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Original Article

Научная статья

**Charles Ives —
Microtonalist.
Part II:
The Unanswered Question
by Charles Ives — Answered**

**Чарлз Айвз —
микротоновый композитор.
Часть II:
На «Вопрос без ответа»
Чарлза Айвза дан ответ**

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Abstract. The article is the second in a series of articles dealing with Charles Ives as a microtonal composer. While Ives' intention to compose in the Pythagorean tuning of spiraling fifths was virtually unknown during his lifetime, it has become widely appreciated in recent decades. The article examines Ives' famous composition, *The Unanswered Question*, in terms of the inherent application of the Pythagorean tuning based on perfect fifths, which is proven by the peculiar use of the sharps and the flats in the piece, as well as the fact of the continual variation of the main theme played by the trumpet upon each successive statement of it. According to the author of the article, the composer attempted to make use of two different tunings of minor thirds in this piece, hence, the "unanswered question" refers to the compatibility of the different tunings implicitly present in the piece. The author substantiates his claim by presenting detailed analysis of certain fragments of Ives' piece.

Аннотация. Данная статья — вторая из серии, посвящённой Чарлзу Айвзу как микротоновому композитору. О намерении Айвза сочинять в пифагорейской темперации спиралевидных чистых квинт публика во время жизни композитора фактически не знала, но микротоновую составляющую в его музыке широко оценили в последние десятилетия. Статья посвящена пьесе Айвза «Вопрос без ответа» в контексте присутствия в ней пифагорейского строя, основанного на чистых квинтах, что видно из особого использования диезов и бемолей, а также факта постоянного варьирования исполняемой на трубе главной темы при каждом очередном её изложении. Согласно автору статьи, композитор пытался использовать два разных строя малых терций — отсюда и «вопрос, оставшийся без ответа», о совместимости различных строев, присутствующих в сочинении в скрытом виде. Автор обосновывает свой тезис, детально анализируя фрагменты сочинения Айвза.

*Keywords:*

Charles Ives, *The Unanswered Question*, microtonality, Pythagorean tuning, cycle of spiraling perfect fifths, transcendentalism, American Festival of Microtonal Music

Ключевые слова:

Чарльз Айвз, «Вопрос без ответа», микротоновость, пифагорейский строй, цикл спиралевидных чистых квинт, трансцендентализм, Американский фестиваль микротоновой музыки

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The *Unanswered Question* by Charles Ives is a relatively short piece that has become world famous. It features very quiet strings throughout, serving as sort of a cushion of harmony for both a quartet of woodwinds in their own excited tempo, and a repeating overriding soaring melody typically played by a trumpet. Ives offered alternatives to the trumpet, and the American Festival of Microtonal Music performance conducted in spiraling fifths tuning by Paolo Bellomia in New York City featured English horn, played masterfully by Derek Floyd on October 11, 1999 at The New York Society For Ethical Culture.

The composer wrote that the strings should sound “off stage” or away from the winds, and remain pianissimo in their representation of the “The Silences of the Druids — Who Know, See and Hear Nothing.” The English horn intones “the Perennial Question of Existence,” according to Ives, in the same tone of voice each time. “But the hunt for *The Invisible Answer* undertaken by the flutes” represents other human beings, and “becomes gradually more active, faster and louder through an ‘animando’ to a ‘con fuoco.’”

The title, *The Unanswered Question*, hides the true intent of the composition to its composer. Begun as a one-page manuscript in 1908, the piece was revised several times by Ives, and released in different versions throughout his lifetime (1875–1954). As Ives’s tuning interests were unknown during his lifetime, his title remained somewhat inscrutable. Most assumed it was a philosophical question posed and were ready to include values of historical American transcendentalism.

Now recognizing that Ives intentionally composed in spiraling fifths tuning in his head music devoid of all temperament, with the clear exception being his quartertone pieces for pianos, a new perspective becomes apparent. Ives’s prerogative to compose in an untempered fashion was effectively camouflaged by standard equal temperament notation. With an exact pitch value for each specific note, Ives’s notation reveals different intentions regarding his unanswered question(s). Each note Ives wrote is precisely transferable to a cents integer value. The spiraling fifths begin on *ab A* about 13 times, and they descend from *A* about 13 times. Here are the results expressed in an ascending scale starting from the *A*.

A Gx Bb A# Cb B C B# Db C# D Cx Eb D# Fb E F E# Gb F# G Ab Fx G# Bbb
 0 24 90 114 180 204 294 318 384 408 498 522 588 612 678 702 792 816 882 906 996 1086 1020 1110 1176

Before focusing exclusively on *The Unanswered Question* I would like to point the reader to another example of Ives having *double entendre* issues with the *Concord Sonata*. While the word “Concord” is designated as a city in the state of Massachusetts with clear connections to its four movements and links to the personalities each movement represents, the title also connotes that the piece when in the correct tuning is in a total concordance due to the pedigree of its tuning. For Charles Ives, temperament is dissonance, and the pure fifths of his imagined tuning suffer none of it.

Ives titling his extensive monograph *Essays Before a Sonata* about the *Concord Sonata* confounds because it intentionally emphasizes the word “Before.” I surmise this is because the piano sonata had not yet been performed in its correct tuning during Ives’s entire lifetime. The extensive *Essay Before a Sonata* could never have been meant as mere program notes for the *Concord Sonata* had already been successfully performed by pianist John Kirkpatrick in equal temperament, presumably with ample program notes for the concert, and the piece was published during Ives’s lifetime with Kirkpatrick as editor. (Charles Ives would have many complications with editors of his music precisely because they wanted to change his accidentals, and Ives would have none of it.) You can see a performance of the *Concord Sonata* in spiraling fifths tuning for two pianists on two pianos on YouTube, performed by Gabriel Zucker and Erika Dohi for the American Festival of Microtonal Music at Queens College, New York on November 11, 2016.

After analyzing the first two pages of the published multiple-page score of

The Unanswered Question, I believe the identity of the unanswered question is, in short, the juxtaposition of having two different-sized minor thirds: 318 cents and 294 cents. The solo melody alternates these two distinct melodic minor third intervals in the very first three notes of its recurring melody. Ives’s haunting 5-note solo melody exploits two distinct minor thirds in the system which simulate the asking of a question.

The 1908 version of the score indicates an un-transposed melody of a solo instrument which when calculated for a spiraling fifths-tuned performance give the following four musical intervals in cents: 318, 294, 114, 294, and a return to a 318 at a different octave.

Table 1. Solo Melody of *The Unanswered Question* Last Notes

Bb	C#	E	Eb	B	[C]
90	408	702	588	204	or 294
(318)	(294)	(114)	(295)		

The opening chords of the strings in *The Unanswered Question* roll softly — *ppp con sordini* — in a Pythagorean-tuned (same as “spiral of fifths-tuned”) *G major, B minor, E minor 7, C minor, A minor 11*, to the first aggregate chord which contains the opening harmony supporting the famous solo. This first aggregate chord given below, first in ascending order and octave displaced, and then transposed to a tonic on A.



Table 2. Opening Chord in the Strings of *The Unanswered Question*

Original Chord	Transposed Chord (to Bb for trumpet)	Cents Value
E	F#	906
Eb	F	792
D	E	702
C#	D#	612
B	C#	408
Bb	C	294
G	A	0

The second chord of the woodwind quartet is a minor-based chord on B, which is transposed to an A tonic, and then to cents. Please take notice that a suspended Db note now forms an almost perfect just intonation major third relationship with the new B tonic.

Table 3. Second Chord in the Strings of *The Unanswered Question*

Original Chord	Transposed Chord	Cents Value
F#	E	702
Eb	Db	384 (Db was held over)
D	C	294
C	Bb	90
B	A	0

After the second aggregate chord, there is a lone E chord (with the B in the bass), before the woodwind aggregate arrives on a C. The C aggregate includes the woodwind quartet, which has been falsely considered an example of polytonality. As this is theorized in spiraling fifths tuning there is no functional tonic, only tonicisms. The full aggregate on C containing the woodwind pitches is outlined below as an ascending octave-displaced 8-note chord, but with two outliers.

Table 4. Opening Woodwind Quartet Chord in *The Unanswered Question*

Original Chord	Transposed Chord	Cents Value
B	G#	1110
G	E	702
F#	D#	612
F	D	498
E	C#	408
D#	B	204
D	Bb	90
C	A	0

The two outliers once the chord is transposed to A for easier comparisons, are B# and C (notated in the score as D# and Eb) both of which are the same two minor thirds Ives alternates at the melody's opening, and which continue as recurring intervals. Both iterations of minor third are alternated in time, with the larger 318 cent minor third preceding the 294 cent minor third.

Critical musicologist Maynard Solomon infamously seized upon the tiny changes Ives made of the last note of the inquisitive

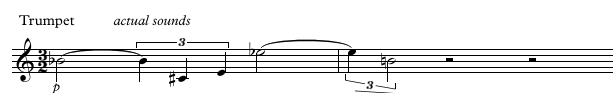
melody in *The Unanswered Question*: “An example that may serve to define Ives’s practice of silently modernizing his scores was recently documented by Noel B. Zahler and H. Wiley Hitchcock in a paper on *The Unanswered Question* (Zahler and Hitchcock, 1983). Sometime in the 1930’s, they show, Ives revised the recurrent trumpet phrases — symbolizing what Ives called ‘The Perennial Question of Existence’ — in a chromatic, even atonal direction, changing the phrase by a semitone upon each of its appearances.”¹

Such nonsense! Ives was determined to not return to the original *Bb* note that started the melody. Whether the final note of the melody is *Bb*, *B natural*, or *C natural*, these intervals are already in the harmony of the aggregate chord surrounding it. Ives first thought better of his initial ending on *Bb* from the single-page original manuscript of the piece. Musicologist H. Wiley Hitchcock also pointed to the edited change of this single note as properly an example of Solomon’s accusations! As he wrote, “The first example I will discuss in regard to its revision — the only revision I will discuss at length — is in the well-known *The Unanswered Question*. An important new edition of this work has been published recently containing two versions, which the editors date 1906 for the original version and between 1930 and 1935 for the revised version. The revision at issue involves the change of the trumpet part’s final note from *Bb* to the alternation of *C* and *B* in successive statements.”²

As previously explained, Charles Ives imagined a spiral of fifths tuning for works

such as *The Unanswered Question* and it is a non-issue harmonically whether the note is *Bb*, *B natural*, or *C natural*, because all are possible as part of the same aggregate chord. The sound of spiraling fifths is “chime” like and rings in a way that presents the crystal sound as consonant, as 3-limit just intonation (see Example No. 1).

Example No. 1
Charles Ives. “*The Unanswered Question*.”
Theme in the trumpet part



I would posit another reason for changing the original *Bb* at the end of the melody; a question is typically definable as rising in intonation. Ending the question on the same note as the 5-note question began originally is essentially “sing song” sounding and less acceptable for that reason alone. There is also sensible justification to equivocate between choosing between a *B natural* and a *C natural* as alternatives; the *B* as a final note of the melody forms a descending melodic interval of 384 cents, “sounding” to the ear as a just interval which is far cry from the ditone which is what Ives liked to emphasize. The *B* also blends directly into the chord, doubling the *B* in the violas in the final measure. The *C natural*, on the other hand, offered a descending microtonal interval of 294 cents, which messes with the opening juxtaposition of the two distinct minor thirds by repeating one of them in the opposite direction, but better mirrors how we use spoken language, and it would be an added note to the already existing full chord. Hitchcock, also director at the time of The Ives Society, and would edit the American Grove, went on to cite Ives’s changes as representative of Solomon’s audacious accusations: “Gone completely are the final *B-flats* of the trumpet phrase in Ives’s original sketch and Copyist

¹ Solomon M. Charles Ives: Some Questions of Veracity. *Journal of the American Musicological Society*, Vol. 40, No. 3 (Autumn, 1987). P. 460.

² Hitchcock H.W., Zahler N. Just What Is Ives’s *Unanswered Question*? *JSTOR, Notes*. 1988. Vol. 44, No. 3. P. 441.

<https://doi.org/10.2307/941517>



18's fair copy. Gone too are the immutability of the trumpet's 'question' and its perfect embodiment of the philosophical program of the work. In the 1930s Ives apparently preferred the strikingly more chromatic (even atonal) 'corrected' phrase, with its last note different from its initial *B-flat* and changing by a semitone with each recurrence, to the comparatively diatonic original phrase, with its beginning and ending *B-flats* implying more or less an *E-flat* tonality. This revision is cited as an example of what [Elliott] Carter called 'jack up the level of dissonance.'³

Independent musicologist Carol Baron refuted this nonsense early on, before ever learning of Pythagorean tuning as a historical inheritance from the Middle Ages (from personal conversation, and later confirmed thereafter). Baron allowed for an atonalism that would belie any consideration of a "key" and was intuitively correct in her surmise. He wrote: "The first conclusion I have

drawn from this revision is that dissonance, as construed in various theories of tonal music, is not an issue in the atonal context of either version of *The Unanswered Question*; it is merely a rather stale red herring. My second conclusion is that Ives's fertile mind was examining other possibilities within the same musical and philosophical framework. It can be argued that two versions of this work exist, that deserve to be considered as separate entities; it also can be argued that Ives was refining and reinforcing his original conception."⁴

Ultimately the ear will judge in unity with the intellect to conclude both Ives's aims and Ives's achievements. Regarding Ives's unanswered question? It was whether to use one minor third over an another as realized in this piece. The question is then raised again, how best to finalize the last note of the melody? Each of the alternatives remain in question to this day. As Carol Baron wrote, they may as well be separate pieces.

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³ Ibid. Pp. 440–441.

⁴ Baron C.K. Dating Charles Ives's Music: Facts and Fictions. *Perspectives of New Music*. 1990. Vol. 28, No. 1. P. 29.