Bob's Poetry Magazine

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Bob's Poetry
Magazine

In this issue,
- A paper on totient valences
- An overview of Michael Haydn's instrumental music
- Sudoku puzzle

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Dear Readers, no poetry this month, but instead a mathematical paper and an overview of the instrumental music of Michael Haydn. Some of Michael Haydn's music will be available in the Virtual MIDI Concert Hall of this magazine's website. The mathematical paper presents some solutions, but also raises some questions. Perhaps a Reader of this magazine might be able to volunteer their mathematical expertise and computer time towards answering some of these questions.

Corrections

Apologies in advance for Romanian T with comma on page 25. It should be a T with cedilla but I don't have the necessary font. Indeed very few people do currently. I'm told that Unicode is working in concert with computer vendors and Romanian linguists towards addressing this deficiency.

If you see anything at all in this magazine that you think is a mistake, please don't hesitate to e-mail corrections@bobspoetry.com.

A Few Observations on Totient and Cototient Valence

Lisa Havelock

Euler's totient function $\varphi(n)$ counts how many integers $i < n$ are coprime to n. One application of this is that in the series of fractions $\dfrac{1}{n}$ to $\dfrac{n-1}{n}$ it tells how many of those fractions can be reduced to lower terms. For example, $\varphi(10) = 4$. We verify that $\dfrac{1}{10}, \dfrac{1}{5}, \dfrac{3}{10}, \dfrac{2}{5}, \dfrac{1}{2}, \dfrac{3}{5}, \dfrac{7}{10}, \dfrac{4}{5}, \dfrac{9}{10}$.

Reviewing the values of $\varphi(n)$ for say, $n < 100$, it quickly becomes obvious that some values occur more often than others. With one exception (1), all values are even. Some even numbers (like 14 and 26)

don't occur at all. Other values, like 24, occur a lot. The totient valence function $N_\varphi(m)$ counts how often m occurs as a totient.

If a value occurs once, one can be almost certain to see it again. In fact, Carmichael conjectured that no totient ever occurs just once. An integer is either a nontotient or has $N_\varphi(m) > 1$. Naturally, one might wonder if for every $m > 1$ there is at least one n such that $N_\varphi(n) = m$. Sequence A007374 in Sloane's OEIS would seem to suggest so: its values are 1, 2, 4, 8, 12, 32, 36, 40, 24, 48, 160, 396, 2268, 704, 312, 72, 336, 216, 936, 144, 624, 1056, 1760, 360, 2560, 384, 288, 1320, 3696, 240, 768, 9000, 432, 7128, 4200, 480, 576, 1296, 1200, 15936, 3312, 3072, 3240, 864, 3120, 7344, 3888, 720, 1680, 4992, corresponding to the range $1 < m < 52$.

Since it's not a neatly ascending sequence, one is tempted to sort it, or at least I am. The resulting sequence is not in the OEIS. But if instead one simply strikes out those terms that are followed by smaller terms, results in this: 1, 2, 4, 8, 12, ~~32, 36, 40,~~ 24, 48, ~~160, 396, 2268, 704, 312,~~ 72, ~~336, 216, 936,~~ 144, ~~624, 1056, 1760, 360, 2560, 384, 288, 1320, 3696,~~ 240, ~~768, 9000,~~ 432, ~~7128, 4200,~~ 480, 576, ~~1296, 1200, 15936, 3312, 3072, 3240, 864, 3120, 7344, 3888,~~ 720, 1680, 4992. Entering only the terms that haven't been

struck out doesn't give a result in the OEIS, but if you leave out the last three terms given here, sequence A097942 comes up.

Define a *highly totient number* as an integer k with a higher totient valence than all smaller integers. These numbers are listed in A097942 of Sloane's OEIS. There is something familiar about A097942, and it's not that it's obviously derived from A007374. My hunch that it had a lot of terms in common with A002182, the highly composite numbers, did not stand up in a comparison in Mathematica, the computer algebra system from Wolfram. The only terms in common, at least in the ranges observed, are 1, 2, 4, 12, 24, 48, 240 and 720. However, notice that aside from 1, 2, 4 and 8, all terms are abundant numbers. This is probably a result of $\varphi(n)$ being a multiplicative function.

At this point I'm not inclined to rehash the proof that $\varphi(n)$ is a multiplicative function (suffice it to say that it has something to do with the Chinese remainder theorem) nor do I care to argue that the value of $\varphi(1)$ should be anything other than 1.

It is obvious that $\varphi(p) = p - 1$, where p is a prime number. Having accepted that $\varphi(n)$ is multiplicative, we are now equipped to make generalizations about the totient values of any kind of composite numbers.

Defining a semiprime as pq, then it follows that $\varphi(pq)$ = $(p − 1)(q − 1)$. Defining a sphenic number as pqr, then it follows that $\varphi(pqr) = (p − 1)(q − 1)(r − 1)$, and so on and so forth for any squarefree composites.

Multiplicativeness doesn't help us for powers of primes, but a little reflection upon a values table should quickly reveal the formula $\varphi(p^x) = p^x − p^{x-1} = p^{x-1}(p − 1)$. Going further then, $\varphi(p^x q^y) = (p^x − p^{x-1})(q^y − q^{y-1}) = (p^{x-1}(p − 1))(q^{y-1}(q − 1))$, and so on and so forth. In any case, this helps explain why the first few values of $\varphi(p)$ should be 1, 2, 4, 6, 10, 12, 16, 18, 22, 28, 30, 36, 40, etc., and so on.

It ought to be very clear by now that numbers of the form $p − 1$ play an important rôle here. The next question then is: what is the smallest integer k that can be expressed as a product of n (not necessarily distinct) numbers of the form $p − 1$ in n different ways? The sequence of course begins with 1 and continues 2, 4, 36, 72 …

If we redefine to allow products of numbers of the form $p − 1$ and powers of that same p, the sequence does not change, at least not in the range of the first hundred integers. But if we allow further redefinitions, to account for sphenic numbers, numbers with several distinct prime factors, and

squareful numbers, then the sequence becomes precisely that of the highly totient numbers.

Thus the pattern behind the highly totient numbers is explained, and I pat myself on the back for having proved it. A few years ago, Robert Happelberg tried to explain the pattern of the highly totient numbers by looking at similar sequences. He came upon the tantalizing coincidence that the powers of 2 written in base 14 look a lot like the highly totient numbers written in base 10, and he still thinks this might have something to do with the fact that 14 is a nontotient. Having explained the pattern of the highly totient numbers as I have, I don't feel inclined to explore the reason for this particular relation to the powers of 2. However, I would like to add the observation that the totient sum function $\sum_{i=1}^{n} \varphi(i)$ gives a lot of nontotient values, for $n = 27$ through 31 to name just a few.

It's a little tougher to explain why so many highly cototient numbers are prime and why so many of them are congruent to 9 mod 10. Because the cototient function is not multiplicative like the totient function is, my attempts to generalize cases of cototient values and cototient valences along the same lines as totient values and totient valences met with a

dead end. I also considered if perhaps I could increase the modulo, to say perhaps 9 mod 20 or even 9 mod 100, but I couldn't find one that fits all the numbers listed in A100827 that are congruent to 9 mod 10. It wasn't until late 2006 that Wilfredo Lopez casually suggested in the PlanetMath forums that with the exception of the first few highly cototient numbers, all these numbers are congruent to -1 mod a primorial. It fits the currently available data.

References

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A Quick Overview Of The Instrumental Music Of Michael Haydn

Alonso Delarte

In his day, Michael Haydn was regarded by some as the greatest living composer of choral music, while his brother Joseph was regarded as the greatest living composer of instrumental music. (From this point forward just "Haydn" will refer to Michael Haydn, and I will explicitly say "Joseph Haydn" to refer to his brother.)

For the most part, Haydn only wrote instrumental music of a given genre in sets written in a spurt of activity, then wrote nothing more in the genre for years.

As the music appreciation racket narrowed down the list of marketable "great" composers, Michael Haydn was pretty much relegated to the footnotes.

(The music appreciation racket also does its best to narrow down the work of a great composer to his "greatest hits", while everything else by that composer is ignored).

However, in working to promote the work of an unjustly neglected master, it is a necessary evil to have to narrow down the oeuvre of the artist to a few pieces which will hopefully pique a few listeners' interest and entice them to investigate other works the promoter might have decided to leave out of his original presentation.

So when Bob gave me the opportunity to present this list, I decided to narrow it down to instrumental music, and still further to just the Symphonies, the Concerti and the String Quartets. Furthermore, with the Symphonies I've ignored those works that would be more precisely called Suites of instrumental music from singspiels, operas, oratorios or other vocal music. Still further, I've written more extensively on the handful of Symphonies of Haydn's that I've studied, while giving only a few details on the other Symphonies.

A word about the catalog numbering: Today there are at least four different catalogs of Haydn's music in use, and certain works of Haydn's might be identified by that many different numbers after the title.

Lothar Perger compiled a catalog of Haydn's instrumental music in the 1900s that is derided today by many scholars as wildly unreliable in matters of compositional chronology. Even so, many music publishers and libraries use these Perger numbers. Perger's catalog is thematic-chronological in a similar way to Hoboken's catalog of Joseph Haydn's music, only that Perger's catalog uses a single range of consecutive numbers. Perger numbers 1 to 52 are for the Symphonies, while Perger numbers 116 to 125 are for the String Quartets, to give two examples. The Perger numbers are almost always given as, for example, "Perger 47", and only very rarely as "P. 47".

Anton Klafsky compiled a catalog of Haydn's vocal music, but I don't know if it's fair to compare it to Perger's. From what I can tell, Klafsky's catalog is also thematic-chronological.

Closer to our own day, Charles H. Sherman edited many of Haydn's Symphonies for publication and compiled a catalog of the known Symphonies of the day and gave them numbers in order of composition. This early catalog was published in a bound volume that includes scores of five of Haydn's Symphonies together with some Symphonies by Adlgasser and Eberlin. Although these numbers have been accepted by scholars and record labels as authoritative for the

Symphonies, I choose to refer to these numbers as "Sherman numbers". Sherman's catalog also lists five Symphonies that have been attributed to Michael Haydn, two in D major, two in G major and one in A major. Sherman believes Jan Křtitel Vaňhal, Franz Xaver Pokorny and Georg Christoph Wagenseil to be the composers of these.

About a decade after Sherman compiled his first catalog, he joined forces with Donley Thomas to create a complete and scholarly rigorous catalog of Haydn's entire oeuvre, resulting in a listing of more than 800 works in as accurate a chronological order as is possible today. The numbers of this catalog could be called "Sherman-Thomas numbers", but as they weren't given to this kind of vanity, they opted instead to refer to them as "MH" (had they been Germans, they might've called it "MHWV" for "Michael Haydns Werke Verzeichnis").

The Sherman-Donley catalog makes no reference whatsoever to the numbering in Sherman's earlier catalog of the Symphonies, which is understandable because in the course of compiling their catalog, Sherman and Donley discovered two Symphonies predating Sherman 1. Rather than scrap Sherman's entire numbering, which is otherwise quite sound, scholars prefer to append letters, much as is done

with Köchel's catalog of Wolfgang Amadeus Mozart's music.

In summary, if you're only interested in exploring Michael Haydn's work through compact discs, the Sherman and MH numbers are quite sufficient. But if you wish to go to a library or music publisher and consult scores, you'll need to know the Klafsky and Perger numbers.

For compact discs, I'll give information on those CDs that can be purchased through Amazon.com. For LP records, I'll only mention those that Sherman listed in his first catalog.

The Symphonies

Whereas the Perger numbers are what are most often used by libraries and by score publishers, the Sherman numbers are probably more often used on the CDs available from Amazon.com.

Symphony in E-flat major, Hob. I:Es4, MH 35, Perger 1
       Andante 2/4
       Allegro con spirito ¾
       Menuetto e Trio (B-flat major) ¾
       Presto assai 2/4

2 oboes, 2 bassoons, 2 horns, strings (hereafter referred to as "standard complement"). Großwardein 1760

Symphony in C major, MH 37, Perger 2, Sherman 2

       Allegro assai Common time
       Andante (F major) ¾
       Menuetto e Trio ¾
       Allegro 3/8

2 oboes, 2 bassoons, 2 horns, 2 trumpets, strings. Großwardein 1761

This is the very first Symphony of Michael Haydn's that I studied. In some ways it's more Baroque than Classical. The score puts the bassoons, cellos, basses and continuo (left hand) all on the same bass clef staff. I made my own figured bass realization of it, though I wouldn't call it original composition by any stretch. For the unison passages that occur in the first and last movements, I simply have the right hand play those passages in octaves.

For the slow movement, the winds are dismissed entirely, but continuo is presumably still expected. Interestingly, the violas double the first violin at the octave, while the second violins are the ones to whom

the running semiquaver figuration is given to the second violins.

For the concluding Presto I recommend a much faster tempo than you'll hear in the Warchal recording. Other than this one particular case, I tend to choose slower tempos for Haydn's music.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in A major, Hob. I:A3, MH 63, Perger 3, Sherman 5

  Allegro molto Common time
  Andante mà non troppo (E major) 2/4
  Menuetto e Trio (A minor) ¾
  Presto 2/4

Standard complement. Salzburg 1763

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in C major, Hob. I:C31, MH 64, Perger 4, Sherman 6

  Vivace C
  Andante (C minor) ¾
  Tempo di Menuetto 3/8

Standard complement. Salzburg 1764

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in E major, Hob. I: E1, MH 65, Perger 5, Sherman 7

       Allegro Cut time
       Andantino (A major) 2/4
       Allegro 3/8

Flute, 2 oboes, 2 bassoons, 2 horns, strings. Salzburg 1764, missing Minuet.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in A major, Hob. I:A9, MH 152, Perger 6, Sherman 16

       Allegro molto Cut time
       Menuetto e Trio (A minor) ¾
       Andante (D major) 2/4
       Allegro molto 6/8

Standard complement. Salzburg 1771, recycled ballet music.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

The London Mozart Players, under the baton of Matthias Bamert, recorded this and four other Haydn Symphonies for the Chandos label. The Amazon.com track listing uses the Perger numbers abbreviated as "P" as a prefix for the number.

Symphony in G major, Hob. I:G8, MH 108, Perger 7, Sherman 12
       Allegro molto ¾
       Andante (C major) 2/4
       Menuetto e Trio ¾
       Prestissimo 2/4
2 flutes, 2 oboes, 2 bassoons, 2 horns, strings. Salzburg 1768
This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in B-flat major, Hob. I:B2, MH 82/184, Perger 9, Sherman 11/11a
       Allegro assai Cut time
       Andantino (F major) 2/4
       Menuetto e Trio (E-flat major) ¾

Allegro molto 12/8

Standard complement. Salzburg 1766. Hans Gál attributed this Symphony to Joseph Haydn.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

The London Mozart Players, under the baton of Matthias Bamert, recorded this and four other Haydn Symphonies for the Chandos label. The Amazon.com track listing uses the Perger numbers abbreviated as "P" as a prefix for the number.

Symphony in C major, Hob. I:C5, MH 188, Perger 10, Sherman 18

Allegro molto C
Andante (F major) ¾
Menuetto e Trio con Coda ¾
Vivace Cut time

2 oboes, 2 English horns, 2 piffari, 3 bassoons, tamburo, strings. Salzburg 1773

This one is available on an Olympia CD of the Oradea Philharmonic conducted by Erwin Acel. Also includes Perger 20 and 21.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in D major, MH 198 Perger 11, Sherman 19

      Allegro ¾

      Andante (A major) 2/4

      Menuetto e Trio (D minor) ¾

      Presto assai Cut time

Flute, 2 oboes, 2 bassoons, 2 horns, strings. Salzburg, 1774.

Symphony in C major, MH 252 Perger 12, Sherman 20

      Allegro molto ¾

      Andante (A minor) 2/4

      Menuetto e Trio (F major) ¾

      Presto 2/4

Standard complement. Salzburg, 1777

Symphony in F major, MH 284, Perger 14, Sherman 23

      Adagio 2/4

      Presto Common time

      Andante (B-flat major) 6/8

      Vivace assai Cut time

Standard complement. Salzburg, 1779

Symphony in A major, MH 302, Perger 15, Sherman 24

      Allegro con brio ¾
      Andante cantabile (D major) ¾
      Menuetto e Trio ¾
      Presto 6/8

2 flutes, 2 oboes, 2 bassoons, 2 horns, posthorn, strings. Salzburg, 1781

Symphony in G major, K. 444, 425a, MH 336, Perger 16, Sherman 25

      Allegro con spirito Common time
      Andante sostenuto (C major) 2/4
      Allegro molto 6/8

Flute, 2 oboes, 2 bassoons, 2 horns, strings. Salzburg, 1783.

This is the Symphony that Ludwig von Köchel mistook for one of Wolfgang Amadeus Mozart's, and was known for a long time as Mozart's Symphony No. 37. So for that reason it is not at all difficult to find recordings of this work, under either Mozart's or Haydn's name. If you get it under Mozart's name you also get the movement Mozart wrote for it.

Not surprisingly, the London Mozart Players, under the baton of Matthias Bamert, recorded this and four other Haydn Symphonies for the Chandos label. The

Amazon.com track listing uses the Perger numbers abbreviated as "P" as a prefix for the number.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in E-flat major, Hob. I:Es17, MH 340, Perger 17, Sherman 26
       Allegro spiritoso ¾
       Adagietto affettuoso (A-flat major) 2/4
       Presto 6/8
Standard complement. Salzburg, 1783
This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in B-flat major, Hob. I:B1, MH 358, Perger 18, Sherman 27
       Grave – Allegro con spirito Common time
       Andante (E-flat major) 6/8
       Presto 2/4
Standard complement. Salzburg, 1784
This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in C major, MH 384, Perger 19, Sherman 28

       Allegro spiritoso ¾

       Un poco adagio, Rondo (F major) 2/4

       Fugato, Vivace assai Cut time

2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg, 1784

   This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in D minor, Hob. I:d4, MH 393, Perger 20, Sherman 29

       Allegro brillante Common time

       Andantino (B-flat major) 3/8

       Rondeau, Presto scherzante 2/4

2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani?, strings. Salzburg, 1784.

   This is the only minor key Symphony by Michael Haydn. Both Sherman catalogues list timpani and both list the Vecsey edition. I worked with the Vecsey edition and it doesn't have timpani.

   The first movement begins piano with a theme that is little more than a D minor scale at first. But it's easy to hear in this a foretaste of the sound world of Beethoven's Ninth Symphony, or maybe even those of

Anton Bruckner. The theme is restated forte with the horns and trumpets. It is at this point that I expect to begin hearing timpani. A transition of barely four bars that faintly reminds me of Mahler leads to the second subject group, in F major, as the textbook would indicate.

It is because of how this first movement suggests Beethoven and Bruckner to me that I began writing a timpani part for it. Then I thought I might as well add flutes, clarinets and trombones. For the flutes and clarinets I mostly doubled what was written for the oboes and bassoons, and occasionally the violins. Having studied other Haydn Symphonies with timpani it seems to me that Haydn never wrote a timpani roll. I'm sure he knew it was possible, his brother Joseph Haydn used in his Symphony No. 103 in E-flat major is to this day called the "Drum-Roll Symphony" in English-speaking circles. As I've never seen the timpani part Michael Haydn is said to have written for this D minor Symphony, I'm inclined to follow my taste and insist on writing timpani rolls at a few key dramatic points in the first movement.

The B-flat major Andantino is notable in that we first hear the ornamented version of the theme, in the strings, that will be varied on. To hear it played by the trumpet, without ornament, is quite sweet. It is close

to the end that the strings will get to play the unadorned version.

From the first time that I read through the concluding Rondeau I was impressed by the theme (which again, is fairly simple) but had my doubts about the structure of the piece. It begins in D minor, and the switch to D major is done after a general pause, the sort of thing we might criticize in an early Bruckner Symphony (such as No. 0 in D minor). Beethoven's Symphony No. 5 in C minor would be considered to provide the example on how to switch from a minor key to a major key for the Finale of a work, and this Haydn Symphony foreshadows that. There's six measures of D minor in the penultimate pages.

This one is available on an Olympia CD of the Oradea Philharmonic conducted by Miron Rațiu. In fact, a search for "haydn symphony oradea ratiu" quite effectively narrows the list of results down to this very disc. In the 1-minute samples at Amazon.com I couldn't hear any timpani. The disc also includes Perger 10 and 21.

Sherman's catalog lists an LP of the Rațiu recording together with recordings by Tátrai and the Hungarian Chamber Orchestra and Charles Mackerras with the English Chamber Orchestra.

Symphony in D major, MH 399, Perger 21, Sherman 30
>   Adagio 2/4
>   Allegro spiritoso ¾
>   Andante sostenuto (G major) 2/4
>   Vivace molto Common time

Standard complement. Salzburg, 1785.

This one is available on an Olympia CD of the Oradea Philharmonic conducted by Erwin Acel. Also includes Perger 10 and 20. It is also available on a CPO disc together with Perger 22, 23 and 42, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki. The Goritzki discs almost always use the Sherman numbers as the principals numbers of the works.

Symphony in F major, MH 405, Perger 22, Sherman 31
>   Allegro assai ¾
>   Andante cantabile (B-flat major) 2/4
>   Presto 6/8

2 oboes, 2 English horns, 2 bassoons, 2 horns, strings. Salzburg, 1785.

Available on a CPO disc together with Perger 21, 23 and 42, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in D major, MH 420, Perger 23, Sherman 32
       Vivace assai 3/8
       Rondeau Common time
Flute, 2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg, 1786.

Notice that this Symphony has only two movements. This it has in common with Nielsen's Symphony No. 5, but perhaps not much else: for example, there are no timpani rolls, or anything adventurous or innovative as far as percussion is concerned.

This Haydn Symphony reminds me more in one of the melodies of the first movement of Mikhail Glinka's *Jota Aragonesa* so much so that I wonder if Glinka actually heard a similar melody in Spain or if perhaps a reminiscence of this Haydn Symphony was in his mind taken for inspiration. In the first movement I think perhaps Haydn could've written a better transition to the recapitulation, or maybe that's why the exposition begins piano.

At the beginning of my study of the second movement, I marveled at the very lively melodies but thought the pace dragged a bit in some spots; I was assuming a metronome marking of 150 quarter notes per minute. The Goritzki recording goes at about 210, which gets rid of those dragging spots but certain details with the grace notes might get lost in the haste.

Available on a CPO disc together with Perger 21, 22 and 42, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in B-flat major, MH 425/652, Perger 24, Sherman 33
> Vivace ¾
> Adagietto cantabile (F major) 2/4
> Allegro, Menuetto e Trio ¾
> Presto mà non troppo Common time

2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg, 1786, most of the work; Salzburg, 1797, the Minuet.

Symphony in E-flat major, MH 473, Perger 26, Sherman 34
> Allegro con brio Common time
> Adagietto (B-flat major) ¾
> Fugato. Allegro Cut time

Standard complement. Salzburg, 1788

The London Mozart Players, under the baton of Matthias Bamert, recorded this and four other Haydn Symphonies for the Chandos label. The Amazon.com track listing uses the Perger numbers abbreviated as "P" as a prefix for the number.

Available on a CPO disc together with Perger 27 – 31, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in G major, MH 474, Perger 27, Sherman 35

      Allegro spiritoso ¾
      Andante (D major)
      Presto

Standard complement. Salzburg, 1788

Available on a CPO disc together with other Symphonies in the range Perger 26 – 31, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in B-flat major, MH 475, Perger 28, Sherman 36

      Allegro con fuoco Cut time
      Andante con espressione (F major) 6/8
      Rondò. Presto molto 2/4

2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg, 1788

Available on a CPO disc together with other Symphonies in the range Perger 26 – 31, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in D major, MH 476, Perger 29, Sherman 37

      Vivace ¾
      Andantino (A major) 2/4
      Allegro assai 6/8

Flute, 2 oboes, 2 bassoons, 2 horns, strings. Salzburg, 1788

The flute is actually not used for the first and last movements. In Haydn's day, the second oboist would've been expected to switch to flute for the Andantino. I doubt this would be done for a modern performance. In the concluding rondo some of the transitions to the repetitions of the A material could be improved upon (something smooth and keeping with the momemtum rather than a general pause that might be more appropriate in a more monumental work) but the liveliness of the melodic material might for some listeners be more than enough to compensate for this small weakness.

Available on a CPO disc together with other Symphonies in the range Perger 26 – 31, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in F major, MH 477, Perger 30, Sherman 38

       Allegro molto Common time
       Andantino (C major) ¾
       Scherzando 2/4

Standard complement. Salzburg, 1788

Available on a CPO disc together with other Symphonies in the range Perger 26 – 31, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in C major, MH 478, Perger 31, Sherman 39

       Allegro con spirito ¾
       Andante (G major) 2/4
       Fugato. Molto vivace Cut time

2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg, 1788

Available on a CPO disc together with Perger 26 – 30, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in F major, MH 507, Perger 32, Sherman 40

      Allegro molto Common time
      Adagio mà non troppo (B-flat major) ¾
      Rondeau. Vivace

Standard complement. Salzburg, 15 July 1789

    The London Mozart Players, under the baton of Matthias Bamert, recorded this and four other Haydn Symphonies for the Chandos label. The Amazon.com track listing uses the Perger numbers abbreviated as "P" as a prefix for the number.

Symphony in A major, MH 508, Perger 33, Sherman 41

      Spiritoso 2/4
      Andante (D major) 2/4
      Fugato. Vivace molto Common time

Standard complement. Salzburg, 26 July 1789

Symphony in C major, Hob. I:C22, MH 23, Perger 35

      Allegro ¾
      Andante (G major) 2/4
      Menuetto e Trio(F major) ¾
      Presto 2/4

2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Vienna? 1758 – 1760

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in D major, Hob. I:D21, MH 50, Perger 36, Sherman 9

      Allegro assai Common time
      Andante (D minor) ¾
      Menuetto e Trio ¾
      Presto assai 3/8

Standard complement. Großwardein? 1760 – 1762. Sherman and Thomas think the Minuet and Trio were not actually composed by Haydn.

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label. That recording does not include the doubted Minuet.

Symphony in D major, Hob. I:D26, MH 132, Perger 37, Sherman 13

      Allegro ¾
      Andante (G major) 2/4
      Menuetto primo ¾
      Menuetto secondo ¾

   Allegro molto assai Common time
Flute, 2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg? 1768 – 1770

Symphony in D major, Hob. I:D3, MH 69, Perger 38, Sherman 8
   Allegro molto ¾
   Andante (G major) 2/4
   Menuetto e Trio. Minore ¾
   Presto 6/8
Flute, 2 oboes, 2 bassoons, 2 horns, 2 trumpets, timpani, strings. Salzburg? After 1764
  This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in D major, Hob. I:D1, MH 150, Perger 41, Sherman 15
   Allegro spiritoso Common time
   Menuetto e Trio(A major) ¾
   Andante (G major) 2/4
   Presto assai 3/8
Flute, 2 oboes, 2 bassoons, 2 horns, strings. Salzburg? Post 1771

This one and nineteen other Symphonies are available on a boxed set of the Slovak Philharmonic conducted by Bodhan Warchal on the CPO label.

Symphony in D major, MH 272, Perger 42, Sherman 21

  Adagio – Allegro molto ¾
  Andante (A major) 3/8
  Fugato. Presto 2/4

Standard complement. Salzburg? 1778

  Available on a CPO disc together with Perger 21, 22 and 23, performed by the Deutsche Kammerakademie Neuss conducted by Johannes Goritzki.

Symphony in D major, K. VIII Anh.A:52, MH 287, Perger 43, Sherman 22

  Allegro assai Common time
  Andantino (D minor) 3/8
  Fugato. Presto mà non troppo Cut time

Standard complement. Salzburg? 1778 – 1780

Symphony in E major, Hob. I:E3, MH 151, Perger 44, Sherman 17

  Allegro ¾
  Andante (A major) 2/4
  Menuetto e Trio(E minor) ¾

Allegro con spirito Cut time
2 flutes, 2 oboes, 2 bassoons, 2 horns, strings.
Salzburg? Post 1771

Symphony in F major, Hob. I:F9, MH 51, Perger
45, Sherman 10
Allegro assai con spirito Common time
Andante grazioso (B-flat major) 2/4
Prestissimo Common time
Standard complement. Großwardein? 1760 – 1762
   This one and nineteen other Symphonies are
available on a boxed set of the Slovak Philharmonic
conducted by Bodhan Warchal on the CPO label.

Symphony in B-flat major, MH 62, Perger 51,
Sherman 4
Allegro ¾
Andante. La Confidenza (E-flat major) ¾
Allegro molto 3/8
Standard complement. Salzburg, 7 December 1763
   This one and nineteen other Symphonies are
available on a boxed set of the Slovak Philharmonic
conducted by Bodhan Warchal on the CPO label.

Symphony in B-flat major, Hob. I:B3, MH 133,
Perger 52, Sherman 14

Allegro molto ¾
Adagio mà non troppo 2/4
Menuetto e Trio(E-flat major) ¾
2 oboes, 2 bassoons, 4 horns, strings. Salzburg? 1768 - 1770

The Concerti

Violin Concerto in B-flat major, Perger 53, MH 36, Hob.VIIa:B1
[Allegro] Common time
Adagio (F major) 2/4
Allegro molto ¾
Violin solo & strings. Großwardein, 1760

Flute Concerto No. 1 in D major, Perger 54, MH 81
Allegro moderato Common time
Adagio 2/4
Menuetto e Trio ¾
Flute solo & orchestra (2 horns, strings). Salzburg, 1766

Concerto in C major for Organ and Viola, Perger 55, MH 41
Allegro moderato Common time

Adagio (G major) ¾
Prestissimo 2/4
Viola solo, organ solo & strings. Großwardein, 1761?

Flute Concerto No. 2 in D major, Perger 56, MH 105
Allegro moderato Common time
Andante (G major) ¾
Allegro assai Common time
Flute solo & orchestra (2 horns, strings). Salzburg? 1768

Harpsichord Concerto in F major, Perger 57, MH 268
Vivace Common time
Adagio (B-flat major) Cut time
Rondo. Allegro 6/8
Harpsichord solo & orchestra (2 oboes, 2 bassoons, 2 horns, strings). Salzburg? 1778

Trumpet Concerto No. 1 in C major, Perger 34, MH 60
Adagio Common time
Allegro molto ¾
Trumpet solo & orchestra (2 flutes, strings). Salzburg? 1763. Shares Adagio with Violin Concerto MH 52.

Trumpet Concerto No. 2 in D major, MH 104
> Adagio ¾
> Allegro Cut time

Trumpet solo & orchestra (2 horns, strings). Salzburg? 1768

Horn Concerto in D major, Perger 134, MH 134
> Larghetto ¾
> Allegro non troppo Common time
> Menuetto e Trio ¾

Horn solo & orchestra (2 oboes, 2 bassoons, 2 horns, strings). Salzburg? 1770

The String Quartets

It's not known exactly when Michael Haydn wrote these String Quartets or why, and we're not even sure where, (perhaps Salzburg?) but it's fairly certain he wrote them in the early 1780s. As is the case with some sets of his Symphonies, Haydn wrote these in a spurt.

String Quartet in C major, Perger 116, MH 313
> Andante un poco allegro Common time
> Menuetto. Un poco allegro ¾

Allegro 6/8

2 violins, viola, cello (hereafter referred to as "string quartet"). Salzburg? 1780 – 1782

String Quartet in E-flat major, Perger 118, MH 309

Andante 2/4
Menuetto e Trio (C minor) ¾
Allegretto Cut time

String quartet. Salzburg? 1780 – 1782

String Quartet in F major, Perger 119, MH 312

Allegro moderato Common time
Menuetto ¾
Adagio (B-flat major) 2/4
Allegro 3/8

String quartet. Salzburg? 1780 – 1782

String Quartet in G minor, Perger 120, MH 311

Andante un poco allegro ¾
Andante grazioso (E minor?) 2/4
Menuetto variazioni. Un poco allegro ¾

String quartet. Salzburg? 1780 – 1782

String Quartet in A major, Perger 122, MH 310

Andante 6/8

Menuetto. Tempo alla Francese, e Trio (A minor) ¾

Rondo. Allegro Cut time

String quartet. Salzburg? 1780 – 1782

The beginning Andante ought to be taken at a tempo of about 30 dotted quarter notes per minute, in my opinion, though some players might be inclined to take it much faster. That can actually be interesting, however, as is the case with some Baremboim or Solti interpretations of Bruckner that sound interesting in some spots but just plain rushed in others.

String Quartet in B-flat major, Perger 124, MH 308

Andante comodo Cut time

Menuetto e Trio(E-flat major) ¾

Rondo. Allegro 2/4

String quartet. Salzburg? 1780 – 1782

String Quartet in B-flat major, Perger 125, MH 316

Marcia. Scherzante 2/4

Allegro assai 6/8

Menuetto, Allegretto e Trio ¾

Molto adagio e cantabile (E-flat major) 2/4

Menuetto, Moderato e Trio(B-flat major) ¾

Rondo. Presto 2/4
String quartet. Salzburg? 1780 – 1782.

In seeing that this Quartet has six movements, I'm reminded of Beethoven's Quartet in B-flat major, Opus 130, the one for which he originally wrote the Große Fuge. I have not studied this particular Haydn work, however.

ウイルフの数独
Wilf's Sudoku

Wilfredo Lopez

							1	7
1	7				4		6	
6	9			7	1	5		
			1	2				5
5		2	4		6			
				8		2		1
7				4				
	2	3	8					6
			3		2		8	

To solve, write in the digits 1 through 9 so that each row, column and 3 by 3 box has just one of each.
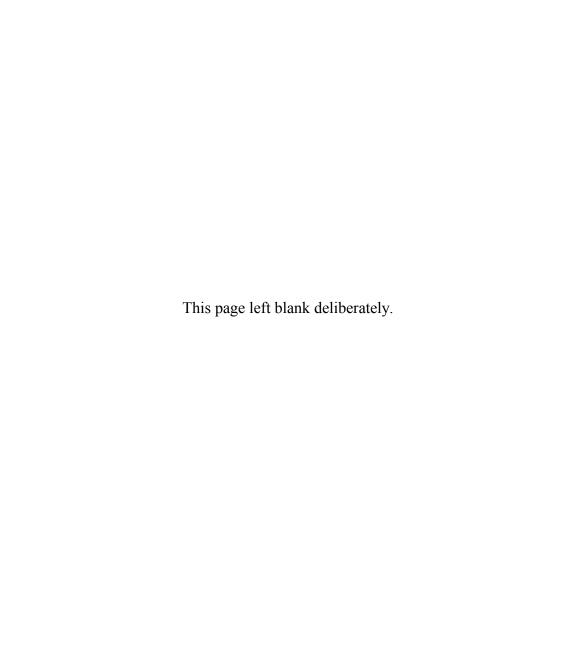
LEVEL: 7 (on a scale from 1 to 9)
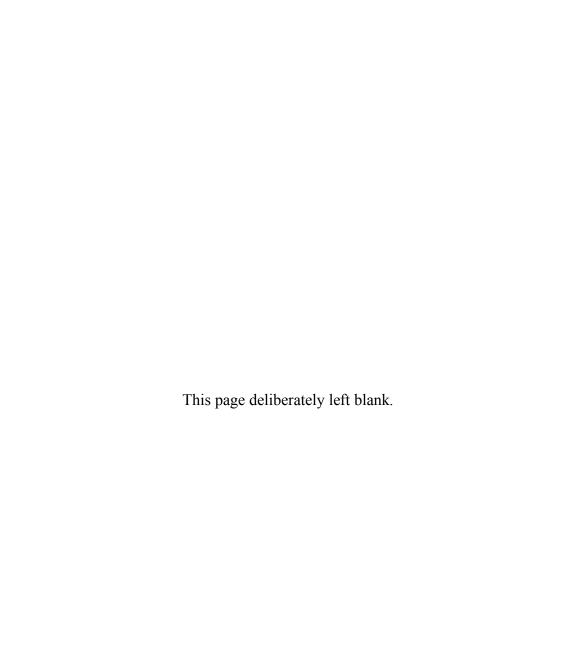
HINT: See a(23) of Sloane's A002450.

See next month's issue for the solution.
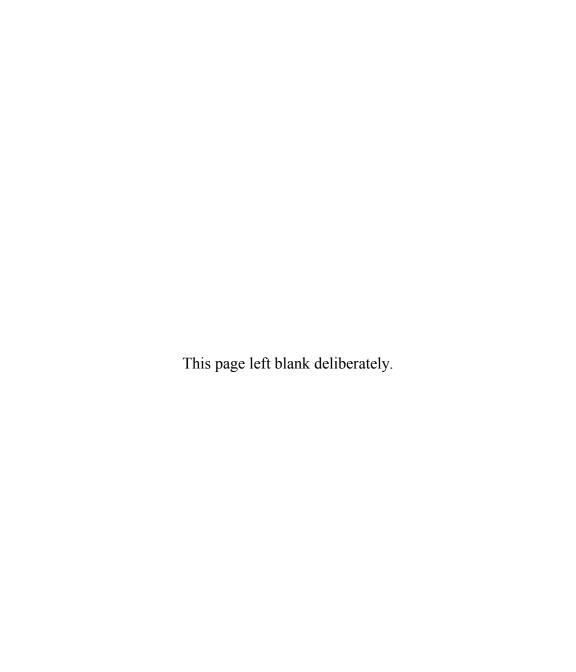Last month's solution is on the next page.

Solution To Last Month's Puzzle

3	4	2	7	9	5	1	6	8
8	1	6	2	4	3	5	9	7
5	7	9	8	1	6	4	2	3
2	5	7	3	6	9	8	4	1
1	6	8	4	5	7	2	3	9
9	3	4	1	2	8	6	7	5
7	2	5	6	3	1	9	8	4
4	9	3	5	8	2	7	1	6
6	8	1	9	7	4	3	5	2

The shaded squares give in order the final digits of squares in base 10: 1, 4, 9, 6, 5, 6, 9, 4, 1.

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Coming up in the next issue, poetry about Christmas.

Bob's Poetry
Magazine