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Towards a Typology of Surprise in Organ Music

Hacia una tipología de la sorpresa en la música para órgano

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Abstract

The current article is dedicated to the emotion of surprise in music. It is a part of a wider research on the musical surprise and its role in the aesthetical perception. The main aim of this work is to explore the origins of musical surprise with the purpose of developing a typology of this emotion in organ music. Based on the analysis of harmony, melody, rhythm, and dynamics of some musical compositions, an attempt is made to distinguish the features of the musical text that contribute to the arousal of the emotion of surprise. Furthermore, we inquire into the emotion of surprise induced in the studied cases and conclude that there exist three types of musical surprise.

Keywords: music for organ, music perception, music psychology, surprise, emotion.

Resumen

El presente artículo está dedicado a la sorpresa como emoción dentro de la música. Forma parte de una investigación más amplia sobre la sorpresa musical y su papel en la percepción estética. El objetivo principal de este trabajo es explorar los orígenes de la sorpresa musical con el propósito de desarrollar una tipología de esta emoción en la música para órgano. Con base en el análisis armónico, melódico, rítmico y dinámico de algunas composiciones musicales, se intenta distinguir las características del texto musical que contribuyen a despertar la emoción de la sorpresa. Además, se indaga en la emoción de sorpresa inducida en los casos estudiados, concluyendo que existen tres tipos de sorpresa musical.

Palabras clave: música para órgano, percepción musical, psicología de la música, sorpresa, emoción.

Introduction

This work is dedicated to the emotion of surprise in music. As one of the basic emotions, surprise plays an important role in the perception of music (Huron, 2019). The main aim of this research is to analyze the origins of musical surprise with the purpose of developing a typology of this emotion. The musical material for the study is limited to the music for organ solo. This choice is due to the fact that the organological features of the organ allow it to be considered both as a solo instrument and as an ensemble. Thus, it is hoped that the results of the research would be applicable to all types of European instrumental music: for solo instruments, chamber and orchestral music.

In order to define types of musical surprise it should be taken in consideration all aspects of the musical performance's perception: from the instrument's visual characteristics to the aural features of the musical composition. The current paper concentrates on the question of musical surprise originated from the musical text. Based on the analysis of the harmony, melody, rhythm, and dynamics of the musical work, it is studied which elements of musical text could contribute to the arousal of surprise. Furthermore, the results of this analysis are applied to formulate a hypothesis on the existing types of musical surprise. It should be remarked that existence of such elements doesn't imply that their perception as surprising is predefined. As it will be seen later, depending on the type of surprise aroused and mechanisms behind its arousal, some of the said elements may predispose to the arousal of surprise with no regard the listener's individual perception, yet some of them strongly depend on this latter.

Some final important considerations: (1) methodologically, this work has been conducted carrying out a theoretical analysis focused on a preliminary literature review, and (2) epistemologically, the cultural and historical subjectivity and specificity of music-triggered emotions is to be considered: some elements that cause surprise today could have been perceived as completely normal during the period when the piece was composed. However, music perception research in light of its historical context exceeds the limits of the current work.

Terminology

Initially, it has to be clarified the meaning of 'surprise'. The Cambridge Dictionary defines it as a "feeling caused by something unexpected happening" (n.d.). It is possible to observe that something can be unexpected in two ways: first, if nothing is expected; second, if the expectations weren't met. This corresponds to the definition of surprise suggested by the Italian philosopher Umberto Galimberti (2018) who defines surprise as an "emotion that arises when an unexpected or contrary to expectation

event occurs" (p. 1208).¹

In order to assure the clarity of further discussion, some new terms should be introduced. Let it be called the *unexpected absolute* if it is due to the absence of any expectations, and the *unexpected relative* if it refers to a contradiction with prior expectations. This terminology allows to distinguish two types of surprise: *absolute surprise* caused by something *absolutely unexpected* and *relative surprise* that is originating from *relatively unexpected*. Such classification reflects different surprise nuances and raises some fundamental questions: whereas surprise resides in time, so does there exist a moment of transition between the two types of surprise? Are there any other types of musical surprise? This paper seeks to reply to these questions based on the analysis of the musical text elements. The research is divided into four parts that correspond to the basic elements of the musical text: harmony, melody, rhythm, and dynamics, which – in case of the organ – are intrinsically connected to the timbre.

To better situate the current article in the field of studies on musical emotions, Patrick Juslin's *Musical Emotions Explained* (Juslin, 2019) explains that there are two known mechanisms linked to surprise: namely, brainstem reflex and musical expectancy. Brainstem reflex is a quick, automatic reaction to a sudden change in some acoustic feature such as *subito fortissimo* or an unexpected change of tempo (Juslin, 2019). This is a "hardwired," unlearned mechanism, activated when perceiving something *absolutely unexpected*. So, the elements that contribute to the arousal of absolute surprise are likely based on the activation of the brainstem reflex mechanism. These elements predispose to the arousal of this type of surprise regardless the listener's individual perception.

Contrary to this, the musical expectancy mechanism may strongly depend on the individual perception of the listener. As the name of this mechanism suggests, in this case it is implied arousal of surprise due to the contradictions with prior expectations. Juslin (2019) explains: "Musical expectancy refers to a process whereby an emotion is aroused in a listener because a specific feature of the music violates, delays, or confirms the listener's expectations about the continuation of the music" (p. 344). Such expectations may arise from some tensions in music or from some patterns perceived by listener in the musical piece. If in a musical event the expectations are not met, the listener may experience the emotion of surprise. Thus, using the terminology suggested in this paper, we can say that musical expectancy contributes to the arousal of this *relative surprise*. In this case, the individual perception of the listener plays a significant role.

¹ Original text: "Emozione che insorge quando interviene un evento inaspettato o contrario all' "aspettativa" (Translations by the author).

Dynamics and timbre

With regard to this category, it is important to consider the many possibilities of sudden, quick changes in dynamics and, consequently, in timbre, when playing the organ: *subito forte* or *subito piano* and the echo, very often used by North German masters, i.e. in Nicolaus Bruhns' choral fantasy *Nun komm der Heiden Heiland* (Bruhns and Brunckhorst, n.d., p. 40, mm. 52–56). Besides, the swift changes in timbre like in dialogue-imitating pieces that are often found in French baroque organ music. Louis Marchand's *Basse de Trompette* from his *Premier livre d'orgue* (Marchand, 1740) is a good example. Phenomenologically there is no way to predict such changes, nor it is possible to precise expectations since, unlike harmony – where expectations may be raised thanks to the natural laws regarding the relation between tones –, in the case of dynamics it is not materially possible to form any expectations. Therefore, this type of variation in dynamics or timbre is classified as one of the origins of the absolute surprise.

Another fundamental feature is the imitation of sounds that are not typical for organs, like the *Vogelgesang* ("bird song") stop. This stop is based on an elaborate construction of several pipes immersed in water (Adlung, 1931). This allows the production of a sound that imitates bird singing. This stop is not used often and, therefore, its sound may surprise the listener. A further example of non-characteristic sound for an organ could be the *Cymbalstern*, the rotating Christmas star, which produces the sound of tinkling by means of several bells attached to a star that rings when is turning (Wedgwood, 1905). Such sounds are not typical for the organ since they are not associated with a wind instrument. It seems appropriate to assume that hearing these stops, the listener would experience a contradiction with the expectation of hearing another kind of instrument. Hence, the use of such stops may be one of the origins of the relative surprise.

Finally, music for the organ, because of the specificity of the instrument, may also surprise the listener if the piece involves imitation of an instrumental ensemble. One of the most famous examples of such imitation is the trio. Johann Sebastian Bach's trio sonatas for organ BWV 525–530 (Bach, 1984) illustrate this case perfectly. Technically-difficult pieces where the organist plays three different instruments at the same time, using two manual keyboards and the pedal keyboard. Another example could be a melody played over a sort of sound background, as in *Tierce en taille* from L. Marchand's *Premier livre d'orgue* and in Johannes Brahms's choral prelude *Herzlich tut mich verlangen* op. 122 n° 10. In all three examples, there is a contradiction between the number of players and the number of instruments or parts that are actually perceived. In view of this discrepancy, it is possible to assume that the imitation of an instrumental ensemble in organ music can induce the emotion of relative surprise.

Thus, an analysis of dynamics and timbre leads to argue about three possible origins of surprise: (1) the changes in dynamics and timbre, which correspond to absolute surprise; (2) the sounds not typical for organ, and (3) the imitation of an ensemble, producing relative surprise.

Harmony

There are two possible types of unexpected harmonic development that could originate musical surprise: (1) avoiding harmonic closure, and (2) original harmonic sequences.

Harmonic closure may produce contradictions with expectations by raising unfulfilled expectations in the listener. According to some major studies in music perception (Rosner & Namour, 1992), the most expected cadential sequence in Western music is the authentic one – where the V degree is followed by the I degree – and is always perceived as the most closed. Since V is the closest harmonic to I (if the octave differences are not taken into account), it is natural to remark this link because is based on the natural laws of physics. So, hearing a cadence, the listener normally expects that V (or, in case of plagal cadence, IV) degree will be followed by a I degree chord. Even more, the listener expects that this would constitute a perceptible end of the current musical idea.

Thus, harmonic closure may be avoided by giving preference to the deceptive cadence (for example, C. Merulo's *Toccata undecimo detto quinto tuono*, mm. 3-4) as well as by continuing the musical idea immediately after the cadence (for example, in J.S. Bach's *Praeludium and fugue in e minor*, BWV 548, mm. 18-19). In these cases, the listener may experience contradiction with own expectations, which would give rise relative surprise.

Using innovative, distinctive harmonic sequences is the second case of harmony-related behavior. Though cadences can elicit a sense of relative surprise, innovative and distinctive harmonic sequences seem capable of evoking absolute surprise. If the composer creates harmonic sequences that do not conform to the traditional, classical aesthetics of Western art music – culturally affordable – canon, the listener may be confronted with a musical phenomenon that does not provide material for formulating precise expectations about what will come next. The *Toccata septima* from Johann Ernst Eberlin's *IX Toccate e fughe per organo* (Eberlin, 1747) can illustrate this origin of absolute surprise since the listener has no expectations about what he perceives.

Melody

It is possible to distinguish two cases of melodic elements that could cause surprise: the usage of accidentals and the melodic jumps. About the accidentals, it is implied their usage in the melodic realm without considering the harmonical spectrum, because often they contradict the

However, the change in movement may also happen on the level of the note value. For example, if a triplet turns to a quadruplet like in the fragment of Naji Hakim's *O filii et filiae* from his *Esquisses Grégoriennes* (see Fig. 3). As in both cases a sudden change is faced without any way to predict it, this case can be viewed as a possible origin of absolute surprise.



Figure 3

N. Hakim, *O filii et filiae* (m. 16).

The second case is the relation between different meters. For example, in the themes of the Italian *canzona*. A *canzona* has at least two parts based on imitative polyphony: the first part is in double meter; the second one, in triple meter. The subjects of both parts are, melodically, almost the same. Though, they differ in rhythm, which necessarily requires corrections to the melody even though it remains recognizable. Thus, in the *canzona*, already knowing the theme in its double meter version, with the start of its triple meter variant, the listener may experience a contradiction with the own expectations. If the melody is familiar to the listener in one meter, its transformation in accordance with the requirements of another meter should be classified as a cause of relative surprise.

The third rhythm-related case is the use of silence as a form of music. In this way, the silence, which is often intuitively perceived as absence of music, is involved as a full participant of the musical text. In the book *Il discorso musicale: per una semiologia della musica*, Jean-Jacques Nattiez (1998) recognizes two types of silence: silence outside music and silence in music. For this second type of silence, he distinguishes three categories: "the silence considered as a part of the musical piece itself and which the listener can access by the sounds it contains, the silences of expectation in classical music and the silences considered as values in the full sense in modern music" (p. 15)². These categories can be considered as background silence, silence

of expectation, and silence per se accordingly.

The background silence can be understood as the sound of the white background of the score. Silence per se, which has received particular attention in contemporary music, is the silence that participates in the music as such. A bright example of such silence is John Cage's *4'33"*. As a part of a musical piece, silence per se underlines its own value and its particular role in music. This is all the more important because intuitively silence is often understood as the absence of music. Therefore, by using silence per se, composers draw attention to this misperception and emphasize the idea of silence as a form of music. Silence per se can be surprising for the listener since it creates a contradiction with the expectations of hearing a sound. It can, therefore, be one of the origins of relative surprise.

Silence per se represents a limited case of the silence of expectation. However, the role of the silence of expectation is mainly related to the dramatic effect that it may give. Such an effect is achieved by arousing intense emotions in the listener.

As in the musical text, silence of any kind is represented by pauses, so the silence of expectation can be linked to the notion of pause of expectation. By means of such pause, the composer invites silence, often perceived as the absence of music, to become a full participant in the musical text. There are many examples in the early-twentieth-century French organ music, as in the Finale of Louis Vierne's sixth symphony for organ (Vierne, 1931) (Fig. 4).

The pause of expectation may cause a contradiction with the sound expectation: it is one of the relative surprise origins. Simultaneously, the pause of expectation, actually being the absence of sound (but not of music!), does not provide any material to formulate more or less concrete expectations about what will be heard subsequently. So, the musical material that follows the pause may induce an absolute surprise. The pause of expectation, ultimately, may constitute the point of transition from relative to absolute surprise.

To analyze this hypothesis, the King's theme in J. S. Bach's Musical Offering is invoked again. It has been already observed that the jump on the seventh may cause relative surprise. Then, the following pause of expectation triggers a relative surprise again, which is even more intense as the pause falls on the strong beat. Since the pause contains no sound material to formulate precise expectations, it can induce uncertainty about next sounds. Therefore, the note G that follows the pause may prompt an absolute surprise, confirming the aforementioned hypothesis.

Types of musical surprise

Until now, ten possible origins of surprise have been determined throughout selected examples of the music for organ. Partly they correspond to absolute surprise, partly to relative surprise. There are also ambiguous cases.

2 Original text: "Il silenzio considerato parte stessa dell'opera musicale e che viene indicato all'ascolto dello spettatore per i suoni che esso contiene, i silenzi di attesa della musica classica e i silenzi considerati come valori a pieno titolo nella musica moderna."

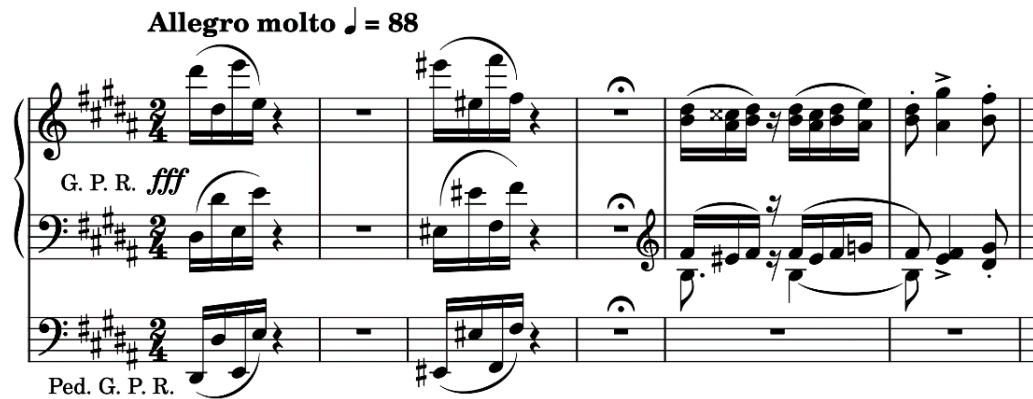


Figure 4
L. Vierne, *Symphonie VI op. 59 n. 6* (mm. 1–6).

All these observations are summarized in Figure 5, based on the classification according to the four aspects of the musical text. For each possible origin of surprise, it is indicated whether it elicits relative (Rs) or absolute surprise (As). The ambiguous cases are marked as Rs/As (this type of surprise aroused depends on the listener’s perception).

Attempting to group the possible origins of a musical surprise according to the type of surprise aroused, there are three groups:

(1) the first group would include three possible origins of absolute surprise, which are: original harmonic sequences, changes in movement, and changes in dynamics and timbre; (2) the second group would consist of five origins of relative surprise: avoiding harmonic closure, relation between different meters, imitation of sounds not characteristic for the instrument, imitation of an ensemble of instruments, and pauses of expectation; (3) the third group would include the two ambiguous cases: accidentals and melodic jumps.

In these latter cases, it is uncertain whether the listener would experience the emotion of relative or absolute surprise. This ambiguity is due to the strong dependence of individual perception on subjective experience and on the cultural context related to the sense of natural relations between tones. Therefore, a new type

of surprise emerges: the ambivalent surprise, which may be interpreted both as absolute and as relative depending on the listener’s perception.

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Harmony	Melody	Rhythm	Dynamics & Timbre
Avoiding harmonic closure (Rs)	Accidentals (Rs/As)	Changes in movement (As)	Changes in the dynamics and in timbre (As)
Original harmonic sequences (As)	Jumps (Rs/As)	Relation between different meters (Rs)	Sounds not characteristic for the instrument (Rs)
		Pauses of expectation (Rs)	Imitation of an ensemble of instruments (Rs)

Figure 5
Types of musical surprise.

Final Considerations

Concerning the case of surprise aroused by inner elements of musical text, three types of surprise can be identified: relative, absolute, and ambivalent surprise. As soon as this last type of surprise has entered the game, the question of the point of transition between relative and absolute surprise becomes even more important.

In search of such a point – a moment when specific expectations would disappear –, it has been observed that the transition might happen because of sudden melodic jumps, even though it depends on subjective perception. A less perception-dependent case is the pause of expectation, being during this pause that transition from relative to absolute surprise takes place. It is necessary that the pause of expectation should occur in all voices to be perceived and be effective.

Furthermore, searching for a point of transition in the opposite sense, from absolute to relative surprise, does not seem to make sense, given that absolute surprise in the timeline takes only an instant and has no tendency to last.

Given that absolute surprise constitutes a moment, and that relative surprise corresponds to an interval of time, it is possible to illustrate their dependence on time and the intensity of the emotion experienced (Fig. 6). Relative surprise is characterized not only by high intensity and duration but also by a dynamic intensity³, and can be both positive, represented on the diagram in the upper area, and negative, in the lower area.

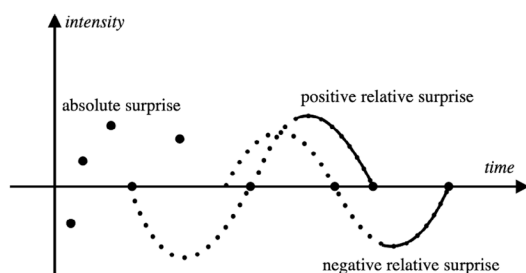


Figure 6

Time relation between absolute and relative surprise.

So, while relative surprise could be represented as a fragment of a wave, absolute surprise could be represented by a point. Surprise reveals its absolute or relative character according to the conditions of the aesthetic perception and therefore according to the mechanism activated that makes it being experienced: brainstem reflex in case of absolute surprise or musical expectation in case of relative surprise. Also it has been distinguished a moment when, with a very high probability, relative surprise would cease to be and would give rise to an absolute surprise. It could be

³ Otherwise, relative surprise would be experienced during an infinite interval of time, which is not possible.

supposed that in this very transition point between relative and absolute surprise both mechanisms (brainstem reflex and musical expectation) seem to be employed, reinforcing the effect of each other. Since the perception of music depends on a large number of factors, an estimation of the probability of their different combinations seems inevitable for any research on the subject. This makes the study of music perception one of the most demanding, but also one of the most interesting because of the ample spectrum of possibilities.

The current study is only a part of an ongoing research on this topic. The analysis presented in this article may be enriched by a study on the value of musical surprise and the role of surprise in the development of artistic thought. Furthermore, the observations made in the study and its results may be tested in a corresponding empirical study. In addition to this, a study on the perception of music by professional musicians could lead to the possibility of approaching a more complete picture of the musical surprise context.

Finally, the study did not consider whether the listener is familiar with the music or not. It seems that each time a musical piece is perceived, it is re-experienced from the emotional reactions perspective. This phenomenon was also observed by Wittgenstein and Barrett (2007) and it suggests the question of the relation, on one hand, between musical emotions and ordinary emotions, and on the other hand, between musical emotions and memory. These questions undoubtedly deserve particular scientific attention and constitute subjects for further research.

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