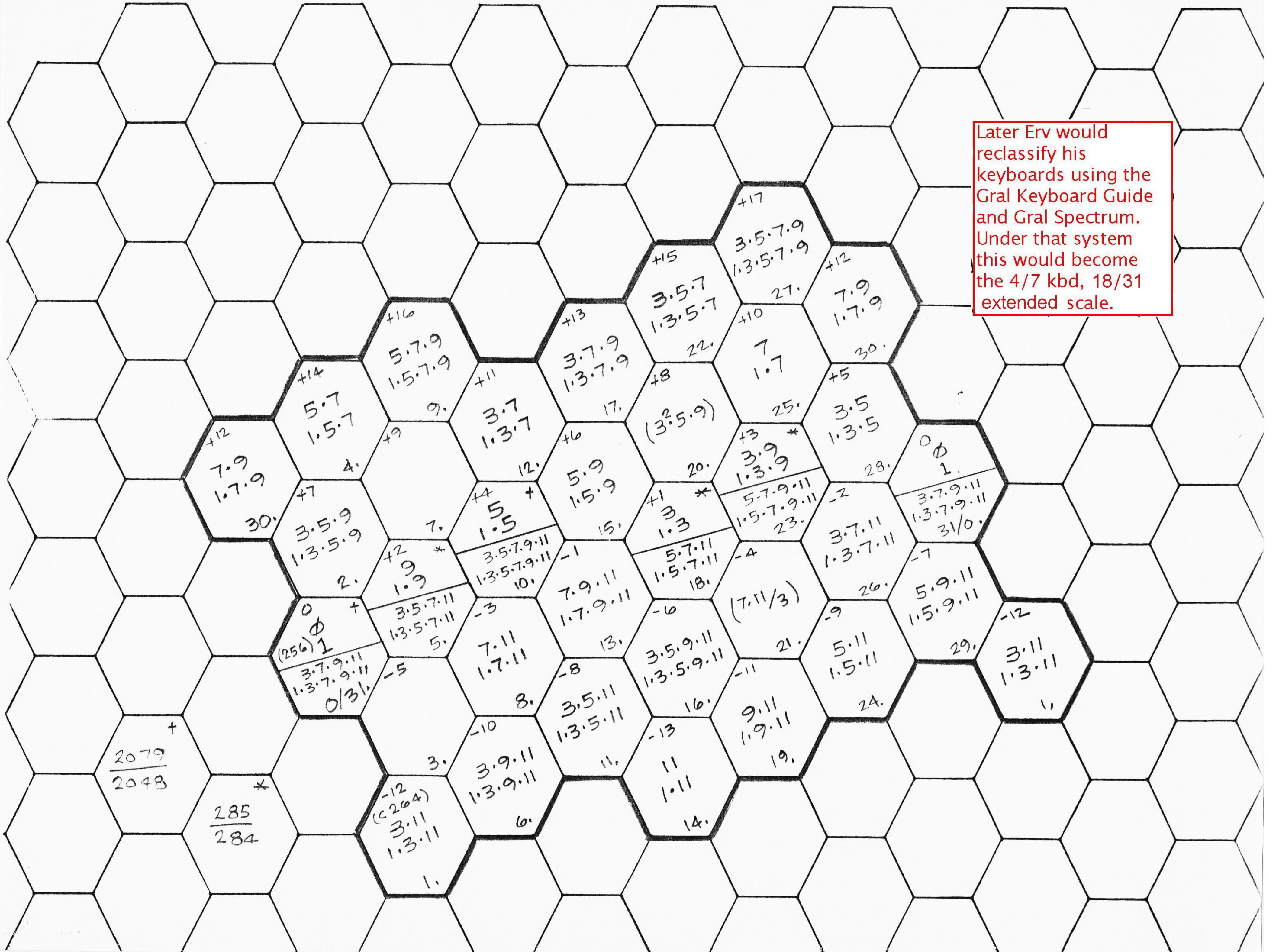
16.24590441
24100810
.00389631

123. 13/11 ÷ 23 = .58034449(1)

Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd,

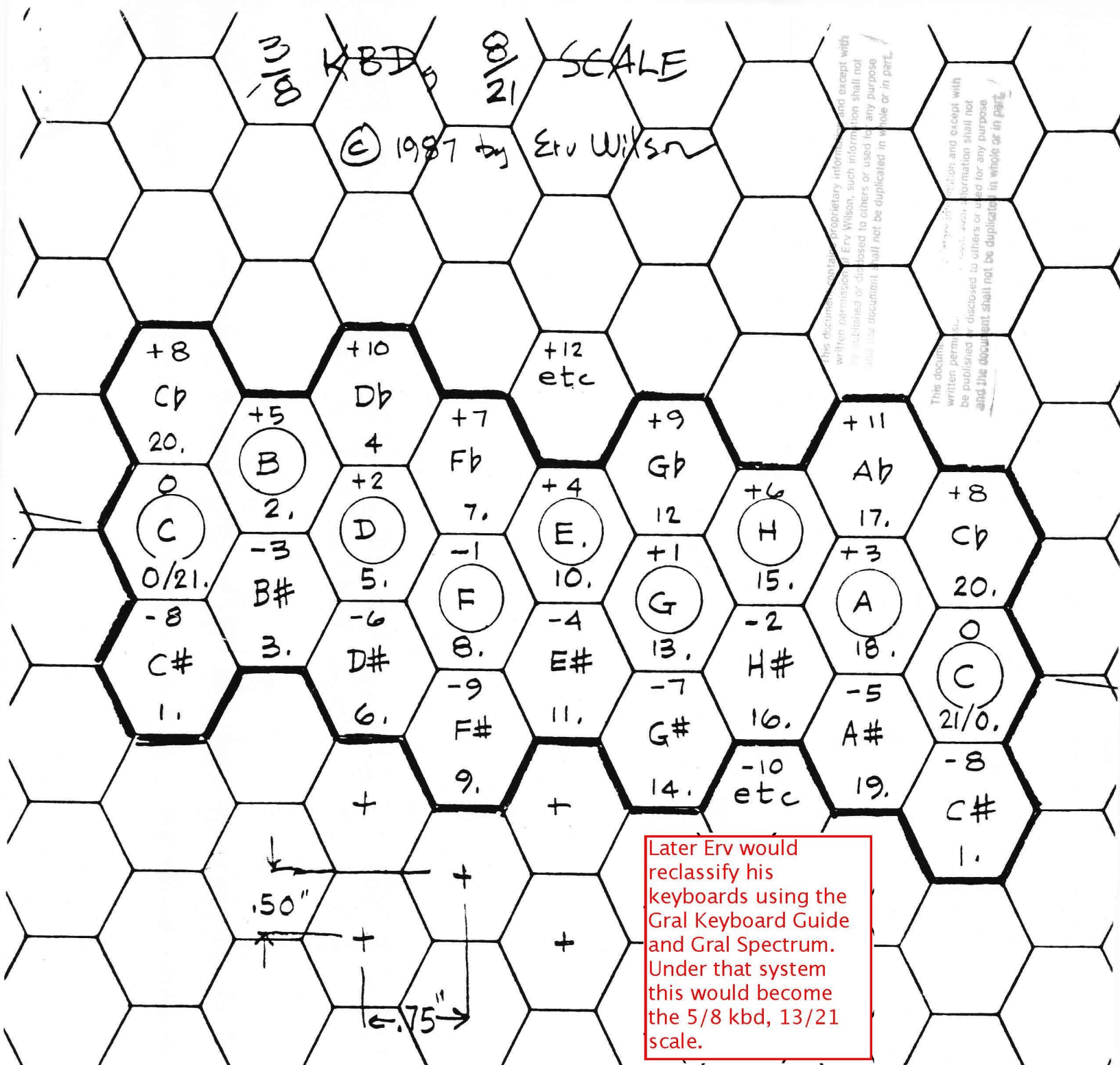

Keyboard for Harry Partch's 43-tone Scale
First published in Xenharmonikon 3, Spring 1975
Issued 1988 by Erv Wilson
+19
12/11
5.
+18
16/11
+20
18/11
+17
64/33
+16
9/7
+15
12/7
+14
8/7
+13
32/21
+12
81/80
+12
81/80
+11
27/20
+10
20/11 or 9/5
+9
6/5
+8
8/5
+7
16/15
1.
+6
10/7
+5
40/21
+4
14/11
+3
27/16
+2
9/8
4.
+1
3/2
0
1/1
0/41
-1
4/3
0
2/1
-2
16/9
-3
32/27
-4
11/7
-5
21/20
3.
17.
-6
7/5
-7
15/8
34.
-8
5/4
-9
5/3
-10
10/9 or 11/10
-11
40/27
-12
160/81
-13
21/16
-12
160/81
-14
7/4
-15
7/6
-16
14/9
40.
-17
33/32
2.
-18
11/8
-19
11/6
-20
11/9
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 24/41 extended scale.


Dalessandro Keyboard Program, on the Bosanquet (3/7) Kbd
© Erv Wilson 1988
extended 13/31 scale
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 18/31 extended scale.
Dalessandro Template:
linear
* 1 = 0
3 = +18
5 = +4
7 = +10
(9 = +2)
11 = +18
linear series
modulus 31
0/31.



Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/7 kbd, 18/31 extended scale.

3/8 KBD 8/21 SCALE



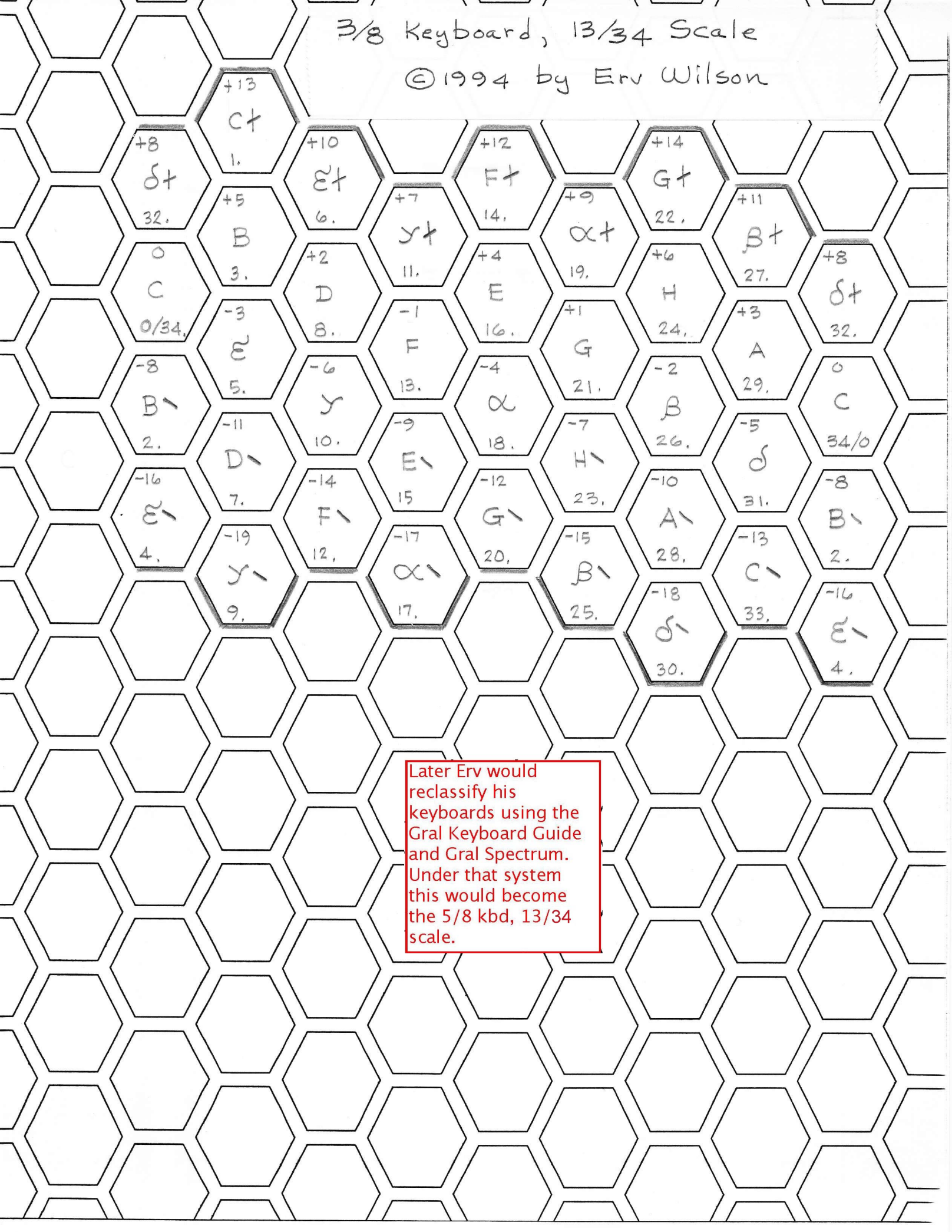
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 5/8 kbd, 13/21 scale.

Only the most hardened experimentalist would have a use for this keyboard. (Myself, for example)

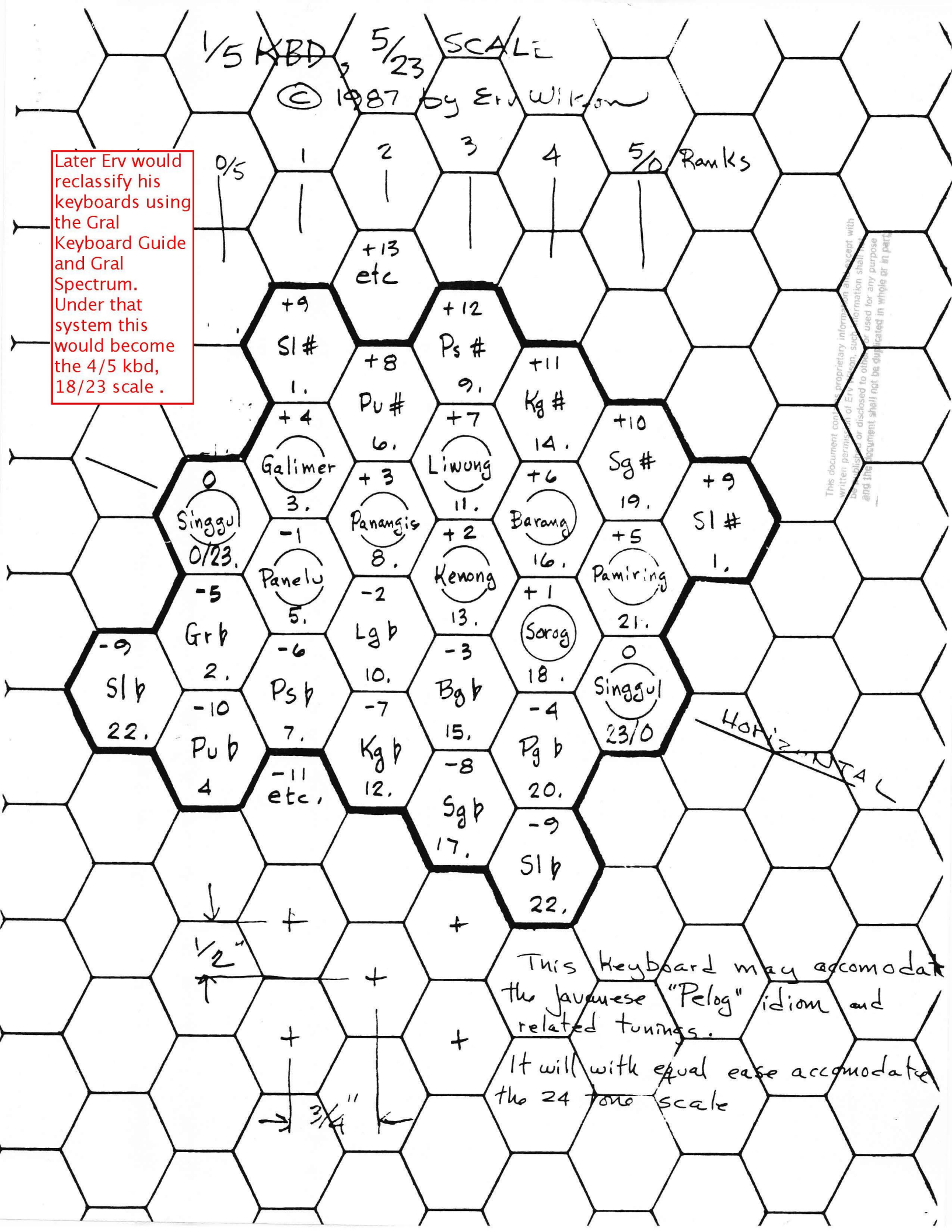
It is especially well suited for scales of the True* golden Section of the 8ve yielding scales of 1, 2, 3, 5, 8, 13, 21, 34, 55 etc tones per 8ve.

(*not to be confused with Kornerup's golden section of the Fifth)

3/8 Keyboard, 13/34 Scale



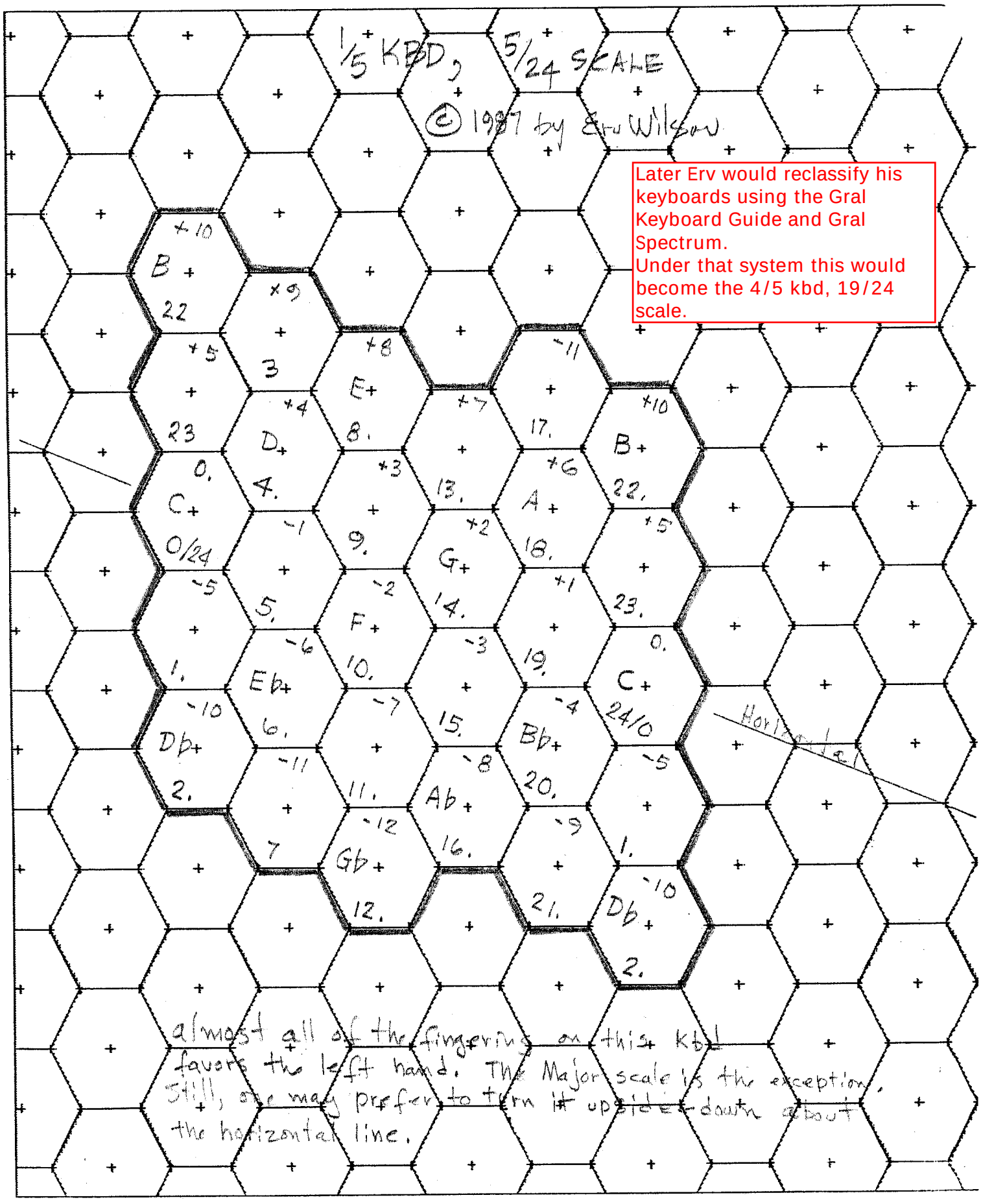
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 5/8 kbd, 13/34 scale.



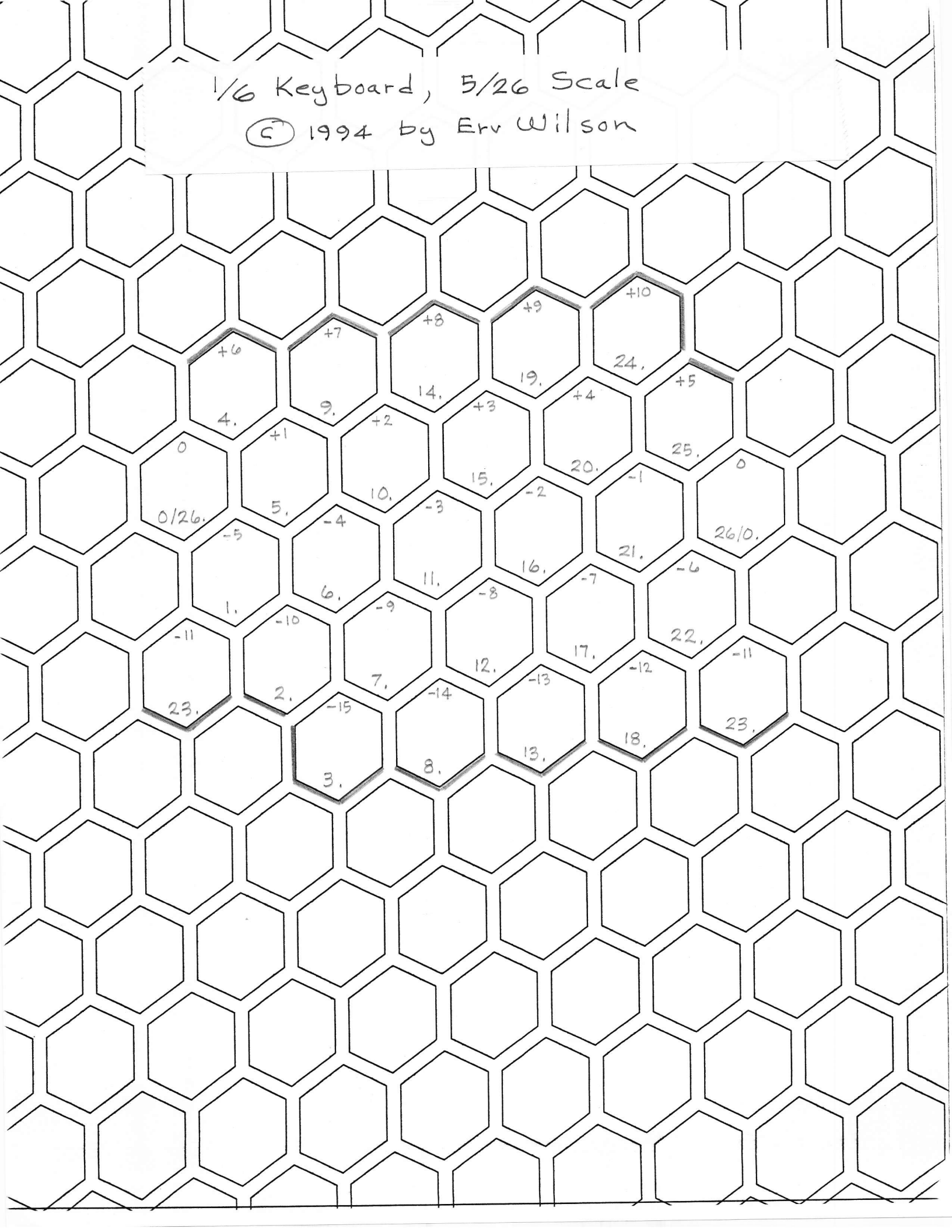
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum. Under that system this would become the 4/5 kbd, 18/23 scale.

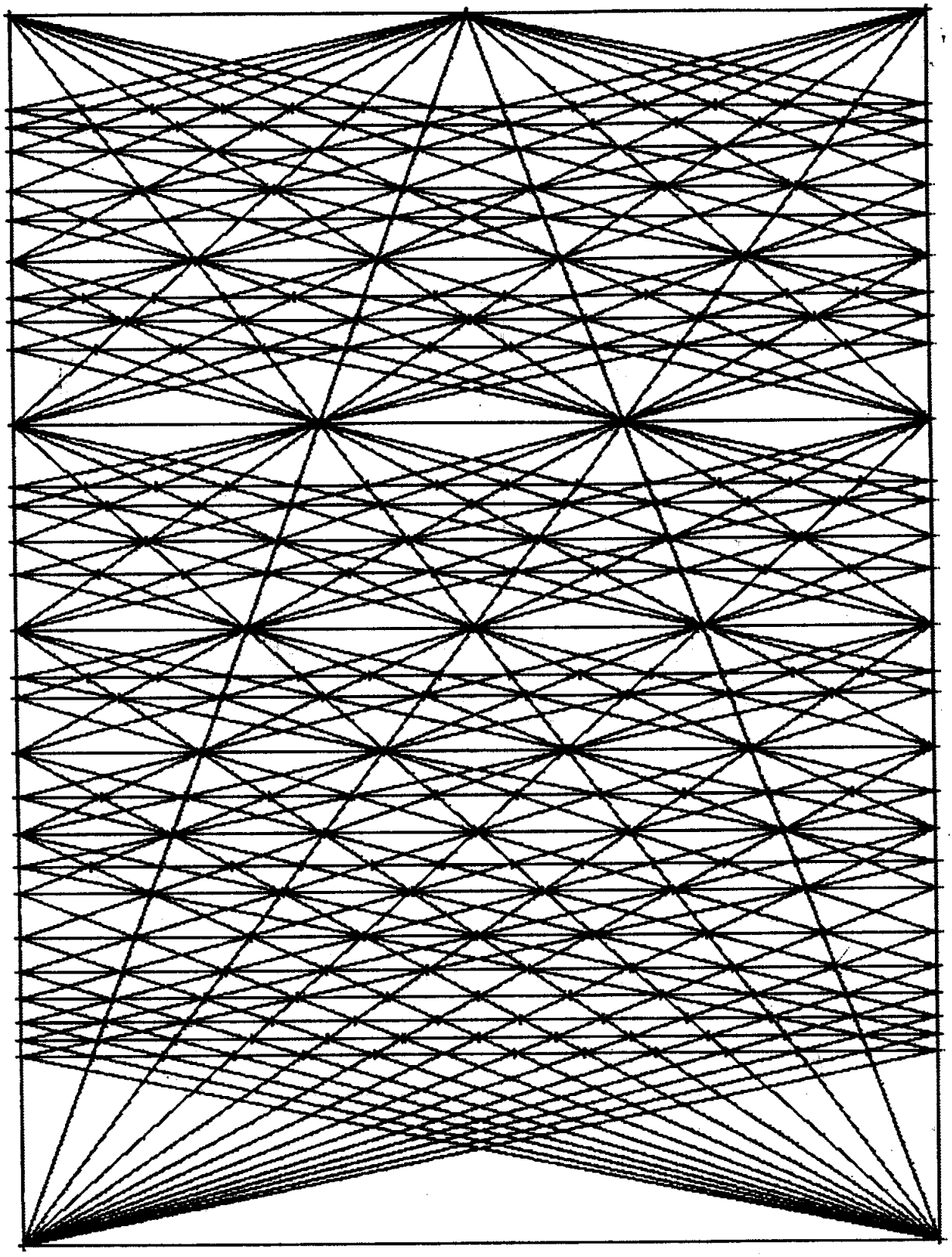
This keyboard may accomodate the Javanese "Pelog" idiom and related tunings.

It will with equal ease accomodate the 24 tone scale


1/5 KBD, 5/24 SCALE
© 1987 by Erv Wilson
Later Erv would reclassify his keyboards using the Gral Keyboard Guide and Gral Spectrum.
Under that system this would become the 4/5 kbd, 19/24 scale.
B +10 22
+9
+5 3
E +8
-11
D +4 23
+7
+10
0. C 0/24
4. +3
13. A +6
B +10 22.
-1 9.
G +2
18. +5
-5 5.
F -2
14. +1
23.
-6 1. Eb
10. -3
19. 0. C
-10 Db 2.
6. -7
15. Bb -4
24/0
-11 11.
Ab -8
20. -5
7 Gb -12
16. -9
1. -10
12.
21. Db
2.
Horizontal
almost all of the fingerings on this kbd favors the left hand. The Major scale is the exception. Still, one may prefer to turn it upside-down about the horizontal line.

1/6 Keyboard, 5/26 Scale





)P WORK

5-7 Linear Spectrum