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MUSIC-ENGENDERED LAUGHTER: AN ANALYSIS OF HUMOR DEVICES IN PDQ BACH

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ABSTRACT

Live recordings of Peter Schickele's music were examined and 629 instances of audience laughter were identified. Each of the laughter-evoking moments was analyzed to determine possible reasons why listeners might have laughed. Excluding visual gags and language-based humor, the musical devices used by Schickele appear to fall into nine categories. All of the devices used by Schickele involve violations of expectation. A plausible physiological explanation can be offered for why listeners respond to some dramatic violations of expectation by producing the distinctive "ha-ha-ha ..." vocalization.

1. INTRODUCTION

It is relatively rare that people will exhibit gross behaviors while listening to music. Among the handful of behaviors that can be observed unaided are dancing, foot-tapping, clapping, swaying, humming, weaping, smiling and laughing.

Laughter is predominantly a social response, but its underlying physiology appears to be universal. The distinctive "ha-ha-ha..." vocalization is produced even by congenitally deaf individuals, suggesting that the response is an innate respiratory reflex (Provine, 2000). There are different types of laughter, including nervous laughter, slap-stick laughter, sadistic laughter (Schadenfreude), mocking laughter, surprise laughter, social laughter, and humor laughter. Interestingly, all of these forms of laughter appear to involve some element of surprise, usually an innocuous twist or violation of some established norm.

Comedy has long played a role in music-making. In Western music, opera buffa and Gilbert-and-Sullivan-like operetta have been popular forms of musical comedy. From time-to-time, composers have engaged in overt humor within a purely instrumental idiom. Famous examples include Haydn's *Joke quartet* (*Opus 33, No. 2 in E-flat*) and Mozart's *Ein musikalischer Spass* (*A Musical Joke*), *K. 522* (Mull, 1949; Wheelock, 1992). Music scholars have offered a number of observations concerning musical humor (Dalmonte, 1995; Johnson & Moore, 2001; Lister, 1997; Mera, 2002; Minamino, 2001; Smith, 1994), including observations regarding musical humor in non-Western cultures (e.g. Sutton, 1997).

In modern times, a number of musicians have pursued professional careers exclusively in the realm of musical comedy. Pianist-comedian Victor Borge and Anna Russell readily come to mind. But most of their humor relies on spoken monologue mixed with musical examples. If we exclude language-based humor, only a handful of professional musical humorists remain. Among these is the composer Peter Schickele.

Schickele is a classically trained composer whose work is centered around a fictional alter-ego character named "P.D.Q. Bach". Schickele has been prolific in his compositional output as a humorist -- writing nearly a hundred works, from *The O.K. Chorale* to the *Erotica Variations*. Schickele's music provides a useful corpus for the study of musical humor.

Some of the humor devices used by Schickele involve visual gags. For example, Schickele's *Pervertimento* includes a stationary bicycle outfitted with a pitch generator. The pitch is increased or decreased by pedalling faster or slower. Part of the humor arises from the melodic requirement for the performer to pedal very fast. Other aspects of Schickele's music depend on plays on vocal text. For example, in Schickele's *Ground Rounds*, The words sung by the baritone and by the tenor are innocuous madrigal clichés. However, when the two texts are interleaved so the tenor sings one word, followed by a word from the baritone, the result is lewd or ribald.

But beyond the visual gags and language-based humor, most of Schickele's humor devices are to be found in the core musical domains of pitch, time and timbre.

2. CLASSIFICATION

Excluding visual gags and language-based joking, informal observation suggests that humor-evoking devices might be classified into nine categories.

Incongruous Sounds.

In his works, Schickele often makes use of unusual sound sources such as duck-whistles, kazoos, and slide whistles. His *Sinfonia Concertante*, for example, is composed for string orchestra and six solo instruments: lute, balalaika, ocarina, sewer pipe, double-reed slide music stand, and bagpipe. These sounds are out-of-place in an orchestra. The humor may derive from the incongruity of the sounds.

Very few of Schickele's works are written exclusively for bizarre instrumentation. Typically, Schickele will mix some bizarre instrument with the conventional instruments of the classical orchestra. It is possible that the sound of the classical orchestra provides a foil against which the unconventional sounds appear especially incongruous. That is, the normal orchestral timbres may function like the "straight man" in a comedy duo. The sounds of the orchestra evoke conventional symphonic listening schemas that make

the unconventional sounds sound much more out-of-place. Humor may be more marked when absurdity is placed in the context of normality.

Mixed Genres.

Schickele will often switch abruptly between different styles. For example, in the Andante-Allegro movement for Schickele's *Unbegun Symphony*, the movement begins with a slow lyrical andante. After about a minute, there is a slow transition that moves abruptly to an unexpected allegro with the trumpet playing *Ta-ra-ra-boom-tee-eh* and *De Campdown Races*. In the commercial live recording of this work, the audience laughs at the moment where there is an unexpected change in musical mood and style.

In creating such passages, Schickele often juxtaposes "high art" and "low art" styles. He will mix Beethoven with tangos, for example. Typically, the "high art" style is established first, followed by interjections of "low art" materials. In creating these juxtapositions, Schickele often quotes well-known tunes. In making use of familiar musical quotations, Schickele increases the likelihood that listeners will recognize the tunes originate in different traditions, and so enhance the success of such incongruous juxtapositions.

Drifting Tonality.

After the Renaissance, modulations to different keys became commonplace in Western music. Nevertheless, changes of key can be highly disruptive if not prepared in a predictable manner. One of Schickele's laughter-evoking techniques is to abruptly shift to a different key. Many of these changes move to keys that are at the interval of a tritone. Such tritone key shifts are both the least predictable (most surprising) and also the most disruptive in maintaining a tonal center.

In popular music, a common form of key shift is the so-called "pump-up." A pump-up occurs when the key rises by diatonic or chromatic step. Often a pump-up is introduced near the end of the work when a chorus is being repeated. In Schickele's music, an occasional key-shift device is what might be dubbed the "pump-down." Here the music abruptly shifts down a semitone or more. Downward shifts of key are rare in Western music. While there are hundreds of examples of pump-ups in Western pop music, I have been unable to identify a single example of a pump-down. In this regard, Schickele's pump-downs are musically improbable.

When shifts of key occur frequently, the sense of tonality itself is lost or ambiguous. Perhaps the paradigmatic example of key ambiguity as a source of humor is Mozart's *Ein musikalischer Spass* (*A Musical Joke*), *K. 522*. The work was written in 1787 and is scored for a small chamber group consisting of two violins, viola, bass, and two horns. Of the many comic devices used in Mozart's *Ein musikalischer Spass* the most memorable is the bizarre final cadence. Six instrumentalists finish in five different keys.

Metric Disruptions.

In the same way that tonality may be disrupted, it is also possible to disrupt meter. A simple technique is to eliminate or add extra beats to a measure. A waltz in 3/4 might lose a beat, or a march might gain half of a beat. Schickele sometimes resorts to so-called "peg-leg" rhythms. Where changes of key contradict the listeners pitch-related expectations, changes of meter tend to contradict time-related expectations.

Implausible Delays.

Another humor device used by Schickele is to delay highly expected resolutions. Good examples include appoggiaturas that fail to resolve at the expected moment. Figure 1 shows a passage from Schickele's *Concerto for Horn and Hardart*. The passage shown is played by the violins in the stylistic context of a minuet performed by a chamber orchestra.

The breech of expectation occurs in the delay of the D# chromatic appoggiatura resolving to the E. In the classical style, the appoggiatura would normally resolve on the second beat of the second measure. A less likely possibility is that the appoggiatura would be held until the beginning of the ensuing bar -- that is, the resolution would be delayed until the downbeat of the third measure. In the Vanguard recording of this work, a live audience breaks into laughter within one second of the downbeat of the third measure. This is consistent with a broad recognition of the failure of the D# appoggiatura to resolve at the beginning of the measure. Further sporadic laughter erupts as the D# is sustained for a full four measures. This is a clear violation of the normative convention for the classical appoggiatura.

Excessive Repetition.

While repetition is commonplace in music, Schickele will occasionally repeat a passage many more times than is the musical norm. An example can be found in the first movement of Schickele's *Concerto for Horn and Hardart* where one 8-note passage is repeated twelve times in succession. The result is a sort of "broken record" effect. In the Vanguard recording, the audience laughs in the midst of the fourth repetition.

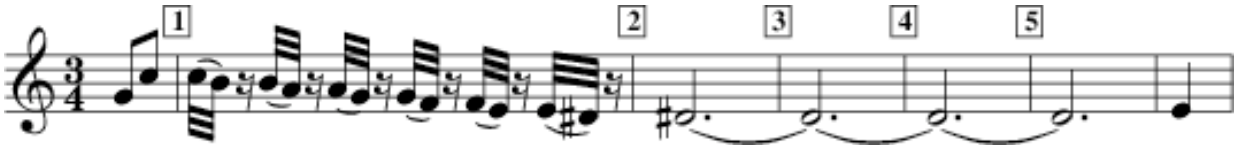

Figure 1: P.D.Q. Bach (Peter Schickele), *Concerto for Horn and Hardart*, 2nd mov. Tema con variazione.

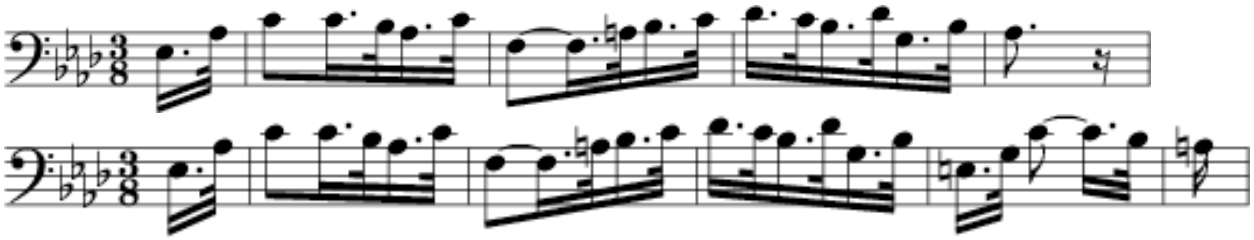

Figure 2: P.D.Q. Bach (Peter Schickele), *Quodlibet for Small Orchestra*, Adagio mov.

Incompetence Cues.

Another device used by Schickele is to have musical passages performed in a crude or unrefined manner. This includes bad pitch intonation, implausibly loud sounds, sloppy rhythms, and crude instrumental or vocal timbres.

Incongruous Quotation.

Musical quotations provide opportunities to juxtapose the veridical expectations against an improbable schematic context. Schickele will often mix a quoted melody with an incongruous style. For example, in one of Schickele's works he combines the opening of Bach's first suite for unaccompanied cello with the opening strains of the pop song *Brazil*.

Misquotation.

Schickele will sometimes misquote well-known tunes. An example can be found in the *Adagio* movement from his *Quodlibet for Small Orchestra*. After preparing a quiet transition, Schickele moves into a direct quotation of the famous `cello theme from the slow movement of Beethoven's *Fifth Symphony*. The well-known theme is reproduced in Figure 2 along with Schickele's truncated version.

The two passages are identical for the first three measures. In moving to the downbeat of the fourth measure, Beethoven drops down a tritone from the supertonic and continues the theme. By contrast, Schickele simply moves from the supertonic to the tonic, and ends the entire movement with this single gesture. In the live Vanguard recording of this work, the audience bursts into sustained laughter at the moment of this transgression.

Interestingly, the transgression does not arise by introducing some musically bizarre deviation. In fact, Schickele's succession from supertonic to tonic in a weak-to-strong metrical context is musically banal. The supertonic to tonic transition is the most frequently occurring melodic movement from supertonic with a probability of 0.33. By contrast, Beethoven's original melodic movement to the raised dominant is the rarest continuation from supertonic in Western music with a probability less than 0.0007. This means that the probability of going from B-flat to A-flat is some 400 times more likely than going from B-flat to E-natural.

In short, Schickele's transgression here is a violation of veridical expectation ("That's not how the music goes.") rather than a schematic transgression ("That's not what happens in music.") The violation is amplified by the extreme contrast between veridical and schematic probabilities.

Where Beethoven's theme branches into a new key area, Schickele simply brings the phrase to a stereotypic close. The humor here lies in violating a veridical expectation while rendering the passage schematically more normative. This effect is psychologically the opposite of the deceptive cadence.

What is striking about these nine classes of humor-evoking devices is that they all involve violations of expectation. Incongruous sounds violate expectations related to norms of musical timbres. Drifting tonality and metric disruptions violate pitch-related schemas and temporal schemas, respectively. Mixed genres violate the maintenance of schematic-stylistic norms, while incongruous quotations violate veridical-stylistic norms. Misquotation violates veridical expectations. Implausible delay confound the norms of temporal succession, while excessive repetition thwarts expectations of form-related structure. Incompetence cues violate a number of performance-related norms.

3. SURVEY

Most of Schickele's music has been recorded, and the majority of these recordings include a live audience. A four-CD compilation of Schickele's music includes over 600 moments of audible audience laughter (Schickele, 1996). Conveniently, these laughter moments provide a useful opportunity for testing theories of musical humor. Table 1 shows the results of tabulating the different audible responses.

Response	Instances
Isolated laughter	16
Scattered laughter	24
Slight laughter	242
Laughter	298
Loud laughter	49
Groans	1
Applause	13
TOTAL:	643

Table 1: Responses

Table 2 tabulates the number of occurrences of the nine different humor-evoking devices. In addition, language-based moments of humor have also been tabulated. The most common device is the use of incongruous sounds. Language-based humor is next most common, followed by incompetence cues. Misquotation and metric disruptions are relatively rare in Schickele's music.

Devices	Instances
Incongruous sounds	208
Mixed genres	62
Drifting tonality	29
Metric disruptions	10
Implausible delays	23
Excessive repetition	25
Incompetence cues	108
Incongruous quotation	77
Misquotation	8
Linguistic	123
TOTAL:	673

Table 2: Devices

Are some humor-evoking devices more successful than others? In order to address this question one can look for an association between the various devices and the evoking of "loud laughter" compared with "slight laughter." To this end, separate tallies of the different devices were made according to the "loud laughter" and "slight laughter" response categories. Statistical tests were then carried out to determine if the proportions of the various musical devices differed significantly from the general proportions for evoked laughter. Only one device was found to be more associated with "loud laughter" -- the device dubbed "mixed genres." Using a chi-square test, mixing "high" and "low" styles was significantly more likely to evoke "loud" rather than "slight" laughter ($p<0.02$).

Another question is whether certain musical devices tend to co-occur. In the analysis, two main co-occurrences were evident. There were 38 joint appearances of incongruous sounds and incompetence cues. That is, bizzare sounds tended to also be played in a manner suggesting incompetent musicianship. In addition, there were 24 joint appearances of mixed genres and incongruous quotation. That is, juxtapositions of contrasting styles tended to rely on quotations of well-known tunes.

In examining Schickele's music, it appears that all of the laughter-evoking events can be plausibly linked to a violation of listener expectations. Most of these violations involve schematic expectations. A few involve violations of veridical expectations.

While instances of laughter might be attributed to violations of expectation, not all violations of expectation lead to laughter. For example, there is an asymmetry with respect to "high" and "low" culture. The interruption of a "high brow" minuet by a "low brow" popular tune is more likely to generate laughter than vice versa. It is probably the case that interrupting a string quartet with a bagpipe is funnier than interrupting pipers with a string quartet.

While laughter is not a common response to music, it appears to share much in common with frisson ("chills") and awe ("gasping"). All three responses appear to be evoked by musical passages that involve violations of listener expectations. Laughter appears to be linked to the greatest or most marked violations of expectation. Laughter is also facilitated by a context that appears to be overtly one of playfulness and parody. The interjection of "low art" gestures into ostensibly "high art" contexts provides an important signal of playfulness. Similarly, the use of absurd sounds in an ostensibly normal musical context also conveys the message that the intent is one of light-heartedness or a lack of seriousness. By contrast, the musical passages leading to frisson all occur in contexts that are typically appraised as serious, somber or solemn (Sloboda, 1991).

4. ACKNOWLEDGEMENT

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